

Ghana

Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Main report and annexes

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Map of the Project Area



The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

Map compiled by IFAD | 08-10-2019

Abbreviations and Acronyms

1D1F	One district One factory
AA	Accounts Assistant
AAFORD	Affordable Agricultural Financing for Resilient Rural Development
ABC Fund	Agri Business Capital Fund
AfDB	African Development Bank
AOS	Annual Outcome Survey
APC	AAFORD Procurement Committee
ARB	Association of Rural Banks
AWPB	Annual Work Plan and Budget
BAC	Business Advisory Centre
BFF	Blended Finance Facility
BoG	Bank of Ghana
BRC	Business Resource Centres
CA	Conservation Agriculture
CBO	Community-Based Organisations
CES	Climate and Environment Specialist

CGS	Community Development, Livelihood and Gender Specialist
CI	Community Institutions
CODP	Community Outreach Development Plan
CPC	Central Project Coordinator
CSCG	Community Savings and Credit Groups
DFS	Digital Financial Services
FBO	Farmer-Based Organisations
FIS	Field Implementation Supervisor
FIs	Financial Institutions
GAIP	Ghana Agricultural Insurance Pool
GAP	Gender Action Plan
GCF	Green Climate Fund
GCX	Ghana Commodity Exchange
GDP	Gross Domestic Product
GHAMFIN	Ghana Microfinance Institutions Network
GHG	Greenhouse Gases
GIRSAL	Ghana Incentive-based Risk Sharing System for Agricultural Lending

GMA	Ghana Meteorological Agency
IBP	Institutional Business Plans
IBP	Institutional Business Plans
ICB	International Competitive Bidding
ICO	IFAD Country Office
ICT	Information and Communications Technology
ISU	Implementation Support Unit
IFAD	International Fund for Agricultural Development
KM	Knowledge Management
LPIA	Lead Project Implementation Agency
LTR	Letter to the Recipient
MCC	Micro Credit Company
MDG	Millennium Development Goal
MEF	Monitoring and Evaluation Focal Point
MFC	Micro Finance Company
MFIs	Microfinance Institutions
MIS	Management Information System

MNDPF	Medium-Term National Development Policy Framework
MoF	Ministry of Finance
MoFA	Ministry of Food and Agriculture
MoMo	Mobile Money
MoTI	Ministry of Trade and Industry
MSME	Micro, Small and Medium Enterprises
MTR	Mid-term Review
NCS	Non-consulting Services
NFIDS	National Financial Inclusion and Development Strategy
NGO	Non Governmental Organisation
ORMS	Operational and Results Management System
OVCF	Outgrower and Value Chain Fund
PA	Project Accountant
PFI	Participating Financial Institution
PIM	Project Implementation Manual
PO	Procurement Officer
PrA	Procurement Assistant

PSC	Project Steering Committee
PTC	PSC Technical Committee
RADUs	Regional Agricultural Development Units
RCBs	Rural and Community Banks
RDF	Rural Development Fund
REDF	Rural Enterprise Development Fund
REP	Rural Enterprises Programme
RMFI	Rural Microfinance Institutions
S&L	Savings and Loan Company
SEA	Sexual Exploitation and Abuse
SECAP	Social, Environmental and Climate Change Assessment Procedures
SFM	Senior Finance Manager
SMES	Senior Monitoring and Evaluation Specialist
SP	Service Providers
SRFS	Senior Rural Finance Specialist
TA	Technical Assistance
ToT	Training of Trainers

USD	United States Dollars
YCF	Youth Community Facilitator
YII	Youth Institutional Intern
ZPC	ZPCU Project Coordinator
ZCU	Zonal Coordination Unit
ZP	Zonal Platform
ZTC	ZSC Technical Committee

Executive Summary

Overview^[1]: The Affordable Agricultural Financing for Resilient Rural Development (AAFORD) project aims to support the food security and improved living standards of smallholder farmers, poor and vulnerable women and youth. These objectives will be achieved through improved marketing linkages, sustainable and climate change adapted agricultural intensification, skills and enterprise development in agricultural value chains, increasing access to affordable finance, supporting inclusive policy engagement and building on women and youth potentials as untapped resources for family resilience. The programme duration is six years. The target outreach is 75,000 households (540,000 household members) comprising 75,000 households who will directly benefit from the full range of AAFORD's interventions and in addition, 15 000 households, located in communities outside the AAFORD clusters, who will indirectly benefit from the specialised financial and marketing services of the AAFORD supported financial and marketing intermediaries (financial institution and off-takers). AAFORD will reach the target households across 350 villages in 30 pro-poor value-chain based community clusters.

Benefits: The key benefits of AAFORD include: i) 5 per cent reduction in the number of rural households living below the poverty line in the AAFORD supported districts; ii) 60 per cent of target households reporting an increase in income; iii) 60 per cent of target households reporting yield improvement and decrease in food insecurity; iv) 30 per cent reduction in 0-5 year child malnutrition in the AAFORD communities; v) 50 per cent of women reporting improved quality diet; vi) At least 25 per cent of the targeted households reporting adoption of environmentally sustainable and climate resilient technologies; vii) Approximately 45,000 households benefitting from a combination of concessional loans, warehouse receipts and microinsurance services; viii) At least 1,500 full time equivalent youth jobs created in expanded agricultural production, off-takers and value chain enterprises; ix) Approximately 12,500 households engaged in rural income-generating activities; and x) Two policies or strategies proposed to policy makers for approval, ratification or amendment.

Project area: AAFORD will implement its activities in two geographical zones: i) the Northern zone in the Northern belt of Ghana corresponding to the erstwhile Northern region which currently comprises the Northern, Savannah and North-east regions; and ii) the Middle zone, which currently consists of the Bono, Bono East and Ahafo regions. The geographic area is identified based on high rural population (3 million people), high poverty levels (46 per cent), the prevalence of food insecurity (16 per cent) and malnourishment, high inequality levels, high impact of climate change and climate variability, gender and youth gaps in agriculture, alongside the prevalence of economic opportunities and presence of participating financial intermediaries (PFIs) and off-takers relevant to AAFORD's implementation. The two zones are adjacent and offer AAFORD with a contiguous project area for ease of project management and coordination.

Value chain partnership approach: AAFORD will follow a value chain partnership approach focusing on developing profitable linkages between producers, off-takers and PFIs. It will support business models that: i) target households to develop profitable marketing linkages with off-takers (typically nucleus farmers, processors and aggregators) and increase their income; and ii) facilitate PFIs to finance the implementation of these business models at affordable terms. AAFORD will integrate target households in the off-taker marketing linkages by: i) supporting the capacity building of the farmers to improve their production practices, productivity and quality according to the needs of the off-takers; ii) strengthening Farmer-Based Organisations (FBO) and increasing target households' membership in the FBOs; iii) brokering marketing linkages between the FBOs and off-takers based on a business plan (BP) approach; and iv) supporting PFIs to partner with agricultural credit guarantee and agricultural insurance initiatives, improve agricultural lending capacities, and access concessional credit funds and incentives from the AAFORD-supported Blended Finance Facility (BFF) in order to reduce the interest rates on agricultural loans.

Pro-poor value chain based community cluster selection: AAFORD will follow a pro-poor value chain based approach for clustering communities, focusing project interventions on a group of 10-15 communities that serve as a recognised production base of one or more pro-poor commodities such as sorghum, maize and cassava and are located in areas served by an existing financial institution and Business Advisory or Resource Centre (BAC/BRC). Crops with high nutritional value will receive higher priority. A higher concentration of poverty will be considered while selecting the clusters. Preliminary mapping and identification of the clusters of communities will be carried out with the support of existing IFAD projects (GASIP and REP) active in the AAFORD project areas. The cluster selection process will also consider that the selected clusters are distributed across the poorer districts and not concentrated in just 1-2 districts.

Target group: AAFORD direct beneficiaries are classified into five target groups mainly based on poverty level, land ownership and access to markets. These are i) smallholder semi-subsistence households (80 per cent of direct outreach) who have up to 2 Ha cultivable land and suffer from low production/productivity, weak bargaining power, income uncertainties, periodic food shortages and nutrition deficiencies; ii) market-oriented smallholder households (18 per cent of direct outreach) who own 2-10 Ha of cultivable land and are more likely to be lead farmers, members of FBOs or part of a contractual outgrower arrangement; iii) large farming households (2 per cent of direct outreach) who own more than 10 Ha cultivable land, are literate and influential in their communities and serve as transformation drivers and essential channels for finance, marketing and services to the smallholders; iv) youth, ages 18-35 (40 per cent of direct outreach) currently engaged full time or part-time in agricultural production, unemployed or seasonal workers and young graduates interested in applying their skills in the agriculture sector; and v) women (50 per cent of direct outreach) with limited opportunities for economic engagement.

AAFORD Components: AAFORD has two inter-related technical components, namely: Component 1: Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains; and Component 2: Expanding and Directing Affordable Finance in a Conducive Environment. Component 3 focuses on Project Implementation Support.

Component 1 provides technical assistance (TA) for the development of sustainable and climate-resilient agricultural value chains. The expected outcome is enhanced capacity for target groups to access affordable financing, which will lead to increases in smallholder farmers' marketed surpluses and household welfare and increased business for financial institutions. This component focuses on TA to: (a) smallholder farmers and their associations, to introduce Good Agricultural Practices (GAPs) and access financial and marketing services compatible with their needs in order to raise productivity and surpluses; (b) rural households (especially women and youth) to improve their livelihoods, health and financial inclusion; (c) nucleus farmers, aggregators and

processors, to intermediate between smallholders and the input, product and financial markets that enable them to expand production; and (d) financial intermediaries and market-enhancing institutions that provide instruments to help mitigate financial risks. It also supports the outreach of institutions to the target groups and their intermediaries to meet the conditions for market transactions to take place and utilise the funds available through Component 2.

Component 1 has three subcomponents. Subcomponent 1.1 works to build up demand by identifying the potential, constraints and needs of key target groups (smallholders, women, youth) at the community level, providing TA that increases their knowledge of improved agricultural practices to raise productivity, financial and business skills, and by working through groups to access markets and finance. Subcomponent 1.2 similarly identifies opportunities at the level of intermediary institutions in both marketing (offtakers, such as nucleus farmers, processors and aggregators) and finance, building their capacity and adapting their products to serve the key targeted groups. Subcomponent 1.3 bridges the gap by supporting institutions to reach out and market their products to the key target groups and intermediaries.

Component 2 is for expanding and directing affordable finance in a conducive environment. The expected outcomes are increased outreach and uptake of affordable finance and supporting instruments (especially by smallholder producers); enhanced knowledge enabling the replication of good practices, and an improved policy framework. Acting as a multi-stakeholder platform, this component will support the availability of affordable finance for selected agricultural value chains through blended finance, to make credit and risk mitigation instruments available on concessional or blended terms. Together with capacity-building of both the demand and the supply sides in Component 1, this component is expected to bridge the gap that has excluded smallholder producers and their intermediaries from access to affordable finance. In addition, studies will be undertaken to document good practices and lessons learned, to support replication and help improve the enabling environment.

Component 2 has two subcomponents. Subcomponent 2.1 establishes a Blended Finance Facility (BFF) through the Bank of Ghana and ARB Apex Bank to make concessional credit and results-based grants available for loans and supporting risk mitigation instruments (such as guarantees and insurance) for AAFORD-targeted beneficiaries. The expected outcome is expanded availability of affordable finance and market-enhancing instruments directed to smallholder production and key intermediaries in selected agricultural value chains, to realize the benefits of capacity-building on the demand side (Subcomponent 1.1) and on the supply side (Subcomponent 1.2). The BFF will be estimated based on a demand survey and supported through business planning referred to in Subcomponents 1.1 and 1.2 and by outreach activities referred to in Subcomponent 1.3. Interest rates at the wholesale and retail levels will be negotiated through the multi-stakeholder platform established in Subcomponent 2.2, taking into consideration the supply-side sustainability and the demand-side producers' reasonable returns on investment for poverty reduction, with the grant window available to help close gaps and incentivize the use of risk-mitigating instruments (especially agricultural insurance) needed to support loan portfolios for agricultural production.

Subcomponent 2.2 is intended to enhance the environment for market access. The expected outcomes are the replication of success cases based on lessons learned, by engaging stakeholders in a learning process and sustainable policy dialogue, enabling improvements in the overall framework to address the current weaknesses that inhibit public and private investment in agricultural value chains. Conducive policy dialogue, forums and stakeholder engagement and coordination are needed to improve the quality and efficiency of regulatory and institutional systems that govern access to key agricultural factors, particularly for smallholder farmers. The use of evidence from studies and key lessons learned will provide a basis for replicating and scaling up successful models and will help support improvement of the policy and legal framework.

Component 3 deals with project implementation support. The Government's lead agency will be the Ministry of Finance (MoF) in close collaboration with the Ministry of Food and Agriculture (MoFA), and, the Ministry of Trade and Industry (MoTI). These ministries will form the core of an inter-ministerial platform by ministers to provide policy guidance and consistency with government's development agenda. It shall have an annual meeting cycle. In addition, a high-ranking Project Steering Committee (PSC) will be set up for overall policy decisions and guidance at the central level. A Zonal Platform (ZP) will be formed in each AAFORD implementation zone to oversee planning, review progress, facilitate linkages between project stakeholders and remove bottlenecks affecting smooth implementation. A two-level organisational structure will be established. The Implementation Support Unit (ISU) located in Sunyani and two Zonal Coordination Units (ZCU); one in Sunyani and the other in Tamale. Each ZCU will be roughly anchored in the jurisdiction of the former Brong-Ahafo and Northern regions. The ISU will provide oversight for the implementation of AAFORD with all staff members competitively recruited from the professional labour market to work on a full-time basis. A Central Project Coordinator (CPC) will head the ISU's day to day operations. The CPC will be assisted by a central technical support team and a central operations support team. The ZCUs will carry out project implementation at the zonal and community levels with the support of capacity building service providers assisted by Community Institutions (CIs), Young Community Facilitators (YCFs) and Youth Institutional Interns (YIIs).

Project costs and returns: The total project costs of US\$69.7 million will be financed by i) IFAD US\$15 million (IFAD Loan of US\$ 11.5 million and IFAD Grant of US\$ 3.5 million) ; ii) AGRA (US\$1 million parallel financing); iii) GCF (US\$9.9 million); iv) GoG (US\$25.9 million of which US\$7.9 million as taxes and duties exemptions, US\$11.4 million as contribution through GIRSAL risk-sharing facility, US\$6 million as REP revolving funds contribution and GoG project management contribution of US\$0.6 million); (v) Partnering Financial Institutions (US\$4.3 million); (vi) ABC Fund (US\$4.3 million); (vii) AfDB (US\$3.5 million); and (viii) Beneficiaries (US\$5.8 million cash, casual labour, in-kind contributions, inputs and equipment). The Net Present Value (NPV) is positive (US\$8.9 Million; GHS 53.5 Million). The Economic Internal Rate of Return (EIRR) is 28 per cent.

Environmental and social category: In line with IFAD's Social, Environmental and Climate Change Assessment Procedures (SECAP), AFFORD remains classified as a Category B program, implying that AFFORD is likely to cause minimal adverse environmental effects. Two key risks to environmental and social management are: (i) poor environmental governance of the loan products, which can be mitigated through capacity building of multiple actors in technical, management and governance aspects, and strengthening the financial institutions environmental and climate risks tools and governance; and (ii) low productivity and degraded natural resources to be mitigated through promotion of sustainable land and water management practices. AFFORD will not invest in high risk projects and will ensure the women and youth are included.

Climate risk classification: In line with the climate risk categorization guidelines, AFFORD is rated 'high'. The climate-smart activities introduced by AFFORD will ensure that greenhouse gas (GHG) emissions are further reduced. Capacity building of key actors along the agricultural value chains on climate change and awareness will help end beneficiaries' and financial institutions to reduce key risks. Given the fact that 2 regions have different level of climate exposure, AFFORD will ensure that an Environmental and Social Management Plan in the SECAP is implemented in line with IFAD guidelines to ensure that the overall logic intervention of the Project and its components/activities are aiming not only to mitigate/alleviate any of the existing and future negative environmental and impacts within the total project's area but additionally to produce substantive positive impacts on beneficiaries through the mainstreaming.

Synergies and Partnerships: AAFORD will partner with the African Development Bank (AfDB) supported Ghana Incentive Based Risk Sharing for Agricultural Lending (GIRSAL) to support de-risking agricultural loans, Ghana Agricultural Insurance Pool (GAIP) to enable target households' access to agricultural insurance services, Ghana Commodity Exchange (GCX) for enabling target households access certified warehouse and warehouse receipt linkages and the Alliance for a Green Revolution in Africa (AGRA) for policy engagement support. AFFORD will also develop complementarities with other relevant projects such as the Savannah Investment Programme (SIP) of the African Development Bank, the KfW supported OVCF and the DANIDA supported Rural Development Fund (RDF) for developing value chain financing linkages in the project areas. Similarly, it will develop complementarities with other Government of Ghana (GoG) initiatives such as the Planting for Food and Jobs (PfJ) and One district One factory.

Innovation and scaling up: AAFORD will introduce a set of process innovations, technical innovations, and partnership innovations to overcome past challenges, increase employment, and support scaling-up and replication. Process innovations will focus project implementation on clusters of communities in a manageable geographical area to ensure outreach of benefits to the intended target groups, deploy cluster facilitators and youth interns to support target households from close range, develop cluster outreach development plans (CODP) for harmonised implementation of different components at the community level; Technical innovations will support the BFF to address the void in affordable agricultural finance for smallholder farmers, increase the affordability and outreach of agricultural microinsurance services to smallholder farmers, link smallholder farmers to certified warehouse facilities and introduce warehouse receipts to benefit target households; Partnership innovations will include coordination with other ministries, donor initiatives and investment funds.

Exit strategy and sustainability: AAFORD's exit strategy and sustainability is built on: i) Developing profitable and sustainable marketing linkages between private-sector buyers/offtakers and target households which will generate profits both for the target households and the off-takers – once the administrative bottlenecks in these linkages are removed through AAFORD support, their business relationships will continue based on market demand and supply principles; ii) Successful engagement of PFIs in supporting the pro-poor business linkages between off-takers and producers, which will develop the pathway for AAFORD to make a smooth exit; iii) Arrangements to continue revolving funds repaid into the BFF; (iv) Policy dialogue and suitable policy engagement to strengthen the enabling environment and facilitate smooth continuation of the AAFORD brokered partnerships; v) Strengthened community institutions and human capacities achieved through their institutional capacity, financial capacity and technical capacity development so that they can continue providing services to target households even after AAFORD; vi) Developing a network of commercial service providers who will continue supporting and replicating AAFORD's achievements and vii) Widely disseminating the AAFORD success stories and their implementation mechanisms.

1. Context

A. National context and rationale for IFAD involvement

a. National Context

- Economic and political context** Ghana became a lower middle-income country in 2011, with an annual income per capita of US\$1,490. In 2015, Ghana achieved the Millennium Development Goal (MDG) 1: to halve the proportion of people living in extreme poverty^[2]. GDP per capita reached US\$2,260 in 2019. Annual GDP growth averaged 6.6 per cent from 2000 to 2013 and then increased to 14 per cent in 2014 driven by oil, followed by a few years of an economic slowdown from the sharp drop in oil prices. The economy started recovering in 2017 with the growth of 8.1 per cent and the growth in 2019 is projected to be 8.8 per cent, the highest in the world.^[3] However, the economy is highly dependent on the export of a limited number of commodities, in particular, gold, cocoa and oil, and consequently remains vulnerable to commodity price shocks. The inflation rate is around 9.2 per cent; unemployment is about 2.4 per cent. Ghana's political environment continues to be stable with the new president elected in 2017. Ghana is ranked 114 among 190 economies in the ease of doing business, according to the latest World Bank annual ratings. The rank of Ghana improved to 114 in 2018 from 120 in 2017 and the country attract investors particularly in the agricultural sector.
- Poverty:** The Ghana Living Standard Survey (2012) defines a lower poverty line as 792 GHS per adult per year, focusing on what's necessary to meet the nutritional requirements. The Upper poverty line is set as 1,314 GHS per adult per year, incorporating both essential food and non-food consumptions. Out of the total population of 28.8 million about 23 per cent, equivalent of 6.8 million people, is poor. The percentage of the people in poverty has declined by 8.5 per cent since 2006, but the rate of poverty reduction has been slow for the last four years - it has fallen only 0.8 per cent. This impressive economic growth has not been sufficient to accelerate growth and poverty reduction and growing inequalities. Disparities in poverty follow geographic and gender lines. Geographically, rural poverty is almost five times high when compared to urban poverty. The rural population is around 45 per cent out of the total population of 28.8 million. However, without considering the Greater Accra and Ashanti regions, which have significantly higher urban people, the rural population reaches up to 60 per cent in the rest of the

country. Approximately 40 per cent of the population is in poverty in rural areas, while 7.8 per cent is in the urban areas.

3. The rural areas of Northern Ghana have a higher incidence of poverty with 71 per cent poverty reported in the Upper West Region, 61 per cent in the Northern Region and 55 per cent in the Upper East Region.^[4] In the central regions of Ghana, referred to as the middle belt, poverty has shown declining trends, but the rate of people in extreme poverty remains higher than the national average. For example, 27 per cent of the population live in poverty in the Brong Ahafo region, 13 per cent in the Eastern region and 12 per cent in the Ashanti region^[5]. Fewer opportunities for intensifying and commercialising agriculture, poor access to credit, input and output markets and advisory services drive poverty in the rural areas. The literacy rate remains high and is as low as 35 per cent in the Northern regions. Limited access to power also inhibits commercial agricultural activities. Post-harvest losses are high and are attributed partly to the lack of access to storage and drying facilities.
4. About 62 per cent of female-headed households fall in the poorest wealth quintiles compared to 39 per cent of male-headed households. The gender gap exists as women have limited access to credit, extension services, new technologies, inputs and output markets. Unemployment of youth is a growing concern in Ghana caused by qualification and skills gaps and shortage of economic engagement opportunities. Youth unemployment reached 13.7 per cent in 2018 after increasing 4.4 per cent from the lowest rate of around 9.3 per cent attained in 2006. Women and youth's economic dependency on the family has increased due to these factors and have contributed to poverty. Persons with disabilities are among the most vulnerable groups in Ghana. The 2010 Population and Household Census determined that there were 737,743 persons with some form of disability, representing 3 per cent of the total population (2010 Population and Household Census).
5. **Agriculture Development:** The agricultural sector accounts for one-fifth of Ghana's Gross Domestic Product (GDP). The sector is an essential contributor to Ghana's export earnings, and a significant source of inputs for the manufacturing industry with two-thirds of non-oil manufacturing depending on agriculture for raw materials. Agriculture contributes 21.2 per cent of the GDP. In 2017, Ghana exported US\$17.1 billion in agricultural products resulting in a positive trade balance of US\$3.9 billion.^[6] The top export destinations are India, China, Switzerland, South Africa and the Netherlands^[7] and the principal agricultural exports are cocoa, timber, horticultural products and fish.^[8] Around 71 per cent of formal employment in rural areas is in the farming sector, indicating the importance of increasing agrarian incomes as a means of lowering rural poverty.^[9] Agribusiness has a very high multiplier effect on employment, creating over 750 jobs for every additional US\$1 million of output^[10]. Yet, agricultural growth is affected by low productivity and competitiveness. Rainfed agriculture is practised in around 96 per cent of the farming area, informal private small-scale irrigation is prevalent in 3 per cent of the area and formal irrigation covers 0.4 per cent of the agricultural lands. Agricultural imports are substantial, reaching US\$13.2 billion in 2017 mainly through the imports of wheat, rice, chicken (frozen), milk and fish.
6. *Smallholder agriculture:* Approximately 85 per cent of farming households own less than 10 Ha of land and are considered smallholders. More than two-thirds of these smallholders own less than 2 Ha cultivable land, resulting in a large group of poor semi-subsistence smallholder farmers. In the northern part of the country, the poor semi-subsistence farmers produce mainly soya, maize, sorghum, millets, groundnuts and rainfed rice; while those in the middle portion rely more on cassava, plantain, maize and cashew nut production. In both areas, these farmers produce vegetables such as tomato, pepper, cabbage, carrots and eggplants for subsistence and supplementary income. The semi-subsistence smallholders primarily practice rain-fed, subsistence-oriented and manual-labour intensive farming practices and depend mainly on family labour. They often suffer from inadequate and uncertain income resulting from low crop productivity, weak farmers' institutions, limited market linkages, gaps in access to market infrastructure and limited post-harvest support, as elaborated below. Smallholders are the most vulnerable to climate change with the capacity to adapt. In addition, rural livelihoods are undermined by poor water and sanitation supply, as well as poor and limited infrastructure (rural roads, electricity, schools, health facilities and communication infrastructure), inadequate access to land and land tenure insecurity constrain agricultural development, and limit private sector investment and credit financing,^[11] mostly affecting women and youth.
7. Low crop productivity is a significant challenge with actual yields of most crops recorded at 50-60 per cent below their potential. Low productivity arises from limited access to good quality agricultural inputs, outdated technologies, lack of access to mechanised services, inadequate pest and disease management, limited access to rural advisory services and gap in the access to affordable rural finance^[12]. Other factors such as land degradation, climate change and variability (drought, floods) and soil nutrient depletion also affect production more prominently in the Northern regions. Due to the low crop production and productivity, the semi-subsistence smallholders suffer from low bargaining power and depend mainly on low prices offered by traders and local markets resulting in low and uncertain levels of income. Weak marketing linkages has developed smallholders' dependence on selling small quantities of produce (such as processed cassava, plantain and vegetables) in the local retail markets on an individual basis and on traders who visit the villages occasionally to purchase commodities at low prices. Smallholders linkage to high-value offtakers is generally missing though in some places they have linkages to local processors. The Ghana Commodity Exchange (GCX) which provides farmers with access to certified warehouses require minimum one-ton produce and has strict quality requirements to avail the facility which is beyond the immediate capacity of most smallholders. Weak farmers organisations have resulted in the limited presence of collaborative and remunerative models for access to inputs and markets through Farmer-based Organisations (FBOs). FBOs' presence in rural communities is variable from a few to many. Less than 50 per cent of them are considered active, and relatively larger farmers usually dominate the functional FBOs. Often FBOs with successful linkages to offtakers have limited outreach and typically exclude the smallholders. Gaps in access to market infrastructure have led to the inability of the smallholders to store their commodities and wait for prices to improve. Consequently, they are compelled to sell their produce to traders even when the offered prices are much lower than those in the previous seasons. Limited post-harvest assistance has created gaps in processing and value addition capabilities at the local level and sometimes high incidence of post-harvest losses.
8. **Rural financial services:** The Bank of Ghana (BoG) leads the formal banking. There are 23 Commercial Banks (CB), 144 Rural and Community Banks (RCBs), 25 Savings and Loan Companies (SLC), 132 Microfinance Companies (MC), 31 Microcredit Companies (MCC), 12 Financial NGOs (FNGO) and numerous individual money lenders and *susu* collectors. Village Savings and Loan Associations (VSLAs) are widespread, and function as member-managed, women-oriented, savings led groups. The ARB

Apex Bank functions as an apex body serving and monitoring the network of RCBs. Ghana Microfinance Institutions Network (GHAMFIN) is the umbrella association for the associations of the different types of financial institutions (FI). Mobile money ("MoMo") is primarily used for transferring funds and payments. However, MoMo and other digital financial services (DFS) is an important entry point to accessing a range of services such as saving, banking, small loans and weather and price information as most household now has access to a mobile phone. Despite the diversity of FIs only 37 per cent of the rural population has access to accounts in formal FIs. Overall, loans and advances designated as "agricultural" account for only about 5 per cent of the credit to the private sector by the banking system.

9. The gap in the flow of financial services, particularly to smallholders in the agricultural sector, has resulted from both demand and supply constraints. On the demand side, semi-subsistence smallholders are reluctant to borrow to increase production due to marketing and income uncertainties and fearing the consequences of their inability to repay the loans. They are further deterred from borrowing due to high interest rates (on the order of 3-4 per cent per month offered by some microfinance institutions [MFIs] and 30-36 per cent per annum flat offered by RCBs), lengthy procedures for borrowing even small sums, and the fear of default due to crop losses from weather-related events. There is little awareness of prevailing agricultural insurance services and low demand for such products, considering the high premiums of 5-8 per cent. Other constraints include collateral requirements and the lack of financial literacy and knowledge to utilise appropriate financial instruments. On the supply side, the high monetary policy rate, inflation and lack of effective regulation in Ghana has led to some banks and microfinance institutions charging between 35 per cent and 40 per cent on short term loans. All types of FIs in Ghana remain averse to lending to agricultural production because of the high risks and uncertainty involved. Often the FIs' portfolios are already exposed to a high level of risk with PAR (> 30 days) ranging from 15-20 per cent and have little appetite for risky agricultural loans. Although the availability of "de-risking" instruments such as insurance (through Ghana Agricultural Insurance Pool [GAIP]), guarantees (through Ghana Incentive-Based Risk Sharing for Agricultural Lending [GIRSAL]) and warehousing (through Ghana Commodity Exchange [GCX]) is increasing, there is limited awareness about their features, the capacity needed to partner, and partnership mechanisms. Also, most FIs currently do not have the specialised products and the capabilities required to address the specific requirements of the agricultural sector effectively. In general, interest rates charged across different loan products offered by the intermediary FIs range between 30-36 per cent (often applied on a flat basis, which raises the effective yield on non-agricultural loans with monthly repayment). The primary factors contributing to the high interest rates are the high cost of funds at 20 to 24 per cent (for RCBs), operations costs of 7-8 per cent for efficient FIs and higher for smaller less efficient ones, loan losses of 3 to 5 per cent, and a profit margin of 3 to 5 per cent.
10. AAFORD's interventions will be geared to increase the flow and outreach of formal financial resources to the target households by addressing both demand- and supply-side constraints. The key demand-side issues will be addressed by improving production and productivity, strengthening farmers' organisations, developing competitive marketing linkages, increasing financial literacy and savings, and supporting the adoption of microinsurance services. Supply side issues will be addressed through de-risking agricultural loan portfolios through collateral guarantee partnership, capacity building of FIs to enable effective administration of agricultural loan portfolios, and lowering the cost of capital and interest rates on agricultural loans by supporting PFIs to access to concessional credit through a Blended Finance Facility (BFF). The support from the BFF in combination with measures for de-risking agricultural loan portfolios will allow the FIs to diversify and operate in a new market segment (smallholders agricultural production), which will help to align them with their development objective of serving the rural communities. The success of the BFF will crowd in development funds from the government and other development partners and support AAFORD's nationwide scaling up in the future. (Refer PIM, Annex 4, an overview of RF environment.)
11. **National strategies policies and lead institutions:** The President's office has issued the Medium-Term National Development Policy Framework (MNDPF 2018-2021) which recognises the growth of agriculture as the main driving force for rural development and transformation. The Ministry of Finance (MoF) has set a target to increase financial inclusion in Ghana from 58 per cent to 75 per cent by 2023^[13] and has established a Development Finance Unit (DFU) under the Financial Sector Division (FSD) to promote financial inclusion and rural financial services and support them with oversight and policy guidance. The DFU, in close coordination with development partners such as the World Bank (WB) and the African Development Bank (AfDB), has championed initiatives such as Ghana Commodities Exchange (GCX), Ghana Incentive-based Risk Sharing System for Agricultural Lending (GIRSAL) and the Ghana Financial Sector Development Project (GFSDP). The DFU hosted the ISU for the IFAD supported Rural and Agricultural Finance Programme (RAFIP) which was completed in 2016. Ghana is committed to implement its National Climate Adaption Policy and implementation of activities highlighted in the National Climate Change Communication to the United Nations Framework Convention on Climate Change (UNFCCC). Ghana submitted its first Nationally Determined Contributions (NDC) to the UNFCCC in September 2016. The NDC is embed on (i) Ghana's National Climate Change Master Plan (2015-2020), (ii) its national medium-term development plans (Ghana Shared Growth Development Agenda II -GSGDA2), (iii) the anticipated 40-year socioeconomic transformational plan and (iv) the Sustainable Development Goals (SDGs). AAFORD will contribute to achieving the country commitment to the Paris Climate Agreement.
12. The Ministry of Food and Agriculture (MoFA), has developed a Ghana Agricultural Development Plan (GAIP), focusing on the development of the agricultural sector in Ghana from 2018 to 2021 through modernisation and transformation efforts. MoFA has started the nationwide Planting for Food and Jobs initiative (PFJ), focusing on smallholders with 2-3 acres land to access improved seeds and fertilisers at 50 per cent subsidy, extension services and marketing opportunities. The MoFA leads the Planting for Exports and Development (PERD) initiative focusing on improving the productivity of export-oriented tree crops such as cashew, coffee, cotton and coconut. The MoFA also chairs the Agricultural Working Sector Group (AWSG) established between the Government of Ghana (GoG) and the development partners such as UN agencies and donors. The Ministry of Industry and Trade (MoTI) has started the One district One Factory (1d1f) programme that focuses on establishing at least one medium-to-large-scale industrial enterprise in every district to create quality jobs and achieve a balanced spread of industries. The MoTI also leads the Strategic Anchor Industries (SAI) development programme, the Small and Medium-scale Enterprises (SMEs) Development programme and the Exports Development Programme (EDP), focusing on job creation, export development, and public-private partnerships. Regarding Climate change, Food Security and Nutrition, the key actors and coordination mechanisms at the national level will be the Ministry of Environment (MoE), the Environment protection agency (EPA), Ministry of Health (MoH).

13. **Initiatives of development partners (DP):** In response to the challenges limiting smallholder access to finance, the GoG and DPs have recently launched several initiatives with the objective of de-risking agricultural production loans, lowering interest rates, and smoothing the incomes of smallholder farmers. **GIRSAL:** GIRSAL is structured as a company limited by shares aiming to de-risk agricultural lending and promote investment in agriculture. GIRSAL comprises a guarantee fund of GHS 400 million (US\$72 million) to provide credit guarantees to cover up to 80 per cent of agricultural sector loans delivered by formal FI to farmers directly or indirectly through off-takers. The AfDB has approved US\$14 million and the GoG has provided US\$57 million for creating the credit guarantee fund. GIRSAL also supports technical assistance to FIs to improve their capacity and performance on agricultural loan portfolios and crop production insurance for smallholders through the Ghana Agricultural Insurance Pool (GAIP). The Alliance for a Green Revolution in Africa (AGRA) has contributed around US\$0.35 million to support GIRSAL's technical assistance activities **GCX:** The GCX is structured as a limited liability company providing commodity storage and trading services to farmers. GCX operates a network of certified warehouses linked to farmer cooperatives cultivating commodities traded in a GCX platform. The GCX supports an electronic warehouse receipts system that enables farmers to access cash credit to meet their livelihood needs during the period when their commodities are stored in the warehouse waiting for a sale at a better price. However, at present, the warehouse receipt system has very limited outreach to smallholder due to limited awareness and readiness amongst rural FIs about this product. **GAIP:** The leading insurance companies in Ghana have partnered to form GAIP as an arm to design and offer crop insurance products to farmers either directly or through marketing partners. GAIP's outreach is limited to less than 10,000 farmers (not necessarily smallholders) mainly due to high premiums ranging from 5-7 per cent, limited awareness of its products, limited partnerships and capacity constraints. (refer PIM Annex 5,6,7 for an overview of GIRSAL, GCX and GAIP).
14. Other donor initiatives include the KfW supported Outgrower and Value Chain Fund (OVCF), a refinancing facility for PFIs to help off-takers/aggregators (bank to off-taker interest rate 18 per cent) that are contractually linked to groups of smallholders growing rubber, oil palm, rice, pineapple, cassava cocoa and maize. The Rural Development Fund (RDF) has been set up with \$20 million of funds from Danida to provide concessional credit and guarantees for agricultural value chains. The World Bank has approved the Ghana Financial Sector Development Project (GFSDP) to establish a domestic credit rating agency, design a financial data centre, develop an asset registry for traditional/physical collateral, and increase the outreach of FIs by linking Village Saving and Loans Associations (VSLAs) to the formal financial sector. AFFORD will also develop complementarities with the Savannah Investment Programme (SIP) of the African Development Bank, and other Government of Ghana (GoG) initiatives such as the Planting for Food and Jobs (PfJ) and One district One factory. (Refer PIM, Annex 9 for an overview of rural finance programmes of other development partners).

b. Special aspects relating to IFAD's corporate mainstreaming priorities

15. **Gender and social inclusion:** Ghana is ranked second in the Gender Inequality Index for Sub-Saharan Africa in 2018. However, globally, its position is number 140. Women represent roughly 51 per cent of the population and constitute 58 per cent of the rural labour force. Women have a critical role in agriculture and other livelihood activities such as artisanal and trading activities. In the north, women are also engaged in collecting shea nuts and fruits from the surrounding environment. There is a division of labour between men and women when conducting family farming. Male gender roles are associated with tasks that involve control over agricultural assets, mobility and decision making. Female gender roles are related to manual work in agriculture such as planting and weeding as well as basic post-harvest actions, e.g. drying and processing. Women are also involved in activities such as livestock rearing.
16. Gender inequality is prevalent across several socio-economic areas. For example, the average hourly earnings of women are 57 per cent of that of men regardless of the type of employment and other factors. Women far outnumber men in non-farm self-employment and private informal work where earnings are relatively low. The key factors contributing to gender inequalities are low literacy rates with 42 per cent female literacy compared to 60 per cent male, lower exposure of women to education and skills development training, higher involvement of women as family workers compared to men who have five times more wage employment, unequal access to land, 50 per cent smaller landholding size for women and limited access to credit as collateral assets are often registered in the husbands name. A National Gender Policy was developed by the Ministry of Gender, Children and Social protection for gender mainstreaming across all Ministries. The ministries, departments and agencies do not strictly adhere to 40 per cent disbursement of budget to gender issues, although this is mandated by the National Development Planning Commission (NDPC). In 2016, MOFA developed the Gender and Agricultural Development Strategy (GADS II) to support gender mainstreaming processes in the sector.
17. **Youth:** Youth in Ghana is defined as those between 15-35 years of age. The country has a youth bulge with 57 per cent of the total population below the age of 25. The rural community consists of 56 per cent youth while the urban population has 44 per cent. The youth often contribute to family labour for agricultural production. They also engage in activities outside of production such as processing, warehousing, transportation, small enterprises and marketing. Youth unemployment is a growing concern in Ghana and reached 13.7 per cent in 2018. The formal sector can engage only 2 per cent young people entering the labour market annually, leaving about 98 per cent to survive in the informal sector or remain unemployed. Inadequate or inappropriate training for the job market as well as an opportunity to access such a job is also another challenge faced by youth. Illiteracy is also a significant impediment to getting quality jobs. Approximately 77 per cent of youth has an only essential educational qualification or less, which prevents them from finding a decent job. Literacy rate in Northern region is 41 per cent (32 per cent girls, 52 per cent boys) and 62 per cent (57 per cent girls, 79 per cent boys) in the Brong Ahafo region. Ironically, the unemployment rate is the highest for youth who attained secondary education in the Brong Ahafo and the Northern regions as they do not have the appropriate skills and entrepreneurial orientation matching the economic opportunities in these regions. The youth are often unable to pursue farming independently due to limited access to credit, quality inputs and markets. Some of the ongoing programmes for youth entrepreneurship, skills training and job creation are the IFAD supported Rural Enterprise Program and the Youth Agri-preneurship Development program, jointly run by AGRA and Nestle. Nevertheless, the outreach of these programmes to the youth from the semi-subsistence smallholder families is relatively limited. Policy environment surrounding the youth has been revamped. The Youth Employment Agency (YEA) established under the 2015 Ghana Youth Employment Act is mandated to create youth jobs. The National Youth Policy was revised in 2018 to align to SDG and aims to

make the agricultural sector more attractive to young people.

18. **Nutrition**^[14]: Overall levels of undernourishment and malnutrition in Ghana have decreased significantly over the last decade. However, the improved status is not uniform across the country. The levels of malnourishment, undernourishment and other nutrition-related deficiencies in the relatively poor northern regions are up to three times higher than in the rest of the country. The overall percentage of the undernourished population was 6.1 per cent in 2017 (FAO, 2017). Malnutrition is another growing public health concern, leading to high rates of stunting of children under five (19 per cent), child wasting (5 per cent), and anemia in women of reproductive age (46 per cent).^[15] Also, there is an increasing prevalence of children being overweight and obese (UNICEF, FAO 2016/17).^[16] About 10 per cent of adults is obese.
19. FAO reports^[17] Ghanaian's diet mainly relying on starchy roots (cassava, yams), fruit (plantain) and cereals (maize, rice). Starchy roots and cereals are estimated to supply almost three-quarters of the dietary energy, but the diversity of the diet remains low. It is reported that the dietary supply meets population energy requirements, but the share of protein and lipids in the dietary energy supply is lower than recommendations. For infants (from conceptions to 24 years old), adequate intake of micronutrients, particularly iron, vitamin A, iodine and zinc are essential for their growth. The World Bank reports^[18] that about three-fourths of preschool-aged children are deficient in vitamin A and iron. One-fifth of pregnant women are deficient in vitamin A, and two-thirds of pregnant women suffer from anaemia. Provision of supplements, especially for infants, dietary diversification and fortification of staple foods are effective strategies to improve the micronutrients intake.
20. **Climate and environment**: The mean annual temperature in Ghana has risen by 1.0 °C since 1960. The number of 'hot' days per year has increased by 13.2 per cent, while the number of 'hot' nights per year has increased by 20 per cent. Only 2-4 per cent of the country's irrigation potential is tapped. Most agricultural production in Ghana relies on small, rainfed plots that are highly vulnerable to erratic precipitation patterns and the impacts of climate change. Rising temperatures are projected to lower yields in major staple crops, e.g. cassava yields are projected to fall by 29.6 per cent by 2080 and maize yields by 7 per cent by 2050.^[19] In Ghana's northern areas total crop failure is expected to occur approximately once every five years due to delayed or diminished rains. Smallholder and subsistence farmers are particularly vulnerable to any climatic or economic shock owing to their high dependence on local natural resources for their livelihoods, their chronic food insecurity, physical isolation and lack of access to formal safety nets (e.g., insurance). These households are also more exposed to pest and disease outbreaks, droughts and extreme weather events (particularly droughts in the Northern part of Ghana), which cause significant crop and income losses and exacerbate food insecurity. Although smallholders use a variety of informal risk-coping strategies (storing water, seeds and food, replanting crops, etc.) these are insufficient to address their food insecurity and vulnerability. MoFA's has limited resources and technical capacity to assist farmers in adjusting their farming strategies in response to climate change which has a significant impact on their access to finance and markets. Land degradation et erosion , and land quality reduction are significant. Combined, these factors are serious threats to agricultural productivity and national food security. Urgent technical, financial and institutional support is needed to improve smallholder's agricultural production, food security and resilience to the effects of climate change. Women and youth are more affected by the effects of climate change. Ghana has signed the Paris Climate agreement and envisages to unconditionally lower its GHG emissions by 15 percent relative to a business-as-usual (BAU) scenario emission of 73.95 Mt CO₂ by 2030 and AFFORD intends to contribute to achieving this target.
21. The total amount of IFAD Climate finance for the AAFORD is calculated at US\$ 2 006 617, which represents 13% of IFAD investment. Components 1 Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value chains and Component 2: Expanding and Directing Affordable Finance in a Conducive Environment have been partially counted as climate adaptation finance.
- 22.
- 23.

c. Rationale for IFAD involvement

24. *High levels of poverty in the project area*: The project areas located in the northern and middle belt of Ghana suffer from high levels of rural poverty arising from relatively small cultivable areas, limited production, low yield, weak bargaining power and weak community institutions (CIs). They have little incentive to borrow funds to increase their investment in agricultural production fearing that the uncertainties of markets and income can cause losses leading to loan repayment problems and adverse consequences related to it. Further, smallholders in the project areas are also vulnerable to the effects of climate change such as droughts, changes in rainfall patterns and high temperatures. Currently, they have little resilience to these adversities due to inadequate technical knowledge, limited incentives to borrow and invest in adaptation measures and limited access to affordable agricultural insurance services. Periodic droughts also affect the availability of nutritious food and the health of children and young mothers.
25. Additionally, youth and women unemployment in the rural areas remain high due to the lack of employment and skills, mismatch of education and industry, inability of the economy to create new jobs and limited access to capital for youth. The AAFORD intervention is needed to assist smallholders and their associations in developing secured market linkages that can incentivise and stimulate these households to borrow and invest in increasing agricultural production, improving food security and nutrition and building resilience against the effects of climate change. AAFORD is also needed to develop the skills of youth and women entrepreneurs and increase their access to finance including green finance to support a range of microenterprises along the sustainable and climate resilient agricultural value chains that can sustain increased production, productivity, value addition and income to the target households and withstand to the climate events.
26. *Long experience of IFAD in Ghana*: Since 1980, IFAD has accumulated a long experience of rural development programmes in Ghana focusing on a range of areas relevant to AAFORD such as productivity improvement, developing rural institutions, marketing improvement through offtaker linkages, supporting access to finance, enhancing youth skill development and youth

microenterprises and developing resilient livelihoods. In the past one decade, IFAD supported five projects; The Northern Rural Growth Programme (NRGP) and the Ghana Agricultural Sector Investment Programme (GASIP) focused on developing value chains, the Rural Enterprises Programme (REP) focused on promoting rural enterprises; and the Rural and Agricultural Finance Programme (RAFIP) supported rural and agricultural finance development. IFAD funded projects have supported 66 partner financial institutions mainly Rural Community Banks (RCB) credit unions, Financial NGOs, and savings and loan companies. Past experiences have familiarised IFAD with the agricultural sector, Micro Small and Medium Enterprise (MSME) sector, and the financial sector and developed its readiness for implementing AAFORD. Additionally, IFAD has developed a solid relationship with the government, particularly the MoAF, MOF and MoTI, each of which has served as the lead ministry for an IFAD project within the last decade. The strong relationship with these ministries has developed IFAD's advantage to establish adequate coordination mechanisms to ensure AAFORD's success through agricultural production initiatives supported by MoFA, youth entrepreneurship and value chain based enterprise development initiatives supported by MoTI and financial services initiatives supported by MoF. Moreover, IFAD is also recognised for rural finance, value chain and agricultural production-oriented innovations within the WCA region and elsewhere and has also contributed to improved nutrition and resilient livelihoods. (Refer PIM, Annex 8, for an overview of rural finance activities of ongoing IFAD supported projects in Ghana)

27. *Support the successful implementation of the COSOP 2019-2024:* AAFORD will contribute to the successful implementation of the COSOP (2019-2024) for Ghana as AAFORD's goals and development objectives are aligned to the COSOP. The COSOP recognises the need for geographical targeting, developing the marketing capacity of the FBOs, increasing the role private sector, and improving access to finance and focuses on three interrelated strategic objectives (SOs). SO1 is oriented to promoting financially sustainable and inclusive rural transformation, SO2 aims to Strengthen productivity in inclusive value chain development, and SO3 seeks to Strengthen capacities and economic opportunities of target households. AAFORD is also in line with the IFAD Strategic Framework 2016-2025 and relevant IFAD policies. In particular, it is in line with the SO1 of the Strategic Framework 'Increase poor rural people's productive capacities' through improved access to agricultural technology, rural finance and capacity building and SO2 'Increase poor rural people's market participation' through strengthening of farmers organisations, marketing infrastructure and strengthening of the rural investment environment. The design of AAFORD activities, implementation arrangements and M&E system complies with IFAD Targeting Policy, the Rural Youth Action Plan 2019-21, IFAD rural finance policy and IFAD policy on gender equality and women's empowerment. AAFORD is also aligned to the IFAD mainstreaming priorities of climate and environment, gender, youth inclusion and nutrition.
28. *Convene development partners working on similar themes:* AAFORD will benefit from IFAD's country presence and convening capacity to network with other relevant government ministries and development partners such as AfDB and AGRA. For example, these partnerships can support policy dialogue based on evidences generated from AAFORD's implementation and also invest jointly in scaling up good practices nationwide in Ghana. Although donor programmes have several success stories, many of them focus on the supply-side factors while others deal with demand related issues. Sometimes the outreach of the individual initiatives is limited by the resources available with each donor. AAFORD will address both the demand agricultural credit as well as the supply of agricultural finance simultaneously through the engagement of FBOs, offtakers, FIs and apex institutions. Thus, based on its success in a limited geographical area AAFORD will provide a single platform for multiple development partners working on similar themes to convene and collaborate towards achieving a unified objective for triggering rural transformation and achieving sustainable and scalable results in the future.
29. *Capitalise on existing opportunities:* The AAFORD interventions will capitalise on the current opportunities created by other IFAD supported, donor and government projects to address the critical challenges. The IFAD supported GASIP, which is a nationwide project, partners with strong offtakers and links them to newly formed FBOs. AAFORD will capitalise on the presence of these FBOs and offtakers in the project area and focus on increasing their outreach to the target group. Similarly, wherever possible AAFORD will partner with the *Business Advisory or Resource Centre (BAC/BRC)* developed by the IFAD supported REP for enterprise training and capacity building of youth and women entrepreneurs. Although the financial intermediaries consider agriculture to be risky, they are willing to consider agricultural lending at affordable rates if backed by risk-sharing and interest lowering mechanisms. The GoG, in partnership with AfDB has recently established GIRSAL as a risk-sharing mechanism which will enable AAFORD to promote agricultural lending at affordable rates. Similarly, GCX has recently rolled out certified warehousing facility and warehouse receipts. These recent developments, along with MoTI's 1D1F initiative, has created new marketing opportunities for smallholders. Under normal conditions, the implementation of the initiatives as mentioned above can take several years before reaching poor smallholder farmers located in the more impoverished geographical areas. AAFORD will enable the faster outreach of these initiatives to the intended target group.

B. Lessons learned

30. The AAFORD design has incorporated the following lessons learned from the implementation of RAFIP, GASIP and REP:
31. *Geographical targeting to enable pro-poor orientation:* National programmes such as RAFIP, REP and GASIP have proved to be beneficial since it has promoted countrywide institutional development. It has brought about pro-poor orientation within PFIs, private-sector offtakers and microenterprise support services. However, the national scope of these programs, with a relatively limited budget, has resulted in a wide spread of project resources over a large area and limited project presence at the community level. Learning from these experiences AAFORD will concentrate its operations in two regions, one in the northern belt in the other in the middle belt of the country to realise the pro-poor targeting policy of IFAD given the concentration of poverty in these regions.
32. *Well resourced ISUs with a degree of autonomy from host Ministries:* The RAFIP Project Completion Report (PCR) concluded that one of the main bottlenecks that limited the RAFIP achievements during the first 2 to 3 years was its implementation structure comprising a very small Project Coordination Office (PCO) within MOF in Accra that was designed to mainstream the project in the permanent institutional structure of MOF using normal civil service protocols. The experiences of other projects centralised in Accra, such as GASIP, also indicate the need for stronger regional presence to facilitate and ensure the quality of the pro-poor linkages between public and private sector project partners and the communities. AAFORD will address this challenge by driving implementation through a well-resourced Implementation Support Unit (ISU) located close to the area of

implementation backed by Zonal Coordination Units (ZCU) overseeing the quality of implementation and pro-poor outreach in the project communities.

33. *Bottom-up demand-driven approach:* The RAFIP Project Completion Report (PCR) concluded that RAFIP's results were limited by its efforts concentrating on supply-oriented measures in the upper parts of the pyramid based on the unstated assumption that measures to build capacity in the upper parts of the pyramid would "trickle-down" to the beneficiaries at the base. Learning from this experience, AAFORD will follow a bottom-up demand-driven approach to ensure that capable target households have definite access to sustainable, affordable, financial support through their integration pro-poor value chains, instead of waiting with uncertainty for such benefits to trickle down. (Refer section 2C, project approach).
34. *Assured availability of specialised financing resources:* Experience has shown that banks and other FSPs continue to charge very high interest rates as perceived by the smallholder producers. Various risk mitigation and/or risk transfer schemes put in place have not contributed to reducing the risk premium factored in the onlending interest rate; however, the schemes have provided a certain comfort level for FSPs to consider lending to the smallholder sector, leading to a very limited portfolio in agricultural lending. Previous studies have indicated that the gap in dedicated credit funds within the RAFIP design was another critical limitation that restricted the final results of this project. As a result of this gap, the enhanced capacities of the FIs developed through RAFIP did not necessarily result in the flow of financial resources from the FIs to the IFAD target group in the communities. AAFORD will address this issue by setting up the BFF with a specific objective of addressing the gap in the availability of affordable agricultural production loans for semi-subsistence smallholder farmers with less than 2 ha cultivable land. The BFF will facilitate access to GIRSAL credit collateral support for financial intermediaries and GAIP agricultural insurance protection to smallholders for financial intermediaries better manage risks and be able to respond to the increased demands of agricultural production loans from the AAFORD clusters, expressed directly through FOs or indirectly through offtakers. BFF's onlending rates will be negotiated through the stakeholder platforms to make sure the repayment burden on production loans for semi-subsistence smallholder farmers is minimized and providing for reasonable returns on their production activity.
35. *Build Marketing Capacity of FBOs:* The experience of providing support to FBOs is mixed. The FBOs, supported through the Root and Tuber Improvement and Marketing Programme (RTIMP) and NRGF, have increased their productivity but they still need further strengthening in the marketing of their products to ensure their transformation into viable business entities. REP does not deal with FBOs. Though GASIP supports FBOs to develop and improve their marketing linkages, the project's national scope and limited community presence is not fully oriented to transform these CIs. In contrast, the AAFORD implementation structure will include strong community presence aimed to develop the bonding between the communities and the project and provide a robust platform for the FBOs to adopt long-term institutional changes from the perspective of self-help and sustainability rather than for gaining opportunistic and immediate access to external project resources.
36. *Strengthen the role of the private sector:* Experience from NRGF, RTIMP, REP and other projects have shown the crucial role of the private sector in supporting the smallholders and FBOs in providing inputs, marketing channels, and other services. The primary lesson learned is that lack of access to finance in rural areas is one of the most significant factors in constraining private sector growth. AAFORD recognises private sector offtakers as the primary vehicle for smallholder farmers to gain access to credit external to their operations and local groups. Offtakers have both the regular cash flow and the collateral (financial and physical assets, and eligibility for insurance and guarantees that can substitute for other collateral) needed to secure loans from formal FIs.
37. *Business plan-based approach:* Several past IFAD projects, including the ongoing GASIP, has worked with CIs such as FBOs. The main focus has been to prepare them to benefit from other project services such as matching grants for the members. There was a limited emphasis on the long-term vision and financial sustainability of these institutions. AAFORD will follow a participatory institutional and business plan development approach for engaging with the CIs (FBOs, VSLAs, youth enterprise groups). The Institutional Business Plans (IBP) developed by CIs and the Outreach and Linkage Business Plans (OLBPs) developed by PFIs will identify the future goals and objectives and provide a blueprint of activities for achieving these through the successful AAFORD partnership. Investments will not be made before these plans are agreed to and endorsed by the assembly in the CIs and the management of the PFIs. The institutional development and business plan approach will improve the capacity of the CIs to sustain and further develop the achievements of AAFORD interventions.

2. Project Description

C. Project objectives, geographic area of intervention and target groups

38. **Project goals and objectives**
39. The **project goal** is to support the food security and improved living standards of smallholder farmers, poor and vulnerable women and youth.
40. AAFORD's **development objective** is to improve productivity, income and resilience of smallholder farmers, vulnerable women and youth. The objective will be achieved through increased access to affordable finance in support of better marketing linkages, sustainable and climate change adapted agricultural intensification, skills and enterprise development in agricultural value chains, supporting inclusive policy engagement and building on women and youth potentials as untapped resources for family resilience.
41. **Project duration:** The AAFORD project duration is six years.
42. **AAFORD outreach:** AAFORD will provide services to 75,000 poor rural households (540,000 individuals with an average of 6

members per household), across 350 communities in 30 clusters in the erstwhile Northern region in North Ghana and the erstwhile Brong Ahafo region in the Central Belt of the country. The target households are divided into 'direct' and 'indirect' categories. The direct target group consists of 75,000 smallholder households (450,000 individuals) who will receive the full set of AAFORD services.

43. Approximately 80 per cent of the 'direct' smallholder category will be drawn from the semi-subsistence smallholder households (less than 2 Ha cultivable land) and 20 per cent will be included from market-oriented (from 2 to 10 Ha cultivable land) and large (more than 10 Ha cultivable land) farming households with special emphasis on the inclusion of women, women-headed households and youth (aged 18-35). The 'indirect' target group comprises 15,000 households (90,000 individuals) located in communities outside the AAFORD clusters but within the command area of AAFORD's PFIs and offtakers. The 'indirect' target group will also benefit from the AAFORD supported services of these PFIs and offtakers. However, initially, the PFIs are likely to use traditional sources of finance bearing higher interest rates to support the 'indirect' target households. Consequently, many of the indirect group will possibly be market-oriented and large farmers who enjoy higher economies of scale and have the capacity to service relatively expensive loans.
44. **Key outcomes and impact indicators:** Key impacts/outcomes of the AAFORD project include: i) 5 per cent reduction in the number of rural households living below the poverty line in the AAFORD supported districts; ii) 60 per cent of target households reporting an increase in income; iii) 60 per cent of target households reporting yield improvement and decrease in food insecurity; iv) 30 per cent reduction in 0-5 year child malnutrition in the AAFORD communities; v) 50 per cent of women reporting improved quality diet; vi) At least 25 per cent of the targeted households reporting adoption on environmentally sustainable and climate resilient technologies/practices; vii) Approximately 45,000 households benefitting from a combination of concessional loans, warehouse receipts and microinsurance services; viii) At least 1,500 full time equivalent youth jobs created in expanded agricultural production, offtakers and value chain enterprises; ix) Approximately 12,500 HH engaged in rural income-generating activities; and x) Two policies or strategies proposed to policy makers for approval, ratification or amendment.
45. **AAFORD supported commodities:** In general, AAFORD will support pro-poor, outreach-oriented and profitable economic opportunities relevant to the specific AAFORD clusters. Within this framework, investments will support value chain activities concentrated on mainly pro-poor field crops such as cassava, sorghum, maize, soyabean, millets, and groundnuts. Depending on the opportunities, it will also support vegetable value chains such as tomato, pepper, cabbage, carrots and eggplants relevant to smallholders. The selection of crops and enterprises which support food security; nutrition; women, youth and vulnerable groups engagement; value addition; suitability as raw material for industries; low inputs and ecological compliance (e.g. millet, sorghum, maize, and groundnut for the northern zone); import substitution (e.g. rice) will be given high priority.
46. **Geographic area of intervention:** AAFORD will implement its activities in two geographical zones, the Northern Zone in the northern part of Ghana and the Middle Zone in the portion of the country between southern coastal areas and northern savannah. The Northern Zone will correspond to the erstwhile Northern region which currently comprises the Northern, Savannah and North-east Regions. The Middle Zone will correspond to the erstwhile Brong-Ahafo Region which presently consists of the Bono, Bono East and Ahafo Regions. The geographic area is identified based on high rural population (3 million people), high poverty (46 per cent), high rural women (50 per cent and youth (34 per cent) composition, the prevalence of food insecurity (16 per cent), malnourishment, high inequality levels, alongside the presence of economic opportunities, potential PFIs and offtakers relevant to AAFORD's implementation.
47. The poverty levels for the two Zones are: Northern Zone (61 per cent) and Middle Zone (27 per cent). The Northern Zone is one of the most deprived areas with more than two-thirds of the population featuring in the bottom 20 per cent income category. It has the highest number of rural people who are poor amongst all the regions in Ghana. Moreover, it has the second-highest poverty incidence amongst all the regions in the North. Cases of malnutrition and malnourishment are rampant. Up to 16 per cent of the population is food insecure, and about 72 per cent of the land is arid, with smaller farm sizes and vulnerable to desertification. The Middle Zone has 27 per cent poverty which is the second-highest amongst all the regions in the middle belt. Cases of malnutrition and malnourishment are moderate with around 7 per cent children reporting as underweight. It has a reasonable concentration of financial intermediaries with about 21 RCBs and a number of formal credit outlets. The Middle Zone borders the Northern Zone and offers AAFORD with a contiguous project area for ease of project management and coordination.
48. **Value chain partnership approach:** AAFORD will follow a value chain partnership approach focusing on developing profitable linkages between producers, offtakers and financial partners. It will support business models that i) increase the income of the target households by developing profitable marketing linkages between them and offtakers and ii) facilitates PFIs to finance the implementation of these business models at affordable terms. Offtakers are typically nucleus farmers; processors; and aggregator. A nucleus farmer is a large, commercial operation with associated groups of smallholder outgrowers sometimes organised as FBOs. The nucleus farmers access funds to purchase inputs in bulk and distribute to the outgrowers and also provide the outgrowers with services on credit, which is deducted from the value of products delivered to the nucleus farmer at harvest time. A processor is a business entity (private company, cooperative, NGO) that purchases raw materials for transformation into a processed product for the market (e.g., gari from cassava, parboiled rice). Smallholders can sell their produce to the processing company at market price or bring their crop for processing for a fee, then sell the product individually (or through the company). Aggregators are traders who purchase (usually directly) from farmers and bulk up the quantities for sale to the market. They may operate or utilise warehouses. Some traders (e.g. in tomatoes) may even provide inputs to their suppliers as an advance, which then entitles them to purchase the crop, after deducting the value of the inputs. Big aggregators provide a market (sometimes with semi-contractual relationships with FBOs, primarily through projects). They are in a good position to obtain financing (on commercial terms). The big aggregators may also have a contractual agreement to take a specified amount from farmers and may also be able to facilitate warehouse receipts for the FBOs.
49. AAFORD will support the integration of target households in the above mentioned offtaker models by i) supporting the capacity building of the farmers to increase their production and productivity according to the needs of the offtakers; ii) strengthening the FBO and increasing the membership of target households in FBOs; iii) brokering marketing linkages between the FBOs and offtakers based on business plan approach; and iv) enabling offtakers/FBOs to access sufficient funds at affordable terms

through PFIs to increase the outreach and secure the profitability of their partnerships with the AAFORD target households AAFORD will integrate target households in the offtaker marketing linkages by i) supporting the capacity building of the farmers to increase their production, productivity and quality according to the needs of the offtakers; ii) strengthening FBOs and increasing target households' memberships in the FBOs; iii) brokering marketing linkages between the FBOs and offtakers based on business plan (BP) approach; and iv) supporting PFIs to partner with agricultural credit guarantee and agricultural insurance initiatives; improve agricultural lending capacities and access concessional credit funds and incentives from the AAFORD supported BFF and reduce the interest rates on agricultural loans.

50. AAFORD's demand and supply side experiences in the two zones can be scaled up at the national level through several pathways. For example, future cycles of GASIP can be designed based on AAFORD experiences, whereby targeted households benefiting from demand side interventions are graduated from matching grants to BFF supported concessional credit backed by GIRSAL guarantees and GAIP microinsurance support. The scope of the BFF can be expanded to serve national needs.
51. **Pro-poor value chains based community cluster selection:** AAFORD will follow a pro-poor value chains based approach for clustering communities, focusing project interventions on a group of 10-15 communities that serve as a recognised production base of one or more pro-poor commodity such as sorghum, maize and cassava and are located in areas served by an existing financial institution and Business Advisory or Resource Centre (BAC/BRC). AAFORD will select the clusters based on criteria including (i) higher concentration of poverty; (ii) presence of formal financial institutions offering services to the communities in the cluster; (iii) presence or willingness of offtakers to form linkages in the cluster communities; (iv) presence of active CIs; (v) proximity to REP supported business resource centres (vi) readiness of the GAIP to provide agricultural insurance services in the clusters and (vii) willingness by farmers to participate in the project including participation in FBOs and AAFORD brokered marketing linkages and commitment to fulfil the contractual obligations related to the marketing partnerships.
52. As a preparatory measure, IFAD supported GASIP and REP, which are familiar and active in the project area will carry out the preliminary identification of the AAFORD clusters first by shortlisting the broad location of the clusters by superimposing the map of the main poverty pockets in the AAFORD Zones on the map of the production bases of the main pro-poor commodities. Within these locations, the relatively larger communities, with high or medium presence of poor population, which also meet the other community selection criteria, will be selected. The cluster selection process will consider that the selected clusters are distributed across the poorer districts and not concentrated in just 1-2 districts.
53. **Target groups**
54. **Direct beneficiaries are classified into five target groups**, described mainly based on poverty level, land ownership and access to the market. These are i) smallholder semi-subsistence households; ii) market-oriented smallholder households; iii) large farming households; iv) youth (age 18-35) and v) women. AAFORD will promote the inclusion of economically active disabled people across all the beneficiary groups. The table below summarises the target group characteristics;

Target group	Direct Outreach (HH)	Per cent of outreach	Cultivable land ownership	Key characteristics
Smallholder semi-subsistence households	60,000	80%	Up to 2 Ha	<ul style="list-style-type: none"> - Resource-poor with little or no access to credit; - Rely on savings to finance agricultural activities; - Revenue may fall below the upper poverty line of 1,341 GHS a year per adult; - Limited access to improved inputs, mechanisation services, post-harvest management and marketing; Low bargaining power; - Family labour used for agricultural production with high women's involvement - Depend on individual sales to traders and in local markets; - Can suffer from periodic food insecurity and nutrition deficiency mainly during dry months - Uncertain income from marketing agricultural produce; - Involved in labour work to supplement income; - Limited diversification of income.

• Market-oriented smallholder households	11,250	18%	2 to 10 Ha	<ul style="list-style-type: none"> - Income from GHS 1,000 to 6,000 a month cash crop production; - More diversified income, e.g. from off-farm activities and remittances; - Combination of family labour and hired labour used for agricultural production - Can be members in FBOs linked to offtakers; - May consider using credit to access improved seeds, machinery for land preparation, harvesting, planting and storage facilities if readily available.
• Large farming households	3,750	2%	More than 10 Ha	<ul style="list-style-type: none"> - Have ability (collateral) and access to financial resources - Use hired labour for farming activities - Likely to be food secure, literate and influential in their communities - Sometimes serve as nucleus farmers linked to a group of smallholders - Target one or two specific commodities for commercial purposes and produce based on a contractual agreement - Has access to market information and market intelligence
Total	75,000	100%		
• Rural youth (18-35)	30,000	40%		<ul style="list-style-type: none"> - High unemployment rate (especially between 20 to 29 years) old in Rural Ghana. - Higher unemployment is female youth especially graduated individuals due to mismatch between education and industry - Often unmarried due to unsteady income sources to support new families - Lack of employable skills, entrepreneurial training and opportunities - Limited access to capital due to lack of collateral and other guarantees
• Women	37,500	50%		<ul style="list-style-type: none"> - Less access to land and credit compared to men - More than 70 per cent women above 35 are married and with children - Female-headed households suffer more from food insecurity and nutrition deficiency, especially in the Northern region.

55. *Smallholder semi-subsistence households (up to 2 Ha):* This group represent about 80 per cent of the target population of 75,000 (60 per cent women, 40 per cent youth). They may barely have up to 2 ha cultivable land and are dependent primarily on family labour which is often limited. This group is resource-poor with little or no access to financial capital. Their yields are low due to the inability to use improved practices, and they are invariably food insecure, particularly during the dry months. They are distinguished by low income as they have little or no commodity for sale and their production is mainly for their own consumption. Climate change also impacts their productivity negatively and exacerbate their precarious situation.

56. *Market-oriented smallholder households (more than 2 Ha and up to 10 Ha):* This group represent about 18 per cent of the target population of 75,000. These farmers cultivate between more than 2 up to 10 ha land and augment their family labour with hired

labour. They tend to target specific commodities for production for purely commercial purposes but diversify their production to include other crops for consumption. They may keep some livestock and livestock products and be involved in trading in agricultural produce. They are more likely to be lead farmers, members of FBOs or part of the contractual arrangement to pre-finance production. They may still be vulnerable in terms of food security and have limited surplus for the market if the household size is large and farm size and productivity is low. Their access to warehouses, machinery services for land preparation, planting and harvesting may be limited.

57. *Large farming households (more than 10 ha):* They will constitute 2 per cent of the beneficiaries. This group cultivates more than 10 ha of land using mostly hired labour and generally specialising in one or two crops. They have better access to financial capital, farm inputs, storage, and marketing facilities. They target specific commodities for commercial purposes and earn substantial income from the sale of agricultural products and off-farm activities and are food secure. They are literate and influential in their communities and serve as transformation drivers and channels for finance, marketing and services to the smallholders.
58. *Youth:* AAFORD will be highly youth sensitive. Youth will comprise 40 per cent of total direct beneficiaries (20 per cent women and 20 per cent men). The target group includes (i) youth (18-35 years) currently engaged (full time or part-time) in agricultural production and other rural activities at subsistence level with an interest to further develop their farming activities as a business, participate in marketing and financial linkages and increase their income, (ii) unemployed (or seasonal workers) youth interested to explore, identify and engage in better employment and self-employment opportunities both in agricultural production and other value chain related enterprises, including service provision, and allied sectors; and (iii) young graduates interested to apply their skills in the agriculture sectors as professional service providers, outreach agents commissioned by marketing and financial intermediaries to increase their outreach to the target households in the communities and as agribusiness entrepreneurs.
59. *Women:* AAFORD will be highly gender sensitive. Women will comprise 50 per cent of total direct beneficiaries. ore details of target groups, youth and women's roles and responsibilities and opportunities are presented in the PIM.
60. **Youth mainstreaming strategy:** Particular attention would be paid to the youth group who have attained secondary education, as their unemployment rate is highest, as well as youth that has the potential to be economically active and start a new enterprise. AAFORD will focus on three mechanisms for supporting youth employment and youth jobs (a) for youth already engaged in agricultural production but at subsistence level: support exposure to production and productivity-enhancing training, linkage to marketing and access to finance to upgrade and operate their production-related activities in business scale (b) for youth currently unemployed: provide practical, employable and income-generating skills and support them to find employment in the value chains promoted by the project and also to start up their enterprises; Develop youth technical capacities in these areas by engaging them as AAFORD youth facilitators (b) for educated/graduated youth: increase access to innovation and new technology and assist them to adapt to new approaches and become professional service providers and entrepreneurs. Engage such youth in the AAFORD young institutional intern initiative to develop their orientation, skills and employability. At the early stage of the project implementation, the service provider with the responsibility of recruiting the youth facilitators will develop a detailed strategy for reaching youth through PFIs.
61. **Gender mainstreaming strategy:** Women will comprise 50 per cent and men 50 per cent of the total outreach. The project will address gender disparities and the key constraints that limit women's progress in agricultural activities and increase their access to financial services up to 50 per cent by (a) creating enabling environment and seeking to ensure that women have equal access to capacity building trainings;^[21] (b) promoting productive opportunities that are suitable for women by ensuring that analysis is done to capture women's needs and priorities; (c) increasing women's access to skills and knowledge in financial literacy, digital literacy, savings and financial management as well as business development; (d) promoting women's leadership and representation in grassroots institutions and organizations; and (e) encouraging women's participation in decision making within the household. Furthermore, the project will select crops such as horticultural crops which intensively involve women.
- 62.
63. As it would be difficult for individual poor rural households to gain access to financial services and other support services, FBOs will be the main entry point for the project. AAFORD will legitimise the participation of rural women, the youth and other vulnerable members of the communities in the project, guiding it along gender-sensitive lines and ensuring that rural elites are not alienated. AAFORD will organise enlightenment campaigns, meetings and discussions with relevant people and groups to ensure common understanding by all concerned of the principles behind the project gender approach, its objectives, strategy, and how it would be operated. AAFORD will also adopt other measures to ensure a gender sensitive implementation approach such as: i) selection of PFIs which have a corporate priority of reaching women; ii) considering the gender of the youth facilitators and the youth interns to facilitate their engagement with women and youth; and iii) engaging a service provider to develop a youth and gender mainstreaming strategy during the early stages of project implementation.
64. **Climate mainstreaming strategy:** AAFORD will promote greening financing by improving readiness and capacities of FIs to seize market opportunities for lending to FOs, women and youth organizations, cooperatives, and MSMEs that invest in low emission and climate resilient agriculture. Technical assistance on green lending and climate risk management, financing sustainable water management and related energy technologies to mobilize water for sustain production will be promoted. In addition, various capacity building measures on climate resilient value chains and awareness raising will be organised to support communities to develop sustainable, climate resilient and bankable business plans.
65. **Nutrition mainstreaming strategy:** The nutrition related training will be embedded in the capacity building of AAFORD-supported FBOs and farmers and will focus on i) promoting nutrition-sensitive agriculture and food-based approaches; ii) promoting diversified farming: production and consumption of high-value crops and small livestock including small ruminants, poultry and fish to increase dietary diversity and nutrition security; iii) promoting small irrigation schemes and household production systems to support year-round production, especially vegetables and fruits; iv) promoting food safety along the agricultural value chain: agro-processing, preservation, storage, distribution of food, and marketing; v) intensifying nutrition and health behaviour change strategies in agricultural interventions; and vi) promoting and strengthening food fortification

interventions.

66. **Targeting Strategy:** AAFORD will apply a combination of geographical targeting, self-targeting and direct targeting mechanisms. The project will apply geographical targeting right at the beginning to identify the AAFORD clusters and communities which have higher incidence of poverty and greater potential for developing rewarding economic engagement activities along pro-poor crop value chains. Self-targeting mechanisms will result in semi-subsistence smallholders participation in pro-poor value chains based on crops which contribute to food security and family nutrition and in addition generate marketable surplus for selling through project supported marketing channels, capacity building related to post-harvest crop handling to retain quality and some level of homestead processing activities to support more extended food availability and nutrition; Market-oriented smallholders will receive support to improve production systems, connect to certified warehouses, start microenterprises emerging from the adoption of post-harvest technologies, and larger farmers will be more oriented to the demonstration of new technologies and participation as nucleus farmers supporting a number of smaller outgrowers.
67. Financing activities will be aligned with the nature of the interventions mentioned above. Semi subsistence smallholders including unemployed youth and women will be a focused target segment for receiving savings based approaches, financial management training and in-kind support through off-takers. Market-oriented smallholders will upgrade their agricultural practices and technologies through cashless credit mechanisms through off-takers as well as through strong FBOs. Large farmers who can meet the collateral requirements of the financial institutions can borrow directly as individuals for adopting innovations. When functioning as nucleus farmers they can access funds directly from banks or indirectly through FBOs for supporting a group of outgrowers. (Refer to PIM for a detailed description of target groups and targeting strategies, youth and gender mainstreaming strategies and implementation modalities.)

D. Components/outcomes and activities

68. AAFORD is designed with two inter-related technical components and project management: Component 1: Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains; ii) Component 2: Expanding and directing affordable finance in a conducive environment and iii) Component 3: Project management.
69. The Project is designed to identify and close the gaps between demand for and supply of financing to support increased marketable surpluses and improved livelihoods in low-income smallholder farming communities in selected areas and value chains. Component 1 addresses Technical Assistance (TA) needs at three levels: (a) ultimate beneficiaries and their organizations at the community level; (b) intermediary market and financial institutions, through which smallholders typically obtain financing (including cashless pre-financing) and sell their surpluses; and (c) market-enhancing institutions that provide instruments such as warehouse receipts, insurance and guarantees to help mitigate risks that inhibit financial institutions from lending to smallholder agriculture. Component 2 mobilises funds and risk-mitigating instruments on terms that are affordable to the beneficiaries in the face of their limited returns on investment, and seeks to improve the environment in terms of coordination of interventions, knowledge of successful models for scaling up, and the policy, strategic, legal and regulatory framework. Component 3 provides for project management and implementation.
70. **Component 1: Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains:** The expected outcome is enhanced capacity for target groups to access affordable financing which will lead to increases in smallholder farmers' marketed surpluses and household welfare and increased business for financial institutions. This component focuses on TA to: (a) smallholder farmers and their associations, to introduce Good Agricultural Practices (GAPs) and access financial and marketing services compatible with their needs in order to raise productivity and surpluses; (b) rural households (especially women and youth) to improve their livelihoods, health and financial inclusion; (c) nucleus farmers, aggregators and processors to intermediate between smallholders and input, product and financial markets; and (d) financial intermediaries and market-enhancing institutions that provide instruments to help mitigate financial risks. It also supports outreach of institutions to the target groups and their intermediaries to meet the conditions for market transactions to take place and utilize the funds available through Component 2.
71. The component has three subcomponents: Subcomponent 1.1 works to build up demand by identifying the potentials, constraints and needs of key target groups (smallholders, women, youth) at the community level, providing TA that increases their knowledge of improved agricultural practices to raise productivity, financial and business skills, and by working through groups to access markets and finance. Subcomponent 1.2 similarly identifies opportunities at the level of intermediary institutions in both (i) marketing, building off-taker capacity to serve the key targeted groups and (ii) outreach (including market-enhancing instruments) in Subcomponent 2. Subcomponent 1.3 bridges the gap by supporting institutions to reach out and market their products to the key target groups and intermediaries.
72. **Subcomponent 1.1: Develop capacities of target groups to expand marketable surpluses:** The expected outcomes are that targeted beneficiaries have a better understanding of and ability to access affordable financial and marketing services (whose development is supported in Subcomponent 1.2 and outreach in Subcomponent 1.3); acquire skills for good agricultural practices and for income-generating activities; and build social capital through community-based groups. The first step is to identify the communities, beneficiaries, institutions and intermediaries in the project areas and assess their potentials and needs. The second step is to package and deliver TA tailored to each community's aspirations and needs. The third step is to facilitate access to financing smallholders, primarily through off-takers and other marketing intermediaries. This will involve sensitizing and training smallholder farmers and their associations about the features, benefits, risks, processes, rights and responsibilities of off-takers, as well as about seeking direct credit from retail financial service providers. It will orient farmers' organizations towards the inclusion of poor smallholders with a focus on women and youth and toward GAPs and post-harvest mechanisms that promote resilience to the effects of climate change, as well as food security and nutritional improvements. For specific target groups such as women, youth and other vulnerable groups, it will involve sensitization and training on entry points for financial inclusion (such as Community Savings and Credit Groups [CSCGs], use of Digital Financial Services [DFS] and other services such as output product prices and weather information), green skills for climate-resilient agricultural practices and environmentally sustainable livelihoods, and healthy nutritional practices.

73. *Identification of key technical partners and service providers:* The ISU will engage technical partners that are actively supporting smallholder agricultural value chains in Ghana, have complementary financial and technical resources and can use local service providers as needed to implement the services indicated in the activities and other subcomponents below. The technical partners and service providers will be selected according to criteria specified in the Project Implementation Manual (PIM), including capabilities with respect to climate change resilience and nutrition security factors.
74. *Identification and needs assessment of community clusters:* In order to focus limited project resources on piloting and achieving results that can be scaled up, a Service Provider (SP) will be engaged, in consultation with District Departments of Agriculture and existing projects, to identify clusters of communities in the project area (specified in the PIM) that include concentrations of smallholder farmers in selected value chains, economically active poor, presence of potential PFIs, presence of a BAC/BRC, and the crops and practices relevant to income, climatic, food security and nutritional concerns. Particular attention will be paid to the potential for increasing surplus through improved GAPs. Once the clusters and value chains to be targeted by the Project are agreed, the SP will carry out a stakeholder identification survey which will identify the relevant stakeholders and their critical challenges and needs, including existing CIs (such as FBOs, cooperatives, women and youth groups); input providers; off-takers; financial institutions; BACs/BRCs; agricultural research stations and MoFA programs; and government development programs where each District is provided with a factory, a dam, and/or warehouse. In addition, the survey will identify: (a) outreach and institutional development needs of CIs; (b) measures to upgrade smallholders' agricultural production technology and productivity; (c) their sensitization and capacity building needs with respect to (i) outgrower models relevant to their main marketable crops; (ii) accessing financial services through CSCGs, through intermediaries (off-takers and financial institutions), and via mobile phones (DFSs); (iii) climate change vulnerability and scope for local resilience strategies; and (iv) cost-benefit analysis of adopting climate resilient and nutrition sensitive production activities; and (d) key gaps in the awareness, understanding and utilization of available financing mechanisms (direct and indirect) by smallholders and other target groups.
75. Based on the findings of the needs assessment survey, the SPs will structure capacity building packages tailored to the needs of the different target groups (see *Capacity building of target groups and their CIs* below). These will include identification and development of the key messages to be delivered through awareness and sensitization sessions, contents of a range of training modules, ToRs for technical assistance and scope for exposure visits.
76. *Mobilization of Youth Community Facilitators:* In order to ensure effective and sustained engagement at the community level and facilitate transactions made possible through capacity-building, a pool of 4-5 Youth Community Facilitators (YCFs) (including one to focus on climate change resilience) from the selected communities will be engaged for each cluster (discussed further under Project Management) to facilitate community mobilization and interaction with AAFORD. The YCFs will comprise young women and men from the communities with social skills for community mobilization, as well as educational background to understand and interpret project objectives. Training will build their skills on strengthening CIs, gender mainstreaming, youth mobilization, nutrition sensitivity and climate-resilient agricultural practices. They will be responsible for ensuring inclusion of target groups (especially women and youth) in the relevant CIs; facilitating development of Community Outreach Development Plans (see next activity) and outreach of the project-supported activities to the target groups; community-level data collection and reporting; monitoring, identifying and reporting community-level implementation issues and assisting to solve these problems; and facilitating the outreach of marketing and financial institutions, project SPs and other value chain actors and facilitators. They will interact with the Youth Institutional Interns (YIIs) (see Subcomponent 1.2). The primary objectives are to provide a clear community-level focal point of interaction for other project stakeholders such as input suppliers and other value chain actors, financial intermediaries and project SPs, ensure smooth implementation at the cluster level and facilitate the ability of youth to work in public service and development institutions.
77. *Community Outreach Development Plan (CODP):* A SP will be engaged to support and oversee the YCFs to develop a 7-10 page CODP in each project cluster. The objective is to facilitate both implementation and sustainability of project interventions by building community consensus around clear road maps for sustaining and scaling up good practices, strengthening CIs and engaging with external ones, and enhancing access to product markets and financing. The desired social, economic and productive changes envisioned in the community through AAFORD implementation will be presented in the CODPs along with the specific project interventions, which will help to achieve these changes.
78. The CODP will define the specific project target groups in the community, the projected outreach of AAFORD activities to these target groups over the project duration, the approach for reaching the target groups and an overall budget estimate for capacity building (see below). It will include the scope for strengthening off-taker-outgrower models. It will also present needs for nutrition awareness raising and how training on healthy diets can be included in capacity building activities for different groups. Similarly, it will include specific climate-related risks to the community and mitigation measures to be integrated in project implementation activities, in particular to complement TA for improved agricultural technologies and practices to raise productivity. Against the framework of the CODPs, the ZCUs, in coordination with the SPs and YCFs, will prepare detailed annual cluster workplans and budgets presenting the physical and financial targets to be achieved in each community cluster during the year. These targets will be related to outreach of activities such as strengthening CIs, developing livelihood investment plans (see next activity), training and technical assistance in areas such as production, marketing, business development, entrepreneurship, dietary diversification and nutrition standards. AAFORD SPs and partners responsible for implementing each activity will be identified along with the community-level coordination mechanisms between them. AAFORD will direct support to the communities based on the activities identified in the CODPs.
79. *Capacity building of target groups:* The expected outcomes of TA to target groups and their organizations are to increase smallholders' marketable surpluses in a sustainable way, strengthen their mutual support associations, build their relationships with marketing and financial institutions, and improve their livelihoods, climate resilience and health. Training will utilize existing groups to the extent possible (FBOs, CSCGs, youth groups), but may include group formation/management if a need is identified.
80. TA will be adapted to the identified needs of each community cluster and detailed in the CODPs in the following modules: (a) improved crop production technologies, including high yield varieties, Conservation Agriculture (CA) (such as minimum tillage), awareness and utilization of climate-resilient agricultural practices, crop diversification and selection of varieties for home

consumption and nutrition, post-harvest management capacity through activities such as grading, drying and processing, and marketing through offtaker-outgrower models; (b) increased entrepreneurial and business management capacity and livelihood diversification, especially of youth and women, through capacity building, training (in particular, 'green skills' to take advantage of environment-friendly income-generating opportunities) and exposure visits facilitated by the SPs in coordination with the BACs/BRCs; and (c) improved financial literacy and access to financial and marketing services by exploring integration in agricultural value chain offtaker-outgrower models (including the One District One Factory [1D1F] initiative), certified warehousing and warehouse receipts models (through partnership with GCX), and linkages to other aggregators, processors and traders in coordination with MoFA and MoTI, and by strengthening savings habits through financial literacy training and formation of CSCGs for women. TA will also be provided (by a different SP) for formation and strengthening the governance of community associations (such as FBOs and youth and women savings or enterprise groups) and promoting nutrition-sensitive or nutrition-intensive agricultural production, processing, preservation, storage, distribution of food and marketing.

81. The project SPs together with the YCFs will coordinate the implementation of these activities and will engage MoFA's extension services for supporting relevant services as well as the existing projects. The project will also partner with the Rural Enterprises Programme (REP) and its associated BACs/BRCs operating in AAFORD areas to facilitate business planning and access to financing for promising microenterprises arising out of this activity (see Subcomponent 1.2, Capacity building of selected partner intermediaries).
82. *Support to Community Institutions (CIs):* AAFORD will identify partner CIs (including offtaker-outgrower arrangements) in each community with potential and express desire to develop marketing and financial linkages. Based on the needs assessment and CODPs, partner CIs will be selected using criteria such as outreach orientation, current representation of AAFORD target groups (especially women and youth), current level of activity and member involvement, governance and management status and willingness to partner with AAFORD and adopt recommended institutional strengthening measures. AAFORD will consider mobilizing new CIs if existing CIs do not qualify as partners. Partner CIs will comprise mainly FBOs dealing with crop production and other value chain related activities; CSCGs, especially with women members involved in savings and credit activities, trading and services; and value chain-based enterprises and rural youth enterprise groups engaged in a range of agricultural and non-agricultural microenterprises.
83. The objective is to establish linkages between CIs and market and financial intermediaries (including offtakers and financial institutions) as a basis for mobilizing their own funds (e.g. by establishing a CSCG; see below) or engaging BACs/BRCs to facilitate their approach to financial institutions (if appropriate). TA will be tailored to assessed and expressed needs of the CIs, and facilitated by the YCFs.
84. The AAFORD SPs will capacitate the YCFs, together with the Youth Institutional Interns (YIIs) (see Subcomponent 1.2) engaged in the BACs/BRCs, to develop Institutional Business Plans (IBPs) for the CIs in each cluster having met the selection criteria and expressed a desire for capacity-building or to seek financing (either individually or together). Each IBP will detail the areas of investment chosen by the CIs for improving the knowledge, skills and livelihoods of the members. The first part of the IBP (3-5 pages) will detail how the CIs will strengthen their governance and management systems and address issues relating to inclusion of women, youth and other vulnerable groups; climate change; nutrition; financing; and linkages with external market and financial institutions. This will include how the CI intends to expand access to financial services, including savings mechanisms, credit (in kind and/or cash), reinvesting earnings, agricultural insurance, and DFS. The second part (4-6 pages) will focus on the details of the specific business area in which the CI members decide to collaborate, including: description of the business concept or model; market opportunities; strategic, operational and financial details such as projected profitability, financing plan and reinvestment plan; direct and indirect beneficiaries (particularly women and youth); outreach of benefits; measures to improve productivity, meet required market standards and address the effects of climate change.
85. *Community-based savings and credit groups (CSCGs) for women and youth:* The objective is to get targeted project beneficiaries that generally have been excluded from formal financial services onto the first rung of the ladder to access financial services. Smallholders (women in particular), especially those with smaller farm sizes, prefer saving over credit but often lack convenient and affordable means to save –which is also a precondition for eventually obtaining credit. Building on Ghana's traditional daily savings culture (*susu*), international and local NGOs have had considerable success training groups at the community level to manage and fund their own CSCGs. When their financial needs exceed the capacity of the CSCG, it provides a stepping-stone to linking them with formal financial institutions (an objective of Ghana's Financial Inclusion Strategy). AAFORD will partner with agencies that are already implementing CSCGs in Ghana to extend the model to women and youth groups in its targeted clusters, in order to facilitate community-level mobilization and management of savings and credit to support their income-generating activities and household financial needs. In addition to forming new CSCGs in communities that lack them, existing CSCGs that prepare IBPs may be supported for strengthening and linking to formal financial institutions.
86. *Subcomponent 1.2: Capacity building of institutional partners and intermediaries* The expected outcome is that products will be adapted and developed to suit the needs of target beneficiaries (whose capacities are being built in Subcomponent 1.1 and outreach in Component 2.1). This will involve the selection of partners that provide market-enhancing instruments (such as offtaking, aggregation, warehousing/storage, electronic trading, digital information services for product markets and insurance, guarantees, warehouse receipts and DFSs), as well as intermediary financial institutions such as commercial banks and rural/micro finance institutions. Training and TA aimed at product enhancement relevant to AAFORD beneficiaries will be available to these institutional partners and intermediaries based on capacity building needs assessment and innovative proposals. Intermediaries that provide linkages between smallholder farmers and output product/financial markets will be trained in models and management of these relationships.
87. *Activities:*
88. *Mapping, needs assessment and selection of partner institutions* This exercise will engage a SP to map out the institutions (in consultation with BACs/BRCs) providing marketing, storage, processing, financial, risk mitigation and digital services in the project area, and assess their needs for capacity building to better serve the value chains, communities and beneficiaries being

targeted by AAFORD (The SP will also deliver the capacity-building activity; see below). In addition, national institutions providing market-enhancing instruments (warehouses [GCX], insurance [GAIP], guarantees [GIRSAL, RDF], weather and price information [GMA, Esoko], digital financial services, etc.), as well as relevant apex institutions (ARB Apex Bank, GHAMFIN), will be assessed for their potential and interest in serving intermediaries in project areas. Candidate partner institutions will be invited to orientation workshops on the potential business opportunities for increasing outreach to smallholder farmers (directly or through intermediaries), women and youth, and the possibilities available through this subcomponent. The expected outcome are the expressions of interest by and selection of institutional partners and intermediaries to receive the support indicated in the activities below (as well as under Subcomponent 2.1), based on: their active presence in AAFORD areas; their expressed commitment to serve AAFORD beneficiaries; licensing, regulatory and performance status (for PFIs); and sound governance structures. Such institutions and intermediaries will be able to seek partnership with AAFORD at any time.

89. In 2018-19, the BoG undertook a number of measures to strengthen the financial system, including raising minimum capital requirements across the board, liquidating or consolidating a number of universal banks, and de-licensing some 357 MFIs. AAFORD expects to engage a number of universal banks that wish to build their loan portfolios for agricultural value chains, as well as RCBs, which have a clear mission to serve rural communities. MFIs are less likely to be involved, except with respect to rural MSMEs (currently being served through REP). The current landscape for agricultural lending will be assessed up front, and implementation arrangements and the role of the ARB Apex Bank will also be reviewed, as part of establishing the BFF.
90. *Development of Outreach and Linkage Business Plans (OLBP)*: Selected partners will be given TA through a SP engaged by AAFORD to develop OLBP, which will clearly indicate the outreach, profitability and other benefits they will achieve in the project communities as a result of project support to increase their capabilities to: (a) reach AAFORD targeted beneficiaries and intermediaries; (b) develop appropriate products and delivery mechanisms; (c) communicate relevant information through local FM radio services and mobile phones; (d) develop physical or software uptake capacity; and (e) market products (supported under 1.1.7). The OLBP will specify how GCX, GIRSAL and GAIP can support financing to project beneficiaries through PFIs and offtakers, and the gap between the costs of these instruments and the ability of potential borrowers to afford them. The objectives are to provide: (i) a sound justification for the capacity-building to be provided (see below), ensure partner buy-in and establish results indicators; and (ii) a basis for cost-sharing grants under the Blended Finance Facility (Subcomponent 2.1) to close the affordability gap.
91. In the orientation workshops (see above), the project SP will assist the interested intermediaries to prepare and submit a short concept note (1-2 pages). After the concept note is approved by the SPs and AAFORD ISU, the SPs will provide technical assistance to the intermediaries to help them develop and submit the detailed OLBP, which will support realization of the CODPs and IBPs (subcomponent 1.1) by aligning services to the needs of targeted beneficiaries and CIs, and planning how to deliver them to those groups and areas (supported under Subcomponent 2.1). The OLBP will also indicate how the partner institution can make use of YIIs both with project support and subsequently (see below). The IBP review committee in AAFORD will review and approve submitted OLBP as a basis for delivery of TA and capacity-building and outreach support (see below and Subcomponent 2.1).
92. *Capacity-building of selected partner intermediaries*: Partner institutions will receive TA support from the AAFORD partner SPs for activities identified in their OLBP, including: (a) sensitization and skills training for staff, in particular on multidimensional risk mitigation related to climate change and environment; (b) supporting the establishment of agricultural finance desks, training agricultural finance officers, or special windows for agricultural production financing; (c) product and systems development to enhance outreach, including rural/micro finance institutions (RMFIs) to adapt loan products to the seasonal nature of agricultural activities and their cash flows; and (d) sensitization and training of RMFIs to understand and utilize risk mitigation instruments, to finance business plans of intermediaries and FBOs, and to utilize available concessional and/or blended credit lines (in collaboration with other IFAD projects). Training of RMFIs on risk mitigation instruments and relevant products (such as warehouse receipts, agricultural loan portfolio guarantees, agricultural insurance) will include board members as well as managers and credit officers/analysts, to facilitate policies to adopt such products. The BACs/BRCs working with REP in the AAFORD areas will also be considered as AAFORD partners and receive training in evaluating and advising clients on the creditworthiness of their MSMEs and options for financing. Regional workshops will bring together BAC/BRCs and PFIs to promote mutual understanding and development of mutually suitable business planning and assessment tools.
93. *Youth Institutional Internship (YII) Programme*: In this capacity-building activity, up to 80 youth will be trained in skills identified by partner marketing and financial institutions as relevant to increasing their outreach to smallholder farmers (especially women and youth), offtakers and other agricultural value chain actors. They will be supported for up to three years (on a declining cost-sharing basis) as interns to the requesting institutions and to BAC/BRCs in collaboration with REP. This will be targeted toward graduates with a first degree in subjects relevant to finance, marketing, agriculture or environment, to give them practical skills and experience that will benefit partner institutions and enhance their subsequent employment prospects. The primary objective is to facilitate linkages with the YCFs (Activity 1.1.3) for effective outreach (Activity 2.1.2); a secondary objective is to give youth practical skills and experience that will enhance their productivity and future employability prospects.
94. *Cluster Linkage Problem-solving*: Multi-stakeholder platforms meeting at the cluster level will be organized by the project in collaboration with the District Departments of Agriculture to identify critical bottlenecks and challenges to implementation in a particular area and value chain, and to identify specific institutions and individuals to solve them. This process will facilitate development of partnerships among AAFORD, offtakers, financial institutions, and other support programmes. YCFs (see Subcomponent 1.1) will be assigned to help address issues at the cluster/beneficiary level, and YIIs may be tasked with facilitating institutional responses.
95. **Subcomponent 1.3: Marketing and ICTs for outreach of rural financial and agricultural services**: The expected outcome is the increased access to relevant information and services, including using mobile phones and adapted DFSs, needed to improve agricultural production, access markets, mitigate risks and lower costs. This activity focuses on sensitization and outreach to Project beneficiaries to implement OLBP of partner agencies (Subcomponent 1.2), including those providing meteorological and agricultural price information, taking advantage of support to develop products and channels of communication suitable for

smallholder farmers. Based on their Business Plans, institutions providing these services will be able to apply for project co-funding of sensitization and outreach activities to target clusters and groups.

96. In particular, partnerships with key market-enhancing institutions will focus on marketing to intermediaries (financial and off-takers) serving smallholder FBOs in AAFORD clusters, and on utilizing YIs (Subcomponent 2) and the BFF (Subcomponent 2.1). These partnerships will be built on the assessments in Subcomponent 1.2 (and OLBP if prepared), and fostered through forums in Subcomponent 2.2. This may include outreach by GCX and other warehouse operators to increase awareness and use of warehousing and receipts by FBOs and off-takers; development by GAIP of agreements with PFIs and BFF regarding how to cover and recover the costs of agricultural insurance; sensitization of AAFORD PFIs by GRSAL on how to utilize guarantees to offset losses by clients as well as the PFIs, and to absorb the cost of guarantees while avoiding moral hazard concerns. It will also include using the YIs attached to these partner institutions to build and maintain relationships with PFIs and BACs/BRs in AAFORD areas.
97. **Component 2: Expanding and Directing Affordable Finance in a Conducive Environment.** The expected outcomes are increased outreach and uptake of affordable finance and supporting instruments, especially by smallholder producers; enhanced knowledge, enabling the replication of good practices; and an improved policy framework. Acting as a multi-stakeholder platform, this component will support the availability of affordable finance for selected agricultural value chains through blended finance, to make credit and risk mitigation instruments available on concessional or blended terms (Subcomponent 2.1). Together with capacity-building of both the demand and the supply sides in Component 1, this component is expected to bridge the gap that has excluded smallholder producers and their intermediaries from access to affordable finance. In addition, Subcomponent 2.2 will help to document good practices and lessons learned as a basis for replication and improvements in the policy and enabling environment.
98. **Subcomponent 2.1: Blended Finance Facility (BFF):** The expected outcome is expanded availability of affordable finance and market-enhancing instruments directed to smallholder production and its key intermediaries in selected agricultural value chains, in order to realize the benefits of capacity-building on the demand side (Subcomponent 1.1) and on the supply side (Subcomponent 1.2), including the application of risk-mitigation instruments to lending to smallholders and other agricultural value chain actors.
99. Currently, the share of bank loans and advances flowing to smallholder producers is negligible and not readily accessible or affordable to them. In order to develop this nascent market by 'crowding in' funds and risk mitigation instruments at rates compatible with the returns to smallholder crop products, a BFF will be established to provide wholesale funds on concessional or blended terms to PFIs to on-lend for smallholder agricultural production, and cost-sharing grants (premium subsidies) that enable FBOs and their intermediaries to afford agricultural insurance, guarantees, warehouse receipts and other market-enhancing instruments. The objective is to 'crowd in' funds that are presently not available to targeted agricultural value chains, especially for the production end, into the BFF. The facility will also have a window to serve other value chain actors (off-takers, MSMEs, input suppliers) that have different rates of return and risk profiles from those of primary producers in the same value chains. This second window will also enable reflows from the Rural Enterprise Development Fund (REDF) to continue revolving beyond the close of REP, to benefit and improve the livelihoods of households and groups operating micro and small enterprises.
100. The BFF will be estimated based on a demand survey and it will be grounded on and supported through business planning referred to in Subcomponents 1.1 and 1.2 and by outreach activities referred to in Subcomponent 3, including FBOs, women and youth groups. This will include demand for investments financing, inputs and labor for improved agricultural practices to enhance climate change resilience. The BFF will seek to leverage commercial funds and risk mitigation instruments that are currently not reaching AAFORD target groups. Compatibility and accessibility of other comparable funds will also be considered. Interest rates at the wholesale and retail levels will be negotiated through the multi-stakeholder platform established in Subcomponent 2.2, taking into consideration the supply-side sustainability and the demand-side producers' reasonable returns on investment for poverty reduction, with the grant window available to help close gaps and incentivize the use of risk-mitigating instruments (especially agricultural insurance) needed to support loan portfolios for agricultural production.
101. The BFF will be capitalized with an initial contribution from IFAD with the expectation of mobilizing additional funds from other external sources such as the Agri-Business Capital (ABC) Fund and the Green Climate Fund (GCF), expected to reach US\$12-15 million. It will also be compatible with the REDF and REP's Matching Grant Fund in order to facilitate government contribution of revolving reflows for the benefit of agricultural value chains and rural MSMEs on a sustained basis (about US\$4-6 million expected). The BFF will utilize the existing disbursement structure of the credit line from the BoG through ARB Apex Bank to RCBs and non-bank PFIs, or directly to participating universal banks. The ARB Apex Bank shall manage the grant funds, as under REP. These arrangements will be reviewed and administrative arrangements will be put in place to ensure that BoG and/or ARB Apex Bank can continue to revolve the recovered funds beyond the end of the project, as an exit strategy (recognizing that funds will periodically need to be replenished to maintain their real value, as a consequence of the subsidized-pricing arrangements and loan losses). All PFIs must be licensed and meet minimum performance criteria (Refer to PIM for detailed description of BFF).
102. The first step will be for the ISU to develop operational manuals, including criteria for selecting PFIs, flow of funds, administrative procedures, etc. These will be adapted from the operational manuals for REDF and REP Matching Grants. The second step will be for the BOG and the ARB Apex Bank to open accounts to receive the funds mobilized for the BFF.
103. **Subcomponent 2.2: Enhancing the environment for market access** The expected outcomes are the replication of success cases based on lessons learned, by engaging stakeholders in a learning process and a sustainable policy dialogue, enabling improvements in the overall framework to address the current weaknesses that inhibit public and private investment in agricultural value chains. Conducive policy dialogue, forums and stakeholder engagement are needed to improve the quality and efficiency of regulatory systems that govern access to key agricultural factors, particularly for smallholder farmers. Studies of lessons learned will provide a basis for replicating and scaling up successful models, and will help support improvement of the policy and legal framework.

104. Activities:

105. *Collaboration with other IFAD programmes*, Development Partners and Apex organizations for knowledge-sharing (informed by studies; see below), policy dialogue and replication. Annual Policy Forums will address issues such as: affordability of agricultural production financing and risk mitigation instruments; reducing production costs and enhancing productivity and returns on investment for smallholder producers (especially women and youths); development of market-enhancing institutions; development and status of FBOs, women and youth as clients of PFIs and intermediaries; warehouse receipts and their acceptability as collateral; identification of policy gaps of green agricultural financing in Ghana; etc. This will be implemented in partnership with an agency able to sustain the activity beyond AAFORD.
106. *Lessons learned for replication*: Studies will be undertaken to document lessons learned with respect to directed concessional and/or blended lines of credit to reduce producers' repayment burden, risk mitigation instruments, climate-resilient practices, and other lessons of experience to facilitate replication in other projects (e.g., with respect to making agricultural insurance more affordable; ensuring that some of the benefits of portfolio guarantees and insurance are passed on to smallholder farmers; minimizing adverse effects of climate change; inclusion of women and youth; etc.). The findings will feed into the other activities of this Subcomponent 2.
107. *Enabling policy environment*: This activity will involve development of the overall policy and the strategic and legal framework for expanding access of smallholders and other agricultural value chain actors to financial services. Drawing on the results of the above stakeholder consultations and studies, AAFORD will facilitate the updating of the agricultural finance strategy and action plan; implementation of the legal framework for warehouse receipts; and other relevant policy, regulatory and legal issues that arise.
108. The immediate policy issue to be addressed is legislation to formally recognize and specify the terms of warehouse receipts, which at present come under general contract law and are not widely understood or utilized. AAFORD also proposes to take the lead in engaging stakeholders to update the 2008 Agricultural Finance Strategy and Action Plan, recognizing that significant developments have taken place in the last decade (especially regarding various risk mitigation instruments, FBOs, and District-level coordinating mechanisms) and that there is a need for greater coordination of policies and approaches governing various government and donor-supported projects. In addition, AAFORD would support an annual Policy Forum that would identify additional policy and legal issues that need to be addressed, and could potentially be supported under Subcomponent 2.2, in partnership with other programmes.

109. Component 3: Project Implementation Support

110. Details of all implementation support aspects is presented in section 4.K.a

E. Theory of Change

111. *Development challenges*: In Ghana, Agriculture is the main source of livelihood for rural population and contributes to 21.2 per cent of the GDP. It provides employment to approximately 44.7 per cent of the population, particularly for youth and women. The main development challenges in the project areas are high levels of poverty, youth and women unemployment, climate change, food insecurity and malnutrition, particularly in the northern part of the country. Rural poverty, food insecurity and malnutrition in Ghana are closely associated with low productivity, particularly in rain-fed systems impacted by climate change and climate variability and degraded natural resources (soil erosion). Ghana's recent impressive economic growth has not yet been sufficient to reduce poverty meaningfully in those areas. Youth and women unemployment remain high due to the lack of employment and skills, mismatch of education and industry, inability of the economy to create new jobs, and limited access to capital for youth. The effects of climate change are visible in the forms of changes in rainfall patterns, high temperatures, land degradation, soil nutrition depletion and periodic droughts which affect the availability of nutritious food and the health of children and young mothers. In addition, weak bargaining power and individual selling cause low and uncertain income.
112. *Key constraints*: Access to finance has a potential role to play in increasing farm productivity through improved inputs and agricultural practices, which involve extra costs. However, it remains a key constraint for smallholder farmers, farmers' organisations, and all actors along the agricultural value chains. This limits the opportunities to modernize production and add value by upgrading production technologies/techniques and inputs. These challenges have continued to constrain sustainable agricultural development in the country, resulting in general low productivity and little marketable surplus to generate income.
113. *Opportunities*: AAFORD will address the above-mentioned causes driving high rural poverty rates and vulnerabilities among rural families to achieve food security and improved living standards of smallholder farmers, women and youth. AAFORD will do so by building on the important opportunities existing in the rural development and rural finance context: i) IFAD's long accumulated experience in Ghana, focusing on productivity improvement, developing rural institutions, marketing through off-taker linkages, rural finance development, youth skills and microenterprise development, and resilient livelihoods development; ii) Presence of ongoing interventions of current IFAD projects in the AAFORD project areas, e.g. presence of FBOs and off-takers developed by GASIP and BACs/BRCs, developed by the REP; iii) Willingness of financial intermediaries to consider agricultural lending at affordable rates if backed by risk-sharing and interest-lowering mechanisms; iv) Recent launch of the AfDB and GoG supported GIRSAL as a risk sharing mechanism to promote agricultural lending at affordable rates, and the launch of the GoG-supported GCX offering certified warehousing facility and warehouse receipts; v) Willingness of the GIZ-supported GAIP to offer agricultural microinsurance services to AAFORD target groups at affordable rates; vi) presence of MoTI's 1d1f initiative in the project area, creating new market linkage opportunities for smallholders.
114. *Component 1* will build the capacities of target groups, intermediaries and market-enhancing institutions. It will focus on: i) increasing crop production and agricultural productivity through adoption of improved technologies; ii) youth job creation and livelihood diversification by increasing entrepreneurial, business management and job skills of youth and women; iii) reducing wastage and improving storage through improved post-harvest handling and processing capacity primarily targeting youth and

women members; iv) increased access by target groups to financial and marketing services and their integration in agricultural value chain outgrower models using business plans and business contracts; v) strengthening the savings habits of the target households and institutions; vi) strengthening CIs; viii) improving child and family health by increasing awareness of nutrition-enhancing foods (especially for women); ix) building awareness and utilization of climate-resilient agricultural practices for youth and women; x) supporting 'green skills' for youth to engage in environmentally-friendly income-generating activities, xi) supporting equal voice and increasing women's representation in leadership positions in CIs and simultaneously promoting balanced workloads through technology driven interventions; and xi) increasing the capacity of financial institutions to deliver agricultural financing by creating agricultural finance desks, inducting agricultural finance officers and developing agricultural products and delivery systems and utilising risk mitigation instruments (warehouse receipts, loan portfolio guarantees, agricultural insurance).

115. **Component 2** will support financial institutions and marketing facilitators to deepen their outreach through measures such as: i) providing intermediary financial institutions with access to BFF to help reduce their cost of capital and lending rates to smallholders; ii) support for GIRSAL's collateral guarantee, the GCX warehouses and GAIP agricultural insurance to increase their outreach to target households through business plan based partnerships and cost incentives; and iii) developing a conducive environment by supporting policy, strategic and legal framework to enable agricultural value chain actors to integrate smallholder producers.
116. 109. These interventions will be implemented in an integrated manner within a coherent landscape to i) increase the production and availability of food for household subsistence and overcome food insecurity and nutrition deficiency; and ii) increase the marketable surplus and the marketing of produce to earn more income and increase the standards of target households. These factors will lead to AAFORD's development objective: to improve productivity, income and resilience of smallholder farmers, vulnerable women and youth.

F. Alignment, ownership and partnerships

117. **Alignment and ownership:** i) Alignment: AAFORD is aligned with SDG 1 (end poverty) particularly 1.2 (reduce poverty by at least 50 per cent) and 1.5 (build the resilience of the poor); SDG 2 (achieve food security) particularly 2.3 (double agricultural productivity and incomes) and 2.4 (ensure sustainable food production systems); SDG 5 (gender equality) particularly indicator 5.5.a (women's equal rights); and SDG 15 (sustainable use of terrestrial ecosystems) particularly 15.3 (restore land affected by desertification, drought and floods); ii) Country ownership: AAFORD is aligned with the development strategies set out in the Medium-Term National Development Policy Framework (MNDPF 2018-2021). It is also aligned with the priorities set by the MoF in the National Financial Inclusion and Development Strategy (NFIDS 2017-23); and MoFA's Investing for Food and Jobs. The approach and project concept were validated through a consultation process with the Development Finance Unit of Financial Sector Division of MoF during which it was observed that the focus should be on enabling the rolling out of GIRSAL and participation of smallholders in the GCX initiative. It was also discussed with GoG line ministries as well as development partners during the COSOP consultation bi-lateral meetings.
118. **Synergies and partnerships:** AAFORD's partnerships with other development partners and their initiatives will be as follows: i) African Development Bank: AAFORD will partner with AfDB and facilitate the AAFORD PFIs to benefit, in priority, from the AfDB's technical services to GIRSAL developed in the areas of i) developing a digital platform for the GIRSAL financial partners to improve the design and delivery of agricultural value chain portfolios and ii) strengthening GIRSAL's internal operations systems. The funding from AfDB is expected to come from the AfDB project supporting GIRSAL. The proportion of the AfDB's contribution to the credit guarantees extended to the AAFORD PFIs will be denoted in the partnership agreements between GIRSAL and the AAFORD PFIs. These partnership agreements will also identify the specific capacity building needs of the AAFORD PFIs which will be supported directly by GIRSAL through AfDB contributions. AAFORD can also share in the costs of TA to AAFORD PFIs as an incentive for GIRSAL to focus on AAFORD activities and beneficiaries. AAFORD will facilitate, coordinate and provide quality control support for these investments.
119. ii) ABC fund: The IFAD supported ABC fund will enable the AAFORD PFIs to access additional financial resources needed to expand their agricultural finance portfolios in the project areas. The ABC fund will partner in the AAFORD supported BFF and follow a harmonised approach for supporting the AAFORD PFIs; The design mission had several rounds of teleconferencing with the ABC Funds team where the objectives of the BFF, type of products and implementation mechanisms were discussed. The ABC Fund also reviewed the draft write up on the BFF in the PDR and the PIM. Based on these consultations the ABC Fund expressed interest to partner with US\$4.3 million. The AAFORD project will be in the pipeline for the ABC Fund to be financed from its current resources. Since AAFORD will begin the disbursement of the BFF only in year 3, there is sufficient time for the ABC funds to make resources available.
120. iii) Alliance for a Green Revolution in Africa: AGRA is already an active player in the development policy space in Ghana. It has served as a partner in the establishment of GIRSAL, GAIP and GCX and is pursuing a set of policy issues to smoothen the flow of these benefits to the smallholders. AAFORD actively partner with AGRA to pursue evidence based policy dialogue with various stakeholders at the macrolevel based on AAFORD's field level implementation experiences. Intensive discussions have been held with AGRA in Ghana. There is already strong collaboration under some of the ongoing programmes of both IFAD and AGRA. AAFORD intends to build on IFAD's cooperation with AGRA in ongoing and future programmes. The collaboration could also be expanded in the future if AGRA is able to mobilize more resources to replicate experiences in Kenya under the PROFIT project.
121. iv) Green Climate Fund (GCF): GCF will support AAFORD to i) carry out climate risks analysis and to develop the capacity of CIs to respond to these risks ii) support the outreach of climate adapted credit products to the target households and iii) enhance the outreach of microinsurance services in the project areas. IFAD has developed a simplified accelerated process (SAP) on inclusive green finance. The first SAP proposal, for Niger, has been approved by the GCF board. The business model of the SAP for Niger is going to be replicated in the region under a regional program in which Ghana will be included. With this proven model, the design process will be shorter than that of Niger which took seven months. The mechanism on how GCF will be

disbursed, accessed and implemented will be drawn from the Niger model.

122. Participating Financial Institutions: About US\$4.3 million is expected to be mobilised from PFIs. The modality of the PFI contribution is well established through various IFAD and World Bank projects for agriculture, community-based rural development, rural enterprises, and even solar home systems. The modality requires the client to put 10 per cent of the investment cost in order to trigger a loan for the remaining 90 per cent, of which four-fifths (72 per cent of investment cost) comes from a (concessional) line of credit and one-fifth (18 per cent of investment cost) from the resources of the PFI.
123. GIRSAL: The Bank of Ghana (BoG) and the AfDB have supported GIRSAL's credit guarantee services by contributing to the GIRSAL guarantee fund (US\$72 million). Investment income from this fund enables cross-subsidization of the cost charged for portfolio guarantees. GIRSAL will contribute US\$11.3 million. The contribution from GIRSAL pertains to the BoG resources in the GIRSAL guarantee fund which will serve as 60-80 per cent collateral supporting BFF credit disbursement from AAFORD's Participating Financial Institutions (AAFORD PFIs) to off-takers and FBOs.
124. The implementation arrangements for GIRSAL credit guarantee support will involve partnership agreements between GIRSAL and the AAFORD PFIs. These agreements will define mainly the eligibility criteria of AAFORD PFIs, expected volume of guarantee required, terms and conditions for GIRSAL support, capacity building needs of the AAFORD partners to be effective partners, the implementation steps for obtaining GIRSAL guarantee and the settlement procedure in case of default faced by PFIs. AAFORD will participate in these agreements as a partnership facilitator by i) assisting the PFIs to meet the GIRSAL terms and conditions and ii) supporting the smooth and timely implementation of guarantee cover before BFF disbursement and settlement (where relevant) after disbursement. Based on these agreements, the GIRSAL investments (collateral guarantee) will be made directly at the product level connected to the volume of BFF funds disbursed by the AAFORD PFIs. The AAFORD PFIs and GIRSAL will report to AAFORD about the volume of credit guarantee funds used to support the disbursement of the BFF.
125. Other AAFORD partners will be: i) ARB Apex Bank: AAFORD, in coordination with the BoG will partner with the ARB Apex Bank in the development and management of the BFF; ii) Other IFAD projects: AAFORD will develop partnerships with the institutions developed by ongoing IFAD supported projects (e.g. BACs/BRCs developed by REP) and build on the track record of the partnerships of value chain actors and financial intermediaries in the AAFORD areas with GASIP and REP; iii) Other development programmes: During its implementation AAFORD will also explore partnerships with projects of other development partners such as the Ghana Financial Sector Development Programme of the World Bank about the development of Village Saving and Loans Associations (VSLAs) and their linkage to formal financial services. It will also explore linkages to the KFW supported OVCF and the DANIDA supported Rural Development Fund (RDF) for developing value chain financing linkages in the project areas. The CDDPs will identify the presence of other donor and government supported projects in the clusters, mainly the ones which are focused on strengthening extension services and capacity building of FBOs. AAFORD will partner with these initiatives in a manner that allows AAFORD to focus more on the development of marketing linkages and access to finance for the target groups.

G. Costs, benefits and financing

a. Project costs

126. Total Project costs including physical and price contingencies are estimated at US\$69.7 million over a 6-year period. Component 2 on Expanding and Directing Affordable Finance in a Conducive Environment is the main investment and represents 52 per cent of project costs. Component 1 on Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains represents 41 per cent of total costs. The component 3 'Implementation Support' represents 7 per cent of the total costs. Table 1 shows total project costs by components and subcomponents across in foreign currency.
127. Investment costs are US\$60.4 million and represent 95 per cent of base costs. Taxes amount to US\$ 9.4 million, equivalent to 13 per cent of total costs. Recurrent costs are valued at US\$ 3.4 million or 5 per cent of base costs. The exchange rate used is US\$1.0 = GHS 5.5. The cost per direct beneficiary household is US\$ 929 and cost per beneficiary is US\$129. The base costs are calculated at October 2019 prices and include estimated duties and taxes. Total contingencies are US\$3.4 million or 5 per cent of total costs

b. Project financing/co-financing strategy and plan

128. The total project costs of US\$69.7 million will be financed by i) IFAD US\$ 15 million (IFAD loan of US\$ 11.5 million and IFAD Green Grant of US\$ 3.5 million); ii) AGRA (US\$1 million parallel financing); iii) GCF (US\$ 9.9 million); iv) GoG (US\$25.9 million of which US\$7.9 million as taxes and duties exemptions, US\$11.4 million as contribution through GIRSAL risk sharing facility and US\$6 million as REP revolving funds contribution) and GoG project management contribution of US\$0.6 million); v) Partnering Financial Institutions (US\$4.3 million); vi) ABC Fund (US\$4.3 million); vii) AfDB (US\$3.5 million); and viii) Beneficiaries (US\$5.8 million) in cash, casual labour, inputs and equipment (refer to table 2).
129. The domestic contribution is robust, for instance, for each US\$1 IFAD investment; domestic contribution is US\$2.4. Similarly, for each US\$1 IFAD investment, international contribution is US\$1.3. Domestic contribution (US\$36 million) accounts for a robust 52 per cent of the total project costs and includes (i) GoG (taxes and duties) in the amount of US\$7.9 million, (ii) GoG (REP) in the amount of US\$6 million, (iii) GoG (GIRSAL) in the amount of US\$11.4 million ;(iv) beneficiaries (cash & in-kind) in the amount of US\$5.8 million, (v) PFI in the amount of US\$4.3 million and (vi) GoG (cash) in the amount of US\$0.6 million. The international contribution is contributing 48 per cent of the overall project costs (equivalent to US\$33.7 million) comprising: (i) GCF (US\$9.9 million), (ii) ABC fund (US\$4.3 million), (iii) AfDB (US\$3.5 million), (iv) AGRA (US\$1 million) and (v) IFAD (US\$15 million).

130. **Table 1: Project costs by Components (subcomponents) and year(USD'000)**

Republic of Ghana
Affordable agricultural financing for resilient rural development (AAFORD)
Project Components by Year -- Totals Including Contingencies

	Totals Including Contingencies (US\$ '000)						
	2020	2021	2022	2023	2024	2025	Total
A. Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains							
Develop capacities of target groups to expand marketable surpluses	182	2,330	2,351	2,356	2,269	769	10,257
Outreach of financial and agricultural services	38	654	3,398	4,802	4,568	4,260	17,720
Marketing and ICTs for outreach of rural financial and agricultural services	-	-	-	180	187	195	562
Subtotal	220	2,984	5,749	7,338	7,024	5,224	28,539
B. Expanding and Directing Affordable Finance in a Conducive Environment							
Expanding and Directing Affordable Finance in a Conducive Environment	-	35	5,668	8,116	8,077	13,345	35,241
Value chain collaboration with other IFAD programmes	96	29	231	658	84	192	1,289
Subtotal	96	65	5,899	8,774	8,161	13,537	36,531
C. Implementation Support							
Implementation Support	706	607	629	1,070	777	806	4,595
Subtotal	706	607	629	1,070	777	806	4,595
Total PROJECT COSTS	1,022	3,655	12,277	17,182	15,962	19,566	69,665

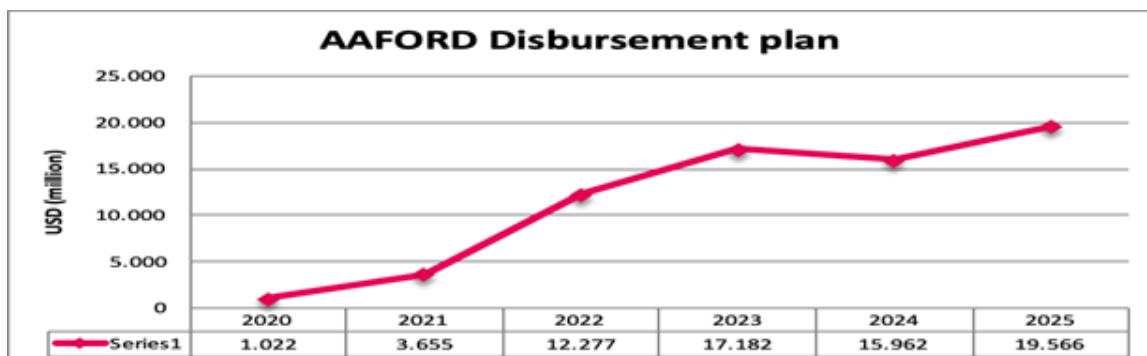
131. Table 2: Project costs by Components (subcomponents) and financier (USD'000)

Republic of Ghana																											
Affordable agricultural financing for resilient rural development																											
Expenditure Accounts by Financiers																											
(US\$ '000)																											
	Government	IFAD		IFAD Green Grant		GCF		GoG (REP)		AGRA		PFI		GoG (GRSAL)		ABC		AIDB		Beneficiaries		GoG (cash)		Total			
		Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%		
I. Investment Costs																											
B. Equipments, Goods and Vehicles		116	18.1	525	81.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	641	0.9	
C. Consultancies		1,074	16.3	2,042	31.0	1,474	22.4	1,646	25.0	-	345	5.2	-	-	-	-	-	-	-	-	-	-	-	-	6,581	9.4	
D. Training & Workshops		1,654	18.1	2,402	26.3	2,005	22.0	1,509	16.5	-	631	6.9	-	-	-	-	681	7.5	242	2.7	-	-	-	-	9,123	13.1	
E. Grants and subsidies		1,450	18.1	843	10.5	-	-	2,464	30.8	-	-	-	-	-	-	-	-	-	-	3,243	40.5	-	-	-	8,000	11.5	
F. Credit Guarantee Fund, EA		3,411	8.3	2,496	6.0	-	-	4,308	10.4	5,976	14.5	-	4,267	10.3	11,360	27.5	4,290	10.4	2,840	6.9	2,371	5.7	-	-	41,318	59.3	
Total Investment Costs		7,705	11.7	8,308	12.7	3,479	5.3	9,927	15.1	5,976	9.1	975	1.5	4,267	6.5	11,360	17.3	4,290	6.5	3,521	5.4	5,855	8.9	-	65,663	94.3	
II. Recurrent Costs																											
A. Salaries and allowances		-	-	2,352	79.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	20.3	2,952	4.2
B. Operating costs		190	18.1	859	81.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,049	1.5	
Total Recurrent Costs		190	4.8	3,211	80.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	15.0	4,001	5.7
Total PROJECT COSTS		7,895	11.3	11,519	16.5	3,479	5.0	9,927	14.3	5,976	8.6	975	1.4	4,267	6.1	11,360	16.3	4,290	6.2	3,521	5.1	5,855	8.4	600	0.9	69,665	100.0

132. *Expenditure Category Overview* Credit and Guarantee Funds is the major expenditure account, estimated at US\$41.3 million, or about 59.3 per cent of the total project costs. The other investment expenditure accounts are training and workshops for an amount of US\$9.1 million or 13.1 per cent of total costs, followed by grants and subsidies for an amount of US\$8 million or 11.5 per cent of total costs, Consultancies for an amount of US\$6.6 million or about 9.4 per cent of the total cost, equipment's, goods and services for an amount of US\$0.6 million or 1 per cent of total costs. The recurrent costs represent 5.7 per cent of total costs at US\$4 million, comprising salaries and allowances for an amount of US\$3 million or 4.2 per cent of total costs, operations and maintenance for an amount of US\$1 million (1.5 per cent of project costs). The breakdown of expenditure accounts by component is reflected at the Annex 7.

133. *Disbursement flow*: To enable easy monitoring of progress, the below graph forecast the expected disbursement per year. This will allow continuously tracking progress during supervisor and following up mission. Around US\$17 million (24 per cent) of project resources will be disbursed till Year 3 and the remaining US\$52.7 million (76 per cent) will be disbursed in the last three years of the project. AAFORD disbursement pattern is represented below:

134. Graph 1. AAFORD-Disbursement Plan (US\$ 000)



c. Disbursement

135. The proceeds of the financing will be used for eligible expenditures and in line with the disbursement allocations specified in the relevant section of the Financing Agreement. IFAD funds will be disbursed into US Dollars Account at a commercial bank acceptable by the Fund and will be operated by the Financial Services Department of MoF. The regular signatories to the Designated Accounts will be the CPCU Director and the AFFORD Finance Manager as Cat A and B signatories respectively. However, Chief Director of MoF and the Director of Finance (MoF) will be substitute Cat A and B signatories respectively in the

absence of the regular signatories.

136. Designated Account (IFAD Loan). The funds will flow into a Designated Account in a commercial bank in Ghana acceptable to the Fund. This is to avoid co-mingling of funds as well as ease bank reconciliations. The Designated Account will be managed using Revolving Fund modalities. Following the opening of the Designated Account and upon request of the Borrower (Withdrawal Application), funds will be transferred based on the expenditure forecast for the first six months. Under the Revolving Fund modality the first advance withdrawal cannot exceed the reporting period of 6 months' forecast amount of IFAD financed expenditure approved in the Annual Work Plan and Budget (AWPB) for the relevant Project Year. Further advances to the Designated Account will be made for the next reporting period based on the AWPB or expenditure forecasts provided that at least 75% of the immediately preceding advance and 100% of all prior advances have been fully justified. As the project will avail itself of the Report Based Disbursement methodology Interim Financial Report (IFRs) will need to be submitted to IFAD at quarterly intervals within 30 days after the period-end. IFRs submitted shall be subject to verification and audit by the Ghana Audit Service (GAS) on a bi-annual basis. In case of delays in submission of the bi-annual verification and audit report, advance withdrawals for the subsequent reporting periods will not be processed. IFR templates will be provided as annexes to the "Letter to the Borrower". The proceeds from the Designated Account shall be used exclusively to finance the Programme's eligible expenditures as will be stipulated in Schedule 2 of the Programme Loan Agreement. Funds shall be periodically transferred from the Designated Account to the Programme Operational Account in Ghanaian cedi for the purpose of financing the Programme's eligible expenditures financed by IFAD.
137. Government Public Financial Management procedures will be used. The methods of disbursement will include advances, direct payments, and reimbursements. Training will be provided to accounts staff on IFAD procedures and all processes documented as part of the PIM and outlined in MOUs with districts. Zonal offices to be responsible for close monitoring of implementing entities, including submission of returns.

d. Summary of benefits and economic analysis

138. The project will benefit about 75,000 direct and 15,000 indirect households. The project has an expected adoption rate of 60 per cent. The expected benefits are: i) At least 60 per cent of the households reporting increase in income; ii) at least 25 per cent of the targeted households reporting adoption on environmentally sustainable and climate resilient technologies and practices; iii) 60 institutions and groups strengthened; iv) 30 clusters and 350 communities reached with Community Outreach and Development Plan (CODP); iv) 50 new Village and Savings Loans Association formed to mobilize and lend savings within the group; members' total savings after 20 years period will be approximately US\$351 thousand; v) At least 120 youth under mobilization of youth community facilitators (YCF) are expected, and an additional 80 youth will be trained as youth institutional interns; vi) 6,000 households will use warehouse receipts to leverage funds for household consumption for three months at US\$50 per month; vii) 1,500 households that will benefit directly from the CODP training; viii) 15,000 households will increase their knowledge about effects of climate change, good agricultural practices (GAPs), financing mechanisms and institutions, and potential business opportunities; ix) 60 Community Institutions such as FBOs, women and youth groups will receive TA to prepare institutional business plans, which are expected to result in improved access to markets and financing; x) 60 new FBOs, women and youth groups will be formed, benefitting 1,200 households so they can participate more effectively in value chains;; xi) Almost 44,000 households (equivalent to the 60 per cent of the total targeted outreach) will get access to loans; xii) 24 offtakers and 300 MSMEs will be supported to obtain financing offtaker; xiii) and 12,500 HH (under REP support) will obtain financing for their income-generating enterprises.
139. Also, the preliminary results estimate total saving of CO₂ emission due to the project intervention of approximately 78,000 metric tonnes for the period of 20 years. The estimated monetary value of emission savings is approximately US\$0.5 million for 20 years.
140. The Net present value (NPV) of the project is positive (US\$8.8 Million; GHS 53.5 Million). The Economic Internal Rate of Return (EIRR) is estimated at the value of 28 per cent, which demonstrates profitability of the project. The economic analysis suggests that AAFORD is feasible. All these worthiness indicators establish the economic feasibility of the project.
141. *Financial analysis:* The BFF targets two groups: Window I is for agricultural production (i.e. SMFs, MoFs and LFs); and Window II is focused on Enterprises (offtakers and MSMEs). For the purpose of the financial and economic analysis, six financial models have been developed for the production window: (i) sorghum; (ii) cassava; (iii) soya bean; (iv) groundnut; (v) rice (paddy) and (vi) maize. For Window II regarding enterprises, a gari processing activity has been taken as representative. Most models are expected to provide farmers with physical outputs and financial returns that are attractive in relation to their extra labour and other inputs and financial investment. The project is supposed to provide farmers with financial resources needed to cover production costs (operational or working capital), training, capacity building and administrative support. The project intervention is expected to increase the yield, quality and distribution of products. The loans for working capital will be used to buy seeds, fertilizers, labour costs, bags, shelling, winnowing, ploughing-mechanization services, where applicable, dryer, planter etc.
142. Individual production models (smallholder farmers) and enterprises (i.e. offtakers, MSMEs) have been used to calculate the value of production net of inputs and labour costs. The individual production was estimated at the three different levels: (i) SMF, which account for 80 per cent of the total target group, with an increase of working land size area for 0.5 acre; followed by (ii) market oriented farmers (MOF) of 18 per cent, with an increase of land size by 1 acre; and (iii) large farmers, accounting for 2 per cent of the total target ratio, with an increase of 5 acres. The Project is targeting 75,000 households (equivalent to 450,000 beneficiaries), and the adoption rate has been estimated at 60 per cent. Targeted groups are mostly women and youth, accounting for 50 per cent and 40 per cent, respectively.
143. *Model 1 Rice (paddy)* is focused on the semi-subsistence smallholder farmers (SHFs), market oriented farmers (MoFs) and large farmers (LFs) that already have existing production and planning to expand acreages under crop production. Model assuming that SHFs will expand for 0.5 acres of their crop production, MoFs with 1 acre and LFs with 5 acres land size. The same logic

applies for overall farmer's production financial models (i.e. model 1 to 6). The average yield is 1.9 tonnes/acre compared to the WoP scenario of modest 1 ton/acre. The production and investment costs including labour are US\$697, which includes investment, operational and labour cost. The average revenue is US\$1,214 and average incremental income is \$498. The Benefit cost ratio estimated is 1.9:1 showing that for each US\$1 spent the model will generate US\$1.9 of benefits, which is in favour of the model. The NPV is estimated at US\$2,134.

144. *Model 2 Sorghum*: The average yield is 0.6 tonnes/acre compared to the WoP scenario of modest 0.4 ton/acre. The production and investment costs including labour are US\$312, which includes investment, operational and labour cost. The average revenue is US\$334 and average incremental income is US\$43. The Benefit cost ratio estimated is 1.1:1 showing that for each US\$1 spent the model will generate US\$1.1 of benefits, which is in favour of the model. The NPV is estimated at US\$198.
145. *Model 3 Cassava*: The expected average yield is 6.8 tonnes/acre compared to the WoP scenario of 5 ton/acre. The production and investment costs including labour are US\$411, which includes investment, operational and labour cost. The average revenue is US\$801 and average incremental income is US\$148. The Benefit cost ratio estimated is 2.4:1 showing that for each US\$1 spent the model will generate US\$2.5 of benefits, which is in favour of the model. The NPV is estimated at US\$739.
146. *Model 4 Soya bean*: WP scenario includes the estimated yield of 0.7 tonnes/acre compared to the WoP scenario of 0.5 ton/acre. The production and investment costs including labour are US\$243, which includes investment, operational and labour cost. The average revenue is US\$268 and average incremental income is US\$194. The Benefit cost ratio estimated is 1:1 showing that for each US\$1 spent the model will generate US\$1 of benefits. The NPV is estimated at US\$977.
147. *Model 5 Maize*: The average yield is 2 tonnes/acre compared to the WoP scenario of 0.9 ton/acre. The production and investment costs including labour are US\$417, which includes investment, operational and labour cost. The average revenue is US\$520 and average incremental income is US\$71. The Benefit cost ratio estimated is 1.2:1 showing that for each US\$1 spent the model will generate US\$1.2 of benefits. The NPV is estimated at US\$350.
148. *Model 6 Groundnut*: The expected average yield is 0.6 tonnes/acre compared to the WoP scenario of 0.4 ton/acre. The production and investment costs including labour are US\$182, which includes investment, operational and labour cost. The average revenue is US\$592 and average incremental income is US\$104. This model demonstrates the highest profitability considering that the benefit cost ratio estimated at 3.2:1 shows that for each US\$1 spent the model will generate US\$3.2 of benefits. The NPV is estimated at US\$466.
149. *Model 7 Gari processing*: This model is Enterprises focused. The average production capacity is 198 tonnes compared to the WoP scenario of 43 tonnes. The production and investment costs including labour are US\$79,721, which includes investment, operational and labour cost. The average incremental income is US\$12,019. The benefit cost ratio estimated is 1.2:1 showing that for each US\$1 spent the model will generate US\$1.2 of benefits. The NPV is estimated at US\$57,613.
150. The financial aspects of models are presented at the table 4 demonstrating estimated average yield before the project intervention (WoP) and expected increase in yield due to the project intervention (referred here under WP). The average increase in yield is approximately 60 per cent, the smallest for soya bean and the highest for rice (paddy).

151. **Table 4: Financial Analysis Models**

Model	Average Yield WoP, kg/acre*	Average Yield, WP, kg/acre*	Production & investment cost, including labour (year 1) GHS/acre	Production & investment cost, before labour (average) GHS/acre	Average Production & investment cost, including labour GHS/acre	Average Revenue per year GHS/acre	Average Incremental income GHS/acre	Incremental income, (year 5) GHS/acre	
Lowland Rice /a	1.050	1.913	3.833	1.611	3.221	6.678	2.737	2.777	
Sorghum	380	581	1.714	1.076	1.731	1.836	237	314	
Cassava	5.000	6.800	2.259	1.679	2.116	4.408	812	742	
Soyabean	525	669	1.335	764	1.437	1.474	1.069	1.076	
Maize /a	930	2.067	2.293	1.709	2.405	2.862	390	555	

Groundnut	400	550	1.002	529	1.012	3.258	572	607	
Gari processing /b	43.000	198.143	438.466	477.905	477.905	552.560	66.105	64.336	

152. Table 4 shows production and investment costs with labour and without labour costs for the first year and the average value. The average revenue per year, average incremental income and incremental income at year 4 are also available in the table. All these seven models present a higher financial efficiency in terms of financial Net Present Value (NPV) and the financial benefits-cost ratio (BCR). For instance, NPV is positive for the all seven models (US\$2,134 for model 1 (rice paddy), US\$739 for model 2 (cassava), US\$198 for model 3 (sorghum), US\$977 for model 4 (soya bean), US\$466 for model 5 (groundnut), US\$350 for model 6 (maize), and US\$57,613 for model 7 (gari processing). Changes in financial indicators illustrate the predicted transformation in agricultural practices in the project area. Analyses of the farm and enterprise models confirm that the impact of the project at the farm level is financially attractive for family households and net farm incomes are expected to increase. For more details, refer to table 5.

153. The B/C ratio has been the highest for groundnut estimated at 3.2, followed by cassava (2.4), rice (1.9), rice (paddy) (1.2), gari processing and maize (1.2), sorghum (1.1) and the lowest value 1.0 is for soya bean. The return to family labour per day is between US\$9 and US\$27, with the smallest value for maize production and the highest for groundnut. For more details please refer to table 5 below.

154. **Table 5. Financial Profitability Indicators**

Model	Net present value GHS/acre	B/C Ratio	Return to family labour (US\$/day)	Poverty line
Rice (paddy)	2.134	1,9	20	
Sorghum	198	1,1	16	
Cassava	739	2,4	24	
Soyabean	977	1,0	16	
Maize	350	1,2	9	
Groundnut	466	3,2	27	
Gari processing	57.613	1,2	n/a	
<i>Comment: Poverty line is US\$1.9 per day (source: WB, Oct,2019)</i>				

e. Exit Strategy and Sustainability

155. AAFORD's exit strategy and sustainability is built on: i) Developing profitable and sustainable linkages between private-sector buyers/offtakers and target households (producers): The target households' (producer) success in meeting the quantity and quality standards required by the off-takers through AAFORD support will establish win-win partnerships generating profits both for the off-taker and the target household. Once the administrative bottlenecks in these linkages are removed through AAFORD support, their business relationship will continue based on market demand and supply principles. With the growth in this business relationship, the off-taker will increase its business volumes in the community to achieve economies of scale which will increase the outreach of these linkages to new smallholder farmers; ii) Successful engagement of PFIs in supporting the pro-poor business linkages between off-takers and producers: The successful engagement of PFIs in supporting the VC linkages between AAFORD supported smallholders and off-takers will develop the pathway for AAFORD to make a smooth exit. Further, the success of the business partnerships in the AAFORD clusters will motivate the PFIs to scale up this model even outside the AAFORD supported clusters; iii) Arrangements to continue revolving funds repaid into the BFF; iv) Policy dialogue and suitable

policy engagement to strengthen the enabling environment and facilitate smooth continuation of the AAFORD brokered partnerships; v) strengthened CIs and human capacities achieved through their institutional capacity, financial capacity and technical capacity development so that they can continue providing services to target households even after AAFORD; vi) developing a network of commercial service providers who will continue supporting and replicating AAFORD's achievements and vi) widely disseminating the AAFORD success stories and their implementation mechanisms (refer Annex 10).

3. Risks

H. Project risks and mitigation measures

156. The key risks and mitigation measures are presented below. Refer to Annex 9 for more details.

Risk	Risk Mitigation	Rating
<p>Technical aspects of programme:</p> <p><i>Diluted project effectiveness similar to previous projects:</i></p> <p>The effectiveness of previous IFAD projects was diluted by i) very wide geographic spread of project resources which limited community presence; ii) limited partnership between concurrent IFAD projects; iii) limited access to affordable finance and iv) focus on supply driven pathways to increase rural outreach of financial services.</p> <p><i>Farmers' unwillingness to access credit:</i> Farmers may not be willing to borrow even at concessional rates since they are risk averse</p> <p><i>Offtakers lack of participation:</i> Offtakers may not be willing to be serve as end of the line credit providers to farmers.</p> <p><i>Stiff lending criteria of PFIs:</i> PFIs have differing credit criteria and some may require collateral that might be difficult for off-takers to provide</p>	<p>AAFORD will address these constraints by i) focusing on a limited geographical area (two zones), ii) partnering with other ongoing IFAD projects, e.g. REP supported BAC/BRCs, GASIP supported Farmers Based Organisations (FBOs) in the project areas; iii) enhancing target groups' access to rural finance by focusing on both demand side interventions (increasing production, productivity, value addition, post-harvest techniques, institutional capacities) and supply side pathways e.g. setting up the Blended Finance Facility (BFF) and supporting the delivery of the BFF resources in partnership with Ghana Incentive-based Risk Sharing System for Agricultural Lending (GIRSAL), Ghana Agricultural Insurance Pool (GAIP) and Ghana Commodities Exchange (GCX).</p> <p>Farmers tend to be risk-averse and to perceive borrowing as an avoidable risk. The primary target, therefore, will be semi-subsistence and market-oriented farmers who wish to expand their marketable surplus, whether by adding some additional acreage or through productivity-raising inputs. AAFORD will also try to expand the use of available risk-mitigation instruments, including insurance to offset production risks, guarantees to offset PFIs' default risks, and warehouse receipts to permit taking advantage of higher off-season prices.</p> <p>Whereas farmers tend to avoid the risk of borrowing against their existing land holdings and crops, they have proven more willing to borrow for a marginal expansion, in collaboration with an offtaker who can provide the market as well as secure and manage the financing. Indirect access to credit through the offtaker also helps insulate the FBOs against risk of crop failure, as it is easier to renegotiate terms with the offtakers (who are often paid in kind rather than in cash) than with financial institutions. In some cases, the offtaker may actually be a legally constituted cooperative consisting of both producers and processors, which can both represent their mutual interests and satisfy the collateral requirements of the PFIs. The model has also worked to enable larger nucleus farmers (especially in the northern part of the country) to expand with minimal direct investment by borrowing to provide inputs and services (e.g., tractor) to outgrowers who can expand the scale of production.</p> <p>AAFORD will focus on a successful model that has emerged both from RTIMP experience (as well as USAID and other projects) and from recent observations in the field: building on an on-going relationship between an offtaker (usually a processor or nucleus farmer; sometimes an aggregator) and FBOs of outgrowers, and borrowing for</p>	<p>Medium</p>

<p>Risk of side selling: Farmers may resort to side-selling their produce after having accepted inputs from off-takers</p>	<p>an expansion of operations.</p> <p>One reason that PFIs (especially RCBs) are interested in working with FBOs is to gain their members as clients. AAFORD will provide capacity-building in financial literacy and VSLAs to encourage them to save in formal financial institutions. Nevertheless, there is a risk that such savings, and other assets held by smallholders, will be insufficient to meet the security requirements for loans from those institutions. This risk is mitigated in part by focusing on the off-taker-FBO model, in which a nucleus farmer or processor is much more likely to be able to provide the required security to take a large loan that is then passed on in bits (in-kind) to his farmers .</p> <p>To help close any remaining gap between assets and collateral requirements, working with GIRSAL is especially important. A GIRSAL guarantee can serve as collateral for 50% of the investment amount.</p> <p>When inputs are provided free or on credit, there is always a risk that people will come forward to receive them in order to sell at a profit, rather than utilize them directly for production. This risk will be mitigated by (a) working with existing FBOs that have an on-going relationship with off-takers; and (b) focusing on expansion of existing production. This will tend to exclude new entrants and 'free riders.' The off-taker provides the inputs and associated services (such as ploughing) in stages, not all at once. Members of FBOs who divert the additional inputs may jeopardize their on-going relationship with the buyer.</p>	
<p>Institutional capacity for implementation and sustainability</p> <p>Project management constraints similar to challenges of previous projects: The experiences of past IFAD projects indicate that the PCUs (e.g. GASIP, RAFIP) were located centrally in Accra, far from the project communities. The centralised units were directly responsible for mobilising the local project partners and brokering their linkages to the project communities. However, these units were over-burdened due to limited staff, delays in replacement/recruitment of key staff and limited field presence which caused delay in implementation.</p> <p>Complexity of implementation arrangements: Implementation arrangement has many parts and involves steering committees, Project Implementation Units and Service providers. It can be too complex for day to day management.</p>	<p>AAFORD will mitigate this risk by i) establishing the Implementation Support Unit (ISU) in the project area itself and strengthening the ISU's implementation support and monitoring capacity by establishing Zonal Project Coordination Units (ZPCUs) in each of the two project zones; ii) AAFORD will not rely solely on ISU and ZPCU staff for implementation. The project will also partner with implementation service providers (SPs), deploy community facilitators and youth interns to support the partnerships between the project communities and the local private/public project partners. The ISU and ZPCU staff will be responsible for capacity building, monitoring, quality control and technical backstopping. Even in the case of temporary delays in staff replacement, implementation will not be delayed.</p> <p>The clarity of the roles will facilitate reporting and flow of information. The location of the ISU in the project area will facilitate close coordination between different implementation stakeholders and swift attention to challenges. The physical proximity between the ISU and the Zonal Steering Committee will develop regular communication and strong relation between them and ZSCs involvement in resolving local challenges which may be impeding implementation. At the macro or national level, the Development Finance Unit of Ministry of Finance's Financial Sector Division will coordinate AAFORD's implementation and ensure its consistency with wider national objectives and synergies with GoG activities to increase and expedite the flow of credit to the agricultural sector.</p>	<p>Medium</p>

<p>Financial management</p> <p>Delay/default in counterpart funding (co-financing): The substantial amount of co-financing expected to be mobilised raises the level of risk to the project if this financing does not materialise.</p> <p>Complexity of financial management and funds flow structure: Many co-financiers may create complications in terms of coordination and management of the funds.</p>	<p>The GoG is adopting austerity measures, leading to lower spending and not meeting some elements of counterpart commitments. Most counterpart funding will be from other financial institutions / existing facilities and linked to project activities and outputs; e.g, access of smallholders to financial services from these partners. This will address the issues related to availability of counterpart funding.</p> <p>To mitigate the risk associated with delay/default in mobilising co-financing the IFAD contribution is spread across all the components and supports the phased implementation of the critical activities related to stimulating credit demand (e.g. increase production, productivity, capacity building of local institutions) and enabling affordable credit supply (contribution of credit funds to the BFF). Therefore, the ISU can start implementing the core activities of the project with IFAD funds alone. If there is delay in mobilising finance from other partners, the start up of the project will not be affected. The BFF can continue by revolving repayments of initial IFAD funds if other contributions are delayed or do not materialise.</p> <p>Nevertheless, it is recognised that the full package of activities is needed to create sustainable change impact in each cluster. Therefore, in case of further delay/default in co-financing the Annual Work Plan and Budgets (AWPBs) will be structured in a way that in case of one party defaulting the geographical scale of implementation (number of clusters, number of communities in a cluster) is reduced instead of holding the activity in suspension or creating gaps in activities implemented in the villages.</p> <p>As in many other countries, MoF is the most advanced public institution in terms of Public Financial Management (PFM). Foreseen project team is very experienced and funds flow arrangements (proposed by them based on their previous experience) are more sophisticated than the ones used for other projects.</p> <p>The Finance Unit will use GIFMIS (the country PFM software) to manage the project. GIFMIS can easily accommodate multiple funding sources in terms of accounting and reporting.</p> <p>In addition, IFAD supervision will support the project team in the set-up and management of different funding sources as soon as these materialize.</p> <p>Co-financing funds flow: The ISU will manage the flow of funds from IFAD and GCF resources. It will coordinate all investments from other financiers e.g. GIRSA, AGRA, AfDB, PFIs and ABC Funds. The GIRSA and PFI investments will be made directly at the product level connected to volume of BFF funds disbursed from the partner financial institutions to project partners (offtakers, FBOs). The funds flow from the ABC Funds will be defined between itself and its borrower (BoG/Apex Bank/Partner financial institutions). Each financier has own reporting requirements and AAFORD will make an effort to harmonise timing.</p>	<p>Medium</p>
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<p>Procurement:</p> <p>The Procurement Review Matrix (PRM) identified the possible procurement risks at the project level, including: i) allocation of points for shortlisting consultants are not usually included in the request for expression of interest, ii) for some contracts, there are both cost and time overruns, iii) there are issues with procurement filing. AAFORD will have procurement team at the project level to ensure smooth flow of key procurement functions.</p>	<p>AAFORD will mitigate the risks through the following steps:</p> <p>i) Relevant training will be provided to the procurement staff during project start-up workshops. The training will also contribute to building up the procurement capacity of the Project staff to follow the required procurement approach and methodology, orient staff members to best practices and train them to monitor the quality and timeliness of documents submitted to IFAD for supervision missions and for prior review; ii) s management and monitoring teams will be formed, led by the Central Project Coordinator (CPC) and including the technical and the procurement teams, and beneficiaries (if necessary). These teams will be responsible for contract supervision, monitoring, and application of the conditions of contract. Close monitoring will be done to prevent poor performance of service providers by ensuring their adherence to contract documents; iii) Procurement clinics on procurement record keeping will be provided to AAFORD procurement staff to ensure that the complete procurement documentation, including a procurement filing checklist, is kept on procurement files at the ISU; iv) Provide contract management training to all AAFORD staff.</p>	<p>Medium</p>
<p>Climate Change: Extreme weather events mainly heat waves, pests and diseases, water scarcity can have an impact on agriculture productivity.</p>	<p>This risk is mitigated by a range of measures such as digital early warning systems, introduction of heat and pest and disease resistant varieties, early maturing varieties (details in SECAP review note)</p>	<p>Medium</p>

157. Ghana's Public Financial Management environment is considered largely adequate to satisfy IFAD fiduciary requirements. The GoG has made progress in strengthening its public financial management (PFM) framework and systems. It has demonstrated its commitment to continuing its PFM reforms by developing more efficient public FM systems, including the implementation of the Ghana Integrated Financial Management Information System (GIFMIS) - which is an integrated computerised Financial Management System that facilitates budget preparation and execution, accounting and financial reporting, cash management, assets management, human resource and payroll management - and ensuring transparency by strengthening state oversight institutions, including the Public Accounts Committee of Parliament, which holds public hearings on allegations of fraud and corruption and instances of financial irregularities with public funds. It has enacted appropriate laws such as the Public Financial Management Regulations (L.I. 2358 of 2019) and the Public Financial Management Law (Act 921 of 2016) to enforce the reforms. Donor funds are budget but the reporting on utilization is very limited (PEFA 2018).

158. Being the MoF the Lead Implementing Agency, the overall internal control environment is expected to satisfy IFAD requirements. For AAFORD it is foreseen full utilization of GIFMIS; foreseen risks include inadequate set-up of the chart of accounts, cost categories, components and sub-components, with the subsequent impact in the quality and reliability of financial reports. Audit risk is mitigated by utilization of the services of the National Public Auditor "Ghana Audit Services", who apply ISSAIs standards. At design the overall Financial Management risk is rated as Medium due to the lack of experience working with MoF. The risk will be reassessed during implementation.

I. Environment and Social category

159. In line with IFAD's Social, Environmental and Climate Change Assessment Procedures (SECAP), AAFORD remains classified as a **Category B program**, implying that AAFORD is likely to cause minimal adverse environmental effects. Two key risks to environmental and social management are: (i) poor environmental governance of the loan products, which can be mitigated through capacity building of multiple actors in technical, management and governance aspects, and strengthening the financial institutions environmental and climate risks tools and governance; and (ii) low productivity and degraded natural resources to be mitigated through promotion of sustainable land and water management practices. AAFORD will not invest in high risk projects and will ensure the women and youth are included. (Refer Annex 5, SECAP)

J. Climate Risk classification

160. In line with the climate risk categorization guidelines, AAFORD is rated 'high'. The climate-smart activities introduced by AAFORD will ensure that greenhouse gas (GHG) emissions are further reduced. Capacity building of key actors along the agricultural value chains on climate change and awareness will help end beneficiaries' and financial institutions to reduce key risks. Given the fact that 2 regions have different level of climate exposure, AAFORD will ensure that an Environmental and Social Management Plan in the SECAP is implemented in line with IFAD guidelines to ensure that the overall logic intervention of the Project and its components /activities are aiming not only to mitigate/alleviate any of the existing and future negative

environmental and impacts within the total project's area but additionally to produce substantive positive impacts on beneficiaries through the mainstreaming.

4. Implementation

K. Organizational Framework

a. Project management and coordination

161. The Lead Project Implementation Agency (LPIA) will be Ministry of Finance (MoF) with close collaboration with the Ministry of Food and Agriculture (MoFA), and also the Ministry of Trade and Industry (MoTI). AAFORD's implementation will rely on a mix of community, public and private sector and technical service providers. These ministries will form the core of an inter-ministerial platform by ministers to provide policy guidance and consistency with government's development agenda. It shall have an annual meeting cycle. Beneficiary households will play a lead role through CIs (farmer-based organizations, NGOs, women and youth groups, savings and credit groups, among others). These ministries will form the core of an inter-ministerial platform by ministers to provide policy guidance and consistency with government's development agenda. It shall have an annual meeting cycle.
162. **Project Steering Committee (PSC):** A high-ranking Project Steering Committee (PSC) to be chaired by the chief directors of Ministry of Finance and Ministry of Food and Agriculture shall be set up for the overall oversight of the project. The Minister of Finance will designate the Chair of the PSC and an alternate. The committee will include representatives of all relevant ministries and agencies (MoF, MoFA, MoTI and representatives from the regions of implementation), and both public (representing financial sector intermediaries and agricultural market intermediaries) and private institutions and non-state actors' representatives (such as NGOs) and representatives of youth and women who operate along the relevant agricultural value chains as practitioners or advocates. The PSC will meet at least twice a year, and as necessary. The main responsibilities of the steering committee will include: (i) providing strategic and policy guidance to the Implementation Support Unit (ISU) for implementation and coordination of activities; (ii) ensuring overall conformity with government policies and strategies; (iii) reviewing project progress and performance; (iv) approving the Annual Work Plan and Budget (AWPB); (v) resolving implementation problems or conflicts; and (iv) assisting the ISU in obtaining government assistance and contributions to the project when needed. A PSC Technical Committee (PTC) will be constituted at the central level comprising members drawn from the PSC. The PTC will serve as a standing committee empowered to meet whenever needed to resolve implementation bottlenecks that cannot be settled at the zonal level and requires immediate attention.
163. **Zonal Platform:** A Zonal Platform (ZP) will be formed in each AAFORD implementation zone to oversee planning, review progress, facilitate linkages between project stakeholders and remove bottlenecks affecting smooth implementation. The ZP will comprise representatives of MoFA (Regional Agricultural Development Units (RADUs), MoTI, district assemblies, financial institutions, agricultural market intermediaries such as offtakers (aggregators, processors and nucleus farmers), input suppliers and representatives of farmer groups and civil society organisations, among others in the private sector. The ZP will meet at least twice a year, and as necessary. The ZP will constitute a ZP Technical Committee (ZTC) from within the ZP members to meet whenever needed to resolve any project implementation bottlenecks encountered within the Zones.
164. **Implementation structure:** A two-level organisational structure will be established. The Implementation Support Unit (ISU) located in Sunyani and two Zonal Coordination Units (ZCU); one in Sunyani and the other in Tamale. Each ZCU will be roughly anchored in the jurisdiction of the former Brong-Ahafo and Northern regions. These zonal offices will represent the coordinating centres for the operational areas of AAFORD. (Refer to PIM for organizational structure, implementation modalities and procedures).
165. **ISU:** The ISU will be established in an implementation area of AAFORD to ensure effective implementation. Within the current targeting framework, the ISU is envisaged to be located in Sunyani. All ISU staff members will be competitively recruited from the professional labour market and will work on a full-time basis for managing AAFORD. The coordination unit will operate within the supervision of the Financial Sector Division of MoF, [21] which will provide oversight and strategic direction to the ISU. A Central Project Coordinator (CPC) will head the ISU's day to day operations. The CPC will be assisted by a central technical support team and a central operations support team as defined in the PIM.
166. **Central technical support team:** The central technical support team will comprise the following officers: (i) Senior Monitoring and Evaluation Specialist (SMES), (ii) Senior Rural Finance Specialist (SRFS), (iii) Community Development, Livelihood and Gender Specialist (CGS), and (iv) Climate and Environment Specialist (CES). This team will carry out overall technical planning, implementation oversight and technical guidance to the Zones for AAFORD implementation.
167. **Central operations support team:** The team will consist of (i) Senior Finance Manager (SFM), (ii) Project Accountant (PA), (iii) Accounts Assistant (AA) (iv) Procurement Officer (PO), and (v) Procurement Assistant (PrA). This team will perform financial planning, management and control; project procurement, contracting and contract management and staff evaluation. It will monitor, record and report community and government levels.
168. **Zonal Coordination Unit (ZCU):** The ZCUs will be responsible for the zonal operations of AAFORD and will be staffed by professionals competitively recruited to manage AAFORD at the ZCU level on a full-time basis. The zonal team will comprise (i) ZCU Project Coordinator (ZPC), (ii) Field Implementation Supervisor (FIS), (iii) Monitoring and Evaluation Focal Point (MEF).
169. IFAD has a Complaints Procedure to receive and facilitate resolution of concerns and complaints with respect to alleged sexual exploitation and abuse (SEA). More information can be obtained from IFAD webpage: <https://www.ifad.org/en/document->

170. **Community level implementation:** The ZCUs will carry out project implementation at the community level with the support of partners in the public and private sectors, such as service providers and NGOs. AAFORD will train (through ToTs) a pool of Youth Community Facilitators (YCFs) in each community cluster. Based on needs, the partner CIs will engage the YCFs to support AAFORD implementation at the community level and pay allowances supported by AAFORD. Additionally, AAFORD will train young graduates in skills identified by partner marketing and financial institutions as relevant to increasing their outreach to smallholder farmers (especially women and youth), offtakers and other agricultural value chain actors. The trained graduates will be supported as (Youth Institutional Interns) in the PFIs, offtaker institutions and in the BACs/BRCs in collaboration with REP. AAFORD will then deploy one YIIs in each community cluster to support project implementation in coordination with the partner CIs and the YCFs. The YIIs will be capacitated through training and technical assistance support, paid allowances, and provided with YII certificate at the end of the project. The support to the YIIs will contribute to IFAD's youth inclusion priority. After their engagement with AAFORD the YIIs can join the CIs to continue community-level services, become independent service providers, join agribusinesses and enterprises in the project area or be engaged as agents or full time staff of financial intermediaries in their delivery of services to value chain actors. The ZCU with the support of SPs, YIIs and YCFs will facilitate the development of CODPs in the community/clusters on an annual basis through participation of all the implementing partners. The ZCU will monitor and ensure that implementation is coordinated in each community according to these plans leading to harmonisation of resources and interconnectivity of the components.
171. **Institutional development and expected outcomes through the use of various service providers:** Different types of service providers will be used at various levels to develop targeted institutions. At the macro level, technical service providers will support ministries, departments and agencies to engage in a constructive consultative process with stakeholders leading to the development of agricultural sector policies and closing legal and regulatory gaps as necessary to advance an enabling environment for efficient financial and agricultural markets. At this level, support might also be required for sensitization on the new policies and regulations to promote their adoption and use in a sustainable manner. AGRA, as an AAFORD co-financing partner will participate in the implementation of the policy related interventions in collaboration with service providers, preferably partners and/or NGOs, with experience in policy development and advocacy and a history of practical engagement of communities targeted by AAFORD
172. The meso level has institutions such as agricultural market intermediaries and support services such as offtakers, input suppliers, financial intermediaries (such as Rural and Community Banks), and market-enhancing institutions (such as GIRSAL, GCX and GAIP). These institutions will be strengthened with capacity building interventions from technical and training services providers to (i) develop and market the services of agricultural market intermediaries towards improving the production, productivity, quality and market accessibility; and (ii) align the product offerings of financial intermediaries to improve access to their services by target beneficiaries along the agricultural value chain, especially those involved in production and women, youth and vulnerable groups. The service providers in this category include public institutions such as the business advisory and resource centres (BACs/BRCs) and private sector operators, including NGOs.
173. The community or micro level has the primary beneficiaries of AAFORD; the households and micro, small and medium enterprises who are active participants along the agricultural value chain. AAFORD will engage competent service providers which community development experiences (private sector, NGOs) to implement community level activities in coordination with YCF and YIIs.

b. Financial Management, Procurement and Governance

Financial Management

174. **Staffing** The Financial Services (FSD) Division of the Ministry of Finance will be responsible to ensuring accurate and appropriate financial accounting and management of resources made available to the AAFORD for effective execution and budget performance of the AWPB in accordance with IFAD policies and procedures. The operational day-to-day fiduciary functions will be the responsibility of AAFORD Finance Manager. The PIU of the FSD will manage the project funds on behalf of the executing agency (MoF), keep financial records according to international standards, implement internal controls, and ensure annual external audits to be conducted by Ghana Audit Service as part of the overall project planning, coordination, and implementation. The PIU will be responsible for preparation and submission of the Interim Financial Reports (IFRs) every quarter in compliance with the legal agreement, submitting audited annual reports and for all the FM activities of AAFORD to project financiers and stakeholders. Based on an assessment done in October 2019, the capacity of the PIU for the proposed project was found to be Moderately Satisfactory. The Finance department of the PIU is headed by a senior project accountant who holds an advanced degree (MBA) in Finance and Accounting with 13 years' experience in managing project finance and accounts. His experience includes managing World Bank-funded projects. He is assisted by a project accountant who also holds an advanced degree (MBA) in Finance with 10 years' experience in working on IFAD-funded project (RAFIP), World Bank-funded projects. To ensure adequate segregation of duties, the finance team of the PIU includes an Accounts / Finance Assistant. The finance team composition of the PIU is capable of meeting the fiduciary requirements of IFAD, GoG, and other stakeholder. The PIU uses the national financial management system, the Ghana Integrated Financial Management Information System (GIFMIS) in managing all donor-funded projects. However, due to the geographical coverage of AAFORD, it is intended that the project's central coordination office will be sited in Sunyani in the Bono Region of Ghana. Consequently, the finance unit of AAFORD, which comprise of (i) Finance Manager; (ii) Project Accountant; and (iii) Accounts Assistant, will be with the Central Programme Coordinating Unit in Sunyani.
175. **Budgeting.** CPCU will submit an annual work plan and budget to IFAD for no objection no later than two months before the beginning of each fiscal year of the GoG. The annual work planning and budgeting will be prepared by the PIU in collaboration

with the Director of Finance. The CPCU will monitor the project's implementation progress against the work plan/budget for the planned project expenditures under each disbursement categories/components.

176. **Accounting and Reporting.** The project will use report-based disbursements through the submission of quarterly Interim Financial Report (IFRs) on the sources and uses of project funds. Template for the IFR shall be included in the PIM. A forecast of the first 6 months' expenditures will form the basis for the initial withdrawal of funds from the Loan and subsequent withdrawals will equally be based on the net cash requirements. The default payment method shall be bank transfers with unique reference numbers to aid bank reconciliations. The project will follow financial reporting under the cash basis of accounting (the Cash Basis IPSAS) using the national financial management system, the Ghana Integrated Financial Management Information System (GIFMIS) and will submit, within 30 days of each GoG's fiscal quarter, quarterly IFRs of the project activities.
177. **Internal Controls and Audit.** The PIU financial management manual and the provisions of the Public Financial Management Regulations (2019) and the Public Financial Management Law (Act 921 of 2016) will govern the project's internal controls. Furthermore, the controls will follow authorisation and approval processes in the Government PFM system, the GIFMIS. The internal auditors will undertake internal audit activities on a risks basis and they will submit the internal audit reports 45 days after the end of the months of March and September of each calendar year. The project will maintain fixed assets for all material assets that will be acquired or created using the project funds.
178. **External Audit.** The annual audited financial statements of the project shall be submitted to IFAD within 6 months of the end of the GoG's fiscal year (i.e. by 30 June, each year). The external auditors will conduct annual audits of the project financial statements on terms of reference agreed with IFAD. The project will be audited by GAS unless cleared otherwise by IFAD.
179. **GoG and Beneficiaries Contributions.** The Finance team will be responsible in identifying, tracking and reporting on GOG's contributions to the project as well as that of the beneficiaries, even in-kind.
180. **Taxation.** IFAD funds will NOT be used to pay VAT, duties or other taxes imposed on the project. The exemption of taxes will be considered part of GoG's contribution to the project.
181. **PIM.** The PIM will describe in detail the:
182. - application of Ghanaian PFM procedures to project's administration,
183. - coordination arrangements with other co-financiers on all FM areas, including funds-flow and reporting arrangements,
184. - anti-corruption arrangements and safeguards.
185. **Procurement:** A procurement risk assessment has been carried out as part of the design process and in accordance with the IFAD procurement manual (May 2019). The assessment has identified pertinent risks, mitigation measures at AAFORD level and rated risks before and after applying the suggested measures. The Procurement Review Matrix (PRM) identified the possible procurement risks at the project level, including: i) allocation of points for shortlisting consultants are not usually included in the request for expression of interest, ii) for some contracts, there are both cost and time overruns, iii) there are issues with procurement filing. AAFORD will have procurement team at the project level to ensure smooth flow of key procurement functions.
186. AAFORD will mitigate the above risks through the following steps: i) Relevant training will be provided to the procurement staff during project start-up workshops. The training will also contribute to building up the procurement capacity of the Project staff to follow the required procurement approach and methodology, orient staff members to best practices and train them to monitor the quality and timeliness of documents submitted to IFAD for supervision missions and for prior review; ii) s management and monitoring teams will be formed, led by the Central Project Coordinator (CPC) and including the technical and the procurement teams, and beneficiaries (if necessary). These teams will be responsible for contract supervision, monitoring, and application of the conditions of contract. Close monitoring will be done to prevent poor performance of service providers by ensuring their adherence to contract documents; iii) Procurement clinics on procurement record keeping will be provided to AAFORD procurement staff to ensure that the complete procurement documentation, including a procurement filing checklist, is kept on procurement files at the ISU; and iv) Provide contract management training to all AAFORD staff.
187. Procurement risks are rated medium to low after applying the mitigation appropriate risk mitigation measures. Based on the assessment, the AAFORD procurement features will be: i) Organisational structure: The ISU will be established with dedicated procurement team to ensure timely and effective implementation of procurement functions. This will minimize the reliance on ISU structures with part-time seconded government procurement staff and 'high risk' procurement functions. The ISU will have a Procurement Officer who will be supported by a Procurement Assistant. These positions will be hired from the open professional jobs market at competitive salaries to ensure quality and prevent staff turnover. The procurement staff will receive training on IFAD and other relevant procurement procedures. Procurement planning will be integrated during budgeting and AAFORD Procurement Plan will be prepared using the IFAD new template; ii) An AAFORD procurement committee (APC) will be established to support planning, fast tracking, monitoring, following up and take corrective action on the overall procurement processes to assure accuracy and timely procurement; iii) Procurement Plan will be continuously updated and monitored for quality control; A contract management and monitoring team will be led by the ISU PO, for contract supervision and monitoring; v) A Third-Party Quality Assurance/Quality Control service provider(consultant) will be hired to provide independent assurance of the quality of civil works, if any; vi) IFAD will undertake reviews to ensure that the procurement process is carried out in conformity with IFAD procurement guidelines.
188. **Thresholds for Procurement Methods:** While eventually the specific thresholds for procurement financed under the Project will be stipulated in the Letter to the Recipient (LTR). The table below provides the following recommended thresholds:

Procurement Thresholds* Currency: US\$		
GOODS/NCS		
Shopping	NCB	ICB
<70,000	>70,000 to <200,000	>=200,000
WORKS/NCS		
Shopping	NCB	ICB
<190,000	>190,000 to <800,000	<800,000
CONSULTING SERVICES/NCS		
CQS		QCBS
<70,000		>100,000

189. * Direct Contracting, Single Source Selection, Fixed Budget Selection, Quality-based Selection and Least-Cost Selection methods will be selected on a case by case basis. ICS is to be used for all selection for individual consultants, regardless of value. For Non-consulting Services (NCS), please use the thresholds for Goods, Works or Services, based on the procurement or selection methodology being used. WB's standard bidding documents will be used; Refer PIM for details

190. Prior Review Thresholds (USD)

Goods	Works	Services
<= 70,000	<= 150,000	<=60,000

191. *Procurement Regulations applicable to AAFORD*: AAFORD will adopt the Amended Ghana Public Procurement Act 2016 (Act 914), the Procurement Regulations (to be issued soon), and the IFAD Procurement Guidelines 2010. Procurement regulations will be subject to further assessment by IFAD when it is issued. National systems will apply to all procurements except international competitive bidding (ICB). ICB procurement will follow World Bank procedures. Ghana national procurement systems will be followed for procurement below ICB thresholds. Further guidance regarding procurement arrangements can be found in the procurement section of the PIM.

L. Planning, M&E, Learning, KM and Communication

a. Planning, M&E, Learning, Knowledge Management and Communication

192. **Planning**: At inception, the Logical Framework (project strategy) will be reviewed and validated in a start-up workshop with the participation of representatives from all stakeholder groups. The main planning tool for AAFORD will be the AWPB prepared using a participatory bottom-up approach within the clusters. The AWPBs will specify a detailed description and schedule of activities to be undertaken with implementation responsibilities, required inputs, expected outputs, performance indicators and corresponding targets. The AWPB shall also include a procurement plan and a financing plan. Partners involved in the implementation of the various components of the project will be responsible for preparing the required work plans and budget according to an agreed format. The ISU and ZCUs will ensure overall coordination and efficiency of the planning process. The PCU will also monitor efficiency of targeting, poverty focus, gender focus and youth focus. Once the priorities have been set at the cluster level and activities defined, the AWPB will be compiled for each zone and the two ZCUs will combine the drafted AWPBs for their respective zones and submit to the ISU. The ISU will consolidate and streamline the two AWPBs and submit it to the PSC for review and approval. The PSC will insure the inclusion of AAFORD under the national budget. The draft AWPB will be sent to IFAD for review and no-objection 60 days prior to start of each year of implementation. The AWPB will be in line with

the logical framework and guide implementation of activities in the clusters against benchmarks for measuring annual implementation progress (refer PIM for contents of AWPB).

193. **M&E:** The results-based approach will be adopted through the M&E system. AAFORD progress and performance will be measured against AWPB targets; and periodic assessments of movement towards achievement of beneficiary impact. The key responsibilities of the M&E system will rely on the M&E unit at the ISU. The service providers will be engaged to collect and analyse data to assess outcomes and impact of the AAFORD activities with the support of youth interns and youth facilitators at the cluster level. The Operational and Results Management System (ORMS) will be incorporated within the M&E system along with the Annual Outcome Survey (AOS) tool which would allow for effective monitoring of the different project indicators. The M&E activities will take into consideration the following: i) data disaggregated by sex, age category, region, and targeting groups; ii) progress reporting will be in comparison with appraisal targets and the AWPB; iii) monthly meeting at the ISU with the presence of ZCU M&E focal points to discuss implementation progress versus targets; iv) regular field visits from M&E specialist and technical specialists in the ISU; v) documenting of stories from the field for different component beneficiaries; and vii) reporting on lessons learned and best practices and working on scaling-up.
194. Key M&E activities will comprise the i) the PIM; ii) a baseline survey, which will provide baseline data for the project M&E indicators, covering both beneficiary and control communities, updated on an annual basis to track the different project indicators over time and support analysis to ensure that AAFORD activities are in the right direction to achieve the target indicators, iii) progress reports, involving physical and financial progress reporting tied to the AWPB targets²²¹, iv) development of an electronic Management Information System (MIS) aligned to the information needs identified in the M&E plan; v) mid-term review; vi) project completion survey (impact evaluation) using the same questionnaires used for the baseline to allow for comparison against baseline results and enabling qualitative analysis (by beneficiary status, region and gender of household head) of AAFORD impact by interviewing a panel of households; and vii) a project beneficiaries database, which will be established by ISU with detailed information about each beneficiary. The database will be consolidated at the ISU by the M&E unit and utilized for different purposes including sampling for the different surveys, tracking the beneficiaries' outreach as well as selection of beneficiaries to visit during the supervision missions.
195. AAFORD's PFIs will have their own information systems and AAFORD will take steps to ensure that PFIs systems are able to support the AAFORD requirements. Towards this objective AAFORD will start by assessing the challenges encountered by current projects (e.g. REP) which are partnering with PFIs for project implementation. This will be followed by an analysis of the existing reporting systems operated by the PFIs. AAFORD's M&E system will be designed to address challenges faced by previous projects and harmonization of reporting protocols (in terms of content and direction of information flow) with the PFIs to avoid unnecessary duplication. The alignment of the AAFORD reporting system with the reporting system of PFIs and other such implementing partners is essential not only to limit the cost of the management information system, but also to make the burden of data collection and reporting more acceptable to information providers.
196. In the case of delay/default in cofinancing, the Annual Work Plan and Budgets (AWPBs) will be structured in a way that in case of one party defaulting, the geographical scale of implementation (number of clusters, number of communities in a cluster) will be reduced instead of holding the activity in suspension or creating gaps in activities implemented in the villages. This is to ensure that the full package of activities is implemented in the project areas to create sustainable impacts in each cluster.
197. **Learning, KM and Communication:** Building on lessons from IFAD country programme, AAFORD will ensure that: (i) project launch has visibility (ii) KM indicators are included in the M&E system; (iii) solid information management systems (e.g. electronic archives) are set up; (iv) KM related roles and responsibilities are clear in the ISU and ZCUs; (v) internal project learning and cross-project exchanges are facilitated; and (vi) organising exchanges occur with other projects and agencies through targeted workshops, and other activities to disseminate results, attract interest of other partners, replicate and scale up tested and documented innovations. Knowledge management will play a central role in policy engagement, convening other donor partners and facilitating investment in nationwide replication in the future. A KM and communication strategy will be developed and integrated into AAFORD management. The strategy will identify the thematic areas of learning to be addressed (e.g. effectiveness and cost of microinsurance, credit guarantee schemes, smallholder linkages to certified warehouse and warehouse receipts, etc.) and outline how the knowledge generated will be disseminated through appropriate channels. AAFORD has the potential to bring immense field experience into the policy discourse on agricultural insurance premiums, rural youth and women agribusiness development, effectiveness of risk sharing mechanisms and disseminate these to a wider audience. Knowledge generation will be the main scaling up pathway.

b. Innovation and scaling up

198. AAFORD will introduce a set of process innovations, technical innovations, and partnership innovations to overcome past challenges, increase employment, increase profitability and support scaling-up and replication. Process innovations will i) focus project implementation on clusters of communities in a manageable geographical area to ensure outreach of benefits to the intended target groups, ii) deploy cluster facilitators and youth interns to the clusters to develop project presence amongst target households and motivate them from close range to adopt the project supported changes, iii) develop cluster outreach development plans for harmonised implementation of different components at the community level, and iv) develop of IBPs and OLBP to serve as business plan's for linking CIs and financial institutions through profitable partnerships. Technical innovations will i) support the BFF to address the void in affordable agricultural finance for smallholder farmers, ii) increase the affordability and outreach of agricultural microinsurance services to smallholder farmers, iii) link smallholder farmers to certified warehouse facilities and iv) introduce warehouse receipts to benefit smallholder farmers in the project areas. Partnership innovations will include i) coordination with other ministries such as MoAF, MoTI, ii) partnerships with other donor initiatives and iii) capacity development of PFIs to partner with GIRSAL and access risk sharing collateral support for delivering agricultural loans.

M. Implementation plans

a. Supervision, Mid-term Review and Completion plans.

199. Implementation readiness and start-up plans:

200. The IFAD country office (ICO) will take the following steps to ensure AAFORD readiness for implementation: i) Preliminary mapping and identification of the clusters of communities will be carried out with the support of GASIP and REP; ii) Offtakers, financial institutions, FBOs and BACs/BRCs (operating in the AAFORD project area) with good track record of partnership with GASIP and REP will be identified and oriented and prepared to partner with AAFORD; iii) AGRA already involved with GIRSAL and GAIP and will prepare the key policy issues to be addressed immediately when AAFORD is operational; iv) REP, with already partners with the BoG and ARB Apex Bank will sensitise them about AAFORD and facilitate the swift initiation of the BFF; v) the financial services department in MoF, which will host AAFORD, has experience of partnering with other donor projects including IFAD, and is familiar with the processes needed for establishing the ISU and ZPCUs quickly; vi) sensitize the donor community and prepare them for AAFORD partnership in relevant areas^[23]; vii) continuously work with authorities (MoF) to fulfil conditions prior to board approval; viii) engage the Parliamentary Committees and Solicitor General early for the ratification; and ix) ensure that the budget for year one and procurement plan is available by the effectiveness date and set up the team prior to the start up.

201. Supervision, Mid-term Review and Completion plans

202. AAFORD **supervision** will be carried out directly by IFAD. One supervision mission and one follow-up mission will be undertaken every year. Implementation support will focus on planning, gender and targeting, procurement, financial management, M&E, partnerships, integration of activities within the governance framework. Such support will be a continuous process with frequent communication and engagement with the MOF, the ISU and other relevant stakeholders. The first implementation support mission will occur soon after start-up. The frequency, composition of supervision and implementation support missions will be based on implementation requirements and MOF requests. The MOF, as the lead project agency, IFAD and implementing partners will jointly carry out the **Mid-Term Review (MTR)** at the end of year three. The MTR will be based on, inter-alia, the PDR, SECAP, Procurement Plans, Reports of Supervision and Follow Up Missions, AWPBs, Progress Reports, Financing Agreements, evolving government policies and strategies, and additional data from commissioned studies. The MTR findings will be promptly communicated to the implementing agencies and in consultation with the GoG and partners to inform the necessary design and financing agreements adjustments. If needed, amendments to the design will be made to remove constraints and achieve the AAFORD objectives. The GoG will ensure that the MTR recommendations are implemented within the specified time and to the satisfaction of IFAD. The MOF, as the lead project agency will be responsible for organizing the preparation of a **Project Completion Report (PCR)** and submit to the Fund, after the Project Completion Date but in any event no later than the Financing Closing Date. At AAFORD conclusion, a completion evaluation will be conducted as an input into the PCR through a formal survey, preferably undertaken by a neutral agency with no previous involvement in project implementation. The PCR should address AAFORD costs and benefits, achievement of objectives, impact on beneficiaries, partner performance and lessons learned.

Footnotes

[1] The mission consisted of Mr. Jonathan Agwe (Project Technical Lead, Lead Regional Technical Specialist, Rural Finance, Market and Value Chain, PMI/IFAD) Mr. Swandip Sinha (Team Leader and Rural Development Specialist); Mr. Theophilus Otchere Larbi (Country Programme Officer, Policy, Program and Institutional Management, WCA/IFAD); Mr. Amathe Pathe Sene (Lead Regional Environment and Climate Specialist, ECG/IFAD); Ms. Mariko Nakayama (Junior Professional Officer, Targeting, WCA/IFAD), Ms. Luisina Solari (Consultant, rural finance team), Mr. Lawrence Ega (Gender and Targeting Specialist); Ms. Ngozi Finette Unuigbo (Environment and Climate Consultant); Mr. Kwabena Owusu-Sekyere (M&E Specialist), Mr. William Steel (Rural Finance Specialist), Mr. Yaw Brantuo (Rural Finance Specialist); Ms. Dajana Grandic (Economic and Financial Analysis Specialist); Mr. Fuseini Ahmed Abu (Procurement Specialist); Mr. Daniel Pasos (Financial Management Specialist); Mr. Hani Abdelkader Elsadani Salem (Country Director, IFAD Ghana Country Office, WCA/IFAD) supervised the mission and provided overall guidance to the design team.

[2] World Bank, November 2018

[3] IMF, World Economic Outlook Database April 2019

[4] World Bank, November 2018

[5] GLSS 7

[6] Observatory of Economic Complexity <https://atlas.media.mit.edu/en/profile/country/gha/>

[7] Observatory of Economic Complexity <https://atlas.media.mit.edu/en/profile/country/gha/>

[8] IFPRI, 2018, post-harvest losses in Ghana

[9] World Bank 2016

[10] Ghana Economic Update, World bank, 2018

[11] The Government and the National Parliament are currently pursuing the amendment of the Land Use Act (1978) to address the issue of land ownership and insecurity for smallholder farmers/producers, especially aimed at enhancing their land transactions, mortgages/sub-leases and use of land as collateral for loans.

[12] Index database 2017

[13] NFIDS

[14] COSOP 2019-2024

[15] <http://www.fao.org/3/a-i4644e.pdf>

[16] <https://www.unicef.org/egypt/nutrition>

[17] http://www.fao.org/ag/agn/nutrition/gha_en.stm

[18] <http://documents.worldbank.org/curated/en/270611468031495248/pdf/771660BRI0Box00IC00ghana0April02011.pdf>

[19] Ghana Environmental Protection Agency (2011b): *Ghana's Second National Communication to the UNFCCC*.
<http://unfccc.int/resource/docs/natc/ghanc2.pdf>

[20] For example, extension or training services would be conducted through female extension officers or follow the social norms in the communities selected for intervention.

[21] Refer to PIM (Annex 10) for details

[22] Quarterly progress reports, which will serve as knowledge products, will be prepared by each ZCU and sent to the ISU for consolidating the AAFORD quarterly progress report. The reports will compare actual achievements against planned, including expenditures, and explain variations. Semi-annual physical progress will be record in tabular spreadsheet form activities, quantitative inputs and outputs, number of beneficiaries disaggregated by sex and activities in which they have participated. The consolidated progress report will identify the implementation constraints and corrective actions taken.

[23] The donors had already expressed their support for AAFORD during consultative sessions held with them during COSOP preparation.

Ghana

Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 1: Logframe

Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

Affordable Agricultural Financing for Resilient Rural Development

Logical Framework

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Outreach Total number of persons receiving services promoted or supported by AAFORD.	1 Persons receiving services promoted or supported by the project							Effective and thorough stakeholders identification, mapping, needs assessment and gender/youth targeting at the cluster level. Community leaders are willing are willing to include women and youth in project activities.
	Females							
	Males							
	Young							
	Not Young							
	Total number of persons receiving services							
	Male							
	Female							
	Young							
	1.a Corresponding number of households reached				Project reports	Semi annual	AAFORD national/zonal coordination unit	
	Women-headed households	0	10000	37500				
	Non-women-headed households	0	10000	37500				
	Households	0	35000	75000				
	1.b Estimated corresponding total number of households members				Project reports	Semi annual	AAFORD national / zonal PCU	
	Household members	0	210000	450000				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Project Goal Food secure smallholder farm households with improved living standards and remunerative resilient agricultural livelihoods.	Percentage reduction in the number of rural households living below the poverty line in the Project supported districts				Ghana statistical services/ AAFORD surveys	AT MTR & AT COMPLETION	AAFORD national / zonal PCU	Political stability - Marco-economic conditions remain stable or improve - No major political shocks in the region
	Reduction	0.8	2.5	5				
Development Objective Improve the income, food security and resilience of smallholder farmers through skill development, increased access to finance, inputs, services and stronger farmers organisations.	Percentage of target households in the project supported districts reporting an increase in income as a result of services provided by the project.				Baseline survey, project reports	MTR - Completion	AAFORD desk in GIRSAL	Political stability - Marco-economic conditions remain stable or improve - No major political shocks in the region
	HHs	0	20	60				
	Percentage reduction in zero to five years old child malnutrition in the project supported communities				Ghana Statistical Services / AFFORD Surveys	At MTR & At Completion	AFFORD national/zonal PCU	
	Households	22	25	30				
	1.2.8 Women reporting improved quality of their diets				AAFORD surveys / project reports	MTR - completion	AAFORD national/zonal PCU	
	Women reporting improved quality of their diets							
	Percentage							
	Young							
	Not Young							
	Outcome Outcome 1 - Market linkages between smallholder farmers and other value chain actors established (outreach of market facilitators expanded and deepened to increase smallholder access to market and finance).	2.2.3 Rural producers' organizations engaged in formal partnerships/agreements or contracts with public or private entities				AAFORD surveys / project reports	MTR - completion	
Number of POs		0	70	324				
Value of wholesale funds disbursed by financial institutions on concessional terms.				M&E data and component reports	Annual	AAFORD national / zonal PCU		
US\$ million		0	3.9				24.2	

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	1.2.5 Households reporting using rural financial services				Baseline Survey, Project reports	MTR and completion	AAFORD, National and Zonal PCU	
	Households	0	20	60				
	Number of financial institutions deploying risk mitigation instruments (guarantees and insurance) to meet financial needs of smallholder farmers				Baseline Survey, Project Reports	MTR and completion	AAFORD National/Zonal PCU	
	Number	0	5	10				
	Number of financial institutions deploying marketing services (warehouses, warehouse receipts, electronic trading, digital services) to meet financial needs of smallholder farmers				M&E data, component reports	annually	AAFORD National/Zonal PCU	
	Number	0	4	10				
	Number of financial institutions (commercial banks and micro rural finance institutions) adapting affordable finance (BFF), to meet financial neds of smallholder farmers				M&E data, component reports	annually	AAFORD National/Zonal PCU	
	number	0	10	30				
	Jobs created for the youth as a result of the expansion of value chain activities.				M&E data, component reports	annually, MTR, completion	AAFORD National/Zonal PCU	
	FTE	0	400	1500				
Output Output 1.1 - Capacity of smallholder farmers, institutional partners and market intermediaries (including women and youth groups) enhanced.	1.1.6 Financial service providers supported in delivering outreach strategies, financial products and services to rural areas				M&E Data, Component reports	Annually	AAFORD desk in GIRSAL	Coordination between GIRSAL, other partners and the community level technical service provider
	Service providers	0	50	50				
	Number of households receiving market linkages, access to inputs and services facilitated by other ongoing relevant IFAD programmes				M&E data, component reports	annually	AAFORD National/Zonal PCU	
	number	0	2000	12500				
	1.1.7 Persons in rural areas trained in financial literacy and/or use of financial products and services				M&E data, component reports	annually	AAFORD National/Zonal PCU	

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Females	0	5000	22500				
	Males	0	5000	22500				
	Young	0	3000	18000				
	1.1.5 Persons in rural areas accessing financial services				M&E data, component reports	annually	AAFORD National/Zonal PCU	
	Women in rural areas accessing financial services - savings	0	5000	22500				
	Young people in rural areas accessing financial services - savings	0	3000	18000				
	Men in rural areas accessing financial services - savings	0	5000	22500				
	Number of smallholder farmers sensitised about entry points for financial inclusion (community savings and credit groups) and digital financial services				M&E data, component reports	annually		
	Women and youth	0	200	1000				
	Number of offtakers accessing financial services to expand operations in value chains involving smallholders				M&E data, component reports	annually	AAFORD National/Zonal PCU	
	Numebr	0	6	24				
Outcome Outcome 2 - Increases in farmers marketed surpluses and household welfare.	Number of smallholder farmers implementing good agricultural practices (GAPs)				M&E data, component reports	annually	AAFORD National/Zonal PCU	Enabling policy, regulatory and legal environment for the development of agricultural value chains
	Men, women and youth	0	7500	45000				
	Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices (core indicator 3.2.2)				Baseline Survey, Project Reports	annually, MTR, completion	AAFORD National/Zonal PCU	
	Men, women and youth	0	10	25				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Percentage of smallholder farmers reporting an increase in crop yields				Baseline Survey, Project Reports	annually, MTR, completion	AAFORD National/Zonal PCU	
	Men, women and youth	0	20	60				
Output Output 2.1 - Productive capacity of smallholderfarmers expanded.	Number of smallholder farmers supported to adopt GAPs				M&E data, component reports	annually	AAFORD National/Zonal PCU	Community leaders are willing to included women and youth in programme activities, Sufficient implementation capacity and capable service providers to facilitate value chain linkages and participation of women and youth
	Men, women and youth	0	4000	19000				
	3.1.1 Groups supported to sustainably manage natural resources and climate-related risks				M&E data, component reports	annually, MTR, completion	AAFORD National/Zonal PCU	
	Groups supported	0	80	324				
	Females	0	50	250				
	Young	0	50	250				
	Number of smallholder farmers trained in climate resilient agricultural practices				M&E data, component reports	annually	AAFORD National/Zonal PCU	
	Men, women and youth	0	12000	30000				
	3.1.4 Land brought under climate-resilient practices				M&E data compoenent reports	Annually	AAFORD National/Zonal PCU	
	Hectares of land	0	4000	12000				
Outcome Outcome 3 - The policy and legal framework for agricultural value chains improved	Number of policy reforms related to agricultural value chains				M&E data, component reports	annually, MTR, completion	AAFORD Nationa	Willingness of policy makers and other key stakeholders to improve the business environment
	Policy	0	0	2				
Output Output 3.1 - Policy development supported.	Number of studies conducted to document lessons learnt with respect to market enhancing instruments				M&E data, component reports	annually	AAFORD National/Zonal PCU	
	studies	0	1	3				
	Number of knowledge sharing forums and stakeholder engagements held				M&E data, component reports	annually	AAFORD National/Zonal PCU	
	Forums	0	1	5				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Number of policy forums/dialogues on thematic issues held				M&E data, component reports	annually	AAFORD National/Zonal PCU	
	Forums	0	1	2				

Ghana

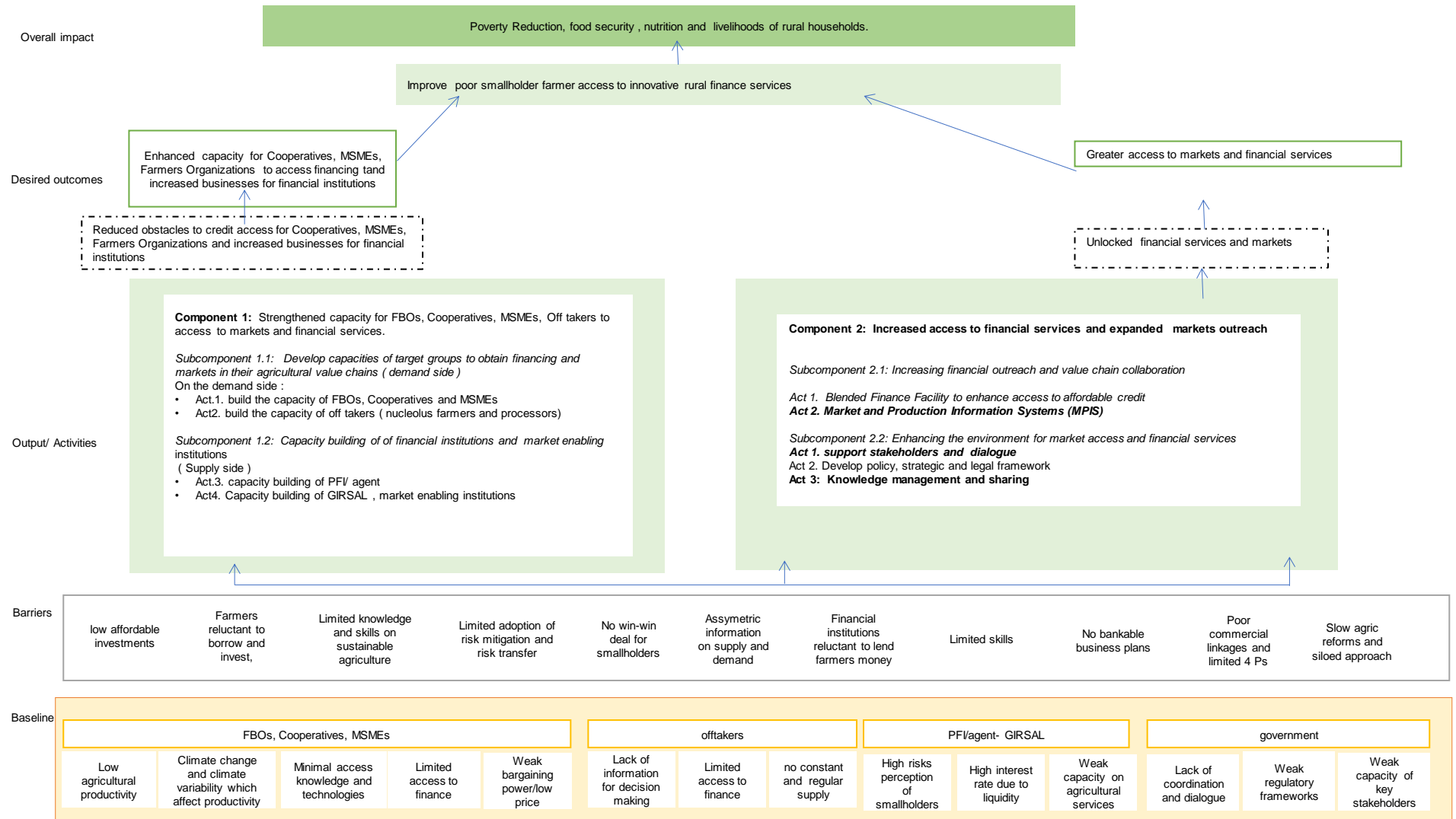
Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 2: Theory of change

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Programme Management Department

Annex 2: Theory of Change



Ghana

Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 3: Project cost and financing: Detailed costs tables

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Programme Management Department

Annex 3: Project cost and financing: Detailed costs tables

1. This annex covers the project costs and financing plan, while it also describes the assumptions underlying them and sets out the basis and details of the estimated project costs.

Project costs and financing

2. **Main assumptions.** The project is financed over a six-year (6) period, and it is assumed to start in 2020 year. Costs have been estimated on the basis of prices prevailing during project design in October 2019.
3. *Physical and price contingencies.* Price contingencies have been applied on all costs, with the exception of grants.
4. *Inflation.* According to the Economist Intelligence Unit, a high inflation of 9.6 per cent will remain in 2019, given a weakening currency and strong growth in private consumption. The rate is expected to remain between 6-10 per cent target range for the upcoming few years, for a similar reason¹. For the purpose of this analysis; annual local inflation rates has been set at between 9 to 6 per cent throughout the six project years. For foreign inflation, an average inflation around 4 per cent has been retained. Below table 1 is providing more details in regards forecasted local and international inflation rate for each year.

Table 1. Projected inflation rate

Forecasted inflation Rate	2019	2020	2021	2022	2023	2024
Ghana	9,1	8,4	7,5	6,8	6,3	6
Emerging market and developing economies	4,9	4,7	4,5	4,4	4,3	4,2

Source: IMF, 2019 ²

5. *Exchange rate.* The exchange rate used is 1 US\$: GHS 5.5, which is calculated as the prevailing exchange rate during design mission that occurred in October 2019. ³
6. *Taxes and duties.* Part of the Government co-financing of the project will be in form of waiving of all taxes and duties on goods and services procured under the project. The rates and amounts of the taxes and duties in the project's costs presented below are defined only to determine the Government contribution and to value the total project cost.
7. The items to be imported for the project attract import and excise duties of varying proportions, and a value-added tax (VAT) levied on all imported goods. ⁴

Project costs

8. The total project costs including physical and price contingencies are estimated at US\$69.7 million over six years implementation period. Project costs by components are summarized in table 1, while a complete set of project summary tables and detailed costs tables are presented in attachments 1 and 2 of this appendix.
9. Project costs by components. Project investments are organized into three major components: (i) "Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains" (41 per cent of the total costs); (ii) "Expanding and Directing Affordable Finance in a Conducive Environment (52 per cent of the costs); (iii) "Implementation Support" (IS) (7 per cent of the costs). A summary breakdown of the project costs by components and financier is shown in table 2 below.

¹ Retrieved from Economist Intelligence Unit, on Sep, 2019.

² International Monetary Fund. Source retrieved from: IMF Inflation rate on Sep 21st, 2019, Inflation rate, average consumer prices (Annual percent change). Link retrieved from: <https://www.imf.org/external/datamapper/PCPIPCH@WEO/OEMDC/>

³ Operational UN exchange rate, retrieved from: <https://treasury.un.org/operationalrates/OperationalRates.php>

⁴ The VAT in Ghana is technically 18.125 per cent of which standard VAT is 12.5%, NHIS and GET Fund are 2.5% each totaling 5% of the VAT inclusive amount. Assuming the VAT amount is GHS 100, VAT shall be GHS 12.5 and NHIS + GET Fund (12.5*5%)= GHS 5.625. Total VAT shall than be 18.125%.

Table 2: Project costs by component and Financier (US\$'000)

Republic of Ghana

Affordable agricultural financing for resilient rural development (AAFORD)

Components by Financiers

(US\$ '000)

(US\$ '000)	Government		IFAD		IFAD Green Grant		GCF		GoG (REP)		AGRA		PFI		GoG (GIRSAL)		ABC		AfDB		Beneficiaries		GoG (cash)		Total		
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	
A. Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains																											
Develop capacities of target groups to expand marketable surpluses	1,727	16,8	2,885	28,1	2,026	19,8	2,970	29,0	-	-	499	4,9	-	-	-	-	-	-	-	-	150	1,5	-	-	10,257	14,7	
Outreach of financial and agricultural services	638	3,6	732	4,1	1,453	8,2	16	0,1	-	-	-	-	-	-	11,360	64,1	-	-	3,521	19,9	-	-	-	-	17,720	25,4	
Marketing and ICTs for outreach of rural financial and agricultural services	102	18,1	368	65,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92	16,4	-	-	562	0,8	
Subtotal	2,467	8,6	3,986	14,0	3,479	12,2	2,985	10,5	-	-	499	1,7	-	-	11,360	39,8	-	-	3,521	12,3	242	0,8	-	-	28,539	41,0	
B. Expanding and Directing Affordable Finance in a Conducive Environment																											
Expanding and Directing Affordable Finance in a Conducive Environment	4,883	13,9	3,440	9,8	-	-	6,772	19,2	5,976	17,0	-	-	4,267	12,1	-	-	4,290	12,2	-	-	5,613	15,9	-	-	35,241	50,6	
Value chain collaboration with other IFAD programmes	216	16,8	427	33,1	-	-	170	13,2	-	-	476	36,9	-	-	-	-	-	-	-	-	-	-	-	-	1,289	1,9	
Subtotal	5,099	14,0	3,867	10,6	-	-	6,942	19,0	5,976	16,4	476	1,3	4,267	11,7	-	-	4,290	11,7	-	-	5,613	15,4	-	-	36,531	52,4	
C. Implementation Support																											
Implementation Support	329	7,2	3,666	79,8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	13,1	4,595	6,6
Total PROJECT COSTS	7,895	11,3	11,519	16,5	3,479	5,0	9,927	14,3	5,976	8,6	975	1,4	4,267	6,1	11,360	16,3	4,290	6,2	3,521	5,1	5,855	8,4	600	0,9	69,665	100,0	

10. Project financing/co-financing. The total project costs of US\$69.7 million will be financed by i) IFAD (US\$15 million), of which IFAD Loan is US\$ 11.5 million and IFAD Green Grant is US\$ 3.5 million; ii) AGRA (US\$1 million parallel financing); iii) GCF (US\$9.9 million); iv) GoG (US\$25.9 millions of which US\$7.9 million as most of the taxes and duties exemptions, US\$11.4 million as contribution through GIRSAL risk sharing facility, US\$6 million as REP revolving funds contribution and GoG (cash) 0.6 million); (v) Partnering Financial Institutions (US\$4.3 million); (vi) ABC Fund (US\$4.3 million); (vii) AfDB (US\$3.5 million); and (viii) Beneficiaries (US\$5.8 million cash, casual labour, inputs and equipment).
11. The domestic contribution is robust, for instance, for each US\$1 IFAD investment; domestic contribution is US\$2.4. Similarly, for each US\$1 IFAD investment, international contribution is US\$1.3. Domestic contribution (US\$36 million) accounts for a robust 52 per cent of the total project costs and includes (i) GoG (most of the taxes and duties) in the amount of US\$7.9 million, (ii) GoG (REP) in the amount of US\$6 million, (iii) GoG (GIRSAL) in the amount of US\$11.4 million ;(iv) beneficiaries (cash & in-kind) in the amount of US\$5.8 million, (v) PFI in the amount of US\$4.3 million and (vi) GoG (cash) in the amount of US\$0.6 million. The international contribution is contributing 48 per cent of the overall project costs (equivalent to US\$33.7 million) comprising: (i) GCF (US\$9.9 million), (ii) ABC fund (US\$4.3 million), (iii) AfDB (US\$3.5 million), (iv) AGRA (US\$1 million) and (v) IFAD (US\$15 million), of which IFAD Loan is US\$ 11.5 million and IFAD Green Grant is US\$ 3.5 million.
12. **Expenditure and disbursement accounts.** The project will be rolled out through the project management unit -which will manage and coordinate the flow of funds and the expenditures incurred on account of the project activities. Financial management and procurement procedures are described in annex 7. A summary of the total costs by expenditure accounts and financier is shown in Table 3 and a summary of expenditure accounts by components with totals including contingencies is presented in Table 4.
13. Expenditure Category Overview. Credit and Guarantee Funds is the major expenditure account, estimated at US\$41.3 million, or about 59 per cent of the total project costs. The other investment expenditure accounts are training and workshops for an amount of US\$9.1 million or 13.1 per cent of total costs, followed by grants and subsidies for an amount of US\$8 million or 12 per cent of total costs, Consultancies for an amount of US\$6.6 million or about 9.4 per cent of the total cost, equipment's, goods and services for an amount of US\$0.6 million or 1 per cent of total costs. The recurrent costs represent 5.7 per cent of total costs at US\$4 million, comprising salaries and allowances for an amount of US\$3 million or 4.2 per cent of total costs, operations and maintenance for an amount of US\$1 million (1.5 per cent of project costs). The breakdown of expenditure accounts by component is reflected at the Annex 7. The breakdown of expenditure accounts by component is reflected at the table 3 and table 4.
14. Disbursement flow. To enable easy monitoring of progress, the below graph forecast the expected disbursement per year. This will allow continuously tracking progress during supervisor and following up mission. Around US\$17 million (24 per cent) of project resources will be disbursed till Year 3 and the remaining US\$52.7 million (76 per cent) will be disbursed in the last three years of the project. AAFORD disbursement pattern is represented below:

Graph 1. Disbursement flow-AAFORD (US'000)

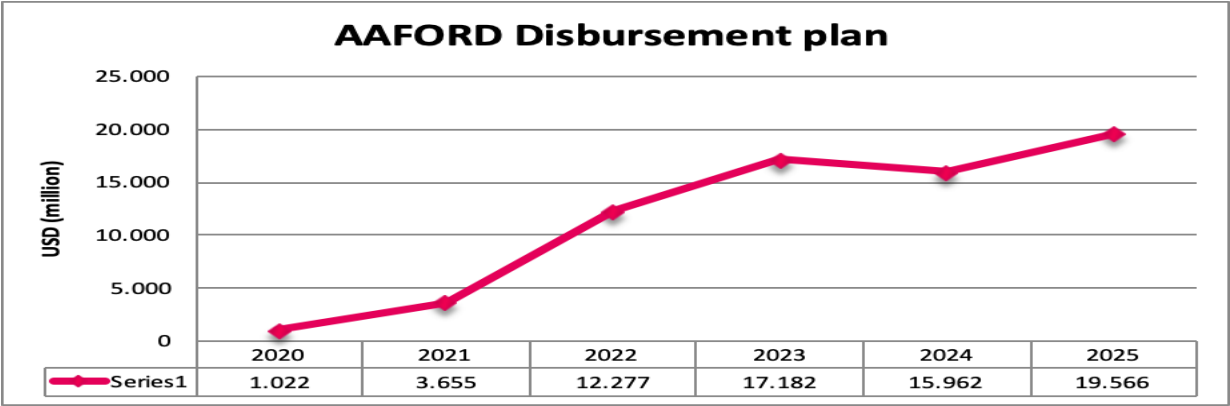


Table 3: Project costs by expenditure account and financier (USD'000)

Republic of Ghana																										
Affordable agricultural financing for resilient rural develop																										
Expenditure Accounts by Financiers																										
(US\$ '000)																										
	Government		IFAD		IFAD Green Grant		GCF		GoG (REP)		AGRA		PFI		GoG (GIRSAL)		ABC		AfDB		Beneficiaries		GoG (cash)		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Investment Costs																										
B. Equipments, Goods and Vehicles	116	18,1	525	81,9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	641	0,9
C. Consultancies	1,074	16,3	2,042	31,0	1,474	22,4	1,646	25,0	-	-	345	5,2	-	-	-	-	-	-	-	-	-	-	-	-	6,581	9,4
D. Training & Workshops	1,654	18,1	2,402	26,3	2,005	22,0	1,509	16,5	-	-	631	6,9	-	-	-	-	-	-	681	7,5	242	2,7	-	-	9,123	13,1
E. Grants and subsidies	1,450	18,1	843	10,5	-	-	2,464	30,8	-	-	-	-	-	-	-	-	-	-	-	-	3,243	40,5	-	-	8,000	11,5
F. Credit/Guarantee Funds_EA	3,411	8,3	2,496	6,0	-	-	4,308	10,4	5,976	14,5	-	-	4,267	10,3	11,360	27,5	4,290	10,4	2,840	6,9	2,371	5,7	-	-	41,318	59,3
Total Investment Costs	7,705	11,7	8,308	12,7	3,479	5,3	9,927	15,1	5,976	9,1	975	1,5	4,267	6,5	11,360	17,3	4,290	6,5	3,521	5,4	5,855	8,9	-	-	65,663	94,3
II. Recurrent Costs																										
A. Salaries and allowances	-	-	2,352	79,7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	20,3	2,952	4,2
B. Operating costs	190	18,1	859	81,9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,049	1,5
Total Recurrent Costs	190	4,8	3,211	80,3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	15,0	4,001	5,7
Total PROJECT COSTS	7,895	11,3	11,519	16,5	3,479	5,0	9,927	14,3	5,976	8,6	975	1,4	4,267	6,1	11,360	16,3	4,290	6,2	3,521	5,1	5,855	8,4	600	0,9	69,665	100,0

Table 4: Expenditure accounts by Components-Totals including Contingencies (USD'000)

Republic of Ghana Affordable agricultural financing for resilient rural development Expenditure Accounts by Components - Totals Inc (US\$ '000)	Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains						
	Develop capacities of target groups to expand marketable surpluses		Expanding and Directing Affordable Finance in a Conducive Environment				Total
			Marketing and ICTs for outreach of rural financial and agricultural services	Directing Affordable Finance in a Conducive Environment	Value chain collaboration with other IFAD programmes	Implementation Support	
I. Investment Costs							
B. Equipments, Goods and Vehicles	177	-	-	-	-	464	641
C. Consultancies	5.002	412	-	-	1.129	38	6.581
D. Training & Workshops	5.078	3.108	562	123	161	91	9.123
E. Grants and subsidies	-	-	-	8.000	-	-	8.000
F. Credit, Guarantee Funds_EA	-	14.200	-	27.118	-	-	41.318
Total Investment Costs	10.257	17.720	562	35.241	1.289	594	65.663
II. Recurrent Costs							
A. Salaries and allowances	-	-	-	-	-	2.952	2.952
B. Operating costs	-	-	-	-	-	1.049	1.049
Total Recurrent Costs	-	-	-	-	-	4.001	4.001
Total PROJECT COSTS	10.257	17.720	562	35.241	1.289	4.595	69.665
Taxes	1.727	638	102	6.387	216	291	9.361
Foreign Exchange	298	-	-	-	-	337	635

15. **Total Cost per Component:** Total Project Cost including physical and price contingencies are estimated at US\$ 69.7 million over a 6-year period. Component 2 on “Expanding and Directing Affordable Finance in a Conducive Environment” is the main investment and represents 52 per cent of the total project costs, while Component 1 on “Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains” representing 41 per cent of total project costs. ‘Implementation Support represent 7 per cent of the total project costs.
16. **Project Financing:** The Financing Plan covers i) an IFAD of US\$ 15 million , of which IFAD Loan is US\$ 11.5 million and IFAD Green grant is US\$ 3.5 million (in total 21.5 cent), ii) GoG (most of the taxes and duties) of US\$ 7.9 million (11.3 per cent), (iii) GCF of US\$ 9.9 million (14.3 per cent), iv) contribution from GoG (REP) of US\$ 6 million (8.6%), v) AGRA of US\$ 1 million (1.4 per cent), (vi) contribution of GoG (GIRSAL) of US\$ 11.3 million (16.3 per cent), (vii) Partnering Financial Institutions of US\$ 4.3 million (6.1 per cent), (viii) ABC of US\$ 4.3 million (6.2 per cent), (ix) AfDB of US\$ 3.5 million (5.1 per cent), (x) beneficiaries contribution (cash & in-kind) of US\$ 5.8 million (8.4 per cent) and (xi) GoG (cash) of US\$ 0.6 million (0.8 per cent).
17. The base costs are calculated at October 2019 prices and include estimated duties and taxes. Total contingencies are respectively at US\$ 3.4 million or 5 per cent of total costs.
18. Investment costs are US\$ 65.7 million and represent 94 per cent of total costs. The foreign exchange component is at US\$ 0.6 million or 1 per cent of the total Project costs. The recurrent cost accounts for US\$ 4 million or equivalent to 6 per cent of the total costs. The exchange rate used is USD 1.0 = GHS 5.5. The cost per direct beneficiary household amounts to about US\$ 929 or US\$ 129 per beneficiary.
19. Below table 5 shows project components by year-total including contingencies in foreign currency respectively.

Table 5: Project Components by Year –Total including contingencies (USD'000)

Republic of Ghana Affordable agricultural financing for resilient rural development (AAFORD) Project Components by Year -- Totals Including Contingencies							
Totals Including Contingencies (US\$ '000)							
	2020	2021	2022	2023	2024	2025	Total
A. Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains							
Develop capacities of target groups to expand marketable surpluses	182	2,330	2,351	2,356	2,269	769	10,257
Outreach of financial and agricultural services	38	654	3,398	4,802	4,568	4,260	17,720
Marketing and ICTs for outreach of rural financial and agricultural services	-	-	-	180	187	195	562
Subtotal	220	2,984	5,749	7,338	7,024	5,224	28,539
B. Expanding and Directing Affordable Finance in a Conducive Environment							
Expanding and Directing Affordable Finance in a Conducive Environment	-	35	5,668	8,116	8,077	13,345	35,241
Value chain collaboration with other IFAD programmes	96	29	231	658	84	192	1,289
Subtotal	96	65	5,899	8,774	8,161	13,537	36,531
C. Implementation Support							
Implementation Support	706	607	629	1,070	777	806	4,595
Subtotal	706	607	629	1,070	777	806	4,595
Total PROJECT COSTS	1,022	3,655	12,277	17,182	15,962	19,566	69,665

Detailed Project Costs for Component 1 (i.e. C1.1, C1.2. and C1.3):

														Summary Divisions				
Quantities								Unit Cost	Totals Including Contingencies (US\$ '000)							Expenditure	Other Accounts	
Unit	2020	2021	2022	2023	2024	2025	Total	(US\$)	2020	2021	2022	2023	2024	2025	Total	Component	Account	Fin. Rule
I. Investment Costs																		
A. Develop capacities of target groups to expand marketable surpluses																		
1. Identification of key technical partners and service providers /a																		
Identification of key technical partners and service providers /b	lumpsum	30	-	-	-	-	30	1,666,727	56,3	-	-	-	-	-	56,3	COMP1.1	CST_EA	IFAD (20%), GCF (80%)
Identification and needs assessment of community clusters /c	no.of days	20	10	0	-	-	12	750	16,9	88,4	-	-	-	-	105,2	COMP1.1	CST_EA	IFAD (20%), GCF (80%)
Needs assessment of key stakeholders including community institution , FOs, off-takers, input providers, FIs, BAC/BRC, MoFA /d	baseline	-	30	-	-	-	30	21,000	-	742,2	-	-	-	-	742,2	COMP1.1	CST_EA	IFAD (20%), GCF (80%)
Assess climate change vulnerability resilience and nutrition security activities and cost benefit	baseline	-	30	-	-	-	30	9,000	-	318,1	-	-	-	-	318,1	COMP1.1	CST_EA	GCF (100%)
Design capacity building packages for community institutions	Study	-	1	-	-	-	1	50,000	-	58,9	-	-	-	-	58,9	COMP1.1	CST_EA	IFAD (20%), GCF (80%)
Subtotal									73,2	1,207,5	-	-	-	-	1,280,7			
2. Support to Community Institutions and target groups																		
delivery of capacity building modules including agricultural/climate business and finance modules (field) /e	inst. and groups	-	75	75	-	-	0	6,750	-	596,4	622,9	-	-	-	1,219,3	COMP1.1	T&W_EA	IFAD (15%), AGRA (50%), GCF (20%), BEN (15%)
delivery of capacity building models including agricultural/climate business and finance modules (office)	inst. and groups	-	-	-	-	75	15	1,000	-	-	-	-	100,4	104,6	205,0	COMP1.1	CST_EA	IFAD (50%), GCF (50%)
Subtotal									-	596,4	622,9	-	100,4	104,6	1,424,3			
3. Mobilization of youth community facilitators (YCF)																		
service provider to recruit and train YCF	baseline/per cluster	-	6	-	-	-	6	4,500	-	31,8	-	-	-	-	31,8	COMP1.1	CST_EA	IFAD_GREEN_GRANT (100%)
design of recruitment training and oversight	Study	-	1	-	-	-	1	20,000	-	23,6	-	-	-	-	23,6	COMP1.1	CST_EA	IFAD_GREEN_GRANT (100%)
recruitment of YCF in the cluster	baseline	-	6	-	-	-	6	4,500	-	31,8	-	-	-	-	31,8	COMP1.1	CST_EA	IFAD_GREEN_GRANT (100%)
Training of YCF /f	baseline/per cluster	-	6	-	-	-	6	4,500	-	31,8	-	-	-	-	31,8	COMP1.1	CST_EA	IFAD_GREEN_GRANT (100%)
YCF Implementation /g	people	-	-	12	120	12	36	4,545,455	-	-	671,2	700,3	730,1	-	2,101,6	COMP1.1	CST_EA	GCF (20%), IFAD_GREEN_GRANT (80%)
Purchasing motorcycles /h	each	-	60	-	-	-	60	2,500	-	176,7	-	-	-	-	176,7	COMP1.1	EQG&VEH_EA	IFAD (100%)
Monitoring, reporting and managing turnover climate resilient activities	per region	-	-	2	2	2	8	9,000	-	-	22,1	23,1	24,1	25,1	94,5	COMP1.1	CST_EA	IFAD (100%)
Reporting to ISU	quarterly	-	-	4	4	4	16	6,000	-	-	29,5	30,8	32,1	33,5	125,9	COMP1.1	CST_EA	IFAD (100%)
Subtotal									-	295,7	722,8	754,3	786,3	58,6	2,617,7			
4. Community Outreach Development Plan (CODP)																		
Community Outreach Development Plan (CODP) (field) /i	per cluster	-	8	23	-	-	31	6,000	-	56,5	169,8	-	-	-	226,3	COMP1.1	T&W_EA	GCF (50%), IFAD (50%)
Community Outreach Development Plan (CODP) (office) /j	plan	-	8	23	-	-	31	6,000	-	56,5	169,8	-	-	-	226,3	COMP1.1	CST_EA	GCF (50%), IFAD (50%)
Subtotal									-	113,1	339,6	-	-	-	452,7			
5. Support to Community Institutions (CIs)and Target Groups																		
Selection of Community Institutions /k	baseline	-	1	-	-	-	1	3,000	-	3,5	-	-	-	-	3,5	COMP1.1	CST_EA	GCF (50%), IFAD (50%)
Institutional Business Plan (IBPs) for CIs (field)	plan	-	-	16	45	-	61	2,250	-	-	44,3	130,0	-	-	174,3	COMP1.1	T&W_EA	GCF (30%), IFAD (70%)
Institutional Business Plan (IBPs) for CIs (office)	plan	-	-	16	45	-	61	1,500	-	-	29,5	86,7	-	-	116,2	COMP1.1	CST_EA	GCF (50%), IFAD (50%)
Group formation /l	formation	-	-	30	30	-	60	1,500	-	-	55,4	57,8	-	-	113,1	COMP1.1	T&W_EA	GCF (50%), IFAD (50%)
Group strengthening and monitoring	lumpsum	-	-	-	175	35	17	1,500	-	-	-	337,0	702,7	366,1	1,405,9	COMP1.1	T&W_EA	GCF (50%), IFAD (50%)

Group training for women and youth	per village	-	-	88	175	87	-	35 0	3,000	-	-	324, 8	674,1	349, 4	-	1,34 8,3	COMP1.1	T&W_EA	GCF (50%), IFAD_GREEN_GRANT (50%)
Subtotal										-	3,5	454, 0	1,285,6	1,05 2,1	366, 1	3,16 1,3			
6. Community based savings and credit groups (CSCGs) for women and youth /m																			
Group formation	formation	-	-	50	50	-	-	10 0	1,500	-	-	92,3	96,3	-	-	188, 6	COMP1.1	T&W_EA	IFAD (100%)
Group strenghtening and monitoring /n	lumpsum	-	-	-	50	10 0	50	20 0	1,500	-	-	-	96,3	200, 8	104, 6	401, 7	COMP1.1	T&W_EA	IFAD (100%)
Subtotal										-	-	92,3	192,6	200, 8	104, 6	590, 3			
7. Support to ISUZCU																			
Senior Rural Finance Specialist	month	12	12	12	12	12	12	72	1,610	21, 8	22,8	23,8	24,8	25,9	26,9	145, 9	COMP1.1	CST_EA	IFAD (100%)
Community Development, livelihood and Gender Specialist	month	12	12	12	12	12	12	72	1,610	21, 8	22,8	23,8	24,8	25,9	26,9	145, 9	COMP1.1	CST_EA	IFAD (100%)
Climate and environment specialist	month	12	12	12	12	12	12	72	1,610	21, 8	22,8	23,8	24,8	25,9	26,9	145, 9	COMP1.1	CST_EA	IFAD (100%)
Field Implementation Supervisor	month	24	24	24	24	24	24	14 4	1,610	43, 5	45,5	47,5	49,6	51,7	53,9	291, 8	COMP1.1	CST_EA	IFAD (100%)
Subtotal										10 8,8	113, 8	118, 9	124,0	129, 3	134, 7	729, 5			
Subtotal										18 2,0	2,33 0,0	2,35 0,5	2,356,5	2,26 8,9	768, 6	10,2 56,5			
B. Capacity building of institutional partners and intermediaries																			
1. Mapping, needs assessment and selection of partner institutions	institutions	-	50	-	-	-	-	50	4,000	-	235, 6	-	-	-	-	235, 6	COMP1.2	CST_EA	IFAD (100%)
2. Development of Outreach and Linkage Business Plan (OLBP) /o																			
Orientation workshops /p	workshops	-	1	2	-	-	-	3	15,000	-	17,7	36,9	-	-	-	54,6	COMP1.2	T&W_EA	IFAD (100%)
TA to develop OLBP /q	workshops	-	50	-	-	-	-	50	1,500	-	88,4	-	-	-	-	88,4	COMP1.2	T&W_EA	IFAD (100%)
Finalization, review and validation	workshops	-	50	-	-	-	-	50	1,500	-	88,4	-	-	-	-	88,4	COMP1.2	T&W_EA	IFAD (100%)
Subtotal										-	194, 4	36,9	-	-	-	231, 3			
3. Capacity building of selected partner intermediaries /r	per institutions	-	50	-	-	-	-	50	3,000	-	176, 7	-	-	-	-	176, 7	COMP1.2	CST_EA	IFAD (90%), GCF (10%)
4. Youth Institutional Internship (YII) Programme																			
Mobilize YIs for strengthening institutions	per zone	-	4	-	-	-	-	4	10,000	-	47,1	-	-	-	-	47,1	COMP1.2	T&W_EA	IFAD_GREEN_GRANT (100%)
Train YIs for supporting outreach /s	per zone	4	-	-	-	-	-	4	8,454, 545	38, 1	-	-	-	-	-	38,1	COMP1.2	T&W_EA	IFAD_GREEN_GRANT (100%)
YII Implementation /t	people	-	-	80	80	80	-	0	8,181, 818	-	-	805, 4	840,4	876, 1	-	1,9	COMP1.2	T&W_EA	AFDB (33%), IFAD_GREEN_GRANT (67%)
Subtotal										38, 1	47,1	805, 4	840,4	876, 1	-	2,60 7,1			
5. Cluster Linkage Problem Solving /u	workshop	-	-	-	30	-	-	30	7,000	-	-	-	269,6	-	-	269, 6	COMP1.2	T&W_EA	IFAD (100%)
6. Value of Insurance Guarantees and Warehouse Receipts leveraged /v	p.y.	-	-	0,1 8	0,26	6	0,3	1	14,200 ,000	-	-	2,55 6,0	3,692,0	3,69 2,0	4,26 0,0	14,2 00,0	COMP1.2	C&G_FUN DS_EA	GOG_GIRSAL (80%), AFDB (20%)
Subtotal										38, 1	653, 8	3,39 8,3	4,802,0	4,56 8,1	4,26 0,0	17,7 20,4			
C. Marketing and ICTs for outreach of rural financial and agricultural services																			
1. Outreach of financial and agricultural services																			
Outreach of financial and agricultural services /w	partner	-	-	-	7	7	7	21	20,000	-	-	-	179,8	187, 4	195, 3	562, 4	COMP1.3	T&W_EA	IFAD (80%), BEN (20%)
										22 0,1	2,98 3,8	5,74 8,8	7,338,3	7,02 4,4	5,22 3,9	28,5 39,3			

Footnotes:

\a institutional partners

\b institutional partners

\c 60 days, 2 people (per diem, transportation)

\d Gender, climate, youth, nutrition specialist

\e to prepare Institutional Business Plans (IBPs). Training will include nutrition and dietary diversity modules

\f YCF training will include nutrition related inputs

\g 4 YCF per cluster

\h 2 per cluster, 20% of the total unit costs is related to the maintenance and operational costs

\i IBPs will include strategy and activities for nutritional improvement

\j IBPs will include strategy and activities for nutritional improvement

\k 2 per cluster

\l 2 per cluster

\m service provider to form and monitor groups

\n group strengthening inputs include nutrition related aspects

\o which integrate climate variability and change

\p Accra, Sunyani and Tamale. Orientation on nutrition improvement strategy and activities will be included

\q OLBP will include strategy and activities for nutritional improvement

\r primarily in the field including Business Advisory Centers (BACs)

\s YII training will include nutrition related inputs

\t the cost sharing ratio is declining over the period

\u organized by YCFs have supervised and reported by Service Provider (SP)

\v Public sector includes GRSAL, GCX. Private sector included GAIP

\w sensitization and training of potential clients

Detailed Project Costs for Component C2.1:

Republic of Ghana
Affordable agricultural financing for resilient rural
development (AAFORD)
Table 2.1. Expanding and Directing Affordable Finance in a
Conducive Environment /a

Detailed Costs	Quantities								Totals Including Contingencies (US\$)							Expenditure	Other Accounts	
	Unit	2020	2021	2022	2023	2024	2025	Total	Unit Cost (US\$)	2020	2021	2022	2023	2024	2025	Total	Account	Fin. Rule
I. Investment Costs																		
A. Blended Finance Facility (BFF)																		
loan				0,		0,		13,545.45				2,167.		3,115.	5,147.2	13,545.	C&G_FUN	IFAD (19%), ABC (27%), GCF (26%),
Window I /b		-	-	16	0,23	23	38	1	4,545	-	-	272,7	3,115.454,5	454,5	72,7	454,5	DS_EA	BEN (10%), PFI (18%)
s				0,		0,		5,272,727				843,63		1,212.	2,003,6	5,272,7	C&G_FUN	IFAD (9%), ABC (30%), GCF (33%),
Window II /c		-	-	16	0,23	23	38	1	.273	-	-	6,4	1,212.727,3	727,3	36,4	27,3	DS_EA	BEN (10%), PFI (18%)
s				0,		0,						1,328.		1,909.	3,154,0	8,300,0	C&G_FUN	BEN (10%), PFI (18%), GOG_REP (<
Window-REP /d		-	-	16	0,23	23	38	1	8,300,000	-	-	000,0	1,909.000,0	000,0	00,0	00,0	DS_EA	100% >, FT)
s				0,		0,						1,280.		1,840.	3,040,0	8,000,0	C&G_FUN	
Grant Window /e		-	-	16	0,23	23	38	1	8,000,000	-	-	000,0	1,840.000,0	000,0	00,0	00,0	DS_EA	IFAD (13%), GCF (38%), BEN (50%)
Training on rural and agricultural				0,							35,3	49,218				123,078	GRA&SUB	
finance /f		-	3	4	0,3	-	-	1	100,000	-	41,3	.1	38,518.9	-	-	.3	T&W_EA	IFAD (100%)
Total										-	35,3	5,668.	8,115.700,7	8,077.	13,344.	35,241.		
										-	41,3	127,2		181,8	909,1	260,1		

Footnotes:

la PIM to process those funds will include climate scoring criteria's

lb including 3% of the total management fee

lc including 3% of the total management fee

ld including 3% of the total management fee

le Grants to leverage insurance, guarantees and loans. Including 3% of the total management fee

Detailed Project Costs for Component 2.2:

Republic of Ghana
Affordable agricultural financing for resilient rural
development (AAFORD)

Table 2.2. Enhancing the environment for market access

																	Summary Divisions	Other Accounts	
Detailed Costs										Totals Including Contingencies (US\$)							Expenditure		
	Unit	2020	2021	2022	2023	2024	2025	Total	Unit Cost (US\$)	2020	2021	2022	2023	2024	2025	Total	Component	Account	Fin. Rule
I. Investment Costs																			
A. Collaboration with other programmes																			
Annual policy forum	forum	-	1	1	1	1	1	5	25,000	-	29.45	30.761	32.099,1	33.46	34.868	160.642	COMP.2.2	T&W_E A	AGRA (100%)
Lessons learned for replication /a	forum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	COMP.2.2	CST_EA	IFAD (50%), BEN (50%)
Implementation review /b	study	-	-	0,2	0,75	-	-	1	250,00	-	-	76.903	240.743,2	-	-	317.646	COMP.2.2	CST_EA	IFAD (100%)
Impact survey of target groups /c	ls/sur	-	-	0,2	0,75	-	-	1	250,00	-	-	76.903	240.743,2	-	-	317.646	COMP.2.2	CST_EA	AGRA (100%)
Lessons learned on financial instruments /d	vey	-	-	5	0,75	-	-	1	150,00	-	-	46.142	144.445,9	-	-	190.587	COMP.2.2	CST_EA	IFAD (100%)
Lessons learned on climate resilient agricultural practices /e	study	-	-	5	0,75	-	0,7	1	150,00	-	-	46.142	144.445,9	50.19	156.90	207.102	COMP.2.2	CST_EA	GCF (100%)
Subtotal										-	29.45	230.70	658.031,5	83.65	191.77	1.193.6			
B. Enabling environment										-	1,1	9,8	658.031,5	7,4	6,3	26,1			
Agricultural finance strategy and action plan	lumps								84.46	84.46	-	-	-	-	-	84.469,5	COMP.2.2	CST_EA	AGRA (100%)
Legal, regulatory and other issues	um								11.26	11.26	-	-	-	-	-	11.262,6	COMP.2.2	CST_EA	IFAD (100%)
Total										95.73	29.45	230.70	658.031,5	83.65	191.77	1.289.3			
										2,1	1,1	9,8	658.031,5	7,4	6,3	58,3			

Footnotes:

la lesson learned, replication best practices purposes

lb preparation for MTR

lc preparation for MTR

ld credit, insurance, guarantee, warehouse receipts

le credit, insurance, guarantee, warehouse receipts

Detailed Project Costs for Component 3:

Republic of Ghana
Affordable agricultural financing for resilient rural
development (AAFORD)

Table 3. Implementation support

development (AAPORD)

Table 3. Implementation support

														Summary Divisions									
														Component	Expenditure Account	Other Accounts							
														Totals Including Contingencies (US\$)									
														2020	2021	2022	2023	2024	2025	Total			
														2020	2021	2022	2023	2024	2025	Total			
														2020	2021	2022	2023	2024	2025	Total			
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														2020	2021	2022	2023	2024	2025	Total			

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Ghana

Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 4: Economic and Financial Analysis

Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

Annex 4: Economic and Financial Analysis

1. The main sources of programme benefits are: (i) empowered local communities practicing good practices; (ii) capacitated farmers with resilience against climate change and (iii) resilient incremental crop production; (iv) enhanced capacity for target groups to access financing and increased business for financial institutions; (v) improve agricultural production, mitigate risks and lower costs by increasing access to relevant information and service; (vi) support the availability of affordable finance for agricultural value chains through blended finance to make credit and risk mitigation instruments.
2. About 450 000 direct beneficiaries will receive programme services equivalent to 75 000 households and additional 15 000 indirect households equivalent to 90 000 indirect beneficiaries. In total, programme aim is to target at least 50 per cent (37 500 HH) women and 40 per cent youth (30 000 HH).
3. The Net present value (NPV) of the programme is positive (USD 8.8 Million; GHS 53.5 Million). The Economic Internal Rate of Return (EIRR) is estimated at the value of 26%, which demonstrates profitability of the project. The economic analysis suggests that the AAFORD Programme is feasible. All these worthiness indicators establish the economic feasibility of the programme.
4. Sensitivity Analysis. The sensitivity tests of the programme suggest that the programme is robust and worthwhile, especially considering the conservative assumptions made in the computation of the benefits. The programme promotes the inclusion of the poor households and has a positive impact on household welfare. The programme has low sensitivity on small changes in decrease of revenues and increase of costs. However, changes in project costs or revenues by 50% reflect negative values of the profitability indicators.

1. Programme benefits

5. **Number of beneficiaries:** The programme is expected to benefit about 450 000 direct and 90 000 indirect beneficiaries equivalent to 75 000 direct households and 15 00 indirect households. The programme has an expected adoption rate of 60%.
6. The programme is expected to bring the following benefits:
 - At least 60% of the households reporting increase in income and production as a result of services provided by the programme
 - At least 25% of the targeted households reporting adoption on environmentally sustainable and climate resilient technologies and practices around 19 000 households.
 - 60 institutions and groups will benefit from support to community institutions and target groups (~20 person per group).
 - 30 clusters equivalent to 350 villages (~on average 11 villages per cluster) will benefit from Community Outreach and Development Plan (CODP). Overall, 60 FBOs and other Community institutions will benefit from business plan as a basis to seeking financing (~2 per cluster).
 - 50 new Village and Savings Loans Association (VSLA) Community Savings and Credit Groups formed to mobilize and lend savings within member-

managed groups. (~20 people per group in total 1000 persons). As a result total savings after 20 years period will be approximately US\$ 351 thousand.

- At least 120 youth under mobilization of youth community facilitators (YCF) are expected to being trained (~ 4 per cluster). In addition, at least 80 youth will be trained as youth institutional interns, give internship, enhance employability through development outreach and linkage business plans (OLPBs).
- It has been assumed that 10 per cent of targeted semi-subsistence smallholder farmers equivalent to 6000 HH who are seeking finance will use warehouse receipts to leverage funds for household consumption for three month at US\$ 50 per month.
- It has been estimated 1500 HH that will benefit directly from the CODP training (~ 50 HH per each cluster). As a result, it has been assumed that YCF together with the trained HH will involve another 15 000 HH as a result increase their knowledge about effects of climate change, good agricultural practices (GAPs), financing mechanisms and institutions, and potential business opportunities.
- 60 Community Institutions (~ 1200 HH, average of 20 people per institution), such as FBOs, women and youth groups will be assisted with Technical Assistance (TA) to prepare institutional business plan which are expected to result in improved access to markets and financing.
- 60 new FBOs, women and youth groups will be formed benefitting 1200 households so they can participate more effectively in the value chain mechanism.
- 2 existing groups in each community, totalling 700 HH (~ 20 per group) will be given TA to strengthen Governance, cohesion and built social capital.
- Almost 30 000 acres (equivalent to almost 12 000 hectares) of land will be monitored under project management.
- Estimated almost 45 000 households equivalent to the 60% of the total targeted outreach will get access to the credit loans.
- 300 MSMEs will be supported through value chain processors, 24 off-takers and additional 12 500 HH (under REP support) for the purpose of food processing mechanism.

2. Financial Analysis

7. The primary objective of the financial analysis is to determine the financial viability and incentives of the target group (smallholder farmers, off-takers, MSMEs etc.) for engaging in the programme activities, by examining the impact of programme interventions on family labour, cash flow and net incomes.

8. The estimated incremental production of the farm and off farm models is expecting improvement in productivity due to the programme interventions. The analysis has been taken by taking into consideration the average October 2019 prices assuming similar condition in area region. A cash-flow analysis is finally carried out to present the "with" and "without" programme analysis.

Crop production and processing enterprise Models.

9. The financial sources targeting two groups, window 1 based on Production farmers (i.e. SMFs, MoFs and LFs) and Window II is focused on Enterprises (off-takers and on Micro, Small and Medium Enterprises (MSMEs)).

10. For the purpose of the financial and economic analysis, it has been developed 6 financial models for the production window: (i) sorghum; (ii) cassava; (iii) soya bean; (iv) groundnut; (v) rice (paddy) and (vi) maize and for the Window II in regards enterprises it has been developed one model based on Gari processing activity.

11. Most models are expected to provide farmers with physical outputs and financial returns that are attractive in relation to their extra labour and other inputs and financial investment. The project is supposed to provide farmers with financial resources needed to cover production costs (operational or working capital), training, capacity building and administrative support. Due to the project intervention the increase in yield, quality and distribution of products. The loans for the working capital will be used to buy seeds, fertilizers, labour costs, bags, shelling, winnowing, ploughing, mechanization services, where applicable, dryer, planter, sheller etc.

12. Demand for labour provides opportunities for the poorest to gain employment. The cost of farm labour set at going market rate varies and it is estimated to be from GHS 20/day to GHS 50/day depending on the activity and region. Returns to labour as well as net farm income within different models increases by a rate that is substantial and much higher than the prevalent wage rate for inexperienced labour in the area.

13. Individual production models (smallholder farmers) and Enterprises (i.e. off-takers, MSMEs) have been used to calculate the value of production net of inputs and labour costs. The individual production was estimated at the three different levels: (i) semi-subsistence farmers (SMF) which accounted for 80 per cent of the total target group and increase of working land size area for 0.5 acre, followed by market oriented farmers (MOF) of 15 per cent where increase on land size in 1 acre and large farmers accounts for 5 per cent of the total target ratio with increase on 5 acre of the land size. Project is targeting 75 000 households (equivalent to 450 000 beneficiaries) and adoption group has been estimated at 60 per cent (45 000 HH equivalent to 270 000 beneficiaries). Targeted groups are mostly women and youth, accounting for 50 per cent and 40 per cent respectively.

1. *Model 1 Rice (paddy)* is focused on the semi-subsistence smallholder farmers (SHFs), market oriented farmers (MoFs) and large farmers (LFs) that already have existing production and planning to expand acreages under crop production. Model assuming that SHFs will expand for 0.5 acres of their crop production, MoFs with 1 acre and LFs with 5 acres land size. The same logic applies for overall farmer's production financial models (i.e. model 1 to 6). The average yield is 1.9 tonnes/acre compared to the WoP scenario of modest 1 ton/acre. The production and investment costs including labour are US\$ 697, which includes investment, operational and labour cost. The average revenue is US\$ 1 214 and average incremental income is \$ 498. The Benefit cost ratio estimated is 1.9: 1 showing that for each US\$ 1 spent in the model will generate a US\$ 1.9 of benefits, which is in favour of the model. The NPV is estimated at US\$ 2 134.

2. *Model 2 Sorghum*: The average yield is 0.6 tonnes/acre compared to the WoP scenario of modest 0.4 ton/acre. The production and investment costs including labour are US\$ 312, which includes investment, operational and labour cost. The average revenue is US\$ 334 and average incremental income is US\$ 43. The Benefit

cost ratio estimated is 1.1: 1 showing that for each US\$ 1 spent in the model will generate a US\$ 1.1 of benefits, which is in favour of the model. The NPV is estimated at US\$ 198.

3. *Model 3 Cassava:* The expected average yield is 6.8 tonnes/acre compared to the WoP scenario of 5 ton/acre. The production and investment costs including labour are US\$ 411, which includes investment, operational and labour cost. The average revenue is US\$ 801 and average incremental income is US\$ 148. The Benefit cost ratio estimated is 2.4: 1 showing that for each US\$ 1 spent in the model will generate a US\$ 2.5 of benefits, which is in favour of the model. The NPV is estimated at US\$ 739.

4. *Model 4 Soya bean:* WP scenario includes the estimated yield of 0.7 tonnes/acre compared to the WoP scenario of 0.5 ton/acre. The production and investment costs including labour are US\$ 243, which includes investment, operational and labour cost. The average revenue is US\$ 268 and average incremental income is US\$ 194. The Benefit cost ratio estimated is 1: 1 showing that for each US\$ 1 spent in the model will generate a US\$ 1 of benefits. The NPV is estimated at US\$ 977.

5. *Model 5 Maize:* The average yield is 2 tonnes/acre compared to the WoP scenario of 0.9 ton/acre. The production and investment costs including labour are US\$ 417, which includes investment, operational and labour cost. The average revenue is US\$ 520 and average incremental income is US\$ 71. The Benefit cost ratio estimated is 1.2: 1 showing that for each US\$ 1 spent in the model will generate a US\$ 1.2 of benefits. The NPV is estimated at US\$ 350.

6. *Model 6 Groundnut:* The expected average yield is 0.6 tonnes/acre compared to the WoP scenario of 0.4 ton/acre. The production and investment costs including labour are US\$ 182, which includes investment, operational and labour cost. The average revenue is US\$ 592 and average incremental income is US\$ 104. This model demonstrate highest profitability considering benefit cost ratio estimated is 3.2:1 showing that for each US\$ 1 spent in the model will generate a US\$ 3.2 of benefits. The NPV is estimated at US\$ 466.

7. *Model 7 Gari processing:* This model is Enterprises focused. The average production capacity is 198 tonnes compared to the WoP scenario of 43 tonnes. The production and investment costs including labour are US\$ 79 721, which includes investment, operational and labour cost. The average incremental income is US\$ 12 019. The benefit cost ratio estimated is 1.2:1 showing that for each US\$ 1 spent in the model will generate a US\$ 1.2 of benefits. The NPV is estimated at US\$ 57,613

8. The financial aspects of models are presented at the table 1 demonstrating estimated average yield before the project intervention (WoP) and expected increase in yield due to the project intervention (referred here under WP). The average increase in yield is approximately 60 per cent, the smallest for soya bean and the highest for rice (paddy).

9. Table shows production and investment costs with labour and without labour costs for the first year and the average value. The average revenue per year, average incremental income and incremental income at year 5 are also available in the table.

Table 1: Financial Analysis Models

Model	Average Yield WoP, kg/acre*	Average Yield, WP,kg/acre*	Production & investment cost, including labour (year 1) GHS/acre	Production & investment cost, before labour (average) GHS/acre	Average Production & investment cost, including labour GHS/acre	Average Revenue per year GHS/acre	Average incremental income GHS/acre	Incremental income, (year 5) GHS/acre
Lowland Rice /a	1.050	1.913	3.833	1.611	3.221	6.678	2.737	2.777
Sorghum	380	581	1.714	1.076	1.731	1.836	237	314
Cassava	5.000	6.800	2.259	1.679	2.116	4.408	812	742
Soya bean	525	669	1.335	764	1.437	1.474	1.069	1.076
Maize /a	930	2.067	2.293	1.709	2.405	2.862	390	555
Groundnut	400	550	1.002	529	1.012	3.258	572	607
Gari processing /b	43.000	198.143	438.466	477.905	477.905	552.560	66.105	64.336

10. Table 1 shows production and investment costs with labour and without labour costs for the first year and the average value. The average revenue per year, average incremental income and incremental income at year 4 are also available in the table. All these seven models present a higher financial efficiency in terms of financial Net Present Value (NPV) and the financial benefits-cost ratio (BCR). For instance, NPV is positive for the all seven models (US\$ 2 134 for model 1 (rice paddy), US\$ 739 for model 2 (cassava), US\$ 198 for model 3 (sorghum), US\$ 977 for model 4 (soya bean), US\$ 466 for model 5 (groundnut), US\$ 350 for model 6 (maize), and US\$ 57 613 for model 7 (Gari processing). Changes in financial indicators illustrate the predicted transformation in agricultural practices in the project area. Analyses of the farm and enterprise models confirm that the impact of the project at the farm level is financially attractive for family households and net farm incomes are expected to increase. For more details, refer to table 1.

11. The B/C ratio has been the highest for groundnut estimated at 3.2, followed by cassava (2.4), rice (1.9), rice (paddy) (1.2), gari processing and maize (1.2), sorghum (1.1) and the lowest value 1.0 is for soya bean. The return to family labour per day is among US \$9 US\$ and US\$ 27, the smallest value is for maize production and the highest for groundnut. For more details please refer to the table 2 below.

Table 2. Financial Profitability Indicators

Model	Net present value GHS/acre	B/C Ratio	Return to family labour (US\$/day)	Poverty line
Rice (paddy)	2.134	1,9	20	
Sorghum	198	1,1	16	
Cassava	739	2,4	24	
Soyabean	977	1,0	16	
Maize	350	1,2	9	
Groundnut	466	3,2	27	

Gari processing	57.613	1,2	n/a
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Comment: Poverty line is US\$ 1.9 per day (source: WB, Oct,2019)

Table 3. Outreach overview: type, land size and target group size

Type	Land size (acre) /a	Ratio	Target group
Semi-subsistence (SMFs)	0,5	80%	60.000,00
Market oriented farmers (MoFs)	1	18%	13.500,00
Large farmers (LFs)	5	2%	1.500,00
Total			75.000,00

/a assumed increased working land size area

Table 4. Technical Assistance activities and its estimated outreach

Supported activity	Outreach, HH	Indirect HH
Community Outreach Development Plan (CODP)	1.500	
Community Outreach Development Plan (CODP), Sensitization of the other HH of the communities	1.500	15.00
Community Savings and Credit Group (CSCG)	1.000	
Community Institutions	1.200	
New group formation	1.200	
Existing group strengthening	14.000	
Strengthening women and youth group	7.000	
Total	27.400	15.000

Table 5. Financial Analysis of the Models

		PRODUCTION						ENTERPRISES
		Model net incremental benefits (GHS)						Off-takers and MSME (GHS)
		Rice (paddy)	Cassava	Sorghum	Soya bean	Groundnut	Maize	Gari processing
FINANCIAL ANALYSIS	PY1	320	670	32	937	222	29	33.801
	PY2	2.092	863	126	1.076	401	37	66.942
	PY3	2.777	768	189	1.076	519	390	68.476
	PY4	2.777	878	314	1.076	578	555	68.736
	PY5	2.777	742	314	1.076	607	555	64.336
	PY6	2.777	878	314	1.076	607	555	68.736
	PY7	2.777	768	314	1.076	607	555	68.476
	PY8	2.777	878	314	1.076	607	555	68.736
	PY9..	2.777	768	314	1.076	607	555	68.476
	PY10/PY20*	2.777	852	314	1.076	607	555	65.596
NPV (GHS)		11.737	4.064	1.086	5.371	2.562	1.927	316.873
NPV (USD)		2.134	739	198	977	466	350	57.613
B/C		1,89	2,44	1,07	1,04	3,23	1,16	1,15

14. Table 6 provides overall project costs by components and beneficiaries. The total project costs has been estimated at US\$ 69.1 million over 6-year project implementation period. The cost per beneficiary has been estimated at modest US\$ 153 and cost per household has been estimated at US\$ 921. Adoption rate of the project is 60% and up to 75 thousand of direct households (in addition 2.5 thousand indirect HH) has been estimated to be impacted by the project implementation (equivalent to 450 thousand beneficiaries, plus 15 thousand indirect beneficiaries). Table summarize expected outcomes and indicators due to the project intervention that has been linked with Logframe targets.

Table 6. Programme/project costs and logframe targets

PROJECT COSTS AND INDICATORS FOR LOGFRAME						
TOTAL PROJECT COSTS (US\$ million)		69.065	Base costs	65.303		
Beneficiaries (direct)	450.000	people	75.000	Households	Indirect HH	15.000
Cost per beneficiary	153	US\$ person			Adoption rates ~	60%
Cost per household	921	US\$ HHs				
Components and Cost (US\$ million)		Outcomes and Indicators				
A. Building capacities of target groups, intermediaries and market enhancing solutions	28.662	up to 44 000 HH or 264 000 beneficiaries receiving financial services promoted or supported by project (50% women; 40% youth)			At least 25% (equivalent to 18 750 HH) of the targeted households reporting adoption on environmentally sustainable and climate resilient technologies and practices and about 12 000 ha brought under climate resilient project monitoring	
B. Improve smallholder capacity to access agricultural loans and other rural financial services	36.408	50 new Village and Savings Loans Association (VSLA) Community Savings and Credit Groups formed to mobilize and lend savings within member- managed groups that might generate over 20 years the savings into amount of US\$ 351 thousand			At least 60% of the households reporting increase in income and production as a result of services provided by the programme	
C. Implementation Support	3.995					
Total	69.065	30 clusters equivalent to 350 villages (on average 11 villages per cluster estimated) will benefit from Community Outreach and Development Plan (CODP).			60 FBOs and other Community institutions will benefit from business plan as a basis to seeking financing (~2 per cluster)	

Economic Analysis

15. The objectives of the economic analysis are: (i) to assess the overall programme viability; and (ii) to estimate the programme's impact by calculating the economic rate of return. The computation of economic costs is derived from financial programme costs, by excluding transfers such as duties, taxes, and price contingencies. Production inputs and outputs, labour, and other items have been shadow priced to stand for market imperfections. Economic costs in border prices for major agricultural inputs and products were computed using the associated conversion factors to adjust the local content of costs and goods assumed to be non-traded. Prices requiring a different conversion factor are introduced. The related labour financial price is adjusted downward by using a standard conversion factor of 0.93; 0,95 for imported agricultural products and 1,14 for exported agricultural products. Shadow conversion factor is 1.1 which changes shadow exchange rate to value of GHS 6.11 for 1 US\$. More details can be found at the table 7 below.

Table 7. Main assumptions and shadow prices

MAIN ASSUMPTIONS & SHADOW PRICES					
FINANCIAL	Output (kg)	End Yield kg/acre	Price (GHS)/kg	Input prices	Price (GHS)
	Rice (double crop.)	1.913	3,9	Rice improved seeds *	2
	Rice (1 cycle)	1.275	3,9	NPK (bag ~ 50kg) *	75
	Cassava	6.800	0,9	Urea *	70
	Sorghum	581	3,2	Rural wage-hired \p.d. \average	28
	Soyabean	669	2,2	Ploughing	120
	Maize (2 cycles)	2.067	1	Cassava improved seeds (bundle)*	2
	Groundnut	550	6	Improved seeds soyabean	3
ECONOMIC	Official Exchange rate (OER)	5,50	Discount rate (opportunity cost of capital)	19%	
	Shadow Exchange rate (SER)	6,05	Social Discount rate	16%	
	Standard Conversion Factor	1,10	Output conversion factor	1,14	
	Labour Conversion factor	0,93	Input Conversion factor	0,95	

* price subsidized by GoG

16. **Programme economic costs and benefits.** The economic analyses include the investment and incremental recurrent costs of the programme components. The programme financial costs have been converted to economic values by removal of price contingencies, taxes and duties. In order to avoid double counting, the final aggregation considered only those costs that were not included in the financial models. Costs of replacing/maintaining of some specific equipment are considered.

17. **Benefits estimation:** Incremental production was calculated by calibrating the incremental benefits by the standard conversion factors and then aggregating them, based on the phasing of household and enterprises uptake during the Programme implementation period.

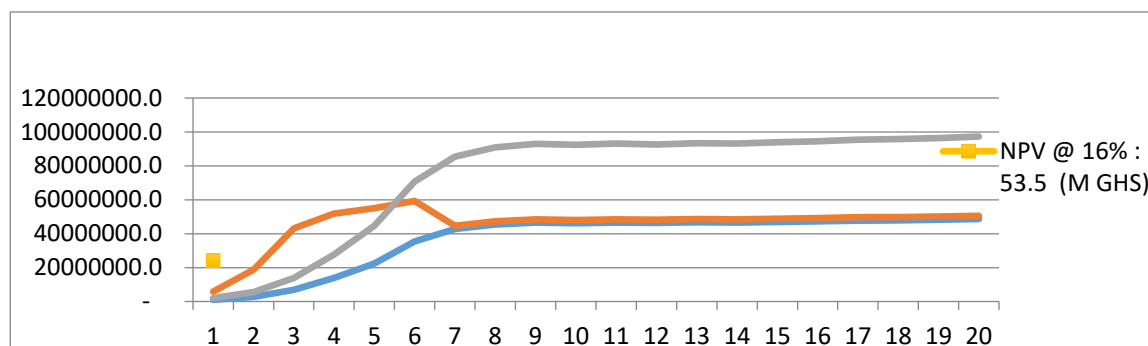
18. Based on the expected farmers' responsiveness to the programme, the assumption on farmers' participation is smooth the first years, and increases from programme activities such as extension, market development, technical assistance, training and awareness, and easier access to working capital through the loans. Incremental aggregated financial and economic budgets, production and inputs including labour, financial and economic efficiency measures, and other technical and economic indicators were then calculated. The phasing of beneficiaries participation to the Programme activities was based on the rate at which beneficiaries are projected to contribute to Programme output. The estimated economic value of net benefit at full development is US\$ 8.8 million (~GHS 53.5 million).

Table 9. Incremental net economic benefit at the programme level (GHS)

		NET INCREMENTAL BENEFITS							Net Incremental Costs	Cash Flow	
		Lowland Rice	Cassava	Sorghum	Soybean	Maize	Groundnut	Off takers, MSME	Total Net Inc. Benefits	Economic Investment + O&M Costs	Net Incremental benefits
ECONOMIC ANALYSIS	PY1	74.827	350.255	(4.051)	214.310	20.497	45.273	288.803	989.915	4.814.703	-3.824.789
	PY2	572.263	806.024	11.016	461.615	43.632	114.791	820.244	2.829.585	15.929.611	-13.100.026
	PY3	1.382.466	1.911.789	30.725	1.137.540	172.391	294.411	2.054.548	6.983.870	36.098.241	-29.114.371
	PY4	3.097.748	3.567.240	110.919	2.050.904	353.043	568.518	4.058.281	13.806.654	38.099.025	-24.292.372
	PY5	5.507.272	5.273.261	230.277	3.076.389	673.263	924.134	6.607.700	22.292.296	32.673.935	-10.381.639
	PY6	9.191.167	8.151.614	407.115	4.715.139	1.164.077	1.451.413	10.283.709	35.364.233	23.946.270	11.417.963
	PY7	12.364.564	8.695.893	691.330	4.946.113	1.568.821	1.755.094	12.670.653	42.692.468	1.902.494	40.789.974
	PY8	13.210.961	8.529.471	887.604	4.946.113	2.148.156	1.951.642	13.758.947	45.432.894	1.902.494	43.530.399
	PY9	13.210.961	8.734.122	1.066.034	4.946.113	2.359.705	2.040.626	14.093.436	46.450.997	1.902.494	44.548.503
	PY10	13.210.961	8.468.737	1.066.034	4.946.113	2.359.705	2.074.850	14.038.353	46.164.753	1.902.494	44.262.259
	PY11	13.210.961	8.780.395	1.066.034	4.946.113	2.373.333	2.074.850	14.117.234	46.568.921	1.902.494	44.666.426
	PY12	13.210.961	8.541.039	1.066.034	4.946.113	2.386.960	2.074.850	14.080.408	46.306.366	1.902.494	44.403.872
	PY13	13.269.318	8.739.906	1.066.034	4.946.113	2.427.842	2.074.850	14.174.182	46.698.246	1.902.494	44.795.752
	PY14	13.269.318	8.523.686	1.066.034	4.946.113	2.479.627	2.074.850	14.184.716	46.544.345	1.902.494	44.641.850
	PY15	13.386.032	8.679.172	1.066.034	4.946.113	2.536.862	2.074.850	14.299.178	46.988.241	1.902.494	45.085.747
	PY16	13.532.758	8.569.960	1.066.034	4.946.113	2.632.253	2.074.850	14.450.677	47.272.647	1.902.494	45.370.152
	PY17	13.761.823	8.751.474	1.066.034	4.946.113	2.632.253	2.074.850	14.524.929	47.757.477	1.902.494	45.854.983
	PY18	14.013.982	8.529.471	1.066.034	4.946.113	2.632.253	2.074.850	14.649.375	47.912.078	1.902.494	46.009.584
	PY19	14.091.319	8.734.122	1.066.034	4.946.113	2.632.253	2.074.850	14.675.564	48.220.255	1.902.494	46.317.761
	PY20	14.692.657	8.468.737	1.066.034	4.946.113	2.632.253	2.074.850	14.770.810	48.651.456	1.902.494	46.748.961
NPV@ 16% (GHS)					53.513.344,54						
NPV@ 16% (US\$)					8.846.253,19						
EIRR					28%						

19. Incremental crop production will either be consumed by the households in the Programme area or sold to local and external traders in the primary, secondary and terminal markets. Sales are made both for consumption in large cities such as Accra and for the export market and the trade tend to be dominated by a small number of large merchant buyers.

Graph 1. Cash flow of incremental benefits, costs and net cash flow



20. **Assumptions:** Economic pricing has been based on the following assumptions: (i) the conversion of financial programme costs into economic costs have been undertaken by multiplying the domestic value added by the standard conversion factor (SCF), and adding-in the foreign exchange costs to convert financial values to economic values; (ii) A SCF equal to 1,1 has been applied when converting financial prices into economic prices and the opportunity cost of labour was 93% which represents a conversion factor from financial to economic costs; (iii) the exchange rate used in the economic analysis is fixed at US\$ 1 equal to GHS 6,11 computed exchange rate prevailing in October 2019 with taking into consideration standard conversion factor of 1,1; and (iv) an economic life time of 20 years have been taken to assess the improvement in capacity building, trainings and access to loans used. Please refer to the more details at the table 7 above.

21. **The Economic Internal Rate of Return (EIRR)** on the investments in the Programme area over 20 years is estimated at 28% and the Net present value (NPV) of the programme is positive (US\$ 8.8 Million). The economic analysis suggests that the AAFORD Programme is feasible. All these worthiness indicators establish the economic feasibility of the programme.

22. **Sensitivity Analysis:** In order to include risk factors, a sensitivity analysis in terms of “variable by variable” and “scenario” analysis was done to test changes in economic indicators in conjunction with aggregate costs, benefits, and delays in the realization of programme costs and benefits. The EIRR drops to 25 per cent with an increase in costs of 10 per cent. With an increase of costs by 20 per cent, the programme is still worthy (EIRR of 23 per cent). However, with an increase of the aggregate costs by 50 per cent, the EIRR with 17 per cent. A decrease of benefits by 10 per cent to 20 per cent still yields an EIRR greater than the 16 per cent. Project benefit decrease of 50 per cent result in negative NPV and EIRR that is lower than economic cost of capital.

23. The sensitivity tests of the programme suggest that the programme is robust and worthwhile up to almost 50 per cent increase in costs, especially if we consider the conservative assumptions made in the computation of the benefits. The programme therefore has a positive impact on household financial situation and allows farmers a higher propensity.

Table 10. Sensitivity analysis

SENSITIVITY ANALYSIS (SA)				
	$\Delta\%$	Link with the risk matrix	IRR	NPV (GHS)
Base scenario			28%	53.513,34
Project benefits	-10%	Combination of risks affecting output prices, yields and adoption rates	25%	39.180,84
Project benefits	-20%		22%	24.848,33
Project benefits	-50%		11%	(18.149,19)
Project costs	10%	Increase of working capital and operational prices	25%	44.532,17
Project costs	20%		23%	35.551,00
Project costs	50%		17%	8.607,48
1 year lag in ben.		Risks affecting adoption rates and low implementation capacity	22%	31.589,22
2 years lag in ben.			18%	12.708,21

Ghana

Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 5: Social Environment and Climate Assessment (SECAP) Review Note

Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

Affordable Agricultural Financing for Resilient Rural Development
(AFFORD)

SECAP (Review) Note -



October 2019

Introduction

This SECAP sets out the procedures that will be used to help determine which environmental, climate and social risks and potential impacts should be addressed in planning, implementation and operation of sub projects to be selected for funding under the Affordable Agricultural Financing for Resilient Rural Development. The SECAP describes how the country and IFAD intend to manage all risks including selected subprojects and their impacts. Though the IFAD investment and the SECAP, will generally target projects with environmental, social and climate risks that have limited

environmental, climate and social impacts that are few in number, location specific and largely reversible or readily minimized, the SECAP has been written to provide a comprehensive set of actions, which will be deployed to ensure that interventions specific environmental, climate and social impacts are identified and managed effectively throughout the entire project cycle. SECAP also sets out the capacity building and strengthening programs that will be adopted as part of the implementation of AFFORD with support from IFAD and the Ghana Environmental Protection Agency.

Situational analysis and potential project impacts

Socio-economic and poverty assessment: AFFORD targets two regions; namely, Northern region and Brong Ahafo region are selected from the old definition of 10 regions for AAFORD. The regions are targeted based on: (i) their level of production; (ii) the presence of other value chain programmes; and (iii) the existence of processors for value addition iii) high level of poverty iv) impact of climate change and climate variability v) food insecurity and nutrition vi) presence of banking sector vii) gender and youth gap in agriculture. A snapshot of the situation in the Northern zone where the project interventions will be, which covers almost one-third of the territory of Ghana, provides an illustration of the extent of poverty in one of the country's poorest regions. 70% of the residents are in the bottom 20% income group nationally. 47% of men have no education, only 27% of women are literate, almost a quarter of students do not complete primary school, 111 of every 1,000 children born die before the age of five, 82% of children are anaemic, one-third are stunted, and one-fifth are underweight. According to Ghana's own figures, one person in five lives in poverty and one in eight lives in extreme poverty. A person is deemed to be "poor" in Ghana if their income is less than 1,314 GHC per adult per year (which was US\$1.83 per day in 2013 when the relevant survey was undertaken, but was only 80 cents in April 2018),¹ while the "extreme poor" live on less than 792 GHC per adult per year (US\$1.10 per day, in 2013, and 48 cents in April 2018).² According to the UNDP, the poverty line is only 27.1% of the mean consumption level in 2012/13, while the extreme poverty line is 44.9%.³ At the national level, official estimates of income poverty show a reduction from between 51% and 56.5% in 1991-92, to 24% in 2012-13.⁴

Child poverty rates are especially problematic with 3.65 million, or 28.3% of all children, living in poverty. A child is almost 40% more likely to live in poverty than an adult, compared to only 15% more likely in the 1990s. One child in ten lives in extreme poverty, meaning 1.2 million children live in households that are unable to provide even adequate food.⁵ Ghana's poverty is increasingly rural, with 38.2% of people in rural areas being poor, compared to 10.4% in urban areas. Poverty levels

1 The "upper" poverty line.

2 The "lower" poverty line.

3 UNDP (2015), Ghana Millennium Development Goals report .

4 Ghana Living Standards Survey Round 6 (GLSS6), Main Report (Ghana Statistical Service, 2014).

are especially high in the agricultural sector which has shown significantly slower growth than other sectors and has been accorded a low priority by the government. The majority of persons living in poverty live in the north. The regions with the highest poverty rates are the Northern, Upper East and Upper West regions, but the Northern region is languishing.. Ghana is experiencing rapid urbanization, especially but not only in Accra. The growing urban population is often very poor and the cities are becoming increasingly segregated as inequality gaps grow ever larger. While people migrate to escape from rural unemployment, under-employment, poverty, and to search for better socio-economic opportunities, the reality they face in cities like Accra is very high unemployment rates, and lack of access to housing and basic services such as water and sanitation.

Gender

Ghana is among the champions of gender equality in ECOWAS. It ranks second in its Gender Inequality Index in 2018 (0.538, higher than Sub-Saharan African average of 0.569, 140th place globally). Such an indicator measures various dimensions of gender inequality in access to education, employment, health and political empowerment. Ghana ranked 4th for its gender development index of Sab-Saharan Africa that measures the gender gap between men and women in terms of Human Development Index.

However, gender inequality remains high and gender is still an important dimension of poverty and food insecurity in Ghana. About 62% of female headed households fall into the two poorest wealth quintiles compared with 39% of male headed households. Similarly, only 11% of female headed households reach the wealthiest quintile in comparison with 21% of male headed households. Across the northern regions, 30% of female-headed households are food insecure compared with 15% of male-headed households. About 84% of the Ghanaian active female population are engaged in vulnerable employment. Wage disparities also exists. Women earn 57% of men's earnings regardless of the type of employment, education and the age etc. With regard to literacy, UNDP reports 43% of men are more likely to be literate in English than women; a significant gap is present in the older generations, but virtually disappears in the age group of 15-18 years old.

Women represent 42% of people engaged in agriculture and agriculture is closely connected to poverty. Therefore, assessing gender inequality along agricultural value chains is key to addressing the gender dimensions of poverty. In Ghana, women have previously been found to achieve lower yields compared to men due to a lack of access to productive resources. Female headed households (FHH) also have less access to land for farming (89% in Northern Ghana vs a 96% national average). FHH are also more likely to be smallholders (farming five acres or less). 87% of FHH are smallholders compared with 60% of male. 4% of farms are more than 11 acres compared with 16% of men heading a household.

Agricultural produce traders are mostly women. Their reproductive roles, which are usually defined by social norms, interfere with their productive roles in terms of time available for income-earning activities. A study also showed that gender and household size were the demographic variables that had a significant effect on post-harvest losses in tomato production. Female farmers had significantly higher levels of post-harvest losses than their male counterparts. All things being equal, women tend to use longer period for fruit harvesting, with high levels of post-harvest losses.

Limited access of women to land (i.e. collateral) results in more limited access to financial services. In spite of a progressive land ownership system, customary land use systems prevail whereby property rights of the assets is normally with the household heads. Household heads are most often

men in Ghana and women have temporary usufruct rights that can be lost when they marry or lose their husband.

Youth.

Ghana has a very young population, with approximately 57% of the population under the age of 25. The National Youth Policy (2010) in Ghana defines youth as those between 15-35 years. Despite Ghana's economic growth, unemployment rates remain relatively high especially among youth. Youth constitute 36 per cent of the population. The high rate of underutilized youth (42 per cent) and youth unemployment (16.9 per cent) is a growing concern.¹¹ The unemployment rate is higher for young people with higher education. This is attributable to weak linkages between education and the productive sectors of the economy, a mismatch between skills and jobs, and inadequate support for entrepreneurship,¹² which hinder the involvement of young people in agriculture (source CEPSPD, 2018)

The overall lack of opportunities, coupled with the occurrence of seasonal drought and flooding in rural areas is leading to an increasing exodus of mainly young men from rural to urban areas, especially from the five northern regions to the south. This results in an aging population in rural areas, high rates of youth unemployment and social inequality.

The government identifies the following contributing factors to high youth unemployment: lack of employable skills; mismatch of education and industry; an inability of the economy to create new jobs; and limited access to start-up capital for youth. The levels of unemployment among Ghanaian youth vary across sexes as well as according to the area they live in. In urban areas, unemployment rates are significantly higher than in rural areas because young people are often attracted to cities to search for jobs. The agricultural sector is seen as having the most potential of catalysing economic growth and employment for young people, especially given the growing demand for food and raw materials. However, efforts to create jobs for these young people are often separated from efforts to accelerate agricultural growth and improve food security. At the same time, there is also a perception that agriculture and farming are for elderly, illiterate and rural people, not as a venture that could provide job security nor a stable income. This poses a challenge for efforts to attract youth into agriculture. The GSS from 2015 reports that about 14.3% of young people in agriculture have abandoned their farms and remain idle in their communities or have migrated to cities in 2015.

Nutrition and health.

Significant regional disparities exist concerning nutrition and food security in Ghana. The prevalence of stunting (chronic malnutrition or low height-for-age) is 19 per cent nationally, but rises to 33 per cent in the north. The prevalence of acute malnutrition (wasting or weight-for-height) is also much higher in the northern regions, and at 9 per cent, is highest in Upper East region. Central Region also has high levels of both stunting and wasting, at 22 per cent and 8 percent, respectively.

Food insecurity is a major contributing factor to the poor nutritional status of the population in the northern regions of Ghana. Among the regions of greatest concern, which include Upper East, North Eastern, Savannah, Upper West, Northern, Brong-Ahafo, Ahafo, Bono, Bono East and Ahafo, Oti and Volta, 16 per cent of households were considered food insecure. Food insecurity is linked to the inability of households to produce sufficient quantities of staples to meet their food needs. This can be attributed to poor soil quality, unfavourable weather conditions, constrained access to inputs, and limited financial resources to expand production. Also, food insecurity is a highly seasonal

phenomenon in the north, as there is only one rainy season and a long dry season. July is the peak of the lean season, with 90% of households experiencing issues of access to food which is more pricy and less available, while poor agricultural households have often exhausted their food stocks and need to buy food on the market at high prices (harvest around September-December). The situation is also observed in the central zone .

Overweight and obesity are increasingly important issues in Ghana (33 to 40 per cent increase since 2003 for overweight in ECOWAS) and affect women disproportionately. In Ghana, 41 per cent of women are overweight against 22 per cent of men. Gender disparity is stronger for obesity, with 4.5 per cent of men being obese compared to 16 per cent of women being considered obese. Overweight and obesity are an indicator of poor nutrition due to the low availability and relatively high cost of more nutritious foods, such as legumes and proteins.

People living with disabilities

Persons with disabilities are among the most vulnerable groups in Ghana. The 2010 Population and Household Census determined that there were 737,743 persons with some form of disability, representing 3% of the total population (2010 Population and Household Census). It is believed though that the above figure is an underestimation with some sources estimate percentage of people with disability to be s hiiigh as 10% of the population.⁶ Socially, individuals with disabilities are viewed negatively and often ostracized and denied opportunities that result in being marginalized. Condemnation as a “spirit child” leads to ostracism at best, and death at worst. Similarly, thousands of people with psychosocial disabilities have been reported to be forced to live in psychiatric hospitals and prayer camps, often against their will, where they are subject to involuntary and often abusive treatment. Persons with disabilities and families with a disabled child face a double burden of poverty.

In 2011, the Ministry of Health discontinued the collection of data on persons with disabilities. Concrete disaggregated data as well as government policies or programmes targeting persons, and in particular children, with disabilities are lacking. Another significant problem affecting individuals with disabilities is structural and accommodation barriers to access to assets and social inclusion. Although the Persons with Disabilities Act of 2006 guarantees access, in practice there are various aspects of buildings that often make them completely inaccessible to individuals with disabilities.⁷ This inaccessibility reduces the ability of individuals with disabilities to participate in employment, social life, and civic affairs

6 See The Ghana Federation of Disability Organizations (estimating over 3 million people with disabilities in Ghana), available at <http://www.gfdgh.org/>; and a Government source estimating 10% of the population, “Promoting rights of persons with disabilities in Ghana,” 3 December 2017, available at <https://www.myjoyonline.com/opinion/2017/December-3rd/promoting-rights-of-persons-with-disabilities-in-ghana.php>.

7 Persons with Disability Act 2006 (Act No. 715), NatLex, International Labour Organization. Availanle from: http://www.ilo.org/dyn/natlex/natlex4.detail?p_lang=en&p_isn=86287&p_country=GHA&p_count=116 (last visited Mar 8, 2018); Hannah Awadzi, Ghanas disability act: serious gaps Global Disability Watch (2016), <http://globaldisability.org/2016/04/28/ghana-disability-act> (last visited Mar 8, 2018).

Environmental assessment

Ghana has a warm, humid climate. Mean annual rainfall of the country is estimated at 1187 mm. Mean annual temperatures range from 26.1 °C near the coast to 28.9 °C in the extreme north (Figure 3.2A). Annual potential open water evaporation has been estimated as ranging between 1350 mm in the south to about 2000 mm in the north. The actual amount of evaporation depends on a number of factors including water availability, vegetation cover and prevailing weather conditions among others. There are six agro-ecological zones defined on the basis of climate, reflected by the natural vegetation and influenced by the soils (Figure 3.2B). Rainfall distribution is bimodal in the forest, transitional and coastal zones, giving rise to a major and a minor growing season. In the remaining two agro-ecological zones, the unimodal rainfall distribution gives rise to only one growing season. Only in some parts of the country is the climate favourable for non-irrigated agriculture. Rainfall exceeds potential evaporation during relatively short periods. Even in the southern forest zone where rainfall is at its highest, irrigation is essential for short season crops during the dry period. The unreliability of rainfall is a cause of concern. Complete crop failures can be expected in most northern areas in about one in every five years. This risk can rise to one in every three years during low rainfall periods. The lean season would be targeted by the Project to engage the poor in the public works component.

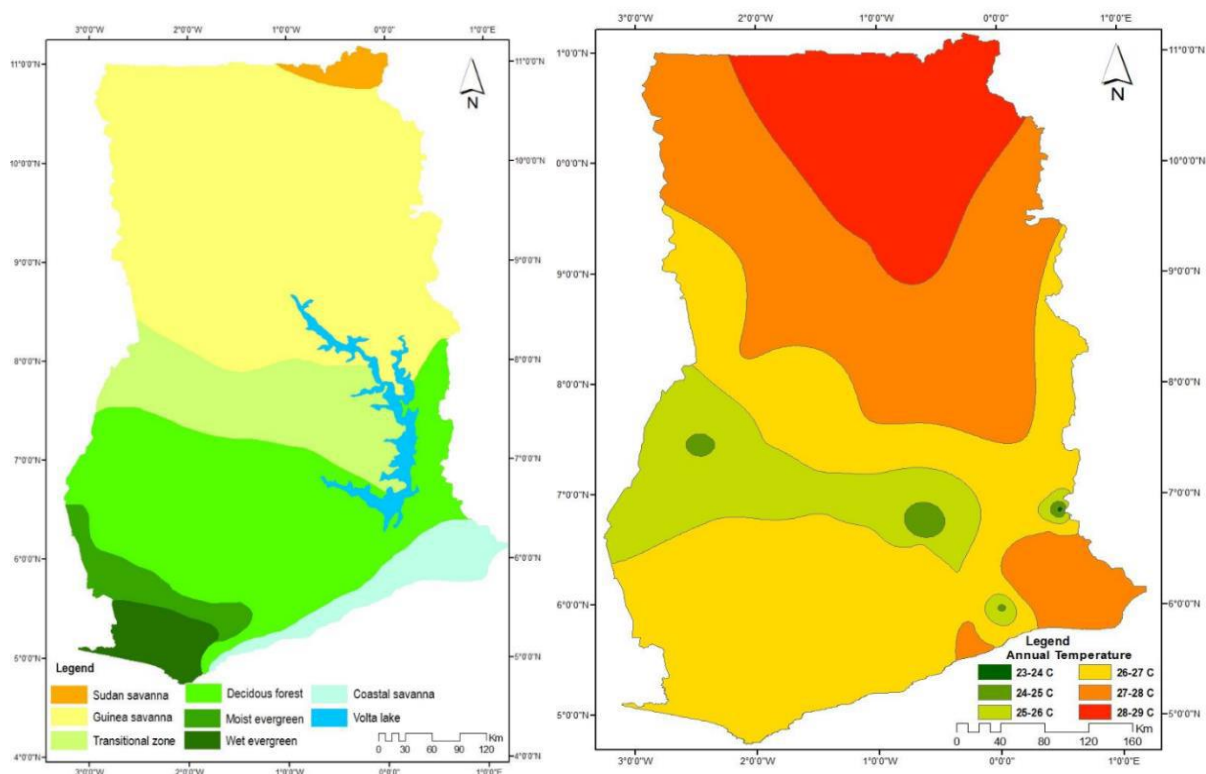


Figure 1. Typical vegetation zones (left) and average temperatures (right) in Ghana

Natural resources

Biodiversity: Ghana is relatively rich in biodiversity, with 5429 plant species, 983 species of butterflies, 377 species of reptiles and amphibians, 794 bird species and 327 species of mammals. The flora includes 119 threatened species, three of which are critically endangered (CR), 20 endangered (EN) and 96 Vulnerable (VU). The Ghanaian fauna includes 56 species of threatened fish, comprising two CR, 18 EN and 36 VU; 11 species of threatened amphibians, comprising 2 CR, 5 EN and 4 VU; 7 species of threatened reptiles, comprising 2 CR and 5 VU; 22 species of threatened birds, comprising 4 CR, one EN and 17 VU and 20 threatened mammals, comprising 1 CR, 6 EN and 13 VU. The country's biodiversity is under threat from several human-induced pressures, including habitat loss and degradation resulting from farming, urbanisation and extractive industries as well as over-exploitation. Other threats include climate change, invasive species and pollution, particularly with regard to aquatic habitats. 8 There are indications that the populations of almost all animal species, including invertebrates such as snails, are on the decline and that rodents are now dominating the species exploited as bushmeat. Ghana has taken commendable steps to safeguard the country's biodiversity through the establishment of protected areas which cover about 16.5% of the country's total land area; established agencies with responsibility to manage the country's biological resources and is signatory to all the major international treaties that seek to protect biodiversity. 9

Protected areas and Conservation

Forest conservation in Ghana started in the early 1900s. Since then, relevant institutional and regulatory frameworks have been put in place to ensure that the 8.2 million ha. primary forest coverage for the country remained intact. The coming into force of various policies to regulate the management and utilisation of forest and wildlife resources resulted in the creation of protected areas. The purpose for their establishment, among other things, was to protect habitats, conserve biodiversity and regulate timber exploitation to achieve sustainability.¹⁰ Over the years, anthropogenic drivers have fuelled deforestation and forest degradation, with primary forest declining at the rate of 2% per annum. Currently only about 1.7 million hectares of the primary forests, mainly within government gazetted protected areas exist. The overall forest cover has, however, increased in size through plantation development. This has resulted in the expansion of forest cover from 8,627,402 ha in 1990 to 9,294,349 ha in 2015. ¹¹

Despite this gain, the loss of primary forest cover remains an issue of major concern as strategic habitats are being fragmented, remnant forest patches are getting isolated, biodiversity is eroding

8 Ghana Environmental Protection Agency (note 1 above), 180

9 Ibid.

10 Critical Ecosystem Partnership Fund (2019), Review of Ghana's Legal Framework for Protected Areas, Agriculture and Environmental Assessment (Ghana Wildlife Society, Accra) 5

11 Ibid.

and ecosystems services that the forest provide are being inhibited. More importantly, protected areas are coming under pressure due to the increasing trends to exploit the protected forest areas.

Invasive Species

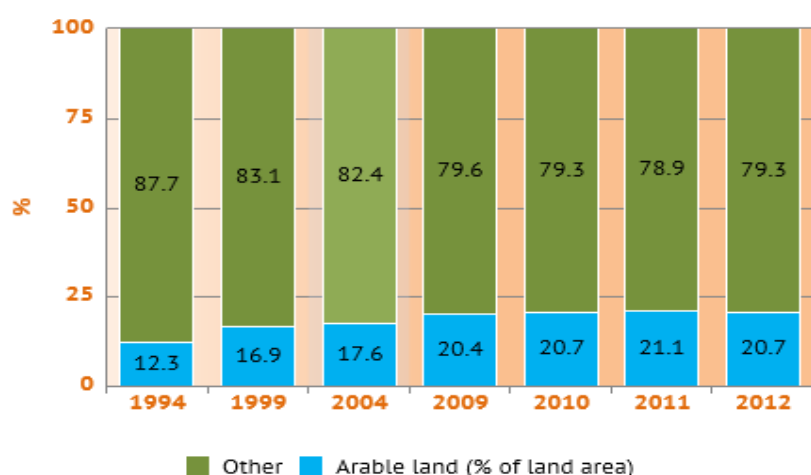
The intensity and frequency of the alien species invasive events and attendant socio-economic and environmental impacts are expected to increase as driving forces and pressures are projected to intensify in Ghana. This could significantly undermine the development agenda of the country that relies significantly on ecosystems services. Status and trends of invasiveness were determined based on indicators such as count of individual invasive alien species (IAS) and sub-species in the country, within taxonomic groups and habitats. The geographic distribution or pervasiveness is indicated by the presence of terrestrial IAS in different ecological zones, and presence of aquatic IAS in both natural and man-made water systems.¹² Globalization and global environmental processes such as international travels, international trade, climate change and associated invasive pathways drive intentional and non-intentional IAS phenomenon in Ghana. Proxy indicators of pressures are deforestation, intensification of land use, expansion of road network, high population densities etc. Efforts made to address IAS issues in Ghana include ratification of international and regional protocols, treaties and conventions, formulation of some sectoral regulations and implementation of some projects. Yet, legislative, policy, regulatory, institutional weaknesses and information issues have hampered progress in managing IAS in a more comprehensive, coordinated and proactive manner. Institutional coordination, capacity building of relevant institutions in data gathering, research and critical management activities must form a core of future efforts to control IAS in Ghana.

Arable Land

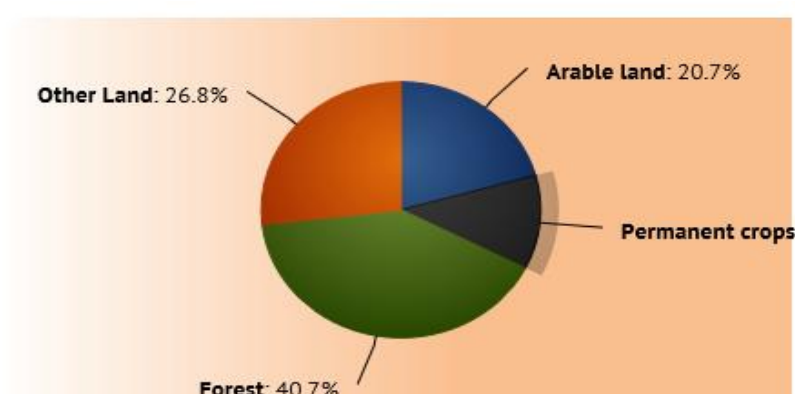
One of Ghana's most vital natural resources is arable land which was estimated in 2014 to cover approximately 20.66% of the country's total land area. Since 2004, according to data from the World Bank, the size of arable land in Ghana has fluctuated significantly, mainly due to the fluctuating weather patterns around the globe. However, agriculture is still one of the country's most important economic activities. The Ghanaian labour department estimated that in 2013, more than 53% of the nation's labour force was employed in the agricultural sector. Ghanaian farmers grow a wide variety of crops such as yams, sweet potatoes (mainly grown for subsistence) cocoa, rubber, and sugarcane (for the export market).¹³ Due to the importance of agriculture to the Ghanaian economy, the government has invested heavily in improving the sector through providing training to farmers on modern agricultural techniques. Despite the efforts of the government, the country's agricultural sector faces numerous challenges such as the fluctuating prices of farm products in the global market and the country's poorly developed transport infrastructure.

¹² Ghana Environmental Protection Agency (note 1 above), 185

¹³ See 'Ghana Arable Land: 1961-2019'
<https://www.macrotrends.net/countries/GHA/ghana/arable-land>



Evolution of arable land as % of total area. Source: World Development Indicators (WDI), November 2014



Land Use as at 2012. Source: Resource Statistics - Land, December 2015

Fisheries

Seafood is an important part of the Ghanaian diet and economy, making up 40–60 percent of protein intake and contributing 4.5 percent to national GDP. The sector primarily comprises marine fisheries with some inland, freshwater fisheries in Lake Volta, Lake Botsumtwi and other reservoirs. Rising sea surface temperatures alter migratory patterns and reproductive cycles of key species such as anchovies, sardines, tilapia and catfish. The decline in fisheries sector productivity from climate variability and overfishing forces Ghana to spend over \$200 million per year on seafood imports to satisfy domestic demand.¹⁴

¹⁴ FAO AQUASTAT, 2014; FAO. 2016. Fishery and Aquaculture Country Profiles:

Water Resources

Almost half of the water used in Ghana originates from three international rivers (Volta, Bia and Tano), which flow in from outside its borders, putting the country at risk of water insecurity if political tensions arise over declining water availability. Tension exists between Ghana and Burkina Faso as a result of Burkina Faso's decision to withdraw water from the Volta Basin, reducing water levels required for hydropower generation in Ghana. A recent study projected flows in the Volta Basin could fall by 24 percent by 2050 and 45 percent by 2100 due to reduced rainfall and increased evaporation. About 25 percent of the population does not have access to clean water. Declining rainfall levels, drought and rising temperatures are straining available water resources amidst increased demand from high rates of urbanization and industrialization.¹⁵

Climate Stressors and Climate Risks	
WATER RESOURCES	
Stressors	Risks
Rising temperatures	Increased conflict and political tensions with surrounding countries over transboundary rivers
Increased intensity and variability of rainfall	Reduced river flows, particularly in the Volta Basin Reduced quantity and quality of water for human consumption, agriculture, industry and hydropower
Rising sea level	Contaminated water sources due to salinization and runoff Damaged water infrastructure due to storm surges

Table: Climate Stressors and Risks – Water Resources (USAID 2017)

Rare or Endangered Species

The Republic of Ghana.

¹⁵ University of Ghana. 2014. Managing Shoreline Change Under Increasing Sea-Level Rise in Ghana.

Populations of many wildlife species found in the savanna have dwindled as a result of human-induced interventions, mainly through over hunting, inappropriate agricultural practices and expansion of agricultural land, road construction and bush burning (Appendix IV). The demand for wild animal meat (popularly called bushmeat in Ghana) is ever increasing, resulting in widespread hunting. As human populations in the northern parts of the country increases, exerting enormous pressure on the finite good "land" and creating land hunger among mostly the rural people, intact savanna woodlands and secondary groves which provide wild animals refuge and source of food become fragmented and unable to hold large populations of animals (Acheampong, 2001).

Wild Animal Migration

Wild animal movement between reserves, groves and sanctuaries in the northern savanna may be limited because these are either fragmented or interspersed with farmlands. Studies have shown that wild animals move from Togo into Ghana and vice versa, using gallery forests along the Red Volta River. It is also on record that wild animals move from the GEF supported Nazinga Game Ranch in Burkina Faso to farms on the Ghana side of the Ghana-Burkina Faso border. Communities outlying protected areas have occasionally had their farms and property destroyed by wild animals mainly elephants that move outside the reserves, particularly in the dry season, in search for water and food. In 1997 elephants invaded some villages including Widinaba, Zongoiri, Nangodi, Sekoti and Datoko, all at the fringes of the Red Volta Forest Reserve, which is a natural trail for elephants moving from Togo into Ghana. Where villages received no help from the staff of Wildlife Division in driving these animals back into the reserves (or gallery forests) they resorted to killing the rampaging animals (Acheampong, 2001).

Climate trends and impacts

Agriculture vulnerability to climate impacts and examples of potential past events: Historical data for Ghana from the year 1961 to 2000 clearly shows a progressive rise in temperature and decrease in mean annual rainfall in all the six agro-ecological zones in the country. Climate change is manifested in Ghana through: (i) rising temperatures, (ii) declining rainfall totals and increased variability, (iii) rising sea levels and (iv) high incidence of weather extremes and disasters. (UNDP, 2013)

Approximately 72% of the whole land area of the country is considered vulnerable to desertification, which is already affecting 40 % of the territory. According to the National Action Programme to Combat Drought and Desertification, the land area prone to desertification has almost doubled in the last decades. The expected rise in population growth and food demand in the next decades will exacerbate this problem. Land degradation associated with the loss in the quality and quantity of vegetative biomass and with deforestation—one of the major direct causes of land degradation in Ghana— has a major impact on ecosystem services (i.e. reduction of provision of wood and non-wood forest products for both for domestic consumption and for export; biodiversity loss; instability in hydrological regimes; reduction in the land's resilience to natural climate variability and natural hazards). For example, the Volta River and Lake—which provide several ecosystem services that form the basis for a rich biodiversity and other environmental goods— have been increasingly

damaged by severe environmental degradation in the form of lake level fluctuations, water scarcity, nitrification, and siltation mainly from watershed erosion and deforestation. (GoG, 2011b)

Already today, Ghana's agriculture sector experiences a range of climate impacts, mainly caused through unreliable, irregular and unpredictable rainfall patterns. Indiscriminate deforestation reduces soil vegetation cover which reinforces the problem of poor or degraded soils from intensive or bad cultivation practices. Prolonged periods of drought increase the population of pests such as the variegated grasshoppers, which damage harvests (e.g. cassava) and threatens food security. In addition, higher temperatures lead to lower yields throughout the agriculture sector and puts livelihoods at risk. (GoG, 2011a)

The agriculture sector is highly vulnerable because it is largely rain-fed with a very low-level of irrigation development. In fact, the predicted increased rainfall variability, and overall drop in rainfall will increase the chances of drought periods and probably reduce agricultural productivity. In the dryer transition zone above Kumasi, bushfires and overexploitation have eliminated several forest reserves. According to research, bush burning, a widely applied land management practice by many farmers with the intention to improve soil fertility, has demonstrated to have devastating effects on the environment. In livestock rearing areas bush burning often destroys livestock's fodder for the dry season. (GoG, 2011b)

Climate impacts on Ghana's agriculture

Historical data for Ghana from the year 1961 to 2000 clearly shows a progressive rise in temperature and decrease in mean annual rainfall in all the six agro-ecological zones of the country. Climate change is manifested in Ghana through: (i) rising temperatures, (ii) declining total rainfall and increased variability, (iii) rising sea levels and (iv) high incidence of weather extremes and disasters. (UNDP, 2013)

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Like most African countries, Ghana is particularly vulnerable because its economy relies heavily on climate-sensitive sectors such as agriculture, forestry and hydro-energy. Agriculture in particular is the backbone of Ghana's economy, providing employment and subsistence to the majority of the population. With irrigation being almost nonexistent, Ghana's agriculture is highly vulnerable to climate variability. About 35% of Ghana's land mass is desert and desertification is already currently proceeding at an estimated 20,000 ha per year (EPA, 2009). Ghana's coastline has a length of 565km and the coastal regions of Ghana may be vulnerable to sea level rise. Sea level in this region is projected by climate models to rise by 18 to 56cm in the 2090s, relative to 1980-1999 under the Intergovernmental Panel on Climate Change (IPCC) Special Report on Emissions Scenario (SRES) A2. (Asafu-Adjaye, 2013)

Even without climate change, agriculture in Ghana faces serious challenges such as low productivity due to low input usage (including fertilizers), water supply variability and high transactions costs. There are also market imperfections in the input markets and services including land, labor, credit and extension. The market failure in the agricultural sector therefore increases the vulnerability of resource-poor farmers and complicates the effects of climate-induced shocks, which in turn makes it more difficult for them to cope with climate change. (Asafu-Adjaye, 2013)

Due to the high cost of such events, smallholders' limited investment capacity is fully focused on recovery and purchase of inputs, thus preventing them from investing in assets and measures that would limit their exposure. As a result, the impacts of climatic events are more profound, and the recovery time is prolonged. This vulnerability is exacerbated by the poor market conditions for smallholder farming in Ghana. With their current assets, capacities, and connections to markets, smallholders are not equipped to deliver a regular supply of adequate volumes of quality produce required for sustainable market access

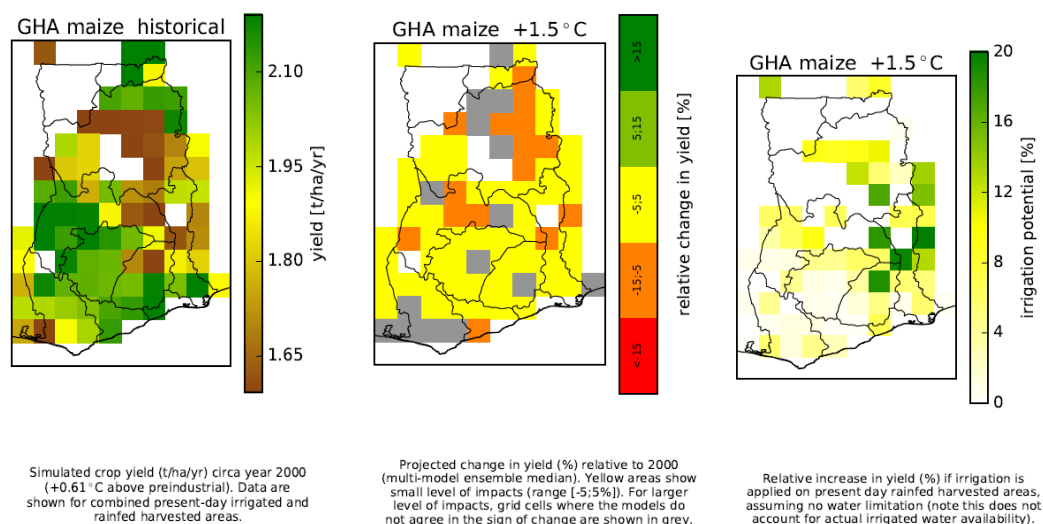
Current and past climate impacts on yield

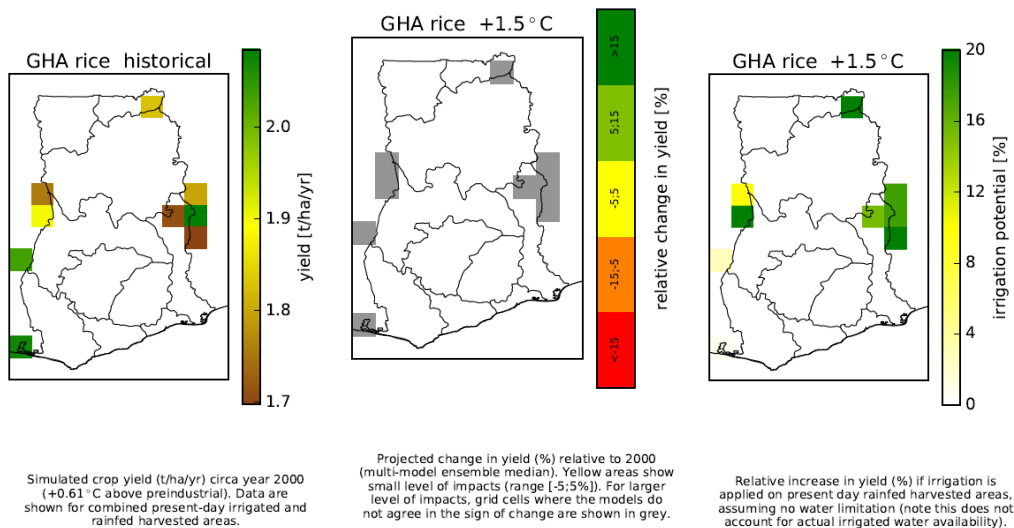
Ghana is highly vulnerable to the impacts of climate change. Climate change in the country manifests itself through documented trends of increased droughts, flooding, and significant rainfall pattern variations. Climate change in Ghana is projected to affect its vital water resources, energy supplies, crop production and food security. With its five northern regions as the most vulnerable, Ghana is already experiencing increased extreme weather conditions with higher incidences and more prolonged periods of flooding and droughts. High temperatures will further increase, and rainfall patterns will be less predictable. More intense rainfall is expected to increase erosion, while less total rainfall may decrease the water flow. The country's vulnerability is largely due to dependence on the production of crops that are sensitive to climate change, and by a lack of agricultural diversification.

For Ghana, all recent projections made using GCMs agree that there will be an increase in air temperature for all agro-ecological zones which will decrease from the semi-arid Northern region to the coastal Southern regions but changes in precipitation will vary considerably both spatially and

temporally (EPA, 2000; World Bank, 2010; Stanturf, et al., 2011; McSweeney, New, & Lizcano, 2013). Increased air temperature will lead to increased evaporative demand thus altering atmospheric circulation patterns and contributing towards increased frequency of extreme events and drying. The frequency of days and nights that are considered 'hot' in the current climate is projected to increase, and the frequency of those considered 'cold' is expected to decrease (McSweeney, New, & Lizcano, 2013). Additionally, in most parts of Ghana, the onset of the rainy season is expected to shift to later periods of the year, but the end of the rainy season and the total amounts of rainfall will remain largely unchanged (Van de Giesen, Liebe, & Jung, 2010). Overall, even though there are huge uncertainties in future climatic conditions due to the limited number of studies on climate change projections and difficulties in representing convective systems (Cook & Vizi, 2006) all projections show warming with associated changes in rainfall patterns. (Olesen, Chirinda, & Adiku, 2013). The resulting climate related hazards affecting the agricultural sector include: (i) water stress for crops with increasing dry spells, (ii) degradation and erosion of arable land (with compound effects across wider landscapes); and (iii) intermittent floods and the resulting damage to critical infrastructure. (IFAD, 2014)

Schlenker and Lobell (2010) showed that compared to average yields over the period 1961-2006, mean yields of maize, sorghum, millet and groundnuts will decrease by about 20% towards the middle of the century (2046-2065). Using crop yields for 2000 as the base year, Nutsukpo et al. (2012) found that by 2050, climate change would cause an overall yield decrease of less than 25% for rainfed maize and rice and above 25% for groundnuts. However, regional variations in yield were observed with yield increases being projected in some areas (De Pinto, Demirag, Haruna, Koo, & Asamoah, 2012). With the 1990/1991 cropping season as the base year, cassava yields are expected to decrease by 3%, 13.5% and 53% in 2020, 2050, and 2080, and cocoyam yields are projected to decrease by 11.8%, 29.6% and 68% in 2020, 2050 and 2080, respectively (Armah, et al., 2011; Olesen, Chirinda, & Adiku, 2013).





Climate change mitigation

For GHG emissions, Ghana ranks 151 of 188 countries for per capital emissions, contributing only 0.07% of global emissions. However, Ghana is highly vulnerable to global climate change. Ghana ranks 101 out of 181 countries in the ND-GAIN index (2016) for climate vulnerability. Ghana is the 68th most vulnerable country and the 85th least ready country— meaning that it is vulnerable to, and moderately ready to combat climate change effects. Vulnerability measures the country's exposure, sensitivity, and ability to cope with the negative effects of climate change by considering vulnerability in six life-supporting sectors: food, water, ecosystem service, health, human habitat and infrastructure. Readiness measures a country's ability to leverage investments and convert them to adaptation actions by considering economic, governance and social readiness.

Ghana's emissions of Green House Gases (GHG) have increased since 2004, in the 2014, which is the official latest reporting year to UNFCCC, Ghana's total GHG emissions, excluding AFOLU sector, were estimated to be 16.51 MtCO₂e. Carbon dioxide has increased by 82%, Nitrous oxide by 22% and Methane by 16%. The mean annual temperature has risen by 1.0 °C since 1960. The number of 'hot' days per year has increased by 13.2 %, while the number of 'hot' nights per year has increased by 20 %. 'Cold' days and nights per year have decreased by 3.3 and 5.1 % respectively. In the period 2005 – 2010, the period between start and end of rains varied by as much as 30 % from year to year. Sea Surface temperatures are unstable.¹⁶

Ghana aims to become a full-fledged middle-income country by 2020, but climate change is a serious threat to this ambition. It is already affecting economic output, livelihoods and, therefore, long-term development prospects, even though Ghana's own contribution to global climate change has been negligible. The reason for Ghana's vulnerability is the reliance on sectors that are sensitive to climate change, such as agriculture, forestry and energy production. Evidence already shows the impact of climate change on our national economy, with clear signs that the coastal zone, agriculture and

¹⁶ Ghana Environmental Protection Agency (2011): Ghana's Second National Communication to the UNFCCC. <http://unfccc.int/resource/docs/natc/ghanc2.pdf>

water resources are all negatively affected, with consequent impacts on poverty, health and women's livelihoods.¹⁷

Biophysical Vulnerability

Ghana has different ecological and climatic zones, from coastal savannah in the far south to humid rainforests in the southern half of the country and the dry, hot Sahel in the north. Total annual rainfall is over 2,000 mm in the extreme southwest, less than 1,100 mm in the north, and 750 mm in the south eastern coastal tip. Rainfall is characterized by strong inter-annual variations due to El Niño events causing drier than normal conditions. There is a strong rainfall seasonality differing per zone:

North - Wet season: May – October (150-250 mm per month in peak months July-September);

North - Dry season: November – April (with hot 'Harmattan' winds that blow from the Sahara Desert)⁶;

South - Long dry season: November – March;

South - Long wet season: April – July;

South - Short dry season: August;

South - Short wet season: September – October (20-25% of total annual rainfall).

Monthly mean temperature is between 25 and 30°C throughout the year. Temperature variations are greater in the north than in the south, with highest temperatures at the onset of the dry season (April-June, 25-27°C) and lowest temperatures during the wet season (July-September 25-27 °C).¹⁸

With most of the rain falling in intense storms of short duration, the country is vulnerable to extreme events such as heavy rainfall (with on average 44 mm per day) resulting in heavy runoff and erosion, especially at the beginning of the rainy season. At the same time, the long dry season in the north has led to serious droughts in the region.

¹⁷https://www.weadapt.org/sites/weadapt.org/files/ghana_national_climate_change_master_plan_2015_2020.pdf

¹⁸ Akudugu, M.A.; Alhassan, A.R. (2012): The Climate Change Menace, Food Security, Livelihoods and Social Safety in Northern Ghana. International Journal of Sustainable Development & World Policy 1(3): 80-95. [http://www.aessweb.com/pdf-files/1%20\(3\)%2080-95.pdf](http://www.aessweb.com/pdf-files/1%20(3)%2080-95.pdf)



Map 1: Ecological Zones of Ghana

Over the last 30 years, a slight increase of total annual precipitation was observed. Ghanaian farmers have identified erratic rainfall patterns, longer periods of Harmattan (hot desert winds) and desertification as the main current effects of climate change. In the eastern Volta Basin, prolonged dry seasons have replaced shorter dry spells. No clear trend has been observed in the intensity or frequency of extreme rainfall events. There is evidence of a temperature increase over the past decades. Mean annual temperature has increased (reports range from +0.4 °C over 100 years¹³ to

+1 °C over 50 years), with the strongest increase between April and July (+0.27 °C per decade). The rate of increase has been more rapid in the north of the country than in the south. Moreover, the number of 'hot days' and 'hot nights' has increased significantly in all seasons (by 13.2% and 20% respectively between 1960 and 2003), while the number of 'cold days' and 'cold nights' has decreased (by 3.3% and 5.1% respectively over the same period).¹⁹

The north of the country has repeatedly experienced incidences of droughts and floods. The 2007 floods in the northern part of the country, immediately following a period of drought, affected more than 325,000 people. In 2015, days of torrential rain around Accra resulted in widespread flooding and left 159 dead.²⁰ Projections for climate change show large uncertainty concerning the change in rainfall. For the future, precipitation estimates range between predicting a -3% to +7% change in precipitation. For total annual precipitation, projections for the year 2100 vary from -15% to +16% compared to current annual rainfall although a national decrease of 4% by 2040 is a commonly cited projection. Some models predict an initial increase of rainfall in some regions, followed by a decrease of rainfall in most regions over the longer term. Projections in seasonal differences are a bit more convergent: in general, rainfall increases are predicted for July – December, and decreases for March – June. For the northern regions, this suggests that the start of the wet season may be delayed and the growing season may shorten.²¹

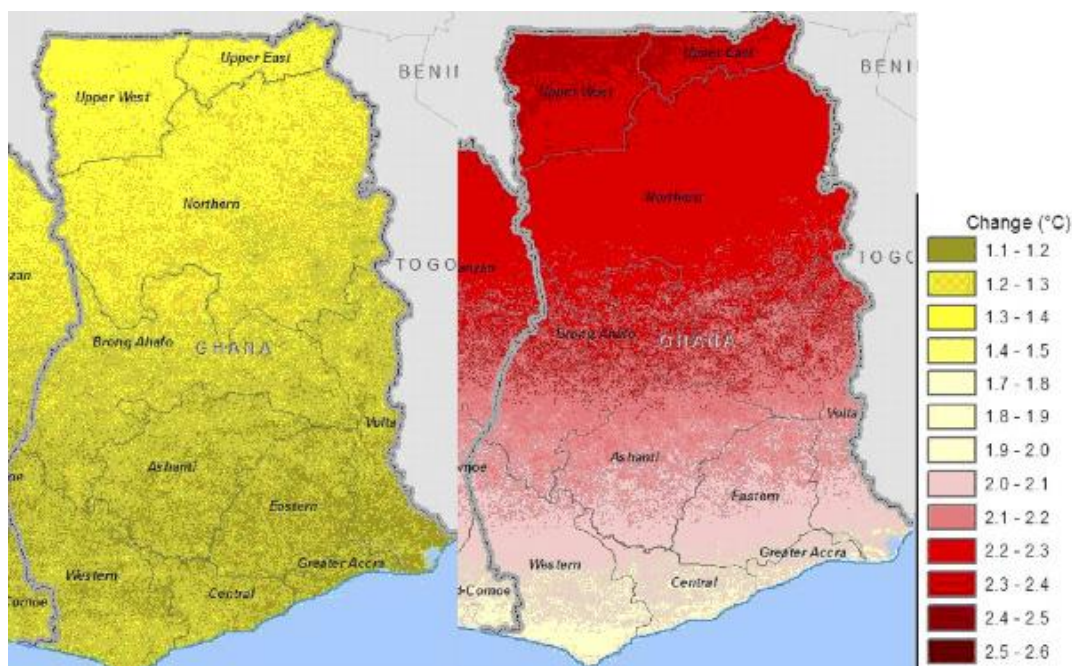


Map 2: Projected Precipitation Changes: 2030 (Left), 2050 (Right) Compared to 2010

¹⁹ Ibid.

²⁰ USAID (2017). Climate Change Risk Profile: Ghana.
<https://www.climatelinks.org/resources/climate-change-risk-profile-ghana>

²¹ Ibid.

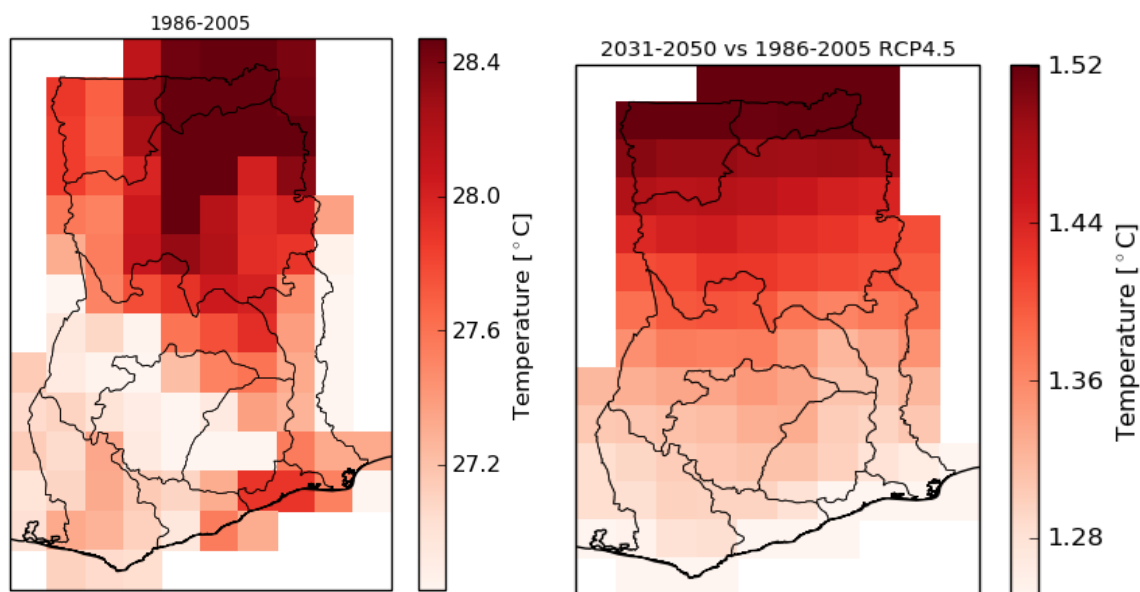


Map 3: Predicted temperature changes: 2030 (Left), 2050 (Right) Compared to 2010

The temperature is expected to increase further, for the end of the century a warming ranging between 1.4 to 4.2°C is likely. The increase is expected to be most severe in the north of the country. It is expected that 25-90% of all days will count as 'hot days' by 2100 (compared to 10% under the current climate) – with the highest percentage (up to 99%) in the months of July – September.²² These changes in rainfall and temperature will increase the frequency and intensity of extreme events. The duration of long-lasting heat waves is expected to increase by 22 days by 2100, potentially causing more severe droughts. At the same time, intensity of heavy rains is expected to increase (+4% by 2100) and the proportion of total annual rainfall that falls in such heavy rain events will also increase. This combination may intensify seasonal and inter-annual variation – with drought in one year and floods in the next, or even droughts and floods within the same season. Another projected effect of climate change is a rising sea level. Ghana's coastal regions, including its largest city, Accra, are expected to face a sea level rise of 13-45 cm in 100 years and are especially vulnerable to flooding and waterborne disease.²³

²² WHO & UNFCCC (2105), Climate and Health Profile – 2015, Ghana.
http://apps.who.int/iris/bitstream/10665/208862/1/WHO_FWC_PHE_

²³ Ibid



Temperature average over the reference period 1986-2005. This map is based on the EWEMBI dataset.

Projected change in temperature for 2031-2050 compared to the reference period 1986-2005. Here the ensemble mean of regional climate model projections is displayed. Grid-cells for which a model-disagreement is found are colored in gray. The projections are based on the emission scenario RCP4.5.

These changes are likely to affect Ghana's water availability and food security, especially in the north of the country, where the mono-modal rainfall pattern results in a long 'hunger season' before the harvesting of new crops. This season used to be April - July, but some reports indicate that this has extended to March –August due to an ongoing decline in productivity of subsistence food crops. Food insecurity is largest in the Upper East (6-7 months for all crops), followed by the Upper West and the Northern Region (depending on the crop, on average 5 months). Projected future climate-related impacts to food security include:

Increased water stress as streams and rivers as well as small-scale dam systems dry up (-15-20% of water flow in all Ghana's basins for 2020, and -30-40% for 2050), flooding of coastal areas and low water levels that will affect operation of the only hydro-generating dam in the country (which produces 80% of national electricity supply);

increased crop loss/failure and reduced yields, particularly for cassava;

desertification and loss of arable land for agricultural production;

outbreaks of crop/livestock pests/diseases due to high temperatures and/or standing water;

loss of productive lands due to ecosystem deterioration;

reduced freshwater water stocks due to reduced river flows;

post-harvest losses due to difficulties in crop preservation as a result of erratic/heavy rainfall;

salinization effects on crops due to sea erosion and tidal flooding in the coastal region.

Socio-Economic Vulnerability

Climate change vulnerability in Ghana is greatest for those who are strongly dependent on natural resources and have the lowest capacity to cope with these changes. Smallholder farmers (especially female-headed farming households) in Ghana are particularly vulnerable to the impacts of climate change and variability due to the compounding impacts on yield from poor lateritic soils, limited irrigation, and limited transport to markets. In Ghana, women constitute 52% of the agricultural labour force and produce 70% of subsistence crops.²⁴ In addition, they depend on water and crops due to their responsibilities in the household. They are hampered in their adaptive capacity to climate change due to various factors, including inaccessibility of financial resources, a lack of information and technology, and unfavourable land tenure systems.

Agriculture is the backbone of Ghana's economy, providing employment to 45% of its workforce, contributing to 21% of GDP and supplying over 70% of its national food requirements. Since Ghanaian agriculture is predominantly rain-fed (with only 4% of its irrigation potential developed), particularly in the semi-arid north, it is highly vulnerable to climate change. Agriculture is characterized by a low level of diversification, which makes farmers more vulnerable to crop failure. Farmers in the north of the country – and particularly in the Upper East – are most vulnerable.²⁵ This is partly due to the hot and dry conditions of the area and the bad quality of agricultural lands (the Upper East is most exposed to land degradation and soil erosion), but also because of general poverty and limited access to alternative livelihoods. In the northern regional total crop failure is expected to occur approximately once every 5 years due to delayed or diminished rains. Ghana's main staple crops are, in order of amount produced and consumed: cassava, yam, plantain, maize, and rice.

Root and tuber crops are predominantly grown and consumed in the south of the country, while grain crops are cultivated in the north. Important cash crops include cocoa (mainly in the south) and groundnuts (in the north). Projected climate change impacts for these crops include:²⁶

Cassava yields are expected to reduce due to both increased temperatures and periods of water stress. Projections of productivity losses are up to 3% in 2020, 13.5% in 2050, and 53% in 2080.

24 NDESA (2017): World Population Prospects: The 2017 Revision, Key Findings and Advance Tables. Working Paper No.

ESA/P/WP/248. https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf

25 USAID (2017) note 16 above

26 CIA (2015). The World Fact book, Ghana. Available via <https://www.cia.gov/library/publications/the-world-factbook/geos/gh.html>

Yam requires fertile soils but less water than cassava. Yam yields are expected to decrease by 11.8% by 2020, 29.6% by 2050 and 68% by 2080.

Maize yields will decrease by about 15% by 2050 in all regions. Some models however predict a yield increase for the north of the country.

Rice cultivation is expected to be subject to a similar decrease of 0-25%.

Groundnuts are currently cultivated mainly in the north, but no clear yield change projections under climate change exist for this part of the country. In the south, however, yield increases of around 25% have been estimated.

Cocoa, a major cash crop and Ghana's second leading foreign exchange earner, is highly sensitive to rising temperatures and drought. Areas suitable to for cocoa production will contract by 2030 as temperature rise, floods increase, and soil salinization and coastal erosion occur. It is also vulnerable to pests and diseases that may be triggered by increasing temperature and humidity.²⁷

Access to water resources will also decline. About half of the water used in Ghana originates from three international rivers (Volta, Bia and Tano) which flow from outside its borders. A recent study projected flows in the Volta Basin could fall by 24% by 2050 and 45% by 2100 due to reduced rainfall and increased evaporation (from increased temperature). Transboundary climate-related conflicts are likely to increase, e.g. current tensions with Burkina Faso over its decision to withdraw water from the Volta which would reduce the water levels required for hydropower generation in Ghana.²⁸

Other conflicts/tensions include the movement of Fulani herdsman and their cattle from the dry Sahel region into farming communities in southern Ghana, water allocation disputes between the north and south of the country, and tensions arising from economic dependence on climate change-susceptible crops such as cocoa. Such conflicts not only arise from climate change, but can also deepen vulnerability to climate change effects as they often result in increased poverty and eroded social networks.

Effects of climate change on the agricultural sector

Most agricultural production in Ghana relies on small, rainfed plots that are highly vulnerable to the impacts of climate change. Erratic precipitation patterns have severe consequences on production, as only 2 percent of the country's irrigation potential has been tapped. Rising temperatures are projected to lower yields in major staple crops (cassava, yams, plantains, maize and rice). Cassava

²⁷ USAID (2017) note 16 above

²⁸ Ibid.

yields, for example, are projected to fall by 29.6 percent by 2080 and maize yields by 7 percent by 2050. Total crop failure is expected to occur approximately once every five years in Ghana's northern region due to delayed or diminished rains. Cocoa, a major cash crop and Ghana's second leading foreign exchange earner, is sensitive to rising temperatures and drought. Areas suitable for cocoa production, which lie primarily along the coast, are contracting as temperatures rise, floods increase, and soil salinization and coastal erosion continue.²⁹

Climate Stressors and Climate Risks	
AGRICULTURE	
Stressors	Risks
Rising temperatures	Increased crop loss/failure and reduced yields, particularly for cassava Increased incidence of pests and crop diseases
Reduced rainfall	Shorter growing seasons Desertification and loss of arable land for agricultural production
Drought-like conditions	Soil salinization and saltwater intrusion into coastal aquifers
Rising sea level	

Table: Climate Stressors and Climate Risks - Agriculture

Smallholder and subsistence farmers are particularly vulnerable to any type of climatic or economic shock owing to their high dependence on local natural resources for their livelihoods, their chronic food insecurity, physical isolation and lack of access to formal safety nets (e.g., insurance). Small farmers in Ghana are more exposed to pest and disease outbreaks, droughts and extreme weather events. Droughts in the Northern part of Ghana), which cause significant crop and income losses and exacerbate food insecurity. Although small farmers use a variety of informal risk-coping strategies (storing water, seeds and food, replanting crops, rebuilding homes with local materials, finding temporary work), these are insufficient to prevent them from remaining food insecure and reduce their vulnerability. Due to the limited resources and technical capacity of the MoFA, few farmers have adjusted their farming strategies in response to climate change. Thus, urgent technical,

²⁹ Olesen, J., Chirinda, N., & Adiku, S. (2013). Climate change impacts on crop productivity and possible adaptations in Ghana. Ghana Policy Journal Edition on Climate Change. Available via <http://dspace.africaportal.org/jspui/bitstream/123456789/34938/2/gpj-v5-n4.pdf?1>

financial and institutional support is needed to improve the agricultural production and food security of small farmers in Ghana and make their livelihoods resilient to climate change.³⁰

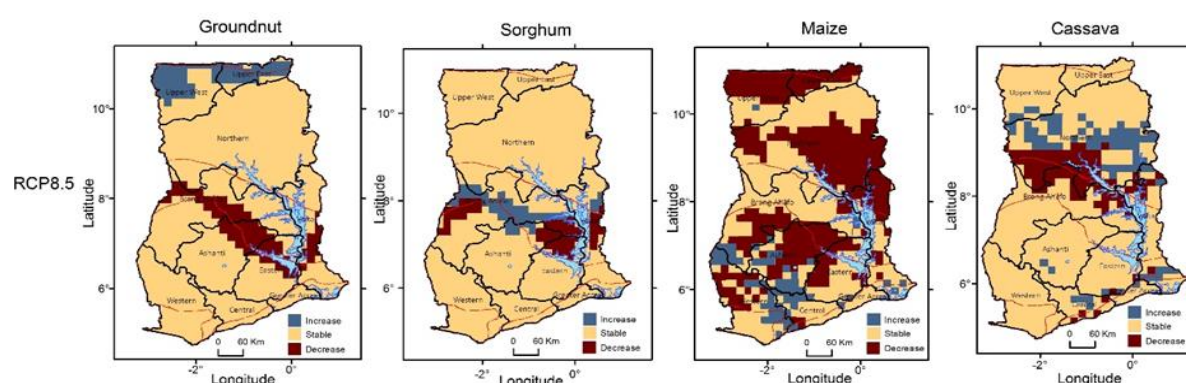


Figure: Projected change in crop suitability for different crops under RCP8.5 (business as usual climate change) by 2050, as compared to current suitability. Legend: blue = increase, yellow = stable, red = decrease. (Postdam Institute for Climate Impact Research, 2019)

Adaptation

From the foregoing, Climate Change places a high demand on management techniques for agricultural production and extra inputs (e.g., irrigation, drainage, protective covered structures, and climate proof facilities) into agriculture thereby resulting in an increase in cost of production. However, the costs of reconstruction after disasters are proven to be far more expensive than the costs of adaptation and risk reduction. Proactive adaptation responses could reduce the vulnerability of farmers and agriculture sector-dependent communities while saving important social and economic costs. Climate change only exacerbates problems that already exist. Furthermore, the adaptive capacities of local communities to cope with the effects of severe climate impacts decline if there is a lack of physical, economic and institutional resources. Below is a discussion of specific adaptation measures recommended for both government and smallholder farmer beneficiaries of the Project, disaggregated by stage in the value chain.

Production

At farmer level : Use locally-adapted technologies (like Conservation Agriculture) where farming can be practised without altering the local ecosystem; avoid importing foreign technologies and produce inputs from local resources; adjust planting dates to match rainfall patterns as much as possible; introduce efficient irrigation mechanisms; plant local crop varieties (heat, pest and flood-resilient); introduce Integrated Planting Mechanisms (IPMS); build climate-proof crop cover structures; implement integrated soil fertility systems (e.g., fertigation from tilapia ponds); conserve native fruit trees and other varieties of locally-adapted crops; maintain genetic diversity in fields and herds; create both temporal and spatial diversity in fields (with multi- and inter-cropping, agro-forestry and

³⁰ Ibid; WASCAL (2015): West African Science Service Center on Climate Change and Adapted Land Use. <https://icg4wascal.icg.kfa-juelich.de/>

livestock-crop systems); practice fallow and no-tillage to cope with soil moisture and nutrient deficiencies; maintain and promote backyard gardens; replace poultry with climate-adapted fowls.

At government level: Farmers from the drought-prone districts in the north cultivating vegetables (of high water intake) should, in addition to adopting technologies on irrigation, be encouraged to slowly transit to high value, drought adapted crops. Safeguard the knowledge, practices and benefits of regional ancestral agricultural techniques, which form the basis for current and future agricultural innovations and improved technologies.

Promote a diversified use of the landscape.

Develop Climate Information Systems that allow farmers to plan the timing of operations.

Study the implementation of an index-based crop insurance and Payments for Environmental Services Schemes.

Storage. Promote skills and technologies of food preservation and storage among women and youth. Maintain strategic local food and seed reserves, through Community Seedbanks. Build climate-proof storage facilities.

Processing. Build climate-proof agro-processing facilities; conserve water, and ensure correct disposal of wastewater. Run facilities with autonomous energy systems

Marketing. Advocate for local agricultural production from sustainable family farmers. Maximize selling of value-added products.

Consumption. Encourage a local and diversified diet.

Transversal. Strengthen formal and informal farmers' associations. A strong sense of community and ownership is vital for quick recovery from extreme climate events and effective dissemination of climate adapted technologies and farming practices.

These adaptation options may face a variety of challenges and barriers in Ghana including: economic resources, technical knowledge and adaptive capacity in the agriculture sector. Climate change may, therefore, enhance existing opportunities and priorities for the modernization of agriculture in Ghana by enabling effective and proactive adaptation to climate change as this project proposes to do.

Climate risk category

Changes in temperature and rainfall are having significant impacts on Ghana, especially in the poorest communities of smallholder and subsistence farmers. Risk and exposure are high in the agriculture sector, therefore the project is considered to be of high climate risk and it will be necessary to conduct an in-depth analysis. The design has been enhanced by mainstreaming climate resilience across all its components and activities. Financing from the Green Climate Fund (GCF) will be sought for this purpose, recognizing the higher costs that climate change imposes on the development efforts and investments by vulnerable developing countries. With the risk mitigation measures incorporated in the project, the climate risk is reduced to medium.

Key Issues

Access to markets: Among marketing constraints identified by smallholder farmers interviewed during Project design were:

poor bargaining power in the main markets and with local processing plants; and
low prices paid by middlemen.

Agricultural production.: Among production constraints identified by smallholder farmers interviewed during Project design were:

climate-induced crop losses, (b) weak farmers' organizations and associations (c) Unavailability of inputs and equipment; (d) limited access to finance; and (e) limited access to irrigation.

Institutional capacity: The ratio of trained and equipped agriculture personnel to farmers is critically small. There is also a need to improve the technical capacity of agricultural personnel. Specifically, there exists a need for more trained personnel in climate resilient agriculture practices, integrated crop/pest management, food processing, hydrology, monitoring and documentation, research methods, Information Technology (IT) and Geographic Information Systems (GIS). This expertise must be established in the MoFA so that these critical services can be available at the national level and for the benefit of all farmers

Institutional analysis and Capacity building: Aiming for a long transformation that will enhance the communities' resilience and coping capacities, the following capacity-building needs among farmers, villagers and government staff have been identified during Project design:

Production planning in relation to market demand.

Training on agroforestry, and climate-smart agricultural practices.

Networking, leadership, cooperativism, conflict resolution, negotiation, procurement of goods.

Skills for disaster response, for economic use of excess produce and for adding value to produce such as: non-refrigerated storage of food which includes fruits and vegetables. This is especially

important for communities without reliable supplies of electrical power and/or vulnerable to loss of power due to climate disasters.

Monitoring, documentation and analysis of Climate Change impacts.

Implementation arrangements: The Ministry of Finance will be designated as Lead Programme Agency (LPA) with overall responsibility for the project implementation; and the GCF's clear position on their mandate to finance climate resilience projects. The Government of Ghana, and especially the MOF, has experience in the implementation of externally financed projects and is knowledgeable of the Categories of Expenditure for organizing disbursements and applying the percentages of financing according to the different funding sources. The MOF will ensure proper financial management and implementation of the project through the creation of a dedicated Project Management Unit (PMU). The PMU will carry out the overall programming and budgeting taking the lead for overall project implementation, which will include working with service providers, Government Ministries and Departments, existing projects with similar objectives, individual project participants and the municipalities of the Project's target areas. Therefore, will host the specialists as well as the know-how related to the SECAP implementation i.e. climate change adaptation and ESMP safeguards triggering. The PMU will also lead the hiring of dedicated consultants or consulting firms for the program's SECAP follow up and M&E. Environmental Assessment of the proposed design solutions, as per the applicable laws of Ghana are to be carried out by the Ghana Environmental Protection Agency.

Record of consultations with beneficiaries, civil society, general public etc.: Field trips and interviews were held with people from the communities targeted by the project including farmers, village council, and women in Kumasi, Brong Ahafo, Northern Region and the Upper East Region. Meetings were held in Accra, with key actors from government institutions. which are listed below:

Ministry of Finance

Ministry of Rural Development

Ministry of Food and Agriculture

Ministry of Women and Children's Affairs

Forestry Commission

University of Ghana. Marine & Fisheries Science Department

Ministry of Fisheries and Aquaculture Development

Ghana Commodity Exchange

Ghana Investment Promotion Centre

Ghana Agricultural Insurance Pool

Rural Development Fund

Ghana Community Bank

United Nations Development Programme (Ghana)

Apex Bank

Alliance for Green Revolution in Africa (AGRA)

Ghana Agricultural Sector Investment Programme (GASIP)

Ghana Incentive-Based Risk Sharing System for Agricultural Lending (GIRSAL)

Targeting

Geographical Targeting: AFFORD targets two regions; namely, Northern region and Brong Ahafo region are selected from the old definition of 10 regions for AAFORD. The regions are targeted based on: (i) their level of production; (ii) the presence of other value chain programmes; and (iii) the existence of processors for value addition iii) high level of poverty iv) impact of climate change and climate variability v) food insecurity and nutrition vi) presence of banking sector vii) gender and youth gap in agriculture

508,307 households, 30 clusters and 350 villages. A total of 75,000 households will be targeted by the programme as beneficiaries. As Ghana's poverty is largely rural with 38.2% of the people in rural areas considered poor compared to 10.4 in the urban areas, the focus of the programme is on rural areas in the Northern and Brong-Ahafo regions.

	Inequality	No. of rural poor people (million)	Mean annual per capital income (GHS)	Number of Rural Community Banks ³¹
	GINI Coefficient			
	GLSS 7	GLSS 7, 2019 Est ³²	GLSS 6	2019
Upper West	48.1	0.5	3,015.7	4
Northern	45.3	1.65	3,023.5	7
Upper East	43.7	0.62	1,801.9	5

31 Extracted from Arb Apex Bank web page:

https://www.arbapexbank.com/region_select.cfm?Ashanti%20Region®ion_id=3&corpnews_catid=8

32 2019 population projection was used for the estimation

<https://www.citypopulation.de/en/ghana/cities/>

Volta	39.7	0.71	4,382.2	14
Brong Ahafo	38.6	0.65	3,949.1	21
Eastern	35.4	0.31	3,919.1	23
Ashanti	37.9	0.48	8,205.4	29
Greater Accra	35.1	0.04	5,428.5	7
Central	37.4	0.26	3,975.7	20
Western	36	0.46	7,730.7	12

Target Group: The primary target groups for the programme remain rural smallholder households engaged in the millet, sorghum, maize, groundnut, cassava, soya bean and poultry value chains. This includes all groups compile in the table below. The entry point for AFFORD is organized FBAs, MSMEs, Nucleolus farmers, off takers or those willing to organize themselves into groups. Good governance, social inclusion, and participation are also criteria for the selection of organizations. This approach is to mitigate credit risks and better organize value chains from subsistence agriculture to markets oriented agriculture. This includes strengthening the capacity of all actors along the Value chains to address underlying barriers limiting agricultural productivity and competitiveness (gender and youth gap, climate change, saving and credit behaviour; sustainable agricultural practices and techniques)

Target group	Direct Outreach (HH)	% of outreach	Land ownership	Key characteristics
Smallholder semi subsistence households	60,000	80%	Up to 2 Ha	<p>Resource-poor with little or no access to credit.</p> <p>Revenue may fall below the upper poverty line of 1,341 GHS a year per adult.</p> <p>Limited access to improved inputs, mechanization services, post-harvest management and marketing.</p> <p>Rely on their savings to finance their agricultural activities.</p>

Market-oriented smallholder households	11,250	15%	2-10 Ha	<p>Income may range GHS 1,000 to GHS 6,000 a month from the production of cash crops. Separate income sources may exist from off-farm activities and remittances.</p> <p>May consider using credit/loans to access improved seeds, machinery for land preparation, harvesting, planting and storage facilities if readily available.</p>
Large farming households	3,750	5%	More than 10 Ha	<p>Have better access to financial capital.</p> <p>Use hired labour for farming activities.</p> <p>Likely to be food secure, literate and influential in their communities.</p> <p>Target one or two specific commodities for commercial purposes and produce based on a contractual agreement</p>
Total	75,000	100%		
Youth (18-35)	30,000	40%		<p>- Majority of youth who are younger than 30 years old in Brong Ahafo and 25 years old in Northern Region are not married.</p> <p>- Unemployment rate is highest among youth who are between 20 to 29 years old in Rural Ghana. Unemployment is higher for female youth especially for those who have graduated from secondary education. .</p>
Women	37,500	50%		<p>Have less access to land and credit when compared to male counterparts.</p> <p>More than 70% of women who are above 35 years old are married</p> <p>Female-headed households tend to have inadequate food consumption and being poor than the male counterparts, especially in the Northern region (8% of total population in the region).</p>

Ghana Financial system in Ghana :

A according to AfDB Africa's financial system is lagging behind other developing regions in every dimension of financial sector development, from regulations, and product sophistication to access, gender, and inclusion. The financial systems are small, concentrated, and unaffordable, with limited outreach. However, financial systems in Africa have also seen dramatic transformation, over the past two decades, in market structure and stability. There are enormous differences across sub-regions and countries, ranging from well-developed financial systems in middle-income countries, to shallow banking systems offering only the most basic banking services in fragile and poor states. Variation

and disparity also exists within countries, like Ghana's polarized demographic structure between the northern regions, and the fast-developing southern regions. (A2F, 2016). Every sub-region on the African continent fares differently in terms of progress towards financial development but as a whole access to finance is one of the major constraints for private sector development. The World Bank's enterprise survey's data reveals that many African MSMEs report access to finance as a major barrier. The analysis of firms' perception of access to finance by world regions and firm ownership (see Figure 2 below) indicates that many African women MSMEs perceive access to finance to be a major obstacle (44%), more than in any other developing region, including when disaggregated by gender. On average more women than men across the developing world consider access to finance to be a significant barrier (except for Central Asia and Eastern Europe). This finding is in line with economic literature and the available research on gender access to finance issues. (A2F, 2016)

Access to financing in Ghana's agriculture sector

Over a period of 25 years, bank lending to agriculture has been on the general decline, dropping from about 16% of total bank credit to about 4%. This is in spite of the various agri-financing mechanisms implemented. (PWC, 2017). It can be recognized that in addition to experiencing the normal access to finance obstacles faced by all MSMEs, SMEs as well as large firms, African women entrepreneurs¹ face specific access to finance disadvantages as compared to their male counterparts. Available research indicates that access to finance is one of the major constraints for women entrepreneurs worldwide. Access to finance is not gender neutral, with men having better access to finance than women. Women account for only 20% of the banked population as compared to 27% for men in the region. Nonfinancial barriers often restrain women from accessing financial services. These include: (i) the broader business and legal environment that may differentially affect women and men in businesses; (ii) personal characteristics of the entrepreneurs (such as differences in educational attainment and skills); (iii) characteristics of the firm (size, area of specialization, location, formal/informal sector); and (iv) constraints within financial institutions (little familiarity with women entrepreneurs). (A2F, 2016)

Challenges for women/ youth in accessing finance (A2F, 2016)

High amount of collateral and high interest rates were found to be impeding women's financial access in the six country case studies.

Women's low level of financial literacy limits their knowledge of available funds and financial products that they could have availed otherwise

A number of banks offer tailored products for women and youth in business, but the country surveys suggest this doesn't typically represent a major share of their portfolio

Various national governments and policy makers have embraced an agenda for greater financial inclusion of women/ youth entrepreneurs, but the existing gender finance programs are typically of limited scale or still at infancy stage

Implications of limited financing on agriculture performance

The financing of agriculture by commercial banks in the country is largely dominated by a few ones, indicating the low risk appetite that commercial banks, generally, have for the sector. The public sector contribution to agriculture sector remains low, resulting in slower agricultural sector growth rate in Ghana over the last two decades. The government's budget allocation needs to increase to stimulate better growth. (PWC, 2017). Despite expressed commitment to the Comprehensive Africa Agriculture Development Programme (CAADP) since 2003, the funding allocation made by the Government of Ghana from its Budget Statement and Economic Policies indicate an underinvestment in the sector. Between 2013 and 2016, only a tenth of the target amount planned for the sector was actually disbursed. Furthermore, the allocated amounts tend to fund recurrent expenditure, which leaves a disproportionately small amount for investments. (PWC, 2017). With growing pressure on governmental resources and emerging priorities, much is expected from the private sector to step in the gap, especially in the non-infrastructure space, and to drive growth inducing investments in the agricultural sector. There will also be the need for a deliberate increase in government's budgetary contribution to the agricultural sector targeting relevant infrastructure in particular. This should help to crowd in the participation of the private sector, using various vehicles / models, not least via public private partnerships. (PWC, 2017)

The case for a stronger intervention to attract more participation cannot be over emphasized. Lending by commercial banks has been in decline over the last few years and has been dominated by a few banks only. Further, bank lending to the agriculture sector in Ghana, as a proxy for private sector investment has also been in decline in recent times, mimicking the downward slide in the public sector. The share of agriculture in total commercial bank lending in Ghana is illustrated **Error! Reference source not found..** (PWC, 2017)

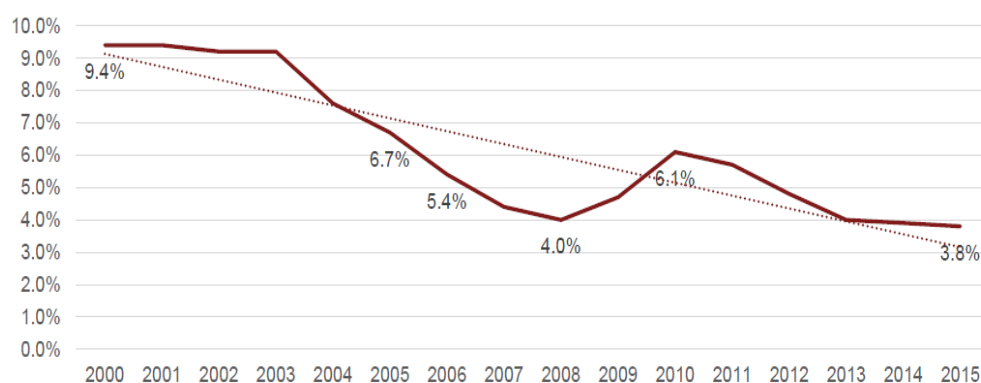


Figure 1: Agriculture as a percentage of commercial bank lending in Ghana (PWC, 2017)

Lending by banks dropped from their double-digit figures in the mid-1990s to under 4% in 2015. The low participation in lending to the agricultural sector is further characterized by the following features:

Eight commercial banks accounted for 88.5% of the amount of loans granted

ADB alone was responsible for nearly 40%

Three banks (ADB, EBG, and SB) provided more than two-thirds of the loans

Local banks accounted for 57.3%

15 commercial banks had less than 1% of their loans in the agricultural sector

Clearly, these commercial banks represent private sector financial institutions that could be incentivized to support investments to the agriculture sector. (PWC, 2017)

Environment for access to credit among female entrepreneurs

USAID analyzed the environment for access to credit among women from multiple angles, including from the perspective of demand, supply, and BAS service provision. Donor agencies were also interviewed to understand how these entities are approaching gender and access to finance. On the demand side, all of the project's female-led small, medium, including large enterprises (SMiLEs) were interviewed, as were approximately a dozen male and female staple food traders, and two dozen male and female smallholder farmers of staple foods. On the financing supply side, staff of nine Participating Financial Institutions (PFIs) were interviewed in Accra and Kumasi. On the service provision side, six Business Advisory Services (BAS) providers were interviewed, both male- and female-led, that are successfully releasing financing and investment at a rapid pace and have successfully engaged new, female SMiLEs to support with services. The selected sample of SMiLEs and BAS providers was not random, and was weighted towards firms led by women. Data collected from interviews was collated and analyzed, however control groups were not utilized, and formal surveys were not collected, so the results in this report should be considered qualitative in nature. (USAID, 2015) USAID's ADVANCE II substantiates this finding, as only 4 of the estimated 200 nucleus farmers it directly supports in the FTF zone of influence are women. Women are more likely to be found in market centers, either selling or processing staple foods, and less likely to be providing migratory on-farm processing services, services which tend to be provided by men, who are more easily mobile. The research suggests that USAID-FinGAP is designed to directly benefit segments of the value chain in which few women are found, segments that are seeking "missing middle" financing at amounts of \$25,000 to \$500,000. (USAID, 2015)

Demand side : Demand for finance among women and youth along the value chain remains highly unsatisfied, and the nature of demand in each segment is different. Given their location in the value chains, the nature of demand is different among female and male actors within each segment, and requires further analysis to fully understand and quantify. No PFI interviewed for the USAID (2015) study had conducted market research or financing demand analysis specific to the target value chains, nor had any segmented customers (men and women) within these value chains to identify their distinct needs. Initial findings from the study demonstrates that credit is available to the small and medium female actors downstream in the rice, soy, and maize value chains who wish it, however the scale of financing and terms offered (e.g., interest rate, collateral requirements) by PFIs to these actors do not meet their businesses' needs. The same is true for micro traders in the target value chains, who also are largely able to access credit from formal financial institutions and also from the buyers they source product for, but not in amounts sufficient, or for the length of time, most favorable for their businesses to grow. (USAID, 2015)

Formal credit is tightest for the smallholder farmers in each value chain. Although this group is not within the target population of the USAID-FinGAP project, the project cannot avoid considering the needs of these actors, as most of the direct beneficiaries for whom it facilitates financial services

(e.g., processors, traders, aggregators in the target value chain) are on-lending to upstream actors within each value chain using finance facilitated by the project. (USAID , 2015). Interviews point to the fact that women in Ghana's north are largely ignored by both formal and informal lenders as potential customers for credit for a variety of reasons, both economic and cultural. Most women smallholder farmers work on rice, maize, or soya farms with their husbands, and are likely to be illiterate and innumerate, and often defer to their husbands in farm matters, in particular when it comes to accessing input loans. Men in northern Ghana are therefore the primary recipients of smallholder input credit. Many aggregators and traders, including female traders, prefer not to lend to women smallholder farmers in Ghana's north, as the perception is that they don't control the farm or household resources (see text box). Other female smallholder farmers in different geographic regions, such as rice farmers interviewed in Kumasi in the Ashanti region, are able to access inputs (seeds) from buyers and processors, but report that they cannot afford formal financing at prevailing interest rates given the size of plots they manage, even if they could access required collateral. (USAID , 2015)

In general, at current productivity levels and plot sizes (90% of smallholder farmers operate on holdings of less than 2 ha), and even if they are bundled into groups (making them more attractive and less risky customers for PFIs), smallholder farmers throughout the country may be unlikely to generate sufficient revenue to successfully repay input loans to formal PFIs at prevailing interest rates. Whether on-lent input credit is affordable for smallholder farmers is an important point for study, as USAID-FinGAP does not want to inadvertently saddle female actors with unsustainable debt. Other SMiLE and PFI project beneficiaries are providing input and other forms of credit to upstream actors at a variety of interest rates, which may or may not be profitable for those receiving informal loans. (USAID , 2015)

Supply side: A number of PFIs, in particular large commercial banks, are strategically entering the financial services for women market with new products and networking platforms. Fidelity Bank has strong board and management commitment to undertake a large-scale financial inclusion expansion campaign targeting women that includes agent identification and expansion, mobile banking expansion, "smart accounts"⁵ for individuals and group lending through the village savings and lending association (VSLA) model in collaboration with NGOs. Fidelity has invested heavily in this line of business, conducting international visits to witness best practices in financial inclusion and hiring experts in this field to lead the bank's efforts. Fidelity created 400 new agents just in the last few months ("we are the only bank doing this, but we think it will pay off") and has opened 250,000 smart accounts since this product was unveiled. Fidelity intends to make VSLAs totally cashless through a new mobile banking application, as soon as it can fine-tune its software application. (USAID , 2015)

Access Bank has launched the W Initiative, a bundling of banking products for women, segmented into young professionals (savings, salary advance, debit card, local transaction link card), businesswomen (corporate account, m-power account, staff salary account, credit cards, savings products for children, insurance, and instant savings), families (current account, target savings account, single savings account, early savings accounts for children, accounts for youth, accounts for elderly, savings for dependents and domestics), and maternal health financial products (such as

fertility treatment loans). Access Bank is looking at women as an entirely new sector, and believes it is the only bank to approach women in this manner in Ghana. Access Bank's managing director believes this is a smart move to improve its value proposition to the Ghanaian customer and satisfy the interest of its capital providers. Access Bank conducted a thorough analysis of the small and medium-sized enterprises (SME) market, and as part of this study, surveyed the needs of women, although not women in the agribusiness sector, as the bank has "run away from this sector" given the bank's unfamiliarity with agribusiness lending in general. As part of the W Initiative, Access Bank supports networking among its female clients, and holds trainings and "power briefs" for its members on different subjects to improve their capacity as businesswomen. (USAID , 2015). Led by a female deputy managing director, UT Bank has launched AKOMA, a networking platform for women to connect with women across Ghana, as an entrée into the women's financial services market. UT Bank is a member of an international association of PFIs committed to financial inclusion, and has sent bank staff to attend international trainings. UT Bank also recently began an effort to study demand among female agribusiness actors in Ghana's north with the intention of expanding its agricultural lending portfolio to reach more women. UT Bank was initially championing the concept of "women to women" communications in serving women more effectively, and was in the midst of changing front-line staff to be more representative of their female clientele, until the bank learned that women customers preferred being served by men, not by other women, so they kept their front-line staff as it was originally. (USAID , 2015)

SASL piloted a new loan product among 1,600 female rice producers that triangulated the financial institution, women rice producers, and a buyer. SASL provided input loans for the smallholder farmers and a purchase price was negotiated between producers and the buyer. SASL's repayment rate among smallholder farmers for input loans in this pilot was an impressive 98.7% (far above the estimated 21% rate of non-performing agribusiness loans on the whole in Ghana), however SASL found that many women ended up side-selling their rice to other buyers offering better prices. (USAID , 2015). More PFIs with strong balance sheets are studying and entering the agribusiness market in force. However, none interviewed have studied the target value chains in-depth, nor have they studied the differentiated needs of men and women within the target value chains. (USAID , 2015)

Some of the larger banks (Fidelity, Ecobank, and Barclays) are engaged in heavy competition to dominate market share in agribusiness lending, and are critical partners with USAID-FinGAP in this effort. However, the concept of serving men and women differently within the agribusiness sector remains foreign to even these forward-thinking, innovative PFIs, and none, including the PFIs with large female clientele, have scientifically mapped the financial services demand within these specific value chains (maize, rice, soy) by gender. (USAID , 2015). Fidelity studied the agribusiness and SME markets intensively, and recently acquired ProCredit to serve the "missing middle" in the SME sector. Fidelity reports that the SME sector represents a reported 92% of all businesses in the country, and that 40% of the country's GDP is generated by SMEs; it has targeted agribusiness and microfinance institutions as key segments of the SME market it will focus on. Until now, Fidelity had not considered further segmenting the SMEs in terms of male and female markets. (USAID , 2015)

UT Bank is currently studying the agribusiness market more intensively, specifically in Ghana's north. The intention of the bank is to make agriculture the key business in Tamale and even further north in Ghana. Within this strategy, it wants to ensure that it is working with women as well, so it will hold focus groups and interviews to learn from women and to hear about what they want and need. UT Bank is also looking to secure concessional capital it can on-lend to women. Access Bank is keen to enter the agribusiness lending space. It is looking at agro processing and exporting as key sectors for expansion and would like USAID-FinGAP support in these areas. It would like to access capital at preferable rates so that it can successfully on-lend to female customers. (USAID , 2015). In addition to streamlining approvals for new agribusiness clients, Ecobank is expanding its lending to rural community banks and microfinance institutions as a strategy to enlarge access to finance among women and underserved sectors. There are 135 rural and community banks in Ghana, with 700 branches distributed throughout the 10 regions, which only hold about 5% of all assets in the banking sector.⁶ These PFIs are seen by Ecobank as more suitable actors to reach upstream clients, such as women, in the target value chains. (USAID , 2015)

SASL has analyzed the agribusiness market in "bits and pieces" over the years, and has analyzed each of the value chains, but has not studied the different needs of male and female borrowers within these chains. An estimated 80% of SASL's overall lending portfolio is to women, and 40% of the savings and loans' agricultural customers are women. This is less a PFI strategy than a natural occurrence, as SASL began as a microfinance institution, and small loans "naturally attract" more women than men. The bank currently lends to an estimated 12,000 female agribusiness clients, primarily smallholder farmers, rice millers, aggregators, and market processors of soya beans. SASL is concerned about the interest rate charged women clients, and would also welcome assistance to obtain concessional capital, however SASL has a board resolution barring it from borrowing in international currencies. (USAID , 2015)

A large performance data gap exists, as few PFIs track agribusiness lending and lending performance disaggregated by gender. Although PFIs uniformly report that women borrowers repay loans better than their male counterparts, few interviewed could back up this statement with data. SASL tracks the number of female clients it has (80% of their overall lending is to female borrowers), but to date have not tracked product uptake or performance by gender. (USAID , 2015). Access Bank tracks the number of female clients it has (an estimated 30% of their SME clients are women), and tracks male/female uptake of product by gender, but does not track loan performance by gender. Fidelity tracks this information for SME legacy clients from ProCredit (of which 15% were women), but a recent initiative by the GOG to eliminate individual loans and replace these with business loans is pushing Fidelity to undertake a large-scale campaign to "formalize" individual borrowers into businesses, offering this service for free. Once this formalization process of existing customers is completed, Fidelity will have effectively formalized hundreds of women and men into businesses, however, once classified as a business, the business is no longer tracked by gender by the bank's tracking system. (USAID , 2015)

The Government of Ghana is not seen by PFIs to be taking an active role in expanding agricultural finance. According to a 2014 study commissioned by Making Finance Work for Africa and the German government, agricultural finance (other than for the cocoa sector) has not been articulated

by the GOG as a strategic priority. In the USAID (2015) study, the approach of the GOG towards agricultural finance is classified as “laissez-faire” due to the legacy of past “extensive Government intervention” and policy failures, resulting in eroded net worth of the banking system. This opinion was echoed by those interviewed, as only one actor could identify a GOG intervention to expand agricultural finance by pointing to the apex group the Microfinance and Small Loans Center, which has been criticized for low-performance and politicization. One PFI partner openly lamented the lack of leadership by the GOG on agricultural policy, and is pushing the GOG to develop a comprehensive plan, asking for USAID-FinGAP support in this matter. Since neither the GOG nor the banks are heavily engaged in data collection around the FTF value chains, USAID-FinGAP could fill this data gap to support the private sector in engaging with the GOG in developing improved and gender-sensitive SME and agricultural finance policies related to staple foods. (USAID , 2015)

Service provision learnings in Ghana

BAS providers and female SMiLEs have reported their satisfaction with the project-supported investment mini-summits in Kumasi and Techiman as an opportunity to identify new potential borrowers (on the part of BAS providers) and to understand the project’s service offerings and engage with the project (on the part of SMiLEs). Holding these and other events (e.g., meet and greets, events at markets) closer to where the women in the value chains are physically located was unanimously suggested as a method to identify additional clients, and in particular, female clients. (USAID , 2015). Many of the upstream actors attending the USAID-FinGAP-supported investment mini-summits in Kumasi and Techiman (traders, small-scale processors, aggregators, millers) are micro actors, who run businesses in the target value chains with 1 to 9 full-time employees (and often more part-time employees) and demand small loan amounts. To serve these actors, most of whom had not previously established relationships with financial institutions, BAS providers are bundling them into groups, and presenting the financial institution with one larger loan application (>US\$25,000), rather than 25 individual applications. The loan recipients all open current accounts with the financial institution at the same time, so this strategy has the added benefit of bringing more upstream actors into the formal financial system, in particular women. (USAID , 2015)

Female SMiLEs need more and different levels of technical assistance to access financing than their male counterparts. BAS providers uniformly state that given their location upstream in the value chains, female entrepreneurs in the target chains require more intensive levels of service and lower amounts of financing than their male peers. Given their size (primarily micro and small), the financing needs required most often fall below the “missing middle” target of the USAID-FinGAP project (\$25,000 – \$500,000), and in segments of the value chain where margins are lowest. In terms of service needs, the perception among BAS providers is that female customers require more handholding, more business growth, and more financial management advice than male-led SMiLEs. One BAS provider recounted having to reconstitute five years of financial statements for one female SMiLE before he could present a sound credit application to a financial institution, and the time this took led the PFI to lose interest in the financing deal. This same BAS provider suggested that female-led entrepreneurs in these staple food value chains have more disorganized accounts or non-existent accounts in comparison to their male peers. Another BAS provider reported that women are more cautious about taking on debt they cannot responsibly service, while men are (for better or

worse) bolder in terms of the values of loans requested. Another BAS provider recounted that female staple foods traders trade in heavy volumes and many are cash rich but are unsophisticated in terms of planning business growth. Male BAS providers also suggested that it can be difficult to network with female SMiLE clients without it seeming inappropriate, a problem he does not have with his male clients. A number of BAS providers asked about the possibility of receiving a different level of compensation for spending more time with female entrepreneurs, given that the cost of serving female entrepreneurs is higher than the cost of serving their male peers. (USAID , 2015)

Recommendations to strengthen access to credit among female/ youth entrepreneurs

The lessons learnt presented in this section are the lessons learnt from the USAID-FinGAP project and represent the actions that need to be taken to improve FinGAP's performance, or female entrepreneur access to credit in general (USAID , 2015). The proposed actions are summarized in **Error! Reference source not found..**

Issue	Recommendations
Project data	
Project data collected does not fully capture impact of project overall, or on women and youth	<p>Refine data tracked by the project to include the value of the initial transaction and the associated on-lending disaggregated by gender.</p> <p>Systematically track each transaction/deal's connections with other FTF projects.</p> <p>Begin systematic collection of SMiLE impact data to adequately measure impact on sales, and gender impacts as well as youth . Consider instituting business surveys used by other donor projects (e.g., ADVANCE II, IFC) to facilitate data collection.</p>
Limited understanding of nature of financing demand for men and women/ youth in the target value chains	Map each value chain to understand where men and women are located, and what financing demand is, disaggregated by men and women.
Demand side issues	
Few female SMiLEs	<p>Hold more mini-summits.</p> <p>Go through networks of women to continue identifying more female-led SMiLEs.</p> <p>Encourage the formation of female SMiLE networks.</p> <p>Highlight female SMiLE successes in communications efforts (success stories).</p>

	Develop an award for most successful female-led SMiLE, to present at annual agribusiness conferences.
Women and youthbSMiLEs are not accessing finance in ways that satisfy demand	<p>Continue to support women SMiLEs via BAS providers to access financing at appropriate loan sizes, terms, interest rates.</p> <p>Continue to group female borrowers to facilitate expanded access to finance.</p>
Service provision	
Existence of few female BAS providers	Continue searching for and identifying female-led BAS providers.
Female/ youth SMiLEs require more handholding and cost more to serve	<p>Consider additional project supports to SMiLEs/BAS providers to stimulate expanded service provision to women and youth -led businesses given higher costs and more time/labor in serving them.</p> <p>Encourage equity finance instead of debt for SMiLEs.</p>
Risk that BAS providers may be facilitating on-lent financing that borrowers cannot responsibly repay	<p>Develop model revenue statements for SMiLEs, for BAS providers and PFIs to encourage understanding of the debt burden that upstream actors can carry and still make money to grow and service their debts.</p> <p>Encourage BAS providers to assist SMiLEs in lending to upstream borrowers at interest rates they can afford while continuing to grow, or to support them in expanding plot/farm sizes to a point where they can make money while receiving input loans.</p> <p>Encourage BAS providers to work with PFIs and input providers that offer lower interest rates to female/youth smallholder producers and upstream actors in the value chains (e.g., preferred interest rates on John Deere tractors, Premium Foods interest-free input loans).</p>
Issues with participating financial institutions	
PFIs want concessional finance to expand lending to women	<p>Encourage/support PFIs to seek blended capital solutions including concessional loans that can be on-lent to female value chain actors at lower interest rates.</p> <p>Conduct a study to investigate the idea of creating a hedge fund to cover currency risk among PFIs borrowing overseas.</p>
PFIs need assistance to track gender-and youth disaggregated lending performance	Provide technical assistance to project-supported PFIs to disaggregate agribusiness lending performance by gender.
Policy issues	

The Bank of Ghana does not collect sufficient data to understand how women and men interact differently with the financial sector

Support the Bank of Ghana in encouraging the gathering of gender-disaggregated lending information among Ghanaian PFIs.

GOG has a laissez-faire strategy towards agricultural finance while the private sector is interested in engaging the GOG more actively

Support private sector actors interested in engaging with the GOG with data to help shape agricultural finance policies.

Table 1: Recommendations to improve access for female entrepreneurs to access credit (USAID , 2015)

Technical assistance programs in Ghana

With the aid of different development partners, Ghana has experimented with and implemented various interventions aimed at increasing financial support to the agricultural sector. Ghana has made several efforts, through the implementation of different kinds of structured interventions, to mitigate risks associated with agricultural lending, with especial focus on the mitigation of financial or business risks.

These interventions have been focused on one or more of the under listed routes to achieve risk mitigation or increased agricultural lending:

Provide credit guarantee

Provide access to finance

Provide access to finance at a subsidized rate of interest

Provide credit as part of a larger value chain specific project

Provide non-cash support for agricultural and agribusiness enterprises through business advisory support

Provide grants to augment either equity or debt for purposes of acquiring fixed assets or pay for much needed technical advisory support

The financing interventions were from the following sources or a combination of them:

Multilateral Agencies: World Bank, Africa Development Bank, IFAD

Bilateral agencies: USAID, US/MCC, DANIDA, DFID, AfD

Government of Ghana: Exim-Guaranty Company, EDAIF, PEED

Others: AGRA

The African Development Bank, for example, funded a number of agricultural specific projects. These projects had specific credit lines for on-lending to particular value chain actors. The projects included the following:

Food Crop Development Projects (food crops)

Cashew Development Project

Inland Valley Rice Development Project

Livestock Development Project

Small-scale Irrigation Development Project

Most of these credit lines were borrowed by Government, and on-lent to the Agricultural Development Bank (ADB) for purposes of lending to smallholder farmers in the targeted value chains and the geographical areas selected. These lines were largely meant to provide access to credit by smallholders and some value chain actors. In addition to the funding, the project management units of the respective projects provided technical advisory support through MOFA's Agricultural Extension Agents (AEAs), as well as funded some common-use infrastructure that were determined as needed. Generally, by the end of these projects, the smallholder farmers that were targeted/benefited had their respective capacities built in good agricultural practices as well.

Ghana's experience with agricultural sector lending – Credit Guarantee Funds

Ghana's experience with credit risk guarantee funds has been limited over the years. The following are examples in the last decade (PWC, 2017):

Exim-Guaranty Company Ghana Limited: The main credit guarantee scheme has been the Exim Guaranty Company, which was set up by the Bank of Ghana to provide credit guarantee to financial institutions who seek to enhance their credit risk cover. (PWC, 2017). Ghana's agricultural insurance market is currently very basic and underdeveloped. There is no legislation in place. Unlike in Nigeria, there is no central government sponsorship, and supply-side interest seems low. (PWC, 2017)

There is no legal framework for the provision of agricultural insurance in the country since the Insurance Law of 2006, Act 724 has no provisions for agricultural insurance.

There was a draft amendment bill relating to insurance, which has not yet received the approval of Cabinet. However, this also has no provisions for agricultural insurance.

According to the National Insurance Commission (NIC), there is a marketing agreement among all the key stakeholders of the insurance industry for the operation of the Ghana Agricultural Insurance Pool (GAIP), hence, the monopoly it is currently enjoying.

GAIP is the only entity providing agricultural insurance in the country, at present.

GAIP represents 17 pool members. These are private sector insurance companies under the membership of the Ghana Insurance Association (GIA).

Only Ghana Reinsurance Company has a treaty with GAIP for its Drought Index Insurance, while the other lines of business are reinsured with a foreign reinsurer, i.e. Swiss Re.

The other reinsurance companies do not participate in the agricultural insurance market in Ghana

There is no subsidy on agricultural insurance (even globally, there are subsidies) and that makes it unaffordable to the stakeholders who demand insurance products. (PWC, 2017)

The Ghana Agricultural Insurance Pool provides agricultural insurance products for the following (PWC, 2017):

Drought Index Insurance targeting smallholder farmers through aggregators

Multi-Peril Crop Insurance targeting commercial farmers and agribusiness (minimum farm size should be 20 hectares) for both cereals (food crops) and forestry or tree crops

Poultry Insurance targeting poultry farmers

Livestock Insurance (for cattle) targeting smallholder cattle farmers. This is yet to be piloted.

Key issues (PWC, 2017):

The industry does not have adequate agricultural insurance products to satisfy the demands of the market.

GAIP has capacity challenges which need to be addressed

The local reinsurance capacity is a challenge which needs to be addressed

The other actors of the agricultural value chain (except production) require (patronize) traditional insurance, which is readily available

There is availability of both Direct Insurers and Reinsurers for the provision of the traditional insurance products to satisfy any value chain.

Introduction to GIRSAL:

The total financing gap for women in Africa is estimated at USD 42 billion. The financing gap for women in Agriculture is estimated at \$15.6 billion. The highest credit gap for women was found for women in the Central and North regions, followed by the Southern, West and finally East regions. The Central and North regions alone make up more than half of the total credit gap for the continent. The gap difference among regions can on average be as wide as near USD 70,000 per enterprise. Moroccan women business owners appear to have the highest average credit value gap among the six deep dive countries. (A2F, 2016)

The Ghana Incentive-based Risk Sharing Scheme for Agricultural Lending (GIRSAL) is aimed at encouraging lending by financial institutions to agriculture to help accelerate growth, spur agribusiness development, and reduce capital constraints that limit competitiveness in agriculture. GIRSAL is rooted in the incentive-based risk sharing scheme conceived by Alliance for a Green Revolution in Africa (AGRA) to leverage lending by private financial institutions into agriculture.

Nigeria was the first African country to implement this scheme in what is called Nigeria Incentive-based Risk Sharing Scheme for Agricultural Lending (NIRSAL), and the program was built on the following five pillars:

Risk sharing facility:	USD 300 million
Insurance facility:	USD 30 million
Technical assistance facility:	USD 60 million
Bank rating mechanism:	USD 10 million
Bank incentive mechanism:	USD 100 million

The six pillars of GIRSAL

GIRSAL will be conceptualized very much like NIRSAL with a sixth pillar added to take full account of the potential contribution that advances in digital finance could benefit agriculture in Ghana. GIRSAL is based on the following six pillars:

Risk sharing facility: to support development of risk sharing instruments to reduce the risks of banks through credit risks enhancements

Technical assistance facility: to strengthen the institutional capacity of banks and intermediaries to support new lending into agriculture, develop new platforms to support delivery of loans to rural areas, as well as provide technical assistance to farmer groups and agribusinesses.

Insurance facility: to support development and deployment of insurance products for agriculture to lower risks faced by smallholder farmers and agribusinesses.

Bank incentive mechanism: to develop incentives to reward banks that are lending to the agriculture sector, based on the volume of lending, effectiveness of lending, and impacts.

Bank rating scheme: to rate banks in Ghana based on their lending to agriculture, with the aim of creating extra incentives for banks that are achieving impacts in agricultural lending.

Digital finance: to significantly increase the low-cost distribution and administration of financial services particularly in rural areas using mobile phones and other digital distribution channels.

Together, these six pillars are aimed at de-risking agricultural value chains, building long term capacity and institutionalizing incentives for agricultural lending. The risk sharing- and insurance facilities contribute to de-risking agriculture finance value chains. The technical assistance facility enables building long-term capacity by means of training and information to farmers, institutions and private entities, and the development of a common platform for communication. Bank incentive mechanisms and the agricultural bank rating scheme institutionalize incentives for agriculture lending through enhancing the visibility of 'beneficial partners' and by establishing mechanisms that increase the attractiveness of agriculture lending to banks. Lastly, digital finance services have the capability to increase access to financing by leveraging on existing technologies and hence enhances the outreach to farming communities (accessibility) concerning the products, and the product itself (access). (PWC, 2017)

GIRSAL's multiplier effect for insurance

GIRSAL could serve as a catalytic factor for transforming, at an accelerated pace, the agricultural insurance industry in Ghana, leveraging examples elsewhere in Africa, including from NIRSAL.

Emerging trends:

Agricultural insurance is well patronized when bundled with what farmers need (especially with the smallholder farmers who are in the majority in African agricultural production space).

In Kenya it was bundled with seeds; in Malawi under the World Bank project, it was bundled with agricultural lending; while in Zambia, NWK bundled it with inputs for farmers.

The Weather Index Insurance is becoming economical to distribute to large smallholder farmers and it covers what the Private Insurance Providers are not willing to put on the market.

According to S. Kuhn et al, it will only be done with a public-private partnership (PPP) arrangement, where the state provides the targeting finance while relying on the efficiency of the private sector in the delivery of agricultural insurance products

The opportunity with GIRSAL

GIRSAL intends to promote risk sharing among the key stakeholders in the agricultural financing environment. Agricultural insurance is one of the risk mitigation tools that will be required to de-risk agricultural lending. This comes with the opportunity of creating a large market for the providers of agricultural insurance in the insurance industry.

The financial institutions and agricultural insurance providers will be working in the same space. This could result in collaboration with one another; as financial institutions use life insurance products as a requirement for granting personal loans, similarly, FIs could demand agricultural insurance from customers before facilities are granted or approved.

There should be a legislation or regulation that will provide the necessary legal framework for the operations of agricultural insurance in the country.

Furthermore, the legislation could accommodate a comprehensive agricultural policy which will include, among other things, the agricultural lending and provision of agricultural insurance, etc.

The issue of premium subsidy which is non-existent in the country could be addressed under the GIRSAL project.

To ensure a more competitive agricultural insurance market, other players apart from GAIP could be allowed to operate in Ghana.

Agricultural lending: Insights and lessons learnt to date

Fundamental constraints to accelerated lending by financial institutions include the low availability of risk mitigating instruments, the weak capacities of both lenders and borrowers, and a general lack of incentives. **Error! Reference source not found.** summarizes the key constraints to agricultural lending in Ghana and provides a description of the respective constraints.

Aspect	Description
Inadequate credit risk enhancing instruments	Agriculture in Ghana is largely undertaken by smallholder farmers who produce most of the food. These farmers usually have no collateral to secure their borrowings. Apart from Exim Guaranty Company Ltd., all other credit risk guarantee instruments have been short-term project based. Examples include AGRA/Stanbic Bank First Loss Guarantee, DANIDA/AGRA Stanbic/UT Bank/Sinapi Aba S&Ls risks sharing instrument. Exim Guaranty's exposure to the agricultural sector is also rather low.
Low risk mitigating instruments	Agricultural insurance is rather new and weak against a backdrop of risks such as inadequate rainfall, diseases and pests, low yield and markets being present and high.
Weak capacity of lenders	It has been determined that banks have weak capacities when it comes to lending to agriculture and to the business activities of all value chain actors. Low understanding of the technical issues of agriculture, and relating to the risks they present, tends to affect effective lending. Lenders also have weak capacity to design products, as well as for structuring deals relating to agriculture.
Weak capacity of borrowers	Weak capacities of borrowers in terms of management, HR, financial management, risks associated with agricultural businesses undermine their ability to repay their loans.
Limited distribution channels	The benefits relating to setting up branches in rural areas, where a lot of the agricultural activities is low.
Inadequate incentives for agricultural lenders & borrowers	Low incentives exist to promote increased appetite for lending to the agricultural sector. This is in addition to interest rates being high and market access for borrowers being generally weak.

Table Overview of major constraints to agricultural lending

Institutional , policy , legal framework

This SECAP has been prepared in accordance with applicable environmental and social policies, legislations, regulations, and standards of the Republic of Ghana. The summary of relevant national and sectoral policies, legal and institutional frameworks

Constitution of the Republic Of Ghana

The Constitution of Ghana (1992) states that ‘the State shall take appropriate measures needed to protect and safeguard the national environment for posterity; and shall seek cooperation with other states and bodies for purposes of protecting the wider international environment for mankind’ (Section 6 (41) (9)). The Constitution also upholds the principle of private ownership of lands. Adequate safeguards from deprivation of private property rights have been provided for, in the 1992 Constitution. Even the state’s inherent powers to compulsorily acquire private property rights have been reconsidered and somewhat controlled. Article 20 of the constitution prescribes that under no circumstance should private properties be compulsorily taken unless there are weighty and justifiable grounds for such acquisition, which invariably must be in the public interest. It requires that all people have access to the High Court in the case that there is a dispute with regard to his/her right or interest over the land or the amount of compensation being offered. Environmental regulation within Ghana falls under the requirements of the Environmental Protection Agency Act 1994 (Act 490) and the Environmental Assessment Regulations 1999 (LI 1652). The function of these and other national legislation tools relevant to the project are outlined in this section.

National Environmental Policy

The Ghana National Environmental Policy was launched in November 2012 with the vision to manage the environment in a sustainable way to benefit Ghanaian society. The objective of this policy is to promote healthy lifestyles and reduce risk factors that arise from environmental, economic, social, and behavioral causes thereby promoting healthy lifestyles in a healthy environment. The policy notes that proper management of Ghana's resources requires that efforts should be redirected into more environmentally sustainable programs and practices. Such programs should protect and preserve the resource base for use by present and future generations. Assessment of the potential environmental impacts of development projects and planning in advance to mitigate or eliminate these impacts will decrease environmental costs to the economy and make more cost-effective use of the country's resources. The Environmental Policy aims to ensure that a preventive approach is adopted in the pursuit of sound environmental management. The main preventive tool envisaged in the policy is the environmental impact assessment (EIA) process.

Applicable Legislation

Environmental Protection Agency (EPA) Act 1994, Act 490 : The EPA was established under the Environmental Protection Agency Act (Act 490 of 1994) as the leading public body responsible for the protection and improvement of the environment in Ghana. It is responsible for enforcing environmental policy and legislation, prescribing standards and guidelines, inspecting and regulating businesses and responding to emergency incidents. It is responsible for issuing environmental

permits and pollution abatement notices for controlling waste discharges, emissions, deposits or others sources of pollutants and issuing directives, procedures or warnings for the purpose of controlling noise. The EPA has the authority to require an EIA and is responsible for ensuring compliance with EIA procedures. Additionally, the Agency is required to:

Control and prevent the discharge of waste and the generation, treatment, storage, transportation and disposal of waste;

Control and monitor use and advice on regulation and management of hazardous substances;

Develop environmental standards such as the EPA's Ambient Noise Level to guide compliance and aid effective enforcement;

Develop comprehensive database on environment and environmental protection for promotion of sound ecological systems, effective planning and sustainable development; and

Create environmental awareness and build environmental capacity as relates all sectors.

Under this Act, LFIs in Ghana, MSEs, FBAs are require to conduct and submit for approval any environmental assessment report and subsequently annual reports and management plans for EPA's review, as applicable

Energy Commission Act 1997, Act 541

The Energy Commission Act 1997 (Act 541) provide for its functions relating to the regulations, management, development and utilisation of energy resources, provide for the granting of licenses for the transmission, wholesale supply, distribution and sale of electricity and natural gas, refining, storage bulk distribution marketing and sale of petroleum products and to provide for related matters.

Environmental Assessment Regulations 1999, LI 1652

The Environmental Assessment Regulations 1999 (LI 1652) enjoins any proponent or person to register an undertaking with the Agency and obtain an Environmental Permit prior to the commencement of the project. The regulations require that "No environmental permit shall be issued by the Agency for any of the undertakings mentioned in Schedule 2 to these Regulations unless there is submitted by the responsible person to the Agency, an environmental impact assessment in accordance with these Regulations in respect of the undertaking". Application for environmental permit: (1) a person required under regulation 1 or 2 to register an undertaking and obtain an environmental permit shall submit to the Agency an application in such form as the Agency shall determine. (2) There shall be paid for the application such fee, as the Agency shall determine.

Hazardous and Electronic Waste control and Management Act 2016 (Act 917):

The Act provides for the control, management, and disposal of hazardous waste, electrical and electronic waste and for related purposes. The act also prohibits the importation, exportation, transportation, selling, purchasing or dealing in or depositing of hazardous waste or other waste on

any land in the country or in the territorial waters of Ghana. It deals with hazardous waste and other waste and seeks to domesticate the Basel Convention on the control of Transboundary Movement of Hazardous Waste and their disposal, prescribes the Electrical and Electronic Waste levy and establishes a Fund as well as an Electronic Waste Recycling Plant. The Act has five (5) main schedules with the following descriptions:

- i) List of hazardous wastes and other wastes;
- ii) Notification form for transboundary movement or shipment of waste;
- iii) Movement document for transboundary movement or shipment of waste;
- iv) Classification of polychlorinated biphenyls waste for segregation; and
- v) List of electrical and electronic equipment for which advance eco levy is applicable.

The proposed AFAWA program will employ the best environmentally friendly measures in handling Waste Electrical and Electronic Equipment (WEEE).

The State Lands Act 1962 (Act 125 as Amended)

This is the principal Law under which private lands could be compulsorily acquired. The Law empowers the President to acquire any land for the public benefit. The Act and its Regulation, that is, the State Lands Regulation 1962, L1 230 detail out the mechanism and procedure for compulsorily acquiring lands. It is a mandatory requirement that a copy of the instrument of acquisition be served on any person having an interest in or possession such lands or be affixed at a convenient place on the land and be published thrice in a newspaper circulating in the district where the land is situate. The Act emphasizes the payment of compensation to the victims of acquisition made under the Act. The basis of the said Compensation should be either the market value or Replacement value. Costs of disturbance and incidental expenses or other damage suffered are to be considered in the award of compensation.

Lands Commission (LC) Act 2008, Act 767

This act provides for the management of public lands and other lands and for related matters. The Commission manages public lands and any other lands vested in the President by the Constitution or by any other enactment or the lands vested in the Commission. The act advises the Government, local authorities and traditional authorities on the policy framework for the development of particular areas to ensure that the development of individual pieces of land is coordinated with the relevant development plan for the area concerned. The commission formulates and submits to Government recommendations on national policy with respect to land use and capability; advise on, and assist in the execution of, comprehensive program for the registration of title to land throughout the Republic in consultation with the Title Registration Advisory Board established under section 10 of the Land Title Registration Act, 1986; The Minister ay, with the approval of the President, give general directions in writing to the Commission on matters of policy in respect of the management of public lands. The commission has the following divisions: Survey and Mapping; Land Registration; Land Valuation; Public and Vested Lands Management; and Any other Division the Commission may determine.

The Local Government Act, 1993 (Act 462)

The Local Government Act, 1993 (Act 462) mandates Metropolitan, Municipal, and District Assemblies (MMDAs) to take charge for the overall development of their respective areas, making them representatives of the central Government at the local level. Under the Act, various MMDA's are mandated to:

Provide facilities, infrastructural services and programs for effective and efficient waste management;

Develop plans of the district to the National Development Planning Commission for approval;

Approve all planning schemes before it can take effect within the district; and

Be responsible for development control through the grant of permit for development.

National Development Planning (Systems) Act, 1994 (Act 480)

The National Development Planning (Systems) Act, (Act 480) was enacted to harmonize the operations of Planning Authorities in the country. Planning authority includes the District Planning Authority at the district level, the Regional Coordinating Council at regional level, the planning division of a Ministry or sector agency and any other body designated by the Commission to carry out a development planning function. It spells out the roles of the various planning units, the preparation of local action plans and sub- district plans, grievance redress procedure, among others. The AFAWA Program will conform to the national development planning systems by cooperating with the appropriate bodies.

Fire Precaution (Premises) Regulations, 2003 (LI 1724)

The Ghana National Fire Service Act, 1997 (Act 537) states that a fire certificate shall be required for premises used as a public place or place of work. This requirement is reinforced by the Fire Precaution (Premises) Regulations, 2003 (LI 1724). It is incumbent on any project developer to ensure that adequate provision and measures are introduced to minimize or prevent fire outbreaks. LFI in Ghana, FBAs, MSMEs management will comply with the relevant provisions in the regulations to protect the facility from potential fire outbreak.

National Labour Act, 2003 (Act 651)

The purpose of the Labour Act, 2003 (Act 651) is to amend and consolidate existing laws relating to labour, employers, trade unions and industrial relations. The Act provides for the rights and duties of employers and workers; legal or illegal strike; guarantees trade unions and freedom of associations, and establishes the Labour Commission to mediate and act in respect of all labour issues. Under Part XV (Occupational Health, Safety and Environment), the Act explicitly indicates that it is the duty of an employer to ensure that every worker works under satisfactory, safe and healthy conditions. The occupational health and safety plan prepared for this project was informed by the afore-mentioned requirements. Additionally, labour issues and rights will be protected and respected.

Occupational Safety and Health Policy of Ghana (Draft)

The policy statement of the OSH Policy (draft 2004) is: ‘to prevent accidents and injuries arising out of or linked with or occurring in the course of work, by minimizing as far as reasonably practicable the cause of the hazards in the working environment and, therefore the risk to which employees and the public may be exposed’. The policy is derived from provisions of the International Labour Organization (ILO) Conventions 155 and 161. Identification, evaluation, and mitigation of health and safety risks associated with the construction and operational phases of the project works were also guided by this policy.

Persons with Disability Act, 2006 (Act 715)

The Act requires that persons with disability are not treated differently in respect of transportation except where otherwise required by the condition or need for improvement of such a person. It requires that appropriate facilities are provided to make public places or facilities accessible to and available for use by persons with disability. This would therefore require that facilities such as offices and terminal buildings are designed and constructed to provide services such as wheelchair ramps, special parking place reserved for their exclusive use, lifts, etc. to ensure that the needs of persons with disability are taken care of at the operational phase of the project.

Workmen’s Compensation Law 1987, (PNDCL 187)

The law holds employers responsible for the payment of compensation to workmen for personal injuries caused by accidents arising out and in the course of their employment. Where an employee sustains personal injury by accident arising out of, and in the course of employment, the employer is liable, subject to this Act, to pay compensation in accordance with this Act. Compensation is not payable under this Act in respect of incapacity or a death resulting from a deliberate self-injury.

Administrative and Institutional Framework

The EIA process followed for this project is consistent with the regulations in Ghana and involves consultations throughout the life cycle of the Project with a number of governmental authorities which are likely have an interest in the project. These include ministries, departments and agencies as well as regional and local agencies. The environmental and social management of the project will involve several institutions, national, regional, and local structures as set out below.

Environmental Protection Agency (EPA)

As the law stipulates, the EPA is statutorily mandated to ensure that the implementation of all undertakings do not harm the environment. The Agency has eleven (11) regional offices, which are accessible, staffed, and equipped to perform its functions. The EPA Act, 1994 (Act 490) mandates the EPA to “ensure compliance with any laid down environmental impact assessment procedures in the planning and execution of development projects.” In pursuance of this provision, EPA will conduct inspection and monitoring activities in order to ensure compliance with regulations, environmental standards and mitigation commitments as outlined in this ESMS. In general, the EPA has the mandate to decide on project screening, guide the conduct of EAs (including this ESIA) and to grant

environmental approval for aviation sector projects to commence. Its mandate also covers monitoring of construction and operation phases of airport projects to ensure compliance with approval conditions, mitigation measures, and other environmental commitments and quality standards. The EPA has an Environmental Assessment and Audit Department with the capacity to handle its mandate. The Proposed Program will engage the EPA in their capacity as the statutory body responsible for supervising the Project to ensure all social and environment impacts are properly mitigated.

Land Commission

The Land Valuation Division (LVD) of the Lands Commission is the statutory government institution responsible for assessing and approving compensation amounts to PAPs. It will receive value and verify documentation on affected properties. This is to ensure that payments are not made to people who are not adversely affected and also compensations offered to affected persons are reasonable. The valuation of assets and estimating of disturbance to livelihood will be carried out using standards set by the Lands commission of Ghana.

International Policies, Standards and Institutions

This section describes international development institutions and their applicable Environmental and Social (E&S) sustainability standards relevant to this ESMS and the implementation of sub-projects under the program.

Consistency of the assessment with IFAD safeguards

The SECAP note is at the core of IFAD's corporate mandate to design and implement sustainable projects avoiding or mitigating social and environmental damage. Therefore, projects are subject to a scrutiny and analysis to determine not only the category but also the potential triggering of safeguards measures. This SECAP note found that there will be no significant or irreversible environmental impacts associated with the project. Nor will there be human populations negatively affected by the project aims. The potential impacts identified are mainly localized given the small-scale approach of the interventions, which can be effectively mitigated and are addressed with no risk of irreversible and or permanent damage over the project influence area.

The SECAP sets out actions to implement mitigation measures and monitoring and reporting measures on performance, institutional and organizational arrangements. It will address measures for information disclosure and the process for continued consultation and participation of affected people during project implementation. Hence, it will be a living matrix and flexible, as its actions may be subject to change based on feedback received during project.

Assessment of potential impacts

Even though the project interventions will mainly promote the sustainable development and climate resilient agriculture with positive environmental and social externalities there may also be potential negative consequences during the implementation phase that need to be avoided or mitigated. In line with corporate policies, special consideration to social and environmental issues will be taken into account.

Positive impacts

The project will benefit up to 75,000 communities in the Northern and Ashanti Regions of Ghana. The project's main positive social and environmental effects will be to substantially improve decision-making among smallholder farmers as they become active stakeholders in developing climate resilient agriculture. Their capacity will be improved through training and engaging in implementing activities while improving their understanding of value chains and market negotiations. There will also be an exchange of existing knowledge with other communities supporting the dissemination of good practices. Besides, collective decision-making and the climate information system will enable advances in social and inter-community communication improving resilience and sustainable agriculture.

Essentially, the project will, through a holistic model, support the mainstreaming lessons learned on Climate Change adaptation and agro-ecological restoration knowhow in decision making, rural planning and agriculture production processes, promoting broader awareness, institutional development and technical capacity among small holder farmers, farmers' organizations, extension agents, policy makers and other stakeholders in Ghana. It will build the capacity of the stakeholders to adopt climate-resilient agronomic systems and technologies, and produce and implement Climate Change adaptation plans (e.g. vulnerability assessments, land and crop suitability planning, drought contingency plans), that incorporate soil and water conservation, and climate-risks reduction needs.

A relevant social aspect of the project is the focus on institutional strengthening of producers' organizations, that will target inclusion of women and young people. There are specific indicators for this purpose given priority to the gender mainstreaming in the decision-making process, to this end, the project indicator will be gender-disaggregated as appropriate, with an overall target of minimum 50% female participants in the project. For the similar reasons, youth will comprise 40% of project participants.

Negative impacts

The initial assessment of each of the project sub-components has revealed a number of potential negative social and environmental impacts as follows:

Inappropriate fertilizer application;

Risk of deforestation and land degradation from demo plots and likely future encroachment of forest areas;

Risk of excluding a number of farmers from trainings;

Effective involvement of women and youth

Labor and working conditions

The activities will be screened further and where needed, a more focused due diligence will be conducted once the specific locations and interventions are finalised. The results of the screening and focused assessments will inform the specific measures that will be developed or updated as part of the ESMP.

Environmental and social category

Assessment of the main environmental and social issues in the project area and identification of significant impacts (positive and negative) and social concerns likely to be associated with the project concluded in a Social and Environmental categorization B.

The categorization was based on IFAD social and environmental categorization criteria. Taking into account that any adverse social and environmental impacts would be short term, and would be remedied or mitigated through actions included in the Project's activities. The overview has been informed by an appraisal of environmental and, social issues to determine if an in-depth environmental and social impact assessment was needed. Guiding questions for environmental and social risk classification can be found in annex 1.

Mitigation measures

The potential unintended consequences have been discussed with the Project's design team and relevant stakeholders. Based on IFAD's social and environmental guidelines as well as Ghana's environmental policies, the following mitigation measures are proposed to reduce potential risks and maximize positive impacts on social, environmental and climatic attributes.

Risk associated with Fertilizer Application

Ensure that dressings do not exceed recommended doses.

Reduce leaching through appropriate choice of fertilizer to suit soil conditions, split applications and fertilizer placement.

Reduce run-off through incorporation of fertilizer into soil, timing of applications to avoid erosive rains, and soil and water conservation measures.

Limit nitrate use in sensitive watersheds serving urban areas.

Select non-ammonium sources of nitrogen such as urea.

Carry out liming (usually to pH 5.5 for tropical crops).

Explore the potential for increasing production without the use of chemical fertilizers, especially using indigenous technologies, including organic fertilizers, and supporting integrated soil fertility systems.

Support crop management practices that increase the nutrients available to crops, including by: (i) using more organic and less inorganic fertilizer; (ii) increasing the efficiency of fertilizer use through appropriate fertilizer selection, timing and split applications; (iii) increasing nutrient recycling using crop residues and livestock grazing after crop harvest (mixed farming); use of nitrogen fixing trees, where feasible (agroforestry); and (iv) improving rotations (e.g. inclusion of legumes, multicropping).

Risk of deforestation and land degradation.

The project will not work in protected areas nor in buffer zones but will facilitate the means and encourage agroforestry practices in the nearby of buffer zones of protected areas and forest reserves. The project will work with communities and other stakeholders to promote measures to avoid or limit deforestation and degradation by:

Encouraging zero-deforestation value chains and developing certification schemes

Supporting landscape planning involving local communities and the strengthening of local governance capacity;

Identifying areas that should not be cleared (e.g., streams and bodies of water) and limit the clearing of land to the areas that are most suitable for agricultural production and avoiding the use of fire as a land clearing method;

Increasing awareness and education on sustainable forest management;

Promoting forest-based alternative livelihoods involving women.

Capacity building.

Training is a long-term commitment. To maximize training activities during the Project, and to guarantee widespread dissemination of best practices after conclusion of the Project, training under the Project should: (i) focus on identifying pioneer farmers (who are already implementing innovative and sustainable farming technologies) in strategic locations; (ii) support and encourage these farmers; and (iii) establish a farmer-to-farmer training mechanism, allowing farmers themselves will serve as multipliers in their communities. Also, training of Financial Institution (FI)

staff and other stakeholders on multidimensional risk management, should be upscaled physically and virtually.

Women and youth involvement.

The Project will support the capacity building of backyard gardens, a sustainable agricultural technology that fosters food security, while strengthening women's leadership and influence in decision-making in the household, and natural resource management in the community. In order to increase participation of youth and women, the Project's field extension agents should give priority to women and youth in training activities related to nursery implementation and management, food storage and processing, seed selection and breeding, marketing, organization and negotiation skills. Empowering women and youth can change overall gender inequality, safeguard food security and ensure long-term results of the Project by giving youth reasons to stay instead of migrating to cities.

Multi-benefit approaches

The Project will stimulate a long-term approach of multiple benefits for diversified and increased production, poverty reduction, enhanced risk management among smallholder farmers, enhanced ecosystems services and biodiversity within agricultural landscapes, reduced deforestation and increased resilience.

These systems can be considered a multi-benefit approach because they: (i) increase productivity in a sustainable way; (ii) diversify production in space and time - a fundamental risk management tool of the smallholder farmers; (iii) conserve the natural resource base through afforestation and reforestation while providing economic benefits to the farmer; (iv) act as a buffer against changing patterns of precipitation, temperature, and new pests and diseases, and thus are resilient to extreme weather events as well as market shocks; (v) sequester carbon and lower GHG emissions; (vi) prevent deforestation and forest degradation by providing sustainable alternatives (like briquettes for fire), reducing pressure on adjacent natural forests and improving the coexistence of small-scale agriculture with forest ecosystems; and (vii) contribute to the achievement of food security and the Sustainable Development Goals.

Incentives for good practices

One economic incentive for adopting good farming practices has to do with access to high-end markets that pay a premium price for sustainable and clean products. By strengthening farmers' capacity to access markets and by training farmers on climate resilient agricultural practices, the Project will bring farmers a step closer to access untapped green high-end markets. The Project may advocate for eco-labelling schemes that certify sustainable farming practices.

Stakeholder Engagement

Institutional Stakeholders including governmental agencies and academic institutions were defined, as well potential producer organizations and persons that could participate in the project. Additional stakeholders that will act as service suppliers will be identified through a competitive process.

Stakeholder Name	Interest/Role in the project
International Fund for Agricultural Development (IFAD)	Accredited Entity
Ministry of Finance (MOF)	Executing Agency Member of the Programme Oversight Committee
Ministry of Food and Agriculture (MOA)	Member of the Programme Oversight Committee
	Member of the ad hoc Technical Evaluation Committee
Ministry of Land and Natural Resources	Member of the Programme Oversight Committee
Ghana Environmental Protection Agency	Member of the Programme Oversight Committee
	Member of the ad hoc Technical Evaluation Committee
Project participants (Beneficiaries)	75, 000 households with approximately 500,000 farmers of which
	50% are women, and 40% youth, from about 10 villages in the Northern and Ashanti Regions of Ghana.
University of Development Studies and Kwame Nkrumah University of Science and Technology, and University of Ghana	Academic partners, supporting Research and Development and capacity building
Producer Organizations	Organizational groups supporting project participants
Non-governmental organizations	Services suppliers and organizational development opportunities

Table 2 : Main Stakeholders in AAFORD

Institutional Stakeholders have been defined. Other stakeholders, such as the NGOs that will act as service suppliers will be identified through a competitive process. Beneficiaries have been identified through a participatory targeting approach developed jointly with the Government of Ghana for initial targeting. The Project's target group of poor and vulnerable farmers or agricultural workers, is scattered throughout the country and that IFAD together with the Ministries of Agriculture and Women and Children have made the effort of identifying their location, which has resulted in the first group of communities and villages that constitute the priority areas. Any new community to be phased-in during project implementation will be identified by the Project Management Unit (PMU), in line with the targeting criteria, the Government of Ghana's priorities and the orientation from the Projects Oversight Committee (POC).

Participation of stakeholders is essential and mandatory during the design and during the execution of the project. A Stakeholder Engagement Plan will be developed to be executed during project implementation.

The consultation process during design

An interdisciplinary team (including specialists in Rural Finance, Environment and Climate, Economic and Financial Analysis, Agricultural Value Chains, Gender and Social Inclusion) was organized on the basis of the thematic needs of the various consultations. The consultations were carried out both with officials from previously identified institutions and with people at district levels.

The consultation process allowed an organized process of information exchange with all stakeholders identified. Throughout the process they expressed their views, expectations, concerns and ideas for the proposal during and beyond the life of the project

Local Level Consultations

Two field missions were developed, and twelve focus groups on gender and social inclusion aspects were organized with institutional and community level stakeholders at design stage. Participants included representatives from associations, governmental and non-governmental institutions, producer organizations, community development associations, among others to collect information on agricultural practices, social and environmental vulnerabilities, access to value chains, socio-economic and gender activities, institutional and organizational capacities, environmental monitoring and information generation.

Participants were specifically asked if they had any reservations or concerns in relation to the proposed design of the project or any aspect of the proposed project implementation. General

concerns were raised as to the sustainability of previous interventions with similar objectives for smallholder farmers, thereby impeding a lasting impact of the projects' activities. Aside from this, there were no concerns raised, and as such, for all intents and purposes, the proposed design has received the general blessing of all stakeholders present at the consultation.

Gender and Social Inclusion Focus Groups

A total of about two hundred and fifty (250) participants, from different producer organizations participated, divided as follows:

Place of the Event	Male	Female	Total
Northern Ghana	93	50	143
Ashanti Region	67	40	107

The main topics addressed were:

Access and control of resources.

Needs and priorities in the framework of the project

Access and control of resources: The deduction was that men and women are equally in control of natural resources. However, in rare cases where farmer groups have a predominantly male membership, the women play supportive roles.

Needs and priorities: Once informed on the objectives of the consultations and provided the central information of the project, the participants analysed their needs and priorities. For this they concentrated on the activities they carry out in the agricultural value chains in which they participate. The common priorities to men and women were found to be: irrigation systems, access to markets, cover structures, seeds to plant, chemicals and tools.

Stakeholder Engagement Strategy

A stakeholder engagement plan will be prepared by the IFAD Country Office at the beginning of the project that will identify and describe the mechanisms for ongoing stakeholder engagement, consultations, and external communication. The plan will also be used so that the stakeholders have the necessary and sufficient information for their active participation in decision-making and as beneficiaries of the services and products offered by the project. Likewise, it should define in more detail, if necessary, the spaces and mechanisms for stakeholder participation in each of the project's components. In developing the plan, the following will be considered:

Identify institutional, governmental, non-governmental, commercial and community actors at the national, district and local levels that complement the identification already made during the design.

Build capacities in the project teams on the importance of stakeholder participation and how to promote it.

Prepare a dissemination and information strategy that responds to the characteristics of the different types of institutional and community actors, including women and young people, including an analysis of their link with the available social media.

Develop a strategy based on the study of the types of participation expected in relation to each outcome and specific activity of the project, identify the mechanisms and instruments necessary to involve stakeholders, including consultation on language, timetables, places and times in which activities must be carried out to guarantee the participation of all, especially in the case of women and young people.

Identify the actors that should be strengthened in their leadership and capacity to make decisions within the framework of the project and in their communities.

Define procedures for the establishment of formal or informal commitments between the project and the stakeholders, mainly beneficiaries, for their continued participation until the end of the activities, once they are involved.

This Plan, once formulated, will be shared with key actors, institutional and communities in order to receive feedback and agree on its application.

Participatory processes

To improve farmers' production and resilience, the Project will perform a self-vulnerability assessment following a participatory approach, in which farmers will be able to identify the climate threats that they are exposed to and determine their response capacity and practices they need to improve in order to achieve resilience at the farm level.

Additionally, the Project will facilitate face-to-face meetings between buyers and producers, in which producers will be able to hear first-hand the market demands and requirements to access those markets. Similarly, buyers will have the opportunity to hear problems to meet those demands from producers themselves, and together will be able to devise win-win solutions. The most powerful feature of these participatory discussions is that the producers will have the opportunity to influence market demand as well, since they will be able to propose lesser-known products with good marketing potential.

Stakeholder engagement is built into the project design to ensure project buy in and response to beneficiary needs. The key stakeholder engagement processes are:

Development of climate vulnerability assessments

Development of value chain analyses and market assessments

Development of investment and production plans

Producer Organization Strengthening and women/youth economic empowerment

Development and financing of climate resilient support plans

Monitoring and Evaluation Plan

The Environmental and Social Management Plan (ESMP) will be monitored through the Project M&E system. The M&E specialist will lead the process and will be supported with technical support as required from specialists within the team or subcontracted technical expertise as necessary. The M&E activities of the ESMP will employ a participatory approach in which Project participants are fully engaged in the collection of field data, discussion and analysis of this data, and decision-making regarding changes that may be required for more effective Project implementation. The M&E Officer is responsible for analyzing the data against the potential impacts identified and overall ESMP targets to monitor, assess Project implementation progress and effectiveness and reporting the results to the POC and IFAD. The M&E Officer will ensure that information flow is multi-directional; information must flow upward to the POC and IFAD, horizontally to the IPs and downward to Project beneficiaries. The M&E Officer will be in close coordination with the Safeguards Specialist, the two will participate in data collection and the outputs from the M&E Systems must be beneficial to them to ensure their continued participation. At the governance level, the results of the analyses are used for discussion on implementation progress and to make decisions on improvements and/or corrective measures on project implementation strategies, where necessary. At the implementation level, the information is used as a learning mechanism to guide the PMU in the management of the ESMP, the IPs and Project beneficiaries on the execution of Project activities for achieving optimal results avoiding and/or mitigating social and environmental impacts. It is important to understand the right type of information that is needed to influence the right type of target audiences at the right times, therefore the amount allocation may vary during the design phase once project areas are identified and during the implementation phase depending on potential on the ground findings.

Annex 3: Matrix of risks of the Environmental and Social Management Plan

Parameter	Activity	Performance Indicator	Target	Responsibility for monitoring during project implementation	Monitoring means	Recommended frequency of monitoring	Recommended Enhancement measures
Risk associated with fertilizer application		Soil test has been done to determine quality of fertilizer Yes/No)	All PO's test representative soil samples of production sites	PMU in collaboration with MoA extension officers	As part of sub-project approval	Annual reports, mid-term reports, closing	
	Limit nitrate use in sensitive watersheds serving urban areas. Select non-ammonium sources of nitrogen such as urea.	Is the organic alternative being applied (Yes/No)	All PO's apply organic Alternative	PMU in collaboration with MoA extension officers	As part of project environmental monitoring by PMU	Annual reports, mid-term report, closing	

Risk of deforestation and Land degradation	Encouraging zero-deforestation value chains and developing certification schemes	Physical monthly inspections.	All stakeholders are trained in sustainable practices	PMU in collaboration with MoA extension officers	As part of project environmental monitoring by PMU	Annual reports, mid-term report, closing
	Supporting landscape planning involving local communities and the strengthening of local governance capacity;					
	Identifying areas that should not be cleared (e.g., streams and bodies of water) and limit the clearing of land to the areas that are most suitable for agricultural production and avoiding the use of fire as a land clearing method;					
	Increasing awareness and education on sustainable forest management;					
	Promoting forest-based alternative livelihoods involving women.					
	extensive use of shifting agriculture; and human-wildlife conflicts will be updated and included					

Capacity building to stakeholders	Prepare training material adapted to the needs of each stakeholder	Stakeholders trained	All stakeholders are trained in sustainable practices	PMU in collaboration with local governments and Department of Environment	As part of project approval	Before implementation of activities	Include capacity building material for sustainable development practices as part of subcomponents training
Involvement of women and youth	In order to increase participation of youth and women, the Project's field extension agents should give priority to women and youth in training activities related to nursery implementation and management, food storage and processing, seed selection and breeding, marketing, organization and negotiation skills.	Women and youth trained	50% Women and 40% Youth	PMU in collaboration with local governments and Department of Environment. Ministry of Women, Children and Social Protection and Ministry of Youth and Sports,	As part of project approval	Bi-annually	Include capacity building material for sustainable development practices as part of subcomponents training

Table Environmental and Social Management Plan

Part in value chain	Key issue affecting	Potential impact				
		Environmental	Social & Institutional	Economic	Standard Mitigation Measures	Monitoring & indicators
Production	<ul style="list-style-type: none"> Land preparation – land clearing, cultivation and other issues Use of earth- moving machines, e.g. tractors for clearing Use of agro-chemicals Use of pesticides Ensure that dressings do not exceed recommended doses. Reduce leaching through appropriate choice of fertilizer to suit soil conditions, split applications and fertilizer placement. 	<ul style="list-style-type: none"> Forest and Woodland loss Land & soil degradation Water and soil pollution Flooding Erosion Bush fire Biodiversity loss Waste management 	<ul style="list-style-type: none"> Increased youth, women and men employment directly and indirectly Increased sense of pride and responsibility by participating youth and women Resource conflicts Possible agitation from youth not presently included in the programme Social exclusion - women and youth and PLWD Use of child labour 	<ul style="list-style-type: none"> Increased household income and reduced poverty Increased youth employment and social well-being Improved nutrition and food security Increased ability of women and youth to manage their enterprises in productive and profitable manner, thereby increasing GDP and manpower development Increased import substitution especially of rice But increasing associated environmental and social costs 	<ul style="list-style-type: none"> As much as possible, discourage the opening of virgin forests Train farmers in sustainable land management practices and agrochemical management Deliver training and agricultural inputs to farmers on-time to enable them to adjust and adapt their planting and harvesting methods and timing Adopt and enforce health, safety and environment rules at production sites Encourage full exploration of the value chain including 	<ul style="list-style-type: none"> Number of farmers that received training on sustainable land preparation Change in forests area Results from periodic soil and water analysis Health, safety and environment manual Number of value chain enterprises around soil testing and agrochemicals management Stakeholder Engagement Plan

Part in value chain	Key issue affecting	Potential impact				
		Environmental	Social & Institutional	Economic	Standard Mitigation Measures	Monitoring & indicators
Processing	<p>☑ Use of processing machine</p> <p>Parboiling of Rice</p>	<p>☑ Waste generation</p> <p>☑ Air, water and land pollution</p> <p>☑ GHG emission from machines</p> <p>Use of wood for heating/parboiling</p>	<p>☑ Unsafe and non-healthy working conditions</p> <p>☑ Possible use of child Labourers</p> <p>Migration influx to processing sites</p>	<p>☑ Increased sales and household income</p> <p>☑ Increased youth employment and social well-being</p> <p>☑ Improved processing capacity, value additions and value chain development</p> <p>☑ Improved nutrition and food security</p> <p>☑ Increased ability of youth to manage their enterprises in productive and profitable manner, thereby increasing GDP and manpower development</p>	<p>☑ Encourage the use of renewable and low-carbon energy sources during processing operations</p> <p>☑ Adopt health, safety and environment rules at processing sites</p> <p>☑ Train farmers in sustainable agro- processing practices to reduce environmental impacts</p> <p>☑ Step up knowledge management and information dissemination to showcase the achievement of the project</p>	<p>☑ Number of operators adopting renewable low carbon technologies</p> <p>☑ Number of enterprises established focusing on processing</p> <p>☑ Number of entrepreneurs adopting sustainable processing operations</p> <p>☑ Knowledge management /communication plans, stakeholder meeting reports, communication project flyers/leaflets</p>

Part in value chain	Key issue affecting	Potential impact		Economic	Standard Mitigation Measures	Monitoring & indicators
		Environmental	Social & Institutional			
				⌚ Increased import substitution of Rice		
				⌚ But increasing associated environmental and social costs		

Part in value chain	Key issue affecting	Potential impact				
		Environmental	Social & Institutional	Economic	Standard Mitigation Measures	Monitoring & indicators
Marketing	<ul style="list-style-type: none"> Construction of market infrastructure 	<ul style="list-style-type: none"> Dust, smoke, noise, ground movement / vibration Deforestation Water pollution Flooding and erosion from poorly constructed culverts, roads, etc. 	<ul style="list-style-type: none"> Better access to market Better access to production and processing sites by supervisory agencies Improved access to rural communities Conflict over land and demand for compensation where infrastructure is to be constructed 	<ul style="list-style-type: none"> Improved market penetration Access to market information and market linkage and support services Strengthened market value chain, with more profitable enterprises Improved storage and reduced waste and postharvest losses 	<ul style="list-style-type: none"> Use construction equipment with moderate decibel during construction Develop/adopt and enforce health, safety and environment rules at construction sites Lawful and willing consent of community/or individuals on land site for market infrastructure Roads must be constructed with drainages Develop contingency plans for dykes/spillways to manage unexpected circumstances. 	<ul style="list-style-type: none"> Observation of construction equipment for dust, noise, smoke, vibration, etc. Work inspection report on the environmental quality of market infrastructure Health, safety and environment plans Copy of consent of community /individuals on market infrastructure land site

Part in value chain	Key issue affecting	Potential impact				
		Environmental	Social & Institutional	Economic	Standard Mitigation Measures	Monitoring & indicators
Transportation	Use of motorized and heavy transportation machines	GHG emission from transportation	Influx of rural Migrant workers to agri- enterprise sites and processing areas Increased number of service providers, which boost the economy	Increased ownership of motorized and other transport system Increased number of service providers Increased GDP	Organize transport entrepreneurs into an association for easy management Develop a code of conduct, and health, safety and environment regulation for transport operators	Code of conduct for transport operators Minutes of meetings of transport operators' association
Capacity building to stakeholders	Prepare training material adapted to the needs of each stakeholder	Reduce negative impacts on environment	Change in behavior and attitudes	Increased revenues due to good practices	Include capacity building material for sustainable development practices as part of subcomponents training	Project reports

Part in value chain	Key issue affecting	Potential impact		Economic	Standard Mitigation Measures	Monitoring & indicators
		Environmental	Social & Institutional			
Involvement of women and youth	Gender and youth gap	More pressure on resources , migration	Gender and inequality, poverty	More revenues	Targets for youth and women with disaggregated data	Project reports/ M&E

Table Environmental and Social/ Climate Monitoring Plan

Parameter	Activity	Monitoring Indicator	Responsibility for monitoring	Monitoring means	Recommended frequency of monitoring	Estimated Monitoring Costs (USD)
ENVIRONMENTAL/ SOCIAL/ CLIMATE MONITORING						
Sub projects/ business plan Environmental and Social Screening	Environmental and Social Screening and impact assessment for sub project financed by the facility and financial institutions	Compliance reports	PMU, financial institutions, EPA	ESIA reports Adherence to laid legal and policy requirements	Once business plans are developed and submitted for approval	100,000
Strengthened capacity and business planning for FOs and or cooperatives, MSMEs (disaggregated by gender and Youth), to design business plans and access green lines products from financial institutions and other MFIs and	Banks, MFIs supportive and adopt tools and methods developed etc. to respond to climate change and variability	Baseline on status of the sustainability principles of the financial system	PMU, financial institutions, EPA	Project reports, banks MFIs reports, stakeholder surveys	Annually	150,000

commercial banks and implement diversified, climate resilient livelihood options.

Improved readiness and capacities of financial institutions on green lending

Technical Assistance to enhance governance and management of loan products and green lines policy gap (identification, definition, gap assessment including gender and closing the gap.)

Baseline on status of the sustainability principles of the financial system

PMU, financial institutions, EPA

Project reports, banks MFIs reports, stakeholder surveys

Annual

250,000

Training on sustainable agriculture - includes training of spraying gangs, draining of rice paddies; and construction of water harvesting

Training of spraying gangs integrated pest and agrochemical management

Training of farmers on water

Number of those trained

PMU, financial institutions, EPA

Field observation

Once

200,000 (included in the capacity building budget)

structure for dry season irrigation	harvesting for dry season farming					
Support for conflict resolution - include support for stakeholders dialogue on conflict management and land governance	Conflict resolution stakeholders support and land governance dialogue	Activities of conflict resolution committee Organize land governance dialogue	, PMU, financial institutions, EPA	Conflict resolution and land governance dialogue reports	Once	75,000
Other Social monitoring including adherence to labor law and working conditions	Include gender and People living with disabilities (PLWD) mainstreaming	Activities of Targeting committee	PMU, financial institutions, EPA	Social Surveys, Beneficiaries assessment	Annual	50,000
Health and Safety	Health Insurance and outreach	Number of farmers sign unto health insurance	NPMU, SPU,	SPC Reports	Annual	75,000
Total						900,000

ENVIRONMENTAL AND SOCIAL SCREENING OF SUB-PROJECTS to be financed by financial institutions

Introduction: Screening and Review

The Environment and Social Risk Category of AFFORD is 'B' which means that 'some adverse impacts can be readily remedied by appropriate preventive actions and/or mitigation³³. However, to remain a 'B' Category Project serious attention has to be paid to sub projects to be implemented by borrowers

During implementation, it is essential that all sub-project proposals be screened, first on eligibility on the basis of the 'letter of interest' / application form (see Annex 1), and secondly on the basis of environmental, climate and social impacts using the more detailed screening forms (see Annex 2). Project Screening for Environmental Impacts will ensure that sub-projects with high and irreversible impacts on the environment or people that cannot be readily mitigated are not eligible for support by AFFORD. It is very important to ensure that before land is developed for any cluster or farmer organization, MSMES, they should take into account sustainability measures.

Sub-project proposals with medium (manageable) environmental and social impacts should include the following basic elements in the application and contain in the project-specific ESMP:

A summary and description of the possible adverse effects that specific sub-project activities may occur;

A description of any planned measures to avoid or mitigate adverse impacts, and how and when they will be implemented including labor regulations and work conditions;

A system for monitoring the environmental and social effects of the project;

A description of who will be responsible for implementing and monitoring the mitigation measures; and

A cost estimate of the mitigation measures, which should be included in the sub-project proposal.

The scope of any environmental and/or social review and related mitigation measures will be determined by the relevant (environmental/climate change) PSU staff in consultation with technical experts where needed, via the sub-project screening and approval process. Sub-project proposals with only minor or no adverse impacts do not need a separate review (or ESMP).

³³ Source: IFAD (2016) Managing Risks to Create Opportunities. IFAD's Social, Environmental and Climate Assessment Procedures (SECAP) (IFAD: Rome), p.18

Screening for Eligibility

The AFFORD provides a detailed description of the targeting and selection process for beneficiaries. Annex 1 provides the proposed format for the letter of interest / application form, which should be completed by each intended beneficiary and will be used as the primary tool for screening for eligibility.

Screening for Environmental and Social Impacts and Climate Impacts

Based on relevant SECAP guidelines, two separate environmental and social screening forms have been developed: for agri-enterprise (Annex 2) and related (market) infrastructure subprojects (Annex 3), and climate screening form for sub-projects (Annex 4). The intended beneficiaries are only required to complete the intention/application form in Annex 1 while the screening is done using the form in Annex 2, 3 and 4 by the PSU Environmental/Climate Change Officer (assisted by any Service Provider for that purpose).

Annex 5 provides an environmental and social guideline for contractors especially those handling the construction of market infrastructure such as the construction /rehabilitation of market-connected rural feeder roads, irrigation facilities, dam's construction, production platforms, etc. Sound environmental and social management of construction projects can be achieved only with adequate site selection and project design. As such, the ESMP for projects involving any new construction, or any rehabilitation or reconstruction for existing projects, should provide information as to screening criteria for site selection and design. The guidelines include the site selection, prohibitions, construction management measures, safety during construction, community relations, chance finds procedures and environmental supervision during construction. This include as well adherence to labor and work conditions.

Impact Significance Rating

In order to determine the significance of impacts, the likelihood of an impact occurring is considered against the consequence or magnitude of the impact if it was to occur. Likelihood is defined as the frequency of an impact occurring.

Table 8.1 Definitions of Consequence

Consequence	Definition
No Impact / No change	No impacts on biophysical and social environments / livelihood / health / gender No public concerns

	No legal issues
Negligible	Low/minor impact on environment / livelihood / health / gender Minor social impacts No legal issues
Intermediate	Some level of impact on environment / livelihood / health / gender Social issues apparent May have legal implications
Severe	High level impacts on environment / livelihood / health / gender High public concerns or perceptions Legal non- compliance
Unknown	Extent of the impact cannot be determined at this point Apply precautionary principle

Projects that have low significance impacts may not require a new ESMP; in that case the standard ESMP and ESMF in this report will suffice. In the case of project with medium significance, the development of appropriate plans, in addition to the standard ESMP and ESMF may suffice to manage the severity of the impacts. In the case of projects with impacts of high significance, a separate ESIA is almost always required.

Annex 1

Guiding Questions for environment and social screening	Yes/No	Comments/explanation
Category A – the following may have significant and often irreversible or not readily remedied adverse environmental and/or social implications.		
Project location		
Would the project develop any wetlands? (Guidance statement 1)	No	
Would the project cause significant adverse impacts to habitats and/or ecosystems and their services (e.g. conversion of more than 50 hectares of natural forest, loss of habitat, erosion/other form of land degradation, fragmentation and hydrological changes)? (Guidance statements 1, 2 and 5)	No	
Does the proposed project target area include ecologically sensitive areas, ³⁴ areas of global/national significance for biodiversity conservation, and/or biodiversity-rich areas and habitats depended on by endangered species? (Guidance statement 1)	No	
Is the project location subjected to major destruction as a result of geophysical hazards?	No	
Natural resources		
Would the project lead to unsustainable natural resource management practices (fisheries, forestry, livestock) and/or result in exceeding carrying capacity. For example, is the development happening in areas where little up-	No	

34 “Sensitive areas” include: protected areas (national parks, wildlife/nature reserves, biosphere reserves) and their buffer zones; areas of global significance for biodiversity conservation; habitats depended on by endangered species; natural forests; wetlands; coastal ecosystems, including coral reefs and mangrove swamps; small island ecosystems; areas most vulnerable to climate change and variability; lands highly susceptible to landslides, erosion and other forms of land degradation, areas that include physical cultural resources (of historical, religious, archaeological or other cultural significance), and areas with high social vulnerability.

to-date information exists on sustainable yield/carrying capacity?

(Guidance statements 4, 5 and 6)

Would the project develop large-scale³⁵ aquaculture or mariculture projects, or where their development involves significant alteration of ecologically sensitive areas? No

Would the project result in significant use of agrochemicals which may lead to life-threatening illness and long-term public health and safety concerns? No

(Guidance statement 14)

Does the project rely on water-based (groundwater and/or surface water) development where there is reason to believe that significant depletion and/or reduced flow has occurred from the effects of climate change or from overutilization? No

(Guidance statement 7)

Does the project pose a risk of introducing potentially invasive species or genetically modified organisms which might alter genetic traits of indigenous species or have an adverse effect on local biodiversity? No

(Guidance statement 1)

Does the project make use of wastewater (e.g. industrial, mining, sewage effluent)? No

(Guidance statement 7)

Infrastructure development

Does the project include the construction /rehabilitation/upgrade of dam(s) and/or No

35 The size threshold to trigger an Environmental and Social Impact Assessment (ESIA) may vary based on the country context and fragility of specific locations. Some countries have regulations on minimum size (usually ranging from a unit area of 10 to 50 hectares) and these will be adopted where they exist. However, where there are no standards, it is proposed to use 25 hectares as an aquaculture unit size to trigger an ESIA.

reservoir(s) meeting at least one of the following criteria?

more than 15 metre high wall;

more than 500 metre long crest;

more than 3 million m³ reservoir

capacity; or

- incoming flood of more

than 2,000 m³/s (Guidance

Does the project involve large-scale irrigation schemes rehabilitation and/or

development (more than 100 hectares per scheme)? No

(Guidance statement 7)

Does the project include construction/rehabilitation/upgrade of roads that entail a total area being cleared above 10 km long, or any farmer with more than 10 per cent of his or her private land taken? (Guidance statement 10) No

Does the project include drainage or correction of natural waterbodies (e.g. river training)? No

(Guidance statement 7)

Does the project involve significant extraction/diversion/containment of surface water, leaving the river flow below 20 per cent environmental flow plus downstream user requirements? No

Social

Would the project result in economic displacement or physical resettlement of more than 20 people, or impacting more than 10 per cent of an individual household's assets? No

(Guidance statement 13)

Would the project result in conversion and/or loss of physical cultural resources? No

(Guidance statement 9)

Would the project generate significant social adverse impacts to local communities (including disadvantaged and vulnerable groups and indigenous people) or other project-affected parties? No

(Guidance statement 13)

Others

Does the project include the manufacture and transportation of hazardous and toxic materials which may affect the environment? No

(Guidance statement 2)

Does the project include the construction of a large or medium-scale industrial plant? No

Does the project include the development of large-scale production forestry? No

(Guidance statement 5)

Rural finance

Does the project support any of the above (Question 1 to Question 21) through the provision of a line of credit to financial service providers? No

(Guidance statement 12)

Category B – the following may have some adverse environmental and/or social implications which can be readily remedied.

Location

Does the project involve agricultural intensification and/or expansion of cropping area in non-sensitive areas that may have adverse impacts on habitats, ecosystems and/or livelihoods? No

(Guidance statements 1, 2 and 12)

Natural resource management

Do the project activities include rangeland and livestock development? No

(Guidance statement 6)

Does the project involve fisheries where there is information on stocks, fishing effort and sustainable yield? Is there any risk of overfishing, habitat damage and knowledge of fishing zones and seasons? No

(Guidance statement 4)

Would the project activities include aquaculture and/or agriculture in newly introduced or intensively practiced areas? Do project activities include conversion of wetlands and clearing of coastal vegetation, change in hydrology or introduction of exotic species? No

(Guidance statement 4)

Do the project activities include natural resource-based value chain development?

(Guidance statements 1, 6 and 12)

Yes

This activity is related to the development of agro-ecological practices using demo plots in different locations.

Do the project activities include watershed management or rehabilitation?

No

Does the project include large-scale soil and water conservation measures? (Guidance statements 1 and 5)

No

Infrastructure

Does the project include small-scale irrigation and drainage, and small and medium dam subprojects (capacity < 3 million m³)?

No

(Guidance statements 7 and 8)

Does the project include small and micro enterprise development subprojects?

Yes

Producer's organizations will be supported to enhance their market access

(Guidance statements 12 and 13)

Does the project include the development of agro-processing facilities?

No

(Guidance statements 2, 6 and 12)

Would the construction or operation of the project cause an increase in traffic on rural roads?

No

(Guidance statement 10)

Social

Would any of the project activities have minor adverse impacts on physical cultural resources?

No

(Guidance statement 9)

Would the project result in physical resettlement of 20 people or less, or impacting less than 10 per cent of an individual household's assets

No

(Guidance statement 13)?

Would the project result in short-term public health and safety concerns?

No

(Guidance statement 14)

Would the project require a migrant workforce or seasonal workers (for construction, planting and/or harvesting)?

No

(Guidance statement 13)

Rural finance

Does the project support any of the above (Question 23 to Question 37) through the provision of a line of credit to financial service providers?

No

(Guidance statement 12)

Guidance for categorization

"Yes" response any questions between 1 and 22

Environmental and social category is A

Environmental and Social Impact Assessment or an Environmental and Social Management Framework (full or specific) is required depending on availability of information. Also, some specific questions would require the below specific actions:

Yes to question 16 – A Resettlement Action Plan or a Resettlement Action Framework is required depending on availability of information.

Yes to question 17 – A Physical Cultural Resources Management Plan is required that includes provisions for managing chance finds at implementation.

Yes to question 18 – Free, prior and informed consent should be obtained/ Free, Prior and

		<p>Informed Consent Implementation Plan is required depending on whether the affected communities are identifiable. In instances where indigenous peoples are affected an Indigenous Peoples Plan is required. A Social Impact Assessment is required.</p> <p>Yes to question 8 and/or question 15 – A water resources management plan for the project is required.</p> <p>Yes to question 7, question 9 and/or question 19 – A pest management plan is required.</p>
<p>“No” response to all Questions between 1 and 22 and “Yes” response to questions between 23 and 38</p>	<p>Environmental and social category is B</p>	<p>An environmental and social analysis to develop an Environmental and Social Management Plan (ESMP) is required.</p>
<p>“No” response to all questions between 1 and 38</p>	<p>Environmental and social category is C</p>	<p>No further analysis is required.</p>

In case projects fall under both category A and B, the highest category will be taken as reference. The determination of the project category and classification will depend on the magnitude of impacts and would depend on the scale of such activities; a cautious approach to the concern of cumulative impacts is considered essential. In such cases, the necessary environmental and social analysis and associated budget should be incorporated into project design. Such projects may be considered for category B.

Determining the environmental and social category A, including the extent of assessments and studies to be conducted, will also take into account available information, i.e. recent studies and assessments, including other initiatives in the country, to the extent these are relevant to the proposed project.

Declassification (from A to B or from B to C) may also be possible in case negative externalities are being addressed by other projects or activities implemented by third parties. For this project, no Category A projects will be supported.

ANNEX 2: Guiding questions for climate risk screening

	Yes	No	Additional Explanation of “yes” response
Is the project area subject to extreme climatic events, such as flooding, drought, tropical storms or heat waves?	X		Project is designed to reduce impact of such events of rural smallholders.
Do climate scenarios for the project foresee changes in temperature, rainfall or extreme weather that will adversely affect the project impact, sustainability or cost over its lifetime?	X		Project integrates such climate scenarios in its design to minimize such adverse effects
Would the project make investments in low-lying coastal areas/zones exposed to tropical storms?		X	
Would the project make investments in glacial areas and mountain zones?		X	
Would the project promote agricultural activity in marginal and/or highly degraded areas that have increased sensitivity to climatic events (such as on hillsides, deforested slopes or floodplains)?		X	
Is the project located in areas where rural development projects have experienced significant weather-related losses and damages in the past?	X		As described in the project design Ghana is highly vulnerable to climate and weather related losses and the project is designed to reduce such impacts.
Would the project develop/install infrastructure in areas with a track record of extreme weather events?		X	
Is the project target group entirely dependent on natural resources (such as seasonal crops, rain-fed agricultural plots, migratory fish stocks) that have been affected by in the last decade by climate trends or specific climatic events?	X		As rural smallholders, project beneficiaries rely partially or entirely on agricultural production that has been severely affected by changing climactic patterns. The project is designed to counteract such effects.

Would climate variability likely affect agricultural productivity (crops/livestock/fisheries), access to markets and/or the associated incidence of pests and diseases for the project target groups?	X	Productivity and access to markets are directly affected by climate variability and are directly addressed by the project
Would weather-related risks or climatic extremes likely adversely impact upon key stages of identified value chains in the project (from production to markets)?	X	Climate proofing of value chains is an essential aspect of the project design.
Is the project investing in climate-sensitive livelihoods that are diversified?	X	The project will strengthen production and market access, including diversification of Crops through capacity building
Is the project investing in infrastructure that is exposed to infrequent extreme weather events?	X	
Is the project investing in institutional development and capacity-building for rural institutions (such as farmer groups, cooperatives) in climatically heterogeneous areas?	X	The project invests intensely in rural development in climate sensitive areas, with a climate vulnerability analysis being a central guiding aspect to shape the intervention strategy at a local level.
Does the project have the potential to become more resilient through the adoption of green technologies at a reasonable cost?	X	Such technologies have been assessed and are being adopted.
Does the project have opportunities to integrate climate resilience aspects through policy dialogue to improve agricultural sector strategies and policies?	X	The project strategy mainstreams climate resilient agriculture into the Government of Ghana's agricultural policies to ensure integration and sustainability of the newly adopted practices and services.
Does the project have potential to integrate climate resilience measures without extensive additional costs (e.g. improved building codes, capacity-building, or including climate risk issues in policy processes)?	X	While several of the climate resilience measures included in the project have an additional cost, the project also promotes a paradigm shift towards climate resilient agriculture that will promote more stable production and improved market access. These measures will have a positive economic return.
Based on the information available would the project benefit from a more thorough climate risk and vulnerability analysis to identify the most vulnerable rural	X	The project will develop local, participatory climate vulnerability assessments that will

population, improve targeting and identify additional complementary investment actions to manage climate risks?

guide the project strategy and intervention at the local level.

Guidance for classification

“Yes” response to any of the questions 1 to 7	The climate risk classification is high	A detailed analysis is required
“Yes” response to any of the questions 8 to 16	The climate risk classification is moderate	A basic analysis is required
“Yes” response to question 17	GHG assessment	For example, EX-ACT tool
“No” response to almost all questions	The climate risk classification is low	No further analysis is required, but voluntary measures can be incorporated

MONITORING OF ENVIRONMENTAL, CLIMATE AND SOCIAL IMPACTS

Introduction

The overall objective of environmental and social monitoring is to ensure that recommended mitigation measures are incorporated, and that activities carried out during sensitization (i.e. training and awareness-raising) and infrastructure construction/maintenance are environmentally and socially acceptable, and therefore sustainable.

Key Performance Indicators

The key impact indicators for AFFORD are that:

Estimated corresponding total number of household members - C.I. 1.b

Corresponding number of households reached - C.I. 1.a

Persons receiving services promoted or supported by the project (out of which 10% will be people with disabilities) - C.I. 1

Number of people with greater resilience including people with Disabilities

Households reporting an improved access to markets and a 30% income increase (percentage) - C.I. 1.2.2

The key monitoring indicators/variables from the AFFORD logframe include:

Number of persons/households reporting adoption of new/improved inputs, technologies or practices - C.I. 1.1.2

Number of hectares of farmland under water-related infrastructure constructed/rehabilitated

Number of upgraded women-led vegetable gardens

Number of integrated market-oriented vegetable garden financed through matching grants

Number of persons trained in production practices and/or technologies - C.I. 1.1.4

Number of rural producers accessing production inputs - C.I. 1.1.3

Number of Jobs created (100% youth-led agricultural service businesses) - C.I. 2.2.1

Number of financial service providers supported in delivering outreach strategies, financial products and services to rural areas - C.I. 1.1.6

Number of farmers' organizations engaged in formal partnerships/ agreements or contracts with public or private entities - C.I. 2.2.3

Number of effective agricultural value chain interaction platforms (AVIP)

Number of rural farmers' organizations supported - C.I. 2.1.3

Number of 4P businesses supported

Number of market, r or storage facilities constructed or rehabilitated - C.I. 2.1.6

Number of agribusiness policy-dialogue (meetings, roundtables) between public, private and producers' stakeholders conducted

Various project impacts and aspects relate to these overall performance targets. When the activities and indicators are established, baseline data needs to be collected to serve as a benchmark and against which changes in the identified indicators can be measured. The types of parameters that can be monitored may include mitigation measures or design features, or actual impacts. In some cases, such as drainage structures and soil conservation interventions, monitoring is fairly straightforward and can be done as part of routine or periodic maintenance. However, other parameters, particularly those related to social, ecological and climate change issues can only be effectively assessed over a period of 2 to 3 years.

The monitoring plan in Table 9.1 lists the parameters to be monitored, activity that will generate the parameters, monitoring indicator, and responsibility, monitoring means, frequency and the estimated cost.

Guiding questions for environment and social screening		Yes/No	Comments/explanation
Category A – the following may have significant and often irreversible or not readily remedied adverse environmental and/or social implications.			
Project location			
Would the project develop any wetlands? (Guidance statement GS1)	No		
Would the project cause significant adverse impacts to habitats and/or ecosystems and their services (e.g. conversion of more than 50 hectares of natural forest, loss of habitat, erosion/other form of land degradation, fragmentation, and hydrological changes)? (GS 1, 2 and 5)	No		
Does the proposed project target area include ecologically sensitive areas, ³⁶ areas of global/national significance for biodiversity conservation and/or biodiversity-rich areas and habitats depended on by endangered species? (GS1)	No		
Is the project location subjected to major destruction as a result geophysical hazards (tsunamis, landslides, earthquakes, volcanic eruptions)?	No		
Natural resources			
Would the project lead to unsustainable natural resource management practices (fisheries, forestry, livestock) and/or result in exceeding carrying capacity. For example, is their development happening in areas where little up-to-date information exists on sustainable yield/carrying capacity? (GS 4, 5 and 6)	No		

³⁶ “Sensitive areas” include: protected areas (national parks, wildlife/nature reserves, biosphere reserves) and their buffer zones; areas of global significance for biodiversity conservation; habitats depended on by endangered species; natural forests; wetlands; coastal ecosystems, including coral reefs and mangrove swamps; small island ecosystems; areas most vulnerable to climate change and variability; lands highly susceptible to landslides, erosion and other forms of land degradation and areas that include physical cultural resources (of historical, religious, archaeological or other cultural significance) and areas with high social vulnerability.

Would the project develop large-scale ³⁷ aquaculture or mariculture projects, or where their development involves significant alteration of ecologically sensitive areas?	No	
Would the project result in significant use of agrochemicals which may lead to life-threatening illness and long-term public health and safety concerns? (GS 14)	No	
Does the project rely on water-based (ground and/or surface) development where there is reason to believe that significant depletion and/or reduced flow has occurred from the effects of climate change or from overutilization? (GS7)	No	
Does the project pose a risk of introducing potentially invasive species or GMOs which might alter genetic traits of indigenous species or have an adverse effect on local biodiversity? (GS1)	No	
Does the project make use of wastewater (e.g. industrial, mining, sewage effluent)? (GS7)	No	
Infrastructure development		
Does the project include the construction/rehabilitation/upgrade of dam(s)/reservoir(s) meeting at least one of the following criteria? (GS8) more than 15 metre high wall or more than 500 metre long crest or more than 3 million m ³ reservoir capacity or incoming flood of more than 2,000 m ³ /s	No	
Does the project involve large-scale irrigation schemes rehabilitation/development (above 100 hectares per scheme)? ³⁸ (GS7)	No	

³⁷ The size threshold to trigger an Environmental and Social Impact Assessment (ESIA) may vary based on the country context and fragility of specific locations. Some countries have regulations on minimum size (usually ranging from a unit area of 10 to 50 hectares) and these will be adopted where they exist. However, where there are no standards, it is proposed to use 25 hectares as an aquaculture unit size to trigger ESIA.

³⁸ The size threshold to trigger an Environmental and Social Impact Assessment (ESIA) may vary based on the country context and fragility of specific locations. Some countries have regulations determining size of irrigation development requiring a full ESIA and these will be adopted where they exist. However, where there are no standards, it is proposed to use 100 hectares as an irrigation development unit size to trigger an ESIA.

Does the project include construction/rehabilitation/upgrade of roads that entail a total area being cleared above 10 km long, or any farmer with more than 10 per cent of his or her private land taken? (GS10)	No	
Does the project include drainage or correction of natural water bodies (e.g. river training)? (GS7)	No	
Does the project involve significant extraction/diversion/containment of surface water, leaving the river flow below 20 per cent environmental flow plus downstream user requirements? (GS7)	No	
Social		
Would the project result in economic displacement ³⁹ or physical resettlement of more than 20 people, or impacting more than 10 per cent of an individual household's assets? (GS13)	No	
Would the project result in conversion and/or loss of physical cultural resources? (GS9)	No	
Would the project generate significant social adverse impacts to local communities (including disadvantaged and vulnerable groups and indigenous people) or other project-affected parties? (GS13)	No	
Other		
Does the project include manufacture and transportation of hazardous and toxic materials which may affect the environment? (GS2)	No	
Does the project include the construction of a large or medium-scale industrial plant?	No	
Does the project include the development of large-scale production forestry? (GS5)	No	
Rural finance		
Does the project support any of the above (Q1 to Q22) through the provision of a line of credit to financial service providers? (GS12)	No	

³⁹ Economic displacement implies the loss of land, assets, access to assets, income sources or means of livelihoods (guidance statement 13).

Category B – the following may have some adverse environmental and/or social implications which can be readily remedied.		
Location		
Does the project involve agricultural intensification and/or expansion of cropping area in non-sensitive areas that may have adverse impacts on habitats, ecosystems and/or livelihoods? (GS1, 2 and 12)	No	
Natural resource management		
Do the project activities include rangeland and livestock development? (GS6)	No	
Does the project involve fisheries where there is information on stocks, fishing effort and sustainable yield? Is there any risk of overfishing, habitat damage and knowledge of fishing zones and seasons? (GS4)	No	
Would the project activities include aquaculture and/or agriculture in newly introduced or intensively practiced areas? Do project activities include conversion of wetlands and clearing of coastal vegetation, change in hydrology or introduction of exotic species? (GS4)	No	
Do the project activities include natural resources-based value chain development? (GS 1, 6 and 12)	Yes	The project will support Cereal production (maize, millet, sorghum, rice) and vegetable crop (onion, garlic, cabbage etc.)
Do the project activities include watershed management or rehabilitation?	Yes	
Does the project include large-scale soil and water conservation measures? (GS 1 and 5)	No	
Infrastructure		
Does the project include small-scale irrigation and drainage, and small and medium (capacity < 3 million m3) dam subprojects? (GS 7 and 8)	Yes	The project will develop small scale hydro-agricultural and water mobilisation infrastructure.
Does the project include small and microenterprise development subprojects? (GS 12 and 13)	Yes	The project will target youth and women led microenterprises.

Does the project include the development of agroprocessing facilities? (GS 2, 6 and 12)	Yes	The project will support improved storage and the development of small processing units for income generation.
Would the construction or operation of the project cause an increase in traffic on rural roads? (GS10)	No	
Social		
Would any of the project activities have minor adverse impacts on physical cultural resources? (GS9)	No	
Would the project result in physical resettlement of less than 20 people, or impacting less than 10 per cent of an individual household's assets (GS13)?	No	
Would the project result in short-term public health and safety concerns? (GS14)	No	
Would the project require a migrant workforce or seasonal workers (for construction, planting and/or harvesting)? (GS13)	No	
Rural finance		
Does the project support any of the above (Q24 to Q37) through the provision of a line of credit to financial service providers? (GS12)	Yes	The project will establish partnership relationships with microfinance institutions (MFIs) to finance the activities of farmers organization/cooperatives.

Letter of Interest (Eligibility Screening Form)

Please complete all the required spaces in this form

1. Name: Surname -----Other Names:-----
Maiden name (for married women):-----
2. Sex: (a) Male { } (b) Female { }
3. Date of birth: -----
4. Highest Education Level: (a) No formal education { } (b) Primary School { } (c) Secondary School { } (d) Vocational school (e) Tertiary Education { }
5. Which community do you belong to: -----
6. How long have you lived in this community: -----
7. How do you belong to this community: (a) by birth { } (b) by marriage { } (c) other (specify):----

8. Local Government Area (LGA): ----- State: -----
9. What enterprise are you interested in (see list of selected enterprises for the LGA): -----

10. Do you have any experience in this enterprise: (a) Yes { } (b) No { }. If yes, how many years: --

11. Do you belong to any youth or women organization: (a) Yes { } (b) No { }. If yes, what is the name: -----
12. Do you belong to any cooperative society: (a) Yes { } (b) No { }. If yes, what is the name: -----

13. Do you have access to any land for the enterprise: (a) Yes { } (b) No { }.
14. If yes to question 13, where is the land located-----; and
what is the area size of the land? -----
15. What kind of title to you have to the land: (a) Government paper { } (b) Inheritance from parent { } (c) husband or wife's consent { } (d) family allocation { } (e) community's allocation { } (f) Others (specify):-----

Endorsements:

Applicant: I certify that the information provided here is correct

Name: -----

Signature: -----

Date: -----

Community/traditional leader:

Name: -----

Sign: -----

Date: -----

Verifications:

Comments by the Local Government Liaison Office:-----

Name of Officer: -----

Designation: -----

Sign and date: -----

Comments by the RCU Office:-----

Name of Officer: -----

Designation: -----

Sign and date: -----

Screening:

Comments by service providers:-----

Categorical comments (a) Applicant Eligible { } (b) Applicant Ineligible { }

Annex 2 - Environmental and Social Screening Forms for Subprojects

A: Screening Form for Agri-Enterprise Projects

General Information

Project Name:

Name of incubator / applicant:

Name of Cooperative:

Contact person's details:

Name of Apex Group:

Contact person's details:

Project Location:

Project sector (e.g. rice farming, vegetable processing, etc.)

Estimated Cost:

Proposed Date of Commencement:

Expected Project duration:

Site (estimated area in ha):

Any equity/contribution brought into the project:

Any plan for new construction:

A1. Screening for Environmental and Social Issues

Question	Yes	No	Additional explanation of 'Yes' response
Will the sub-project develop any wetlands?			
Would the sub-project result in economic displacement ⁴⁰ (loss of assets or access to resources) or physical resettlement			

⁴⁰ Economic displacement implies the loss of land, assets, access to assets, income sources or means of livelihoods (see SECAP Procedure Guidance Statement 13)

Question	Yes	No	Additional explanation of 'Yes' response
Would the sub-project result in conversion and/or loss of physical cultural resources?			
Will the sub-project have significant social adverse impacts (affecting access to and/use rights to land, access to potable water and water for other uses) on local communities or other project-affected parties?			
Will the project trigger unsustainable natural resource management practices (fisheries, forestry, livestock, and significant increase in use of agrochemicals) that exceed the carrying capacity?			
Does the sub-project include conversion of significant areas (above 50 ha) of natural forests/other wild lands?			
Would the project potentially cause significant adverse impacts to habitats and/or ecosystems and their services (e.g. habitat loss, erosion/ other form of land degradation, fragmentation, hydrological changes)?			
Does the proposed project target area include ecologically sensitive areas ⁴¹ ; areas of global significance for biodiversity conservation and/or biodiversity-rich area; habitats depended on by endangered species?			
Does the project involve fisheries development in situations where little information exists on sustainable yield?			
Could the project pose a risk of introducing invasive alien species?			
Does the project involve the transfer, handling or use of genetically modified organisms/living modified organisms that may have an adverse effect on threatened biodiversity?			
Is the project site close to any oil and gas installation such as flow stations, oil terminal, oil or gas pipeline right of way?			
Has oil spill/ or pipeline fire ever been recorded around project site?			

41 'Sensitive areas' include: protected areas (national parks, wildlife/nature reserves, biosphere reserves); areas of global significance for biodiversity conservation; habitats depended on by endangered species; natural forests; wetlands; coastal ecosystems, including coral reefs and mangrove swamps; small island ecosystems; areas most vulnerable to climate change and variability; lands highly susceptible to landslides, erosion and other forms of land degradation and areas that include physical cultural resources (of historical, religious, archaeological or other cultural significance) and areas with high social vulnerability due to poverty, disease, ethnicity and race.

Question	Yes	No	Additional explanation of 'Yes' response
Does the project involve land use changes (agricultural intensification and/or expansion of the cropping area) and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?			
Will the project result in increased use of agrochemicals which may affect the natural environment/human health?			
Does the project include small-scale irrigation and drainage projects, and water impoundment including small dams (except in wetlands)?			
Does the project involve agricultural intensification and/or expansion of cropping area in non-sensitive areas?			
Do the project activities include rangeland and livestock development?			
Does the project involve artisanal fisheries where there is information on sustainable yield?			
Do the project activities include aquaculture and/or mariculture?			
Do the project activities include watershed management or rehabilitation?			
Does the project include large-scale soil and water conservation measures?			
Does the project include small and micro enterprise development sub-projects?			
Does the project involve credit operations through financial service providers, including credit for pesticide/other agrochemicals, livestock purchasing, irrigation, etc.?			
Do the project activities include natural resources-based value chain development?			
Would any of the project activities have minor adverse impacts on physical cultural resources?			
Would the project have low probability to have physical resettlement or economic displacement?			
Does the project include development of agro-processing facilities?			
Will the project require a migrant workforce during construction?			

Question	Yes	No	Additional explanation of 'Yes' response
Will the project require seasonal workers to plant and/or harvest produce?			
Will the construction or operation of the project cause an increase in traffic on rural roads?			

Guidance for sub-project categorization

"Yes" response to any of questions 1-13	Sub-project Environmental and social category is A	ESIA is required for subproject
"Yes" response to questions 14-31	Sub-project Environmental and social category is B	Sub-project to adopt the ESMP in the general ESMF
"No" response to almost all questions	Subproject Environmental and social category is C	No further analysis is required

B: Screening Form for (Market) Infrastructure Sub-Projects

Name of market infrastructure:

Infrastructure type:

Location:

Proposed Date of Commencement:

Expected Project duration:

Estimated cost:

Estimate number of communities to be served:

Estimated number of entrepreneur to be served:

B1: Screening for (Market) Infrastructure Sub-projects

Question	Yes	No
Will the project activities include construction/rehabilitation of rural roads or other rural infrastructure in protected/sensitive areas ⁴² ?		
Does the project include construction of roads or other infrastructure that entail the total area being cleared of 50 ha or above?		
Does the project include construction of dam (s)/reservoir (between 5-15 m high with a reservoir exceeding 2 million m ³)?		
Does the project involve large-scale irrigation schemes rehabilitation/ development (above 100 ha)?		
Does the project involve significant extraction of ground water (significantly above recharge capacity)?		
Does the project include water-based (ground or surface) development where it is believed that significant depletion due to climate change or overutilization has occurred?		
Does the project involve significant extraction, diversion or containment of surface water?		
Does the project include drainage or correction of natural water bodies (e.g. river draining)?		
Will the project include construction/rehabilitation of rural roads that pass through oil infrastructure locations such as flow stations, tank farms or oil and gas pipelines?		
Would any of the project activities have minor adverse impacts on physical cultural resources?		
Does the project include development of agro-processing facilities?		
Will the project require a migrant workforce during construction?		
Will the construction or operation of the project cause an increase in traffic on rural roads?		
Has the government or community guaranteed the lease of the land for the (market) infrastructure?		
Is there any plan in place for sustainability of the infrastructure during the project life time?		

42 'Sensitive areas' include: protected areas (national parks, wildlife/nature reserves, biosphere reserves); areas of global significance for biodiversity conservation; habitats depended on by endangered species; natural forests; wetlands; coastal ecosystems, including coral reefs and mangrove swamps; small island ecosystems; areas most vulnerable to climate change and variability; lands highly susceptible to landslides, erosion and other forms of land degradation and areas that include physical cultural resources (of historical, religious, archaeological or other cultural significance) and areas with high social vulnerability due to poverty, disease, ethnicity and race.

Does the project include specific measures to protect against dust (such as dust masks and water spraying)?		
Has arrangement been made to pay adequate compensation for private property that may be affected by the construction of the project?		
Will construction equipment with moderate decibels be used and the timing of use be so that people will experience less discomfort?		
Will tree and vegetation replanting be carried out to stabilize slopes and re-green road sides?		

Guidance for categorization

"Yes" response to any of questions 1-9	Environmental and social category is A	ESIA is required
"Yes" response to questions 10-13	Environmental and social category is B	Sub-project to adopt the general ESMP in the ESMF
"No" response to almost all questions 1-13 and 'Yes' to questions 14-19	Environmental and social category is C	No further analysis is required

C: Climate Screening Form for Sub-Projects

To be used with the environmental and social screening forms.

Screening for Climate Issues

Question	Yes	No	Additional Explanation of 'Yes' response*
Is the project area subject to extreme climatic events such as flooding, drought, tropical storms, or heat waves?			
Do climate scenarios for the project area foresee changes in temperature, rainfall or extreme weather that will adversely affect the project impact, sustainability or cost over its lifetime?			
Will the project make investments in low-lying coastal areas/ zones exposed to river flooding and coastal storm surge?			
Will the project promote agricultural activity in marginal and/or highly degraded areas that have			

increased sensitivity to climatic events (such as on hillsides, deforested slopes or floodplains)?			
Is the project located in areas where rural development projects have experienced significant weather- related losses and damages in the past?			
Will the project develop/ install infrastructure in areas with a track record of extreme weather events?			
Is the project target group entirely dependent on natural resources (such as seasonal crops, rain-fed agricultural plots, and migratory fish stocks) that have been affected by in the last decade by climate trends or specific climatic events?			
Will climate variability likely affect agricultural productivity (crops/ livestock/fisheries) or the associated incidence of pests and diseases for the project target groups?			
Would weather-related risks or climatic extremes likely adversely impact upon key stages of identified value chains in the project (from production to markets)?			
Is the project investing in climate-sensitive livelihoods that are diversified?			
Is the project investing in infrastructure that is exposed to infrequent extreme weather events?			
Is the project investing in institutional development and capacity building for rural institutions (such as farmer groups, cooperatives) in climatically heterogeneous areas?			
Does the project have the potential to become more resilient through the adoption green technologies at a reasonable cost?			
Does the project intervention have opportunities to strengthen indigenous climate risk management capabilities?			
Does the project have opportunities to integrate climate resilience aspects through policy dialogue to improve agricultural sector strategies/policies?			
Does the project have potential to integrate climate resilience measures without extensive additional costs (e.g. improved crop variety, capacity building; or including climate risk issues in policy processes)			

Based on the information available would the project benefit from a more thorough climate risk and vulnerability analysis to identify additional complementary investment actions to manage climate risks?			
--	--	--	--

Guidance for categorization

"Yes" response to any of questions 1-9	Sub-project Climate risk is High	Climate risk Analysis is required for sub-project
"No" response to almost all questions	Sub-project climate risk is moderate	Sub-project to adopt the ESMP in the general ESMF

Annex 3 - Environmental and Social Guidelines for contractors⁴³

(for reference in contractor agreements/contracts)

Sound environmental and social management of construction projects can be achieved only with adequate site selection and project design. As such, the ESMP for projects involving any new construction, or any rehabilitation or reconstruction for existing projects, should provide information as to screening criteria for site selection and design including the following:

Site Selection

Sites should be chosen based on community needs for additional projects, with specific lots chosen based on geographic and topographic characteristics. The site selection process involves site visits and studies to analyze: (i) the site's, sub-urban, or rural characteristics; (ii) national, regional, or municipal regulations affecting the proposed sites; (iii) accessibility and distance from inhabited areas; (iv) land ownership, including verification of absence of squatters and/or other potential legal problems with land acquisition; (v) determination of site vulnerability to natural hazards, (i.e. intensity and frequency of floods, landslides, etc.); (vi) suitability of soils and sub-soils for construction; (vii) site contamination; (viii) flora and fauna characteristics; (ix) presence or absence of natural habitats and/or ecologically important habitats on site or in vicinity (e.g. forests, wetlands, rare or endangered species); and (ix) historic and community characteristics.

The rules (including specific prohibitions and construction management measures) should be incorporated into all relevant bidding documents, contracts, and work orders.

Prohibitions

The following activities are prohibited on or near the project site:

Cutting of trees for any reason outside the approved construction area;

Hunting, fishing, wildlife capture, or plant collection;

Use of unapproved toxic materials, including lead-based paints, asbestos, etc.

⁴³ Adapted from Ministry of Agriculture, Irrigation and Water Development, Republic of Malawi (2015) Environmental and Social Management Framework for Programme for Rural Irrigation Development in Malawi, pp.76-80.

Disturbance to anything with architectural or historical value;

Building of fires;

Use of firearms (except by authorized security guards);

Use of alcohol by workers.

Construction Management Measures

Solid, sanitation, and hazardous wastes must be properly controlled, through the implementation of the following measures:

Waste Management:

Minimize the production of waste that must be treated or eliminated;

Identify and classify the type of waste generated. If hazardous wastes (including health care wastes) are generated, proper procedures must be taken regarding their storage, collection, transportation and disposal;

Identify and demarcate disposal areas clearly indicating the specific materials that can be deposited in each;

Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, lakes, or wetlands). All garbage, metals, used oils, and excess material generated during construction should only be disposed in authorized areas, incorporating recycling systems and the separation of materials.

Maintenance:

Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands);

Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in water courses, drainage canals or in sewer systems;

Identify, demarcate and enforce the use of within-site access routes to limit impact on site vegetation;

Install and maintain an adequate drainage system to prevent erosion on the site during and after construction.

Erosion Control

Erect erosion control barriers around perimeter of cuts, disposal pits, and roadways;

Spray water on dirt roads, cuts, fill material and stockpiled soil to reduce wind-induced erosion, as needed;

Maintain vehicle speeds at or below 10mph within the work area, 15mph or below within 200m of the site, and abide by the relevant speed limits at all times to / from the work area.

Stockpiles and Borrow Pits

Identify and demarcate locations for stockpiles and borrow pits, ensuring that they are 15 meters away from critical areas such as steep slopes, erosion-prone soils, and areas that drain directly into sensitive water bodies;

Limit extraction of material to approved and demarcated borrow pits.

Site Cleanup

Establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for construction debris.

Safety during Construction

The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:

Carefully and clearly mark pedestrian-safe access routes;

If school children are in the vicinity, include traffic safety personnel to direct traffic;

Maintain supply of supplies for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction;

Conduct safety training for construction workers prior to beginning work;

Provide personal protective equipment (PPE) and clothing (such as goggles, gloves, respirators, dust masks, hard hats, steel-toed and –shanked boots, etc.,) for construction workers and enforce their use;

Post Material Safety Data Sheets for each chemical present on the worksite;

Require that all workers read, or have read, all Material Safety Data Sheets. Clearly explain the risks to them and their partners, especially when pregnant or planning to start a family. Encourage workers to share the information with their physicians, when relevant;

Ensure that the removal of asbestos-containing materials or other toxic substances be performed and disposed of by specially trained workers;

During heavy rains or emergencies of any kind, apply construction safeguards guidelines;

Brace electrical and mechanical equipment to withstand unexpected events during construction.

Nuisance and Dust Control

To control nuisance and dust the Contractor should:

Maintain all construction-related traffic at or below 15 mph on streets within 200 m of the site;

Maintain all on-site vehicle speeds at or below 10 mph;

To the extent possible, maintain noise levels associated with all machinery and equipment at or below 90db;

In sensitive areas (including residential neighborhoods, health centers, schools, etc.) more strict measures may need to be implemented to prevent undesirable noise levels;

Minimize production of dust and particulate materials at all times, to avoid impacts on surrounding families and businesses, and especially to vulnerable people (children, elderly);

Phase removal of vegetation to prevent large areas from becoming exposed to wind;

Place dust screens around construction areas, paying particular attention to areas close to housing, commercial areas, and recreational areas;

Spray water as needed on dirt roads, cut areas and soil stockpiles or fill material;

Apply proper measures to minimize disruptions from vibration or noise coming from construction activities.

Community Relations

To maintain cordial community relations, the Contractor should:

Following the country and ESMP requirements, inform the population about construction and work schedules, interruption of services, traffic detour routes, as appropriate;

Limit construction activities at night. When necessary ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures;

At least five days in advance of any service interruption (including water, electricity) the community must be advised through clearly visible posters at the project site and at central community locations;

Where possible, particularly for tasks that can also be performed through low-skilled manual labor (such as digging of shallow trenches, etc.), make use of labor from the local community.

Chance Find Procedures for Culturally Significant Artifacts

In case culturally valuable materials (incl. shrines, graves, etc.) are uncovered during excavation:

Stop work immediately following the discovery of any materials with possible archeological, historical, paleontological, or other cultural value, announce findings to project manager and notify relevant authorities;

Protect artifacts as well as possible using plastic covers, and implement measures to stabilize the area, if necessary, to properly protect artifacts;

Prevent and penalize any unauthorized access to the artifacts;

Restart construction works only upon the authorization of the relevant authorities.

Environmental Supervision during Construction

The bidding documents should indicate how compliance with environmental rules and design specifications would be supervised, along with the penalties for non-compliance by contractors or workers. Construction supervision requires oversight of compliance with the manual and environmental specifications by the contractor or his designated environmental supervisor. Contractors are also required to comply with national and state regulations governing the environment, public health and safety.

Annex 4 – Checklist for Construction Works

Based on the National Environmental (Construction Sector) Regulations (2011), at every construction facility the following checklist should be implemented:⁴⁴

(1) Every facility shall implement programmes on best practices as set out in Schedule I of the Regulations.

(2) Every facility shall provide base for ancillary equipment and bund wall for containment of waste oil in the event of any unanticipated discharge or spillage.

(3) Every operator of construction facility/site shall ensure:

(a) it has a functional, adequate and appropriate drainage system for the project;

(b) the separation or diversion of clean water runoff to prevent it from mixing with water containing high solid particle content;

(c) it minimizes the volume of water to be treated prior to release (same as storm water control system);

(d) the use of color coding for the drainage system such as blue for surface water drains and red for foul water drains;

(e) safe movement of materials and fuel to and from site;

(f) tanks are clearly labelled with their contents and storage capacity;

(g) workers are trained to carry out the outlined procedures in the Emergency Response Plan as specified in Schedule II to the Regulations;

(h) absorbent materials and other containment equipment (e.g. spill kits) suitable for the construction type, are available in adequate quantity on site; and

(i) all tanks are properly covered.

(4) The operator shall ensure:

(a) high standard of housekeeping;

(b) that dust/particulate matter arising from loaded trucks entering or leaving the site is kept to a minimum level by the use of tarpaulin materials as cover and that water sprays or other dust suppression or collection methods are used at every dusty place where work is carried out;

⁴⁴ National Environmental (Construction Sector) Regulations (2011). S.I. No.19.

(c) appropriate use of Personnel Protective Equipment (PPE) by all persons at construction site as in Schedule VI to the Regulations;

(5) Every facility shall have an Emergency Response Plan in accordance with the guide template specified in Schedule II to these Regulations.

Annex 5 - Social Inclusion Strategy

“In every country, certain groups (...) Confront barriers that prevent them from fully participating in their nation’s political, economic, and social life. These groups are branded by stereotypes, stigmas, and superstitions. They often live with insecurity. And such disadvantages not only preclude them from capitalizing on opportunities to lead a better life, they also rob them of dignity.”⁴⁵

Social inclusion means different things to different people. In its flagship publication on the topic, the World Bank defines social inclusion as “the process of improving the ability, opportunity, and dignity of people, disadvantaged on the basis of their identity, to take part in society.”⁴⁶ A strategy for social inclusion should therefore both address the above-mentioned ‘barriers’ as well as strengthen the capacities that disadvantaged groups in society require to make the most of development opportunities and realize their full potential.

PADRIR will directly contribute to social inclusion by actively focusing on unemployed youth and women, which together with people with disabilities and widows remain among the most disadvantaged groups . Using the World Bank’s advice to focus on three critical ‘inclusion domains’ of markets, services and spaces, PADRIR can help promote social inclusion in the project area through the following instruments and policies:

Markets (Land, Regulatory Framework)

Negotiate with traditional authorities in local communities for long-term land access by women and youth for agri-enterprise activities;

Negotiate with state governments to allocate larger plots of unused (but suitable) farmland and provide security of tenure for women and youth associations for agri-enterprise activities;

Support legislative reform establishing gender parity in land ownership and inheritance;

Closely monitor project progress, hold regular meetings with leaders/representatives of women and youth organizations to discuss project challenges, and provide additional (technical) support where needed.

Services (Training, Financial, Labour, ICT)

⁴⁵ World Bank (2013) Inclusion Matters: The Foundation for Shared Prosperity (WB: Washington, D.C.), p.xv.

⁴⁶ Idem, p.4.

Provide refresher, advanced and/or top-up skills training on-site for women and youth (on any relevant topic that hinders progress in their agri-enterprises) in combination with intensive mentoring support;

Support opportunities for information sharing, whereby women and youth who are currently not part of the project can visit the agri-enterprise sites and whereby entrepreneurs can share their experiences (including reasons for failure and success);

Negotiate with agricultural banks to provide preferential credit arrangements for high-potential women or youth agri-entrepreneurs;

Encourage contractors / service providers to give employment preference to local community members (e.g. via 'code of conduct');

Organize a 'hackathon' together with a technology-oriented innovation centre to develop a special app for rural youth in the project area to promote farming and facilitate market access as well as create an online platform that allows women and youth to showcase their achievements and experiences with wider society and other relevant actors (e.g. government and donor agencies).

Spaces (Physical, Cultural, Social)

Liaise with local police to ensure security in farming areas, markets and access routes;

Organize public awareness-raising campaigns in consultation with local CSOs to promote farming, encourage inclusive community-level decision-making, prevent intra-community conflict and reduce gender-based violence;

In general, ensure that initial screening, selection and support to project beneficiaries by community leaders and others at the grassroots level is based on merit and need rather than lingering primordial considerations;

To prevent climate-induced exclusion, recommended climate change adaptation and mitigation measures should be given priority. Many beneficiaries may not be able to bounce back once they are affected by hydro-meteorological disasters such as flooding and erosion.

Ghana

Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 6: First Annual Work Plan and Budget (AWPB)

Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

[illegible]

CST_EA	Service provider to recruit and train YCF	baseline/per cluster	0,00	3,00	3,00	15,90		15,90			
CST_EA	Design of recruitment training and oversight	Study	0,00	0,50	0,50	11,78		11,78			
CST_EA	Recruitment of YCF in the cluster	baseline	0,00	3,00	3,00	15,90		15,90			
CST_EA	Training of YCF	baseline/per cluster	0,00	3,00	3,00	15,90		15,90			
CST_EA	YCF Implementation /f	people	0,00	0,00	0,00	0,00		0,00			
EQG&VEH_EA	Purchasing motorcycles /g	each	0,00	30,00	30,00	88,35		88,35			
CST_EA	Monitoring, reporting and managing turnover climate resilient activities	per region	0,00	0,00	0,00	0,00		0,00			
CST_EA	Reporting to ISU	quarterly	0,00	0,00	0,00	0,00		0,00			
	<i>4. Community Outreach Development Plan (CODP)</i>										
T&W_EA	Community Outreach Development Plan (CODP) (field)	per cluster	0,00	4,00	4,00	28,27		14,14	14,14		
CST_EA	Community Outreach Development Plan (CODP) (office)	plan	0,00	4,00	4,00	28,27		14,14	14,14		
	<i>5. Support to Community Institutions (CIs)and Target Groups</i>										
CST_EA	Selection of Community Institutions /h	baseline	0,00	0,50	0,50	1,77		0,88	0,88		
	<i>7. Support to ISU/ZCU</i>										
CST_EA	Senior Rural Finance Specialist	month	12,00	6,00	18,00	51,46		51,46			
CST_EA	Community Development, livelihood and Gender Specialist	month	12,00	6,00	18,00	51,46		51,46			

Commented [D1]: updated

[illegible]

Total of subcomponent 1.2						364,99	-	356,16	8,84	-	-
Subcomponent 1.3. " C. Outreach of financial and agricultural services"											
	1. Outreach of financial and agricultural services										
T&W_EA	Training and rural agricultural finance /r	Training	0,00	1,00	1,00	17,67		17,67			
Total of subcomponent 1.3						17,67	-	17,67	-		-
Total Component 1						1.718,35	-	957,89	611,36	149,10	-
2. Improve smallholder capacity to access agricultural loans and other rural financial services											
Subcomponent.2.2 "B. Enhancing environment for market access"							-				
	A. Collaboration with other programmes										
T&W_EA	Annual policy forum	forum	0,00	0,50	0,50	12.500,00					
Total of subcomponent 2.2.						12.500,00	-	-	-		-
Total of Component 2						12.500,00	-	-	-		-
3. Project management and Coordination Unit											
Component 3." Project Management and Coordination Unit"											
	A. Investment Costs										
	I. Investment Costs										
	A. Inv.Costs										
EQG&VE H_EA	4x4 SUV Vehicle	each	1,00	0,00	1,00	56.313,02		56.313,02			

EQG&VE H_EA	4x4 Pickups Vehicles	each	0,00	0,00	0,00	-		-			
EQG&VE H_EA	Desktop computers	each	20,00	0,00	20,00	22.525,21		22.525,21			
EQG&VE H_EA	Laptop computers	each	20,00	0,00	20,00	22.525,21		22.525,21			
EQG&VE H_EA	Office furniture & fittings	per region	3,00	0,00	3,00	33.787,81		33.787,81			
EQG&VE H_EA	Miscellaneous equipment & replacements	lumpsu m	1,00	0,00	1,00	1.689,39		1.689,39			
	B. M&E operational costs			0,00	0,00	-		-			
CST_EA	Audit Fees	p.y.	1,00	0,50	1,50	8.576,41	8.576,41				
T&W_EA	Training & Workshops	month/ region	18,00	18,00	36,00	82.954,91		82.954,91			
	Total Investment Costs					228.371,96	8.576,41	219.795,55	-	-	-
	II. Recurrent Costs							-			
	A. Salaries and Allowances							-			
	<i>1. ISU</i>							-			
S&A_EA	National coordinator	month	12,00	6,00	18,00	93.036,88		93.036,88			

S&A_EA	Senior M&E	month	12,00	6,00	18,00	69.777,66		69.77 7,66			
S&A_EA	Finance Manager	month	12,00	6,00	18,00	69.777,66		69.77 7,66			
S&A_EA	Project Accountant	month	12,00	6,00	18,00	46.518,44		46.51 8,44			
S&A_EA	Account Assistant	month	12,00	6,00	18,00	27.911,06		27.91 1,06			
S&A_EA	Procurement Assistant	month	12,00	6,00	18,00	27.911,06		27.91 1,06			
S&A_EA	Procurement Officer	month	12,00	6,00	18,00	46.518,44		46.51 8,44			
S&A_EA	Secretary	month	12,00	6,00	18,00	18.607,38		18.60 7,38			
S&A_EA	Driver/Office or Research Assistant	month	24,00	12,00	36,00	23.262,96		23.26 2,96			
	2. ZCU - North					-		-			
S&A_EA	Senior ZCU Project Coordinator	month	12,00	6,00	18,00	69.777,66		69.77 7,66			

Commented [D2]: updated

S&A_EA	Field Implementation Supervisor	month	12,00	6,00	18,00	46.518,44		46.518,44			
S&A_EA	M&E Officer	month	12,00	6,00	18,00	46.518,44		46.518,44			
S&A_EA	Secretary	month	12,00	6,00	18,00	18.607,38		18.607,38			
S&A_EA	Driver	month	12,00	6,00	18,00	11.631,48		11.631,48			
	3. ZCU - Middle							-			
S&A_EA	Senior ZCU Project Coordinator	month	12,00	6,00	18,00	69.777,66		69.777,66			
S&A_EA	Field Implementation Supervisor	month	12,00	6,00	18,00	46.518,44		46.518,44			
S&A_EA	M&E Officer	month	12,00	6,00	18,00	46.518,44		46.518,44			
S&A_EA	Secretary	month	12,00	6,00	18,00	18.607,38		18.607,38			
S&A_EA	Driver	month	12,00	6,00	18,00	11.631,48		11.631,48			
	4. Staff travel costs							-			

Commented [D3]: updated

S&A_EA	Staff travel costs (int) /a	lumpsum	3,00	1,50	4,50	77.187,68		77.187,68			
S&A_EA	Staff travel costs (local) /b	lumpsum	3,00	1,50	4,50	51.458,45		51.458,45			
S&A_EA	Field visit (staff costs) /c	lumpsum	18,00	18,00	36,00	62.216,18		62.216,18			
	<i>B. Operation and Maintenance</i>							-			
O&M_EA	Stationery	month	36,00	18,00	54,00	12.350,03		12.350,03			
O&M_EA	Office rental	month	36,00	18,00	54,00	61.750,14		61.750,14			
O&M_EA	Water and electricity	month	36,00	18,00	54,00	15.437,54		15.437,54			
O&M_EA	Office maintenance	month	36,00	18,00	54,00	3.087,51		3.087,51			
O&M_EA	Vehicle fuel & maintenance /d	month	96,00	48,00	144,00	131.733,63		131.733,63			
O&M_EA	Communication /e	month	36,00	18,00	54,00	18.525,04		18.525,04			

O&M_EA	Meetings and conferences	month	36,00	18,00	54,00	61.750,14		61.750,14			
O&M_EA	Accounting software & Other miscellaneous overhead costs	month	36,00	18,00	54,00	61.750,14		61.750,14			
	Total Recurrent Costs					1.366.674,81	-	1.366.674,81	-	-	
Total of Component 3						1.595.046,77	8.576,41	1.586.470,36	-	-	
Grand Total of the Project						1.609.265,11	8.576,41	1.587.428,25	611,36	149,10	

Annex 6: First Annual Work Plan and Budget (AWPB)

Ghana

Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 7: Procurement Plan for first 18 months

Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

WORKS
Country/Organizatio
Project/Programme:
Loan #:

Drafter of this PP: Mr. John XYZ, MORAP

Procurement Method
ICB and LIB (Goods):
ICB (Works):
ICB (Non-Consultancy Services):
NCB and LNB (Goods):
NCB (Works):
NCB (Non-Consultancy Services):

IFAD prior review is required for procurement value with more than USXXX

		BASIC DATA							Bid Documents		Bidding Period		Bid evaluation report		Contract finalization		
Descriptio n	Lot Number	Issue # of invitation for bids	Lumpsum or bill of quantities	Procurement method	Estimated Amount in US\$	Pre- or post- qualifications	Prior- or post- review	Plan vs	Date Proposed	Date no- Objection	Bid invitation date	Bid closing-opening	Bid evaluation report	no-objection	Contract amount in US\$	Date contract award	Date contract signature
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AFFORDABLE AGRICULTURAL FINANCING FOR RESILIENT RURAL DEVELOPMENT (AAFORD)
EIGHTEEN-MONTH PROCUREMENT PLAN: JANUARY 1, 2020 - JUNE 30, 2021

CONSULTANTS
Country/Organization: GHANA Ministry of Finance
Project/Programme: Affordable Agricultural Financing for Rural Development (AAFORD)
Loan #:

Procurement Method
QCBS
QBS
FBS
LCS
COS
SSS
SIC

IFAD prior review is required for procurement value with more than US\$XX

Description	Selection method	Lump-sum or time-based	Estimated amount in US\$	Pre/Post-review	Plan vs. Actual	Request for expression of interest		Terms of Reference		Shortlist		Plan vs. Actual	Request for Proposal		Bid Proposal		Bid evaluations technical (T) and financial (F)					Plan vs. Actual	Contract Finalisation		
						Date published	Closing date	Date proposed	Date no-objection	Date proposed	Date no-objection		Date prepared	Date no-objection	Invitation date	Submission/opening date	Submission evaluation report (T)	no-objection evaluation report (T)	Opening Financial Proposal	Submission eval Report (T) and (F)	no-objection eval Report (T) and (F)		Contract amount in US\$	Contract award	Contract signature
COMPONENT 1: Develop capacities of target groups to obtain financing and markets in their climate resilient agricultural value chains																									
Sub-component 1.1: Identification of key technical partners and service providers																									
Consultant for Identification of Key Technical Partners & Service Providers	QCBS	Lump-sum	677,000	Prior review	Plan Actual	02-Apr-20	16-Apr-20	23-Apr-20	07-May-20	14-May-20	28-May-20	Plan Actual	04-Jun-20	18-Jun-20	25-Jun-20	23-Jul-20	30-Jul-20	06-Aug-20	13-Aug-20	20-Aug-20	03-Sep-20	Plan		10-Sep-20	17-Sep-20
Consultant for Support to Community Institutions and Target Grups	QCBS	Lump-sum	298,000	Prior review	Plan Actual	02-Apr-20	16-Apr-20	23-Apr-20	07-May-20	14-May-20	28-May-20	Plan Actual	04-Jun-20	18-Jun-20	25-Jun-20	23-Jul-20	30-Jul-20	06-Aug-20	13-Aug-20	20-Aug-20	03-Sep-20	Plan		10-Sep-20	17-Sep-20
Consultant for Mobilization of Youth Community Facilitators (YCF)	CQS	Lump-sum	56,500	Prior review	Plan Actual	11-Apr-20	25-Apr-20	02-May-20	16-May-20	23-May-20	06-Jun-20	Plan Actual	13-Jun-20	27-Jun-20	4-Jul-20	01-Aug-20	08-Aug-20	15-Aug-20	22-Aug-20	29-Aug-20	12-Sep-20	Plan		19-Sep-20	26-Sep-20
Consultant for Community Outreach Development Plan	QCBS	Lump-sum	46,500	Prior review	Plan Actual	11-Apr-20	25-Apr-20	02-May-20	16-May-20	23-May-20	06-Jun-20	Plan Actual	13-Jun-20	27-Jun-20	4-Jul-20	01-Aug-20	08-Aug-20	15-Aug-20	22-Aug-20	29-Aug-20	12-Sep-20	Plan		19-Sep-20	26-Sep-20
Selection of Community Institutions	SSS	Lump-sum	1,770	Prior review	Plan Actual	11-Apr-20	25-Apr-20	02-May-20	16-May-20	N/A	N/A	Plan Actual	23-May-20	30-May-20	6-Jun-20	20-Jun-20	27-Jun-20	11-Jul-20	N/A	18-Jul-20	01-Aug-20	Plan		08-Aug-20	15-Aug-20
Support to CPCU - Senior Rural Finance Specialist	SIC	Time-based	51,500	Prior review	Plan Actual	11-Apr-20	25-Apr-20	02-May-20	16-May-20	23-May-20	06-Jun-20	Plan Actual	N/A	N/A	N/A	N/A	13-Jun-20	27-Jun-20	04-Jul-20	11-Jul-20	25-Jul-20	Plan		01-Aug-20	08-Aug-20
Support to CPCU - Community Development, Livelihoods & Gender	SIC	Time-based	51,500	Prior review	Plan Actual	11-Apr-20	25-Apr-20	02-May-20	16-May-20	23-May-20	06-Jun-20	Plan Actual	N/A	N/A	N/A	N/A	13-Jun-20	27-Jun-20	04-Jul-20	11-Jul-20	25-Jul-20	Plan		01-Aug-20	08-Aug-20
Support to CPCU - Climate and Environment Specialist	SIC	Time-based	51,500	Prior review	Plan Actual	11-Apr-20	25-Apr-20	02-May-20	16-May-20	23-May-20	06-Jun-20	Plan Actual	N/A	N/A	N/A	N/A	13-Jun-20	27-Jun-20	04-Jul-20	11-Jul-20	25-Jul-20	Plan		01-Aug-20	08-Aug-20
Sub-total			1,234,270																						
Sub-component 1.2: Capacity Building of Institutional Partners and Intermediaries																									
Mapping, Needs Assessment & Selection of Partner Institutions	QCBS	Lump-sum	117,800	Prior review	Plan Actual	11-Apr-20	25-Apr-20	02-May-20	16-May-20	23-May-20	06-Jun-20	Plan Actual	13-Jun-20	27-Jun-20	4-Jul-20	01-Aug-20	08-Aug-20	15-Aug-20	22-Aug-20	29-Aug-20	12-Sep-20	Plan		19-Sep-20	26-Sep-20
Capacity Building of Selected Partner Intermediaries	QCBS	Lump-sum	88,400	Prior review	Plan Actual	11-Apr-20	25-Apr-20	02-May-20	16-May-20	23-May-20	06-Jun-20	Plan Actual	13-Jun-20	27-Jun-20	4-Jul-20	01-Aug-20	08-Aug-20	15-Aug-20	22-Aug-20	29-Aug-20	12-Sep-20	Plan		19-Sep-20	26-Sep-20
Youth Institutional Internship Programme (Mobilization & Training)	QCBS	Lump-sum	61,700	Prior review	Plan Actual	11-Apr-20	25-Apr-20	02-May-20	16-May-20	23-May-20	06-Jun-20	Plan Actual	13-Jun-20	27-Jun-20	4-Jul-20	01-Aug-20	08-Aug-20	15-Aug-20	22-Aug-20	29-Aug-20	12-Sep-20	Plan		19-Sep-20	26-Sep-20
Sub-total			257,900									Plan Actual										Plan			
COMPONENT 3: PROJECT MANAGEMENT AND COORDINATION UNIT																									
Sub-component 3.1: Central Project Coordination Unit																									
National Coordinator	SIC	Time-based	93,000	Prior review	Plan Actual	07-Jan-20	21-Jan-20	28-Jan-20	11-Feb-20	18-Feb-20	03-Mar-20	Plan Actual	N/A	N/A	N/A	N/A	10-Mar-20	24-Mar-20	31-Mar-20	07-Apr-20	21-Apr-20	Plan		28-Apr-20	05-May-20
Senior M & E Specialist	SIC	Time-based	69,800	Prior review	Plan Actual	07-Jan-20	21-Jan-20	28-Jan-20	11-Feb-20	18-Feb-20	03-Mar-20	Plan Actual	N/A	N/A	N/A	N/A	10-Mar-20	24-Mar-20	31-Mar-20	07-Apr-20	21-Apr-20	Plan		28-Apr-20	05-May-20
Finance Manager	SIC	Time-based	69,800	Prior review	Plan Actual	07-Jan-20	21-Jan-20	28-Jan-20	11-Feb-20	18-Feb-20	03-Mar-20	Plan Actual	N/A	N/A	N/A	N/A	10-Mar-20	24-Mar-20	31-Mar-20	07-Apr-20	21-Apr-20	Plan		28-Apr-20	05-May-20
Project Accountant	SIC	Time-based	46,500	Prior review	Plan Actual	07-Jan-20	21-Jan-20	28-Jan-20	11-Feb-20	18-Feb-20	03-Mar-20	Plan Actual	N/A	N/A	N/A	N/A	10-Mar-20	24-Mar-20	31-Mar-20	07-Apr-20	21-Apr-20	Plan		28-Apr-20	05-May-20
Accounting Assistant	SIC	Time-based	27,900	Prior review	Plan Actual	02-Apr-20	16-Apr-20	23-Apr-20	07-May-20	14-May-20	28-May-20	Plan Actual	N/A	N/A	N/A	N/A	04-Jun-20	18-Jun-20	25-Jun-20	02-Jul-20	16-Jul-20	Plan		23-Jul-20	30-Jul-20
Procurement Officer	SIC	Time-based	46,500	Prior review	Plan Actual	07-Jan-20	21-Jan-20	28-Jan-20	11-Feb-20	18-Feb-20	03-Mar-20	Plan Actual	N/A	N/A	N/A	N/A	10-Mar-20	24-Mar-20	31-Mar-20	07-Apr-20	21-Apr-20	Plan		28-Apr-20	05-May-20
Assistant Procurement Officer	SIC	Time-based	27,900	Prior review	Plan Actual	02-Apr-20	16-Apr-20	23-Apr-20	07-May-20	14-May-20	28-May-20	Plan Actual	N/A	N/A	N/A	N/A	04-Jun-20	18-Jun-20	25-Jun-20	02-Jul-20	16-Jul-20	Plan		23-Jul-20	30-Jul-20
Secretary	SIC	Time-based	18,600	Prior review	Plan Actual	02-Apr-20	16-Apr-20	23-Apr-20	07-May-20	14-May-20	28-May-20	Plan Actual	N/A	N/A	N/A	N/A	04-Jun-20	18-Jun-20	25-Jun-20	02-Jul-20	16-Jul-20	Plan		23-Jul-20	30-Jul-20
Driver/Office Assistant	SIC	Time-based	23,300	Prior review	Plan Actual	02-Apr-20	16-Apr-20	23-Apr-20	07-May-20	14-May-20	28-May-20	Plan Actual	N/A	N/A	N/A	N/A	04-Jun-20	18-Jun-20	25-Jun-20	02-Jul-20	16-Jul-20	Plan		23-Jul-20	30-Jul-20
Hire of Auditor for Project Audit	LCS	Lump-sum	18,600	Prior review	Plan Actual	01-Jul-20	15-Jul-20	22-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan Actual	02-Sep-20	16-Sep-20	23-Sep-20	21-Oct-20	28-Oct-20	04-Nov-20	11-Nov-20	18-Nov-20	02-Dec-20	Plan		09-Dec-20	16-Dec-20
Sub-total			441,900									Plan Actual										Plan			
Sub-component 3.2: Zonal Project Coordinating Unit - Northern Zone																									
Senior ZPCU Coordinator	SIC	Time-based	69,800	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
Field Implementation Supervisor	SIC	Time-based	46,500	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
M & E Officer	SIC	Time-based	46,500	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
Secretary	SIC	Time-based	18,600	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
Driver	SIC	Time-based	23,300	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
Sub-total			204,700									Plan Actual										Plan			
Sub-component 3.3: Zonal Project Coordinating Unit - Middle Zone																									
Senior ZPCU Coordinator	SIC	Time-based	69,800	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
Field Implementation Supervisor	SIC	Time-based	46,500	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
M & E Officer	SIC	Time-based	46,500	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
Secretary	SIC	Time-based	18,600	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
Driver	SIC	Time-based	23,300	Prior review	Plan Actual	13-May-20	27-May-20	03-Jun-20	17-Jun-20	24-Jun-20	08-Jul-20	Plan Actual	N/A	N/A	N/A	N/A	15-Jul-20	29-Jul-20	05-Aug-20	12-Aug-20	26-Aug-20	Plan		02-Sep-20	09-Sep-20
Sub-total			204,700									Plan Actual										Plan			

Project Title: Affordable Agricultural Financing for Resilient Rural Development (AAFORD)				
LOAN/GRANT NO.				
TRAINING PLAN (January 1, 2020 - June 30, 2021)				
No	Ref.	Description of Course	Quantity	Amount USD
1	Subcomponent 1.2	Capacity building of Institutional Partners & Intermediaries - Orientation Workshop	0.5	8,840
2	Subcomponent 1.2	Workshop for TA to develop OLBP	25	44,180
3	Subcomponent 1.2	Workshop for Finalization, review and Validation	25	44,180
4	Subcomponent 1.3	Workshop for Outreach of Financial & Agricultural Services	1	17,700
5	Subcomponent 2.2	Annual Forum for Enabling Environment for Market Access	0.5	12,500
				127,400

Project Title: Affordable Agricultural Financing for Resilient Rural Development (AAFORD)

Administration and Office General Expenses

No	Description of Expenditure	Quantity	Amount USD
1	Office Stationery	18 months	12,350
2	Office Rental	18 months	61,750
3	Water & Electricity	18 months	15,400
4	Office Maintenance	18 months	3,100
5	Vehicle Fuel & Maintenance	18 months	131,700
6	Communication	18 months	18,530
7	Meetings & Conferences	18 months	61,800
8	Accounting Software & maintenance	18 months	61,800
			366,430

Ghana

Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 8: Project Implementation Manual (PIM)

Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

Annex 8: Project Implementation Manual (PIM)

Republic of Ghana

Affordable Agricultural Financing for Resilient Rural Development (AAFORD)

Project Implementation Manual

October 2019

Main report and appendices

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Abbreviations and Acronyms

1d1f	One district One factory
AA	Accounts Assistant
AAFORD	Affordable Agricultural Financing for Resilient Rural Development
ABC Fund	Agri Business Capital Fund
AfDB	African Development Bank
AOS	Annual Outcome Survey
APC	AAFORD Procurement Committee
ARB	Association of Rural Banks
AWPB	Annual Work Plan and Budget
BAC	Business Advisory Centre
BFF	Blended Finance Facility
BoG	Bank of Ghana
BRC	Business Resource Centres
CA	Conservation Agriculture
CBO	Community-Based Organisations
CES	Climate and Environment Specialist
CGS	Community Development, Livelihood and Gender Specialist
CI	Community Institutions
CODP	Community Outreach Development Plan
CPC	Central Project Coordinator
CSCG	Community Savings and Credit Groups
DFS	Digital Financial Services
FBO	Farmer-Based Organisations

FIS	Field Implementation Supervisor
FIs	Financial Institutions
GAIP	Ghana Agricultural Insurance Pool
GAP	Gender Action Plan
GCF	Green Climate Fund
GCX	Ghana Commodity Exchange
GDP	Gross Domestic Product
GHAMFIN	Ghana Microfinance Institutions Network
GHG	Greenhouse Gases
GIRSAL	Ghana Incentive-based Risk Sharing System for Agricultural Lending
GMA	Ghana Meteorological Agency
IBP	Institutional Business Plans
IBP	Institutional Business Plans
ICB	International Competitive Bidding
ICO	IFAD Country Office
ICT	Information and Communications Technology
ISU	Implementation Support Unit
IFAD	International Fund for Agricultural Development
KM	Knowledge Management
LTR	Letter to the Recipient
MCC	Micro Credit Company
MDG	Millennium Development Goal
MEF	Monitoring and Evaluation Focal Point
MFC	Micro Finance Company
MFIs	Microfinance Institutions
MIS	Management Information System
MNDPF	Medium-Term National Development Policy Framework

MoF	Ministry of Finance
MoFA	Ministry of Food and Agriculture
MoMo	Mobile Money
MoTI	Ministry of Trade and Industry
MSME	Micro, Small and Medium Enterprises
MTR	Mid-term Review
NCS	Non-consulting Services
NFIDS	National Financial Inclusion and Development Strategy
NGO	Non Governmental Organisation
ORMS	Operational and Results Management System
OVCF	Outgrower and Value Chain Fund
PA	Project Accountant
PFI	Participating Financial Institution
PIM	Project Implementation Manual
PO	Procurement Officer
PrA	Procurement Assistant
PSC	Project Steering Committee
PTC	PSC Technical Committee
RADUs	Regional Agricultural Development Units
RCBs	Rural and Community Banks
RDF	Rural Development Fund
REDF	Rural Enterprise Development Fund
REP	Rural Enterprises Programme
RMFI	Rural Microfinance Institutions
S&L	Savings and Loan Company
SEA	Sexual Exploitation and Abuse
SECAP	Social, Environmental and Climate Change Assessment Procedures

SFM	Senior Finance Manager
SMES	Senior Monitoring and Evaluation Specialist
SP	Service Providers
SRFS	Senior Rural Finance Specialist
TA	Technical Assistance
ToT	Training of Trainers
USD	United States Dollars
YCF	Youth Community Facilitator
YII	Youth Institutional Intern
ZPC	ZCU Project Coordinator
ZCU	Zonal Coordination Unit
ZSC	Zonal Steering Committee
ZTC	ZSC Technical Committee

Map of the Programme Area



The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

Map compiled by IFAD | 08-10-2019

Chapter 1: Introduction and background

National context and rationale for IFAD involvement

National Context

Economic and political context: Ghana became a lower middle-income country in 2011, with an annual income per capita of US\$ 1,490. In 2015, Ghana achieved the Millennium Development Goal (MDG) 1: to halve the proportion of people living in extreme poverty¹. GDP per capita reached US\$ 2,260 in 2019. Annual GDP growth averaged 6.6 per cent from 2000 to 2013 and then increased to 14 per cent in 2014 driven by oil, followed by a few years of an economic slowdown from the sharp drop in oil prices. The economy started recovering in 2017 with the growth of 8.1 per cent and the growth in 2019 is projected to be 8.8 per cent, the highest in the world.² However, the economy is highly dependent on the export of a limited number of commodities, in particular, gold, cocoa and oil, and consequently remains vulnerable to commodity price shocks. The inflation rate is around 9.2 per cent³; unemployment is about 2.4 per cent. Ghana's political environment continues to be stable with the new president elected in 2017.

Poverty: The Ghana Living Standard Survey (2012) defines a lower poverty line as 792 GHS per adult per year, focusing on what's necessary to meet the nutritional requirements. The Upper poverty line is set as 1,314 GHS per adult per year, incorporating both essential food and non-food consumptions. Out of the total population of 28.8 million about 23 per cent, equivalent of 6.8 million people, is poor. The percentage of the people in poverty has declined by 8.5 per cent since 2006, but the rate of poverty reduction has been slow for the last four years - it has fallen only 0.8 per cent. Disparities in poverty follow geographic and gender lines. Geographically, rural poverty is almost five times high when compared to urban poverty. The rural population is around 45 per cent out of the total population of 28.8 million. However, without considering the Greater Accra and Ashanti regions, which have significantly higher urban people, the rural population reaches up to 60 per cent in the rest of the country. Approximately 40 per cent of the population is in poverty in rural areas, while 7.8 per cent is in the urban areas.

The rural areas of Northern Ghana have a higher incidence of poverty with 71 per cent poverty reported in the Upper West Region, 61 per cent in the Northern Region and 55 per cent in the Upper East Region.⁴ In the central regions of Ghana, referred to as the middle belt, poverty has shown declining trends, but the rate

1 World Bank, November 2018

2 IMF, World Economic Outlook Database April 2019

3 <https://tradingeconomics.com/ghana/indicators>

4 World Bank, November 2018

of people in extreme poverty remains higher than the national average. For example, 27 per cent of the population live in poverty in the Brong Ahafo region, 13 per cent in the Eastern region and 12 per cent in the Ashanti region⁵. Fewer opportunities for intensifying and commercialising agriculture, poor access to credit, input and output markets and advisory services drive poverty in the rural areas. The literacy rate remains high and is as low as 35 per cent in the Northern regions. Limited access to power also inhibits commercial agricultural activities. Post-harvest losses are high and are attributed partly to the lack of access to storage and drying facilities.

About 62 per cent of female-headed households fall in the poorest wealth quintiles compared to 39 per cent of male-headed households. The gender gap exists as women have limited access to credit, extension services, new technologies, inputs and output markets. Unemployment of youth is a growing concern in Ghana caused by qualification and skills gaps and shortage of economic engagement opportunities. Youth unemployment reached 13.7 per cent in 2018 after increasing 4.4 per cent from the lowest rate of around 9.3 per cent attained in 2006. Women and youth's economic dependency on the family has increased due to these factors and have contributed to poverty.

Agriculture Development: The agricultural sector accounts for one-fifth of Ghana's Gross Domestic Product (GDP). The sector is an essential contributor to Ghana's export earnings, and a significant source of inputs for the manufacturing industry with two-thirds of non-oil manufacturing depending on agriculture for raw materials. In 2017, Ghana exported US\$ 17.1 billion in agricultural products resulting in a positive trade balance of US\$ 3.9 billion.⁶ The top export destinations are India, China, Switzerland, South Africa and the Netherlands⁷ and the principal agricultural exports are cocoa, timber, horticultural products and fish.⁸ Around 71 per cent of formal employment in rural areas is in the farming sector, indicating the importance of increasing agrarian incomes as a means of lowering rural poverty.⁹ Agribusiness has a very high multiplier effect on employment, creating over 750 jobs for every additional US\$ 1 million of output.¹⁰ Yet, agricultural growth is affected by low productivity and competitiveness. Rainfed agriculture is practised in around 96 per cent of the farming area, informal private small-scale irrigation is prevalent in 3 per cent of the area and formal irrigation covers 0.4 per cent of the agricultural lands. Agricultural imports are substantial, reaching US\$13.2 billion in 2017 mainly through the imports of wheat, rice, chicken (frozen), milk and fish.

5 GLSS 7

6 Observatory of Economic Complexity <https://atlas.media.mit.edu/en/profile/country/gha/>

7 Observatory of Economic Complexity <https://atlas.media.mit.edu/en/profile/country/gha/>

8 IFPRI, 2018, post-harvest losses in Ghana

9 World Bank 2016

10 Ghana Economic Update, World bank, 2018

Smallholder agriculture: Approximately 85 per cent of farming households own less than 10 Ha of land and are considered smallholders. More than two-thirds of these smallholders own less than 2 Ha cultivable land resulting in a large group of poor semi-subsistence smallholder farmers. In the Northern regions, the poor semi-subsistence farmers produce mainly soya, maize, sorghum, millets, groundnuts and rainfed rice while in the Central part they rely more on cassava, plantain, maize and cashew nut production. In both the areas, these farmers produce vegetables such as tomato, pepper, cabbage, carrots and eggplants for subsistence and supplementary income. (Refer PIM, Annex 3, for a detailed market overview of agricultural commodities in the project area). The semi-subsistence smallholders primarily practice rain-fed, subsistence-oriented and manual-labour intensive farming practices and depend mainly on family labour. They often suffer from inadequate and uncertain income resulting from low crop productivity, weak farmers institutions, limited market linkages, gaps in access to market infrastructure and limited post-harvest support as elaborated below.

Low crop productivity is a significant challenge with actual yields of most crops recorded at 50-60 per cent below their potential returns. Low productivity arises from limited access to good quality agricultural inputs, outdated technologies, lack of access to mechanised services, inadequate pest and disease management, limited access to rural advisory services and gap in the access to affordable rural finance¹¹. Other factors such as land degradation, drought and soil nutrient depletion also affect production more prominently in the Northern regions. Due to the low crop production and productivity, the semi-subsistence smallholders suffer from low bargaining power and depend mainly on low prices offered by traders and local markets resulting in low and uncertain levels of income. Weak marketing linkages has developed smallholders' dependence on selling small quantities of produce (such as processed cassava, plantain and vegetables) in the local retail markets on an individual basis and on traders who visit the villages occasionally to purchase commodities at low prices. Smallholders linkage to high-value offtakers is generally missing though in some places they have linkages to local processors. The Ghana Commodity Exchange (GCX) which provides farmers with access to certified warehouses require minimum one-ton produce and has strict quality requirements to avail the facility which is beyond the immediate capacity of most smallholders. Weak farmers organisations have resulted in the limited presence of collaborative and remunerative models for access to inputs and markets through Farmer-based Organisations (FBO)s. FBOs' presence in rural communities is variable from a few to many. Less than 50 per cent of them are considered active, and relatively larger farmers usually dominate the functional FBOs. Often FBOs with successful linkages to offtakers have limited outreach and typically exclude the smallholders. Gaps in access to market infrastructure have led to the inability of the smallholders to store their commodities and wait for prices to improve. Consequently, they are compelled to sell their produce to traders even when the offered prices are much lower than those in the previous seasons. Limited post-harvest assistance has created gaps in processing and value addition capabilities at the local level and sometimes high incidence of post-harvest losses.

¹¹ Index database 2017

Rural financial services: The Bank of Ghana (BoG) leads the formal banking sector. There are 29 Commercial Banks (CB), 141 Rural and Community Banks (RCB), 24 Savings and Loan Companies (SLC), 494 Microfinance Companies (MC), 70 Moneylending Companies (MLC), 12 Financial NGOs (FNGO) and numerous individual money lenders and susu collectors. Village Savings and Loan Associations (VSLAs) are widespread, and function as member-managed, women-oriented, savings led groups. The ARB Apex Bank functions as the regulator of the RCBs. Ghana Microfinance Institutions Network (GHAMFIN) is the umbrella association for the association of the different types of financial institutions (FI). Mobile money (“MoMo”) is primarily used for transferring funds and payments. However, MoMo and other digital financial services (DFS) is an important entry point to accessing a range of services such as saving, banking, small loans and weather and price information as most household now has access to a mobile phone. Despite the diversity of FIs only 37 per cent of the rural population has access to accounts in formal FIs. Overall, loans and advances designated as “agricultural” account for only about 5 per cent of the credit to the private sector by the banking system.

The gap in the flow of financial services particularly to smallholders in the agricultural sector has resulted from both demand and supply constraints. On the demand side, semi-subsistence smallholders are reluctant to borrow to increase production due to marketing and income uncertainties and fearing the consequences of their inability to repay the loans. They are further deterred from borrowing due to by high interest rates (as high as 20 per cent per month offered by some credit unions and 30-36 per cent flat offered by RCBs), lengthy procedures for borrowing even small sums and the fear of crop losses from weather-related events. There is little awareness of prevailing agricultural insurance services and low demand for such products considering the high premiums of 5-8 per cent. Other constraints include collateral requirements in some cases, and the lack of financial literacy and knowledge to utilise appropriate financial instruments. On the supply side, all types of FIs in Ghana remain averse to lending to agricultural production because of the high risks and uncertainty involved. Often the FIs portfolios are already exposed to a high level of risk with PAR (> 30 days) ranging from 15-20 per cent and have little appetite for risky agricultural loans. Although the availability of “de-risking” instruments such as insurance (through Ghana Agricultural Insurance Pool), guarantees (through Ghana Incentive-Based Risk Sharing for Agricultural Lending) and warehousing (through Ghana Commodity Exchange) is increasing, there is limited awareness about their features, the capacity needed to partner and partnership mechanisms. Also, most FI currently does not have the specialised products and the capabilities required to address the specific requirements of the agricultural sector effectively. In general, the interest rates charged across different loan products offered by the intermediary FIs range between 33-36 per cent (often applied on a flat basis). The primary factor contributing to the high interest rates is the high cost of funds at 20 to 24 per cent and operations costs of 7-8 per cent, leaving a profit margin of only 3 to 5 per cent.

AAFORD’s interventions will be geared to increase the flow and outreach of formal financial resources to the target households by addressing both demand and supply-side constraints. The key demand-side issues will be addressed by improving production and productivity, strengthening farmers organisations, developing competitive marketing linkages, increasing financial literacy and savings and supporting the adoption of microinsurance services. Supply side issues will be addressed through de-risking agricultural loan portfolios through collateral guarantee partnership, capacity building of FIs for to enable effective administration of

agricultural portfolio and lowering the cost of capital and interest rates on agricultural loans by supporting Participating Financial Intermediaries (PFIs) to access to concessional credit through a Blended Finance Facility (BFF). The support from the BFF in combination with measures for de-risking agricultural loan portfolios will allow the FIs to diversify and operate in a new market segment (smallholders agricultural production) which will help to align them with their development objective of serving the rural communities. The success of the BFF will crowd in development funds from the government and other development partners and support AAFORD's nationwide scaling up in the future. (Refer PIM, Annex 4, an overview of RF environment)

National strategies policies and lead institutions: The President's office has issued the Medium-Term National Development Policy Framework (MNDPF 2018-2021) which recognises the growth of agriculture as the main driving force for rural development and transformation. The Ministry of Finance (MoF) has set a target to increase financial inclusion in Ghana from 58 per cent to 75 per cent by 2023¹² and has established a Development Finance Unit (DFU) under the Financial Sector Division (FSD) to promote financial inclusion and rural financial services and support them with oversight and policy guidance. The DFU, in close coordination with development partners such as the World Bank (WB) and the African Development Bank (AfDB), has championed initiatives such as Ghana Commodities Exchange (GCX), Ghana Incentive-based Risk Sharing System for Agricultural Lending (GIRSAL) and the Ghana Financial Sector Development Project (GFSDP). The DFU hosted the ISU for the IFAD supported Rural and Agricultural Finance Programme (RAFIP) which was completed in 2016.

The Ministry of Food and Agriculture (MoFA), has developed a Ghana Agricultural Development Plan (GhAIP), focusing on the development of the agricultural sector in Ghana from 2018 to 2021 through modernisation and transformation efforts. MoFA has started the nationwide Planting for Food and Jobs initiative (PFJ), focusing on smallholders with 2-3 acres land to access improved seeds and fertilisers at 50 per cent subsidy, extension services and marketing opportunities. The MoFA leads the Planting for Exports and Development (PERD) initiative focusing on improving the productivity of export-oriented tree crops such as cashew, coffee, cotton and coconut. The MoFA also chairs the Agricultural Working Sector Group (AWSG) established between the Government of Ghana (GoG) and the development partners such as UN agencies and donors. The Ministry of Industry and Trade (MoTI) has started the One district One Factory (1d1f) programme that focuses on establishing at least one medium-to-large-scale industrial enterprise in every district to create quality jobs and achieve a balanced spread of industries. The MoTI also leads the Strategic Anchor Industries (SAI) development programme, the Small and Medium-scale Enterprises (SMEs) Development programme and the Exports Development Programme (EDP), focusing on job creation, export development, and public-private partnerships.

Initiatives of development partners (DP): In response to the challenges limiting smallholder access to finance, the GoG and DPs have recently launched several initiatives with the objective of de-risking agricultural production loans, lowering interest rates, and smoothing the incomes of smallholder farmers. GIRSAL: GIRSAL is structured as a company limited by shares aiming to de-risk agricultural lending and promote

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investment in agriculture. GIRSAL comprises a guarantee fund of GHS 400 million (US\$ 72 million) to provide credit guarantees to cover up to 80 per cent of agricultural sector loans delivered by formal FI to farmers directly or indirectly through off-takers. The AfDB has approved US\$ 14 million and the GoG has provided US\$ 57 million for creating the credit guarantee fund. GIRSAL also supports technical assistance to FIs to improve their capacity and performance on agricultural loan portfolios and crop production insurance for smallholders through the Ghana Agricultural Insurance Pool (GAIP). The Alliance for a Green Revolution in Africa (AGRA) has contributed around US\$ 0.35 million to support GIRSAL's technical assistance activities. GCX: The GCX is structured as a limited liability company providing commodity storage and trading services to farmers. GCX operates a network of certified warehouses linked to farmer cooperatives cultivating commodities traded in a GCX platform. The GCX supports an electronic warehouse receipts system that enables farmers to access cash credit to meet their livelihood needs during the period when their commodities are stored in the warehouse waiting for a sale at a better price. However, at present, the warehouse receipt system has very limited outreach to smallholder due to limited awareness and readiness amongst rural FIs about this product. GAIP: The leading insurance companies in Ghana have partnered to form GAIP as an arm to design and offer crop insurance products to farmers either directly or through marketing partners. GAIP's outreach is limited to less than 10,000 farmers (not necessarily smallholders) mainly due to high premiums ranging from 5-7 per cent, limited awareness of its products, limited partnerships and capacity constraints. (refer PIM Annex 5,6,7 for an overview of GIRSAL, GCX and GAIP).

Other donor initiatives consist of the KfW supported Outgrower and Value Chain Fund (OVCF) which is a refinancing facility for PFIs to help off-takers/aggregators (bank to off-taker interest rate 18 per cent) that are contractually linked to groups of smallholders growing rubber, oil palm, rice, pineapple, cassava, cocoa and maize. Ghana Financial Sector Development Project (GFSDP): The World Bank has approved the GFSDP to establish a domestic credit rating agency, design a financial data centre, develop an asset registry for traditional/physical collateral, increase the outreach of FIs by linking Village Saving and Loans Associations (VSLAs) to the formal financial sector. (Refer PIM, Annex 9 for an overview of rural finance programmes of other development partners)

Special aspects relating to IFAD's corporate mainstreaming priorities

Gender and social inclusion: Ghana is ranked second in the Gender Inequality Index for Sub-Saharan Africa in 2018. However, globally, its position is number 140. Women represent roughly 51 per cent of the population and constitute 58 per cent of the rural labour force. Women have a critical role in agriculture and other livelihood activities such as artisanal and trading activities. In the north, women are also engaged in collecting shea nuts and fruits from the surrounding environment. There is a division of labour between men and women when conducting family farming. Male gender roles are associated with tasks that involve control over agricultural assets, mobility and decision making. Female gender roles are related to manual work in agriculture such as planting and weeding as well as basic post-harvest actions, e.g. drying and processing. Women are also involved in activities such as livestock rearing.

Gender inequality is prevalent across several socio-economic areas. For example, the average hourly earnings of women are 57 per cent of that of men regardless of the type of employment and other factors. Women far outnumber men in non-farm self-employment and private informal work where earnings are relatively low. The key factors contributing to gender inequalities are low literacy rates with 42 per cent female literacy compared to 60 per cent male, lower exposure of women to education and skills development training, higher involvement of women as family workers compared to men who have five times more wage employment, unequal access to land, 50 per cent smaller landholding size for women and limited access to credit as collateral assets are often registered in the husbands name. A National Gender Policy was developed by the Ministry of Gender, Children and Social protection for gender mainstreaming across all Ministries. The ministries, departments and agencies do not strictly adhere to 40 per cent disbursement of budget to gender issues, although this is mandated by the National Development Planning Commission (NDPC). In 2016, MOFA developed the Gender and Agricultural Development Strategy (GADS II) to support gender mainstreaming processes in the sector.

Youth: Youth in Ghana is defined as those between 15-35 years of age. The country has a youth bulge with 57 per cent of the total population below the age of 25. The rural community consists of 56 per cent youth while the urban population has 44 per cent. The youth often contribute to family labour for agricultural production. They also engage in activities outside of production such as processing, warehousing, transportation, small enterprises and marketing. Youth unemployment is a growing concern in Ghana and reached 13.7 per cent in 2018. The formal sector can engage only 2 per cent young people entering the labour market annually, leaving about 98 per cent to survive in the informal sector or remain unemployed. Inadequate or inappropriate training for the job market as well as an opportunity to access such a job is also another challenge faced by youth. Illiteracy is also a significant impediment to getting quality jobs. Approximately 77 per cent of youth has an only essential educational qualification or less, which prevents them from finding a decent job. Literacy rate in Northern region is 41 per cent (32 per cent girls, 52 per cent boys) and 62 per cent (57 per cent girls, 79 per cent boys) in the Brong Ahafo region. Ironically, the unemployment rate is the highest for youth who attained secondary education in the Brong Ahafo and the Northern regions as they do not have the appropriate skills and entrepreneurial orientation matching the economic opportunities in these regions. The youth are often unable to pursue farming independently due to limited access to credit, quality inputs and markets. Some of the ongoing programmes for youth entrepreneurship, skills training and job creation are the IFAD supported Rural Enterprise Program and the Youth Agri-preneurship Development program, jointly run by AGRA and Nestle. Nevertheless, the outreach of these programmes to the youth from the semi-subsistence smallholder families is relatively limited. Policy environment surrounding the youth has been revamped. The Youth Employment Agency (YEA) established under the 2015 Ghana Youth Employment Act is mandated to create youth jobs. The National Youth Policy was revised in 2018 to align to SDG and aims to make the agricultural sector more attractive to young people.

One of the biggest challenges Ghana face is internal trafficking of children. Many Ghanaian children are trafficked from their home villages to work in the industries such as fishery and cocoa plantations. They work long hours every day and are exploited by fishermen and plantation owners. Many kids and their parents believe that this is a form of apprenticeship and a route to a better life within the tradition of Ghana. Nevertheless, the need for children to have familial emotional succour and to be educated has to be stressed. Thus, both the traffickers and parents need sensitization about the perils and illegality of child

trafficking. Though the legal framework on trafficking in Ghana was strengthened in December 2005, when the Government passed a comprehensive anti-trafficking bill, there is a lack of capacity or will to effectively implement the bill. Assisting smallholders to improve their productivity and income will enable the parents to invest in their children to have a better education. The programme could also canvass assistance to traffickers to enable them have a better understanding of child trafficking and the equipment necessary to perform their tasks without being dependent on children.

Nutrition¹³: Overall levels of undernourishment and malnutrition in Ghana have decreased significantly over the last decade. However, the improved status is not uniform across the country. The levels of malnourishment, undernourishment and other nutrition-related deficiencies in the relatively poor northern regions are up to three times higher than in the rest of the country. The overall percentage of the undernourished population was 6.1 per cent in 2017 (FAO, 2017). Malnutrition is another growing public health concern, leading to high rates of stunting of children under five (19 per cent), child wasting (5 per cent), and anemia in women of reproductive age (46 per cent).¹⁴ Also, there is an increasing prevalence of children being overweight and obese (UNICEF, FAO 2016/17).¹⁵ About 10 per cent of adults is obese.

FAO reports¹⁶ Ghanaian's diet mainly relying on starchy roots (cassava, yams), fruit (plantain) and cereals (maize, rice). Starchy roots and cereals are estimated to supply almost three-quarters of the dietary energy, but the diversity of the diet remains low. It is reported that the dietary supply meets population energy requirements, but the share of protein and lipids in the dietary energy supply is lower than recommendations. For infants (from conceptions to 24 years old), adequate intake of micronutrients, particularly iron, vitamin A, iodine and zinc are essential for their growth. The world bank reports¹⁷ that about three-fourths of preschool-aged children are deficient in vitamin A and iron. One-fifth of pregnant women are deficient in vitamin A, and two-thirds of pregnant women suffer from anaemia. Provision of supplements, especially for infants, dietary diversification and fortification of staple foods are effective strategies to improve the micronutrients intake.

Climate and environment: The mean annual temperature in Ghana has risen by 1.0 °C since 1960. The number of 'hot' days per year has increased by 13.2 per cent, while the number of 'hot' nights per year has increased by 20 per cent. Only 2-4 per cent of the country's irrigation potential is tapped. Most agricultural production in Ghana relies on small, rainfed plots that are highly vulnerable to erratic precipitation patterns and the impacts of climate change. Rising temperatures are projected to lower yields in major staple crops,

13 COSOP 2019-2024

14 <http://www.fao.org/3/a-i4644e.pdf>

15 <https://www.unicef.org/egypt/nutrition>

16 http://www.fao.org/ag/agn/nutrition/gha_en.stm

17

<http://documents.worldbank.org/curated/en/270611468031495248/pdf/771660BRI0Box00IC00ghana0April02011.pdf>

e.g. cassava yields are projected to fall by 29.6 per cent by 2080 and maize yields by 7 per cent by 2050.¹⁸ In Ghana's northern areas total crop failure is expected to occur approximately once every five years due to delayed or diminished rains. Smallholder and subsistence farmers are particularly vulnerable to any climatic or economic shock owing to their high dependence on local natural resources for their livelihoods, their chronic food insecurity, physical isolation and lack of access to formal safety nets (e.g., insurance). These households are also more exposed to pest and disease outbreaks, droughts and extreme weather events (particularly droughts in the Northern part of Ghana), which cause significant crop and income losses and exacerbate food insecurity. Although smallholders use a variety of informal risk-coping strategies (storing water, seeds and food, replanting crops, etc.) these are insufficient to address their food insecurity and vulnerability. MoFA's has limited resources and technical capacity to assist farmers in adjusting their farming strategies in response to climate change which has a significant impact on their access to finance and markets. Urgent technical, financial and institutional support is needed to improve smallholder's agricultural production, food security and resilience to the effects of climate change.

Rationale for IFAD involvement

High levels of poverty in the project area: The project areas located in the northern and middle belt of Ghana suffer from high levels of rural poverty arising from relatively small cultivable areas, limited production, low yield, weak bargaining power and weak community institutions (CIs). They have little incentive to borrow funds to increase their investment in agricultural production fearing that the uncertainties of markets and income can cause losses leading to loan repayment problems and adverse consequences related to it. Further, smallholders in the project areas are also vulnerable to the effects of climate change such as droughts, changes in rainfall patterns and high temperatures. Currently, they have little resilience to these adversities due to inadequate technical knowledge, limited incentives to borrow and invest in adaptation measures and limited access to affordable agricultural insurance services. Periodic droughts also affect the availability of nutritious food and the health of children and young mothers.

Additionally, youth and women unemployment in the rural areas remain high due to the lack of employment and skills, mismatch of education and industry, inability of the economy to create new jobs and limited access to capital for youth. The AAFORD intervention is needed to assist smallholders and their associations in developing secured market linkages that can incentivise and stimulate these households to borrow and invest in increasing agricultural production, improving food security and nutrition and building resilience against the effects of climate change. AAFORD is also needed to develop the skills of youth and women entrepreneurs and increase their access to finance to support a range of microenterprises along the agricultural value chains that can sustain increased production, productivity, value addition and income to the target households.

¹⁸ Ghana Environmental Protection Agency (2011b): Ghana's Second National Communication to the UNFCCC. <http://unfccc.int/resource/docs/natc/ghanc2.pdf>

Long experience of IFAD in Ghana: Since 1980, IFAD has accumulated a long experience of rural development programmes in Ghana focusing on a range of areas relevant to AAFORD such as productivity improvement, developing rural institutions, marketing improvement through offtaker linkages, supporting access to finance, enhancing youth skill development and youth microenterprises and developing resilient livelihoods. In the past one decade, IFAD supported five projects; The Northern Rural Growth Programme (NRGP) and the Ghana Agricultural Sector Investment Programme (GASIP) focused on developing value chains, the Rural Enterprises Programme (REP) focused on promoting rural enterprises; and the Rural and Agricultural Finance Programme (RAFIP) supported rural and agricultural finance development. IFAD funded projects have supported 66 partner financial institutions mainly Rural Community Banks (RCB) credit unions, Financial NGOs, and savings and loan companies. Past experiences have familiarised IFAD with the agricultural sector, Micro Small and Medium Enterprise (MSME) sector, and the financial sector and developed its readiness for implementing AAFORD. Additionally, IFAD has developed a solid relationship with the government, particularly the MoAF, MOF and MoTI, each of which has served as the lead ministry for an IFAD project within the last decade. The strong relationship with these ministries has developed IFAD's advantage to establish adequate coordination mechanisms to ensure AAFORD's success through agricultural production initiatives supported by MoFA, youth entrepreneurship and value chain based enterprise development initiatives supported by MoTI and financial services initiatives supported by MoF. Moreover, IFAD is also recognised for rural finance, value chain and agricultural production-oriented innovations within the WCA region and elsewhere and has also contributed to improved nutrition and resilient livelihoods. (Refer PIM, Annex 8, for an overview of rural finance activities of ongoing IFAD supported projects in Ghana)

Support the successful implementation of the COSOP 2019-2024: AAFORD will contribute to the successful implementation of the COSOP (2019-2024) for Ghana as AAFORD's goals and development objectives are aligned to the COSOP. The COSOP recognises the need for geographical targeting, developing the marketing capacity of the FBOs, increasing the role private sector, and improving access to finance and focuses on three interrelated strategic objectives (SOs). SO1 is oriented to promoting financially sustainable and inclusive rural transformation, SO2 aims to Strengthen productivity in inclusive value chain development, and SO3 seeks to Strengthen capacities and economic opportunities of target households. AAFORD is also in line with the IFAD Strategic Framework 2016-2025 and relevant IFAD policies. In particular, it is in line with the SO1 of the Strategic Framework 'Increase poor rural people's productive capacities' through improved access to agricultural technology, rural finance and capacity building and SO2 'Increase poor rural people's market participation' through strengthening of farmers organisations, marketing infrastructure and strengthening of the rural investment environment. The design of AAFORD activities, implementation arrangements and M&E system complies with IFAD Targeting Policy, the Rural Youth Action Plan 2019-21, IFAD rural finance policy and IFAD policy on gender equality and women's empowerment. AAFORD is also aligned to the IFAD mainstreaming priorities of climate and environment, gender, youth inclusion and nutrition.

Convene development partners working on similar themes: AAFORD will benefit from IFAD's country presence and convening capacity to network with other relevant government ministries and development partners such as AfDB and AGRA. For example, these partnerships can support policy dialogue based on evidences generated from AAFORD's implementation and also invest jointly in scaling up good practices nationwide in Ghana. Although donor programmes have several success stories, many of them focus on the supply-side factors while others deal with demand related issues. Sometimes the outreach of the individual initiatives is limited by the resources available with each donor. AAFORD will address both the demand

agricultural credit as well as the supply of agricultural finance simultaneously through the engagement of FBOs, offtakers, FIs and apex institutions. Thus, based on its success in a limited geographical area AAFORD will provide a single platform for multiple development partners working on similar themes to convene and collaborate towards achieving a unified objective for triggering rural transformation and achieving sustainable and scalable results in the future.

Capitalise on existing opportunities: The AAFORD interventions will capitalise on the current opportunities created by other IFAD supported, donor and government projects to address the critical challenges. The IFAD supported GASIP, which is a nationwide project, partners with strong offtakers and links them to newly formed FBOs. AAFORD will capitalise on the presence of these FBOs and offtakers in the project area and focus on increasing their outreach to the target group. Similarly, wherever possible AAFORD will partner with the Business Advisory or Resource Centre (BAC/BRC) developed by the IFAD supported REP for enterprise training and capacity building of youth and women entrepreneurs. Although the financial intermediaries consider agriculture to be risky, they are willing to consider agricultural lending at affordable rates if backed by risk-sharing and interest lowering mechanisms. The GoG, in partnership with AfDB has recently established GIRSAL as a risk-sharing mechanism which will enable AAFORD to promote agricultural lending at affordable rates. Similarly, GCX has recently rolled out certified warehousing facility and warehouse receipts. These, along with MoTI's 1D1F initiative, has created new marketing opportunities for smallholders. Under normal conditions, the implementation of the initiatives as mentioned above can take several years before reaching poor smallholder farmers located in the more impoverished geographical areas. AAFORD will enable the faster outreach of these initiatives to the intended target group.

Lessons learned

The AAFORD design has incorporated the following lessons learned from the implementation of RAFIP, GASIP and REP:

Geographical targeting to enable pro-poor orientation: National programmes such as RAFIP, REP and GASIP have proved to be beneficial since it has promoted countrywide institutional development. It has brought about pro-poor orientation within PFIs, private-sector offtakers and microenterprise support services. However, the national scope of these programs, with a relatively limited budget, has resulted in a wide spread of project resources over a large area and limited project presence at the community level. Learning from these experiences AAFORD will concentrate its operations in two regions, one in the northern belt in the other in the middle belt of the country to realise the pro-poor targeting policy of IFAD given the concentration of poverty in these regions.

Well resourced ISUs with a degree of autonomy from host Ministries: The RAFIP Project Completion Report (PCR) concluded that one of the main bottlenecks that limited the RAFIP achievements during the first 2 to 3 years was its implementation structure comprising a very small Project Coordination Office (PCO) within MOF in Accra that was designed to mainstream the project in the permanent institutional structure of MOF using normal civil service protocols. The experiences of other projects centralised in Accra, such as GASIP, also indicate the need for stronger regional presence to facilitate and ensure the quality of the pro-poor

linkages between public and private sector project partners and the communities. AAFORD will address this challenge by driving implementation through a well-resourced Implementation Support Unit (ISU) located close to the area of implementation backed by Zonal Coordination Units (ZCUs) overseeing the quality of implementation and pro-poor outreach in the project communities.

Bottom-up demand-driven approach: The RAFIP Project Completion Report (PCR) concluded that RAFIP's results were limited by its efforts concentrating on supply-oriented measures in the upper parts of the pyramid based on the unstated assumption that measures to build capacity in the upper parts of the pyramid would "trickle-down" to the beneficiaries at the base. Learning from this experience, AAFORD will follow a bottom-up demand-driven approach to ensure that capable target households have definite access to sustainable, affordable, financial support through their integration pro-poor value chains, instead of waiting with uncertainty for such benefits to trickle down. (Refer section 2C, project approach).

Assured availability of specialised financing resources: Previous studies have indicated that the gap in dedicated credit funds within the RAFIP design was another critical limitation that restricted the final results of this project. As a result of this gap, the enhanced capacities of the FIs developed through RAFIP did not necessarily result in the flow of financial resources from the FIs to the IFAD target group in the communities. AAFORD will address this issue by setting up the BFF with a specific objective of addressing the void in the availability of affordable agricultural production loans for semi-subsistence smallholder farmers with less than 2 ha cultivable land. The BFF, delivered in partnership with GRSAL credit collateral support for financial intermediaries and GAIP agricultural insurance protection to smallholders will reassure swift response from financial intermediaries to the increased demands of agricultural production loans from the AAFORD clusters expressed directly through FOs or indirectly through offtakers.

Build Marketing Capacity of FBOs: The experience of providing support to FBOs is mixed. The FBOs, supported through the Root and Tuber Improvement and Marketing Programme (RTIMP) and NRGIP, have increased their productivity but they still need further strengthening in the marketing of their products to ensure their transformation into viable business entities. REP does not deal with FBOs. Though GASIP supports FBOs to develop and improve their marketing linkages, the project's national scope and limited community presence is not fully oriented to transform these CIs. In contrast, the AAFORD implementation structure will include strong community presence aimed to develop the bonding between the communities and the project and provide a robust platform for the FBOs to adopt long-term institutional changes from the perspective of self-help and sustainability rather than for gaining opportunistic and immediate access to external project resources.

Strengthen the role of the private sector: Experience from NRGIP, RTIMP and other projects have shown the crucial role of the private sector in supporting the smallholders and FBOs in providing inputs, marketing channels, and other services. The primary lesson learned is that lack of access to finance in rural areas is one of the most significant factors in constraining private sector growth. AAFORD recognises private sector offtakers as the primary vehicle for smallholder farmers to gain access to credit external to their operations and local groups. Offtakers have both the regular cash flow and the collateral (financial and physical assets, and eligibility for insurance and guarantees that can substitute for other collateral) needed to secure loans from formal FIs.

Business plan-based approach: Several past IFAD projects, including the ongoing GASIP, has worked with CIs such as FBOs. The main focus has been to prepare them to benefit from other project services such as matching grants for the members. There was a limited emphasis on the long-term vision and financial sustainability of these institutions. AAFORD will follow a participatory institutional and business plan development approach for engaging with the CIs (FBOs, VSLAs, youth enterprise groups). The Institutional Business Plans (IBP) developed by CIs and the Outreach and Linkage Business Plans (OLBPs) developed by PFIs will identify the future goals and objectives and provide a blueprint of activities for achieving these through the successful AAFORD partnership. Investments will not be made before these plans are agreed to and endorsed by the assembly in the CIs and the management of the PFIs. The institutional development and business plan approach will improve the capacity of the CIs to sustain and further develop the achievements of AAFORD interventions.

Chapter 2: The Programme

Programme Goal and Objectives

Project goals and objectives

The project goal is to support the food security and improved living standards of smallholder farmers, poor and vulnerable women and youth.

AAFORD's development objective is to improve productivity, income and resilience of smallholder farmers, vulnerable women and youth. The objective will be achieved through increased access to affordable finance in support of better marketing linkages, sustainable and climate change adapted agricultural intensification, skills and enterprise development in agricultural value chains, supporting inclusive policy engagement and building on women and youth potentials as untapped resources for family resilience..

Project duration: The AAFORD project duration is six years.

AAFORD outreach: AAFORD will provide services to 90,000 poor rural households (540,000 individuals with an average of 6 members per household), across 350 communities in 30 clusters in the erstwhile Northern region in North Ghana and the erstwhile Brong Ahafo region in the Central Belt of the country. The target households are divided into 'direct' and 'indirect' categories. The direct target group consists of 75,000 smallholder households (450,000 individuals) who will receive the full set of AAFORD services.

Approximately 80 per cent of the 'direct' smallholder category will be drawn from the semi-subsistence smallholder households (less than 2 Ha cultivable land) and 20 per cent will be included from market-oriented (more than 2 to 10 Ha cultivable land) and large (more than 10 Ha cultivable land) farming households with special emphasis on the inclusion of women, women-headed households and youth (aged 18-35). The 'indirect' target group comprises 15,000 households (90,000 individuals) located in communities outside the AAFORD clusters but within the command area of AAFORD's PFIs and offtakers. The 'indirect' target group will also benefit from the AAFORD supported services of these PMIs and offtakers. However,

initially, the PFIs are likely to use traditional sources of finance bearing higher interest rates to support the 'indirect' target households. Consequently, many of the indirect group will possibly be market-oriented and large farmers who enjoy higher economies of scale and have the capacity to service relatively expensive loans.

Key outcomes and impact indicators: Key impacts/outcomes of the AAFORD project include: i) 5 per cent reduction in the number of rural households living below the poverty line in the AAFORD supported districts; ii) 60 per cent of target households reporting an increase in income; iii) 60 per cent of target households reporting yield improvement and decrease in food insecurity; iv) 30 per cent reduction in 0-5 year child malnutrition in the AAFORD communities; v) 50 per cent women reporting improved quality diet; vi) At least 25 per cent of the targeted households reporting adoption on environmentally sustainable and climate resilient technologies; vii) Approximately 45,000 households benefitting from combination of concessional loans, warehouse receipts and microinsurance services; viii) At least 1,000 full time equivalent youth jobs created in 300 value chain enterprises, 30 PFIs and 24 partner offtakers; ix) Approximately 12,500 HH engaged in food processing mechanism and x) 2 policies or strategies proposed to policy makers for approval, ratification or amendment.

AAFORD supported commodities: In general, AAFORD will support pro poor, outreach-oriented and profitable economic opportunities relevant to the specific AAFORD clusters. Within this framework, investments will support value chain activities concentrated on mainly pro-poor field crops such as cassava, sorghum, maize, soyabean, millets, and groundnuts. Depending on the opportunities, it will also support vegetable value chains such as tomato, pepper, cabbage, carrots and eggplants relevant to smallholders. The selection of crops and enterprises which support food security; nutrition; women, youth and vulnerable groups engagement; value addition; suitability as raw material for industries; low inputs and ecological compliance (e.g. millet, sorghum, maize, and groundnut for the northern zone); import substitution (e.g. rice) will be given high priority.

Value chain partnership approach: AAFORD will follow a value chain partnership approach focusing on developing profitable linkages between producers, offtakers and financial partners. It will support business models that i) increase the income of the target households by developing profitable marketing linkages between them and offtakers and ii) facilitates PFIs to finance the implementation of these business models at affordable terms. Offtakers are typically nucleus farmers; processors; and aggregator. A nucleus farmer is a large, commercial operation with associated groups of smallholder outgrowers sometimes organised as FBOs. The nucleus farmers access funds to purchase inputs in bulk and distribute to the outgrowers and also provide the outgrowers with services on credit, which is deducted from the value of products delivered to the nucleus farmer at harvest time. A processor is a business entity (private company, cooperative, NGO) that purchases raw materials for transformation into a processed product for the market (e.g., gari from cassava, parboiled rice). Smallholders can sell their produce to the processing company at market price or bring their crop for processing for a fee, then sell the product individually (or through the company). Aggregators are traders who purchase (usually directly) from farmers and bulk up the quantities for sale to the market. They may operate or utilise warehouses. Some traders (e.g. in tomatoes) may even provide inputs to their suppliers as an advance, which then entitles them to purchase the crop, after deducting the value of the inputs. Big aggregators provide a market (sometimes with semi-contractual relationships with FBOs, primarily through projects). They are in a good position to obtain financing (on commercial terms). The

big aggregators may also have a contractual agreement to take a specified amount from farmers and may also be able to facilitate warehouse receipts for the FBOs.

AAFORD will support the integration of target households in the above mentioned offtaker models by i) supporting the capacity building of the farmers to increase their production and productivity according to the needs of the offtakers; ii) strengthening the FBO and increasing the membership of target households in FBOs; iii) brokering marketing linkages between the FBOs and offtakers based on business plan approach; and iv) enabling offtakers/FBOs to access sufficient funds at affordable terms through PFIs to increase the outreach and secure the profitability of their partnerships with the AAFORD target households. AAFORD will integrate target households in the offtaker marketing linkages by i) supporting the capacity building of the farmers to increase their production, productivity and quality according to the needs of the offtakers; ii) strengthening FBOs and increasing target households' memberships in the FBOs; iii) brokering marketing linkages between the FBOs and offtakers based on business plan (BP) approach; and iv) supporting PFIs to partner with agricultural credit guarantee and agricultural insurance initiatives; improve agricultural lending capacities and access concessional credit funds and incentives from the AAFORD supported BFF and reduce the interest rates on agricultural loans.

AAFORD's demand and supply side experiences in the two zones can be scaled up at the national level through several pathways. For example, future cycles of GASIP can be designed based on AAFORD experiences, whereby target households benefiting from demand side interventions are graduated from matching grants to BFF supported concessional credit backed by GIRSAL guarantees and GAIP microinsurance support. The scope of the BFF can be expanded to serve national needs.

Crop targeting strategy: Crops to be selected would be of high priority in terms of improving food and nutrition security, importance as primary source of income for the rural households, including women and other vulnerable groups, suitability and potential for value addition (e.g. crops suitable as raw material for industries), crops and enterprises that do well with low input and are ecologically compliant (e.g. millet, sorghum, maize, and groundnut for the northern zone) and import substitution crops/products on which foreign exchange is being expended despite comparative advantage, e.g. rice. Analysis of commodities will be conducted to identify the potential opportunity to invest in each of the value chains.

The following table summarizes the production of major crops in two regions. Brong Ahafo region contributes 24% of Ghana's agricultural production whereas Northern region contributes 12 %. Cassava, maize, rice and soybeans are priorities for AAFORD's intervention partly because these crops are important both as traditional staple foods for nutrition and food security and sources of income. They also have domestic market potential as well as export value in addition to market demand by processing industries. Primary processing for value addition of these commodities is most probably the most common off-farm income-generating activity in the proposed project regions. Processing industries related to the four commodities could be also strengthened as a part of the intervention. Moreover, as the above mentioned crops are yet to realize their yield potential, AAFORD will contribute to reduce the gap between the actual and achievable yields of each crop.

MT produced in 2017 and proportion (%) of total production in the country

	BRONG AHAFO	% Ghana	NORTHERN	% Ghana
CASSAVA	4 950 058	24%	1 375 152	7%
YAM	2 478 177	32%	2 334 528	30%
PLANTAIN	1 193 048	25%		0%
MAIZE	441 329	19%	234 888	10%
COCOYAM	322 693	22%		0%
RICE	17 628	2%	163 545	21%
GROUNDNUT	16 797	3%	174 567	34%
COWPEA	6 566	3%	90 936	38%
SORGHUM	1 293	0%	123 562	39%
SOYABEAN		0%	126 759	72%
MILLET		0%	87 618	48%
Grand Total	9 427 590	24%	4 711 555	12%

Pro-poor value chains based community cluster selection: AAFORD will follow a pro-poor value chains based approach for clustering communities, focusing project interventions on a group of 10-15 communities that serve as recognised production base of one or more pro-poor commodity such as sorghum, maize and cassava. AAFORD will select the clusters based on criteria including (i) higher concentration of poverty; (ii) presence of formal financial institutions offering services to the communities in the cluster; (iii) presence or willingness of offtakers to form linkages in the cluster communities; (iv) presence of active CIs; (v) proximity to REP supported business resource centres (vi) readiness of the GAIP to provide agricultural insurance services in the clusters and (vii) willingness by farmers to participate in the project including participation in FBOs and AAFORD brokered marketing linkages and commitment to fulfil the contractual obligations related to the marketing partnerships.

As a preparatory measure, The IFAD supported GASIP and REP, which are familiar and active in the project area will carry out the preliminary identification of the AAFORD clusters first by shortlisting the broad location of the clusters by superimposing the map of the main poverty pockets in the AAFORD Zones on the map of the production bases of the main pro-poor commodities. Within these locations, the relatively larger communities, with high or medium presence of poor population, which also meet the other community selection criteria, will be selected. The cluster selection process will consider that the selected clusters are distributed across the poorer districts and not concentrated in just 1-2 districts.

Communities and households from the respective districts will be selected taking into consideration two sets of criteria. The Communities will be selected on the basis of general socio-economic and physical factors such as government priorities; existence of farmer organizations, production practices; potential; availability of land; ecology and climate factors; infrastructural facilities; existence of financial institutions; availability of extension, inputs and technology, etc.

At the individual or household levels, the specific challenges that farmers face in their agricultural economic activities will be used. These may include farm size and access to land, quality of farm inputs and tools, access to planting materials and extension; yields and production level; food security and market surplus;

amount of labour available and ability to use hired labour; ability to preserve and process agricultural produce; engagement in off-farm activities and ability to invest in its expansion; access to credit; level of education; etc. Information on the above will be collected as a part of the baseline survey and needs assessment of the communities and households in the respective districts at the beginning of the intervention.

Project Area and Geographical targeting

Geographic area of intervention: Two regions; namely, Northern region (NR) and Brong Ahafo region (BAR) are selected from the old definition of 10 regions for AAFORD intervention after taking into account the prevalence of poverty measured by the number of poor people in the rural area, inequality measured by the mean annual per capita income and GINI coefficient, and access to financial institutions measured by the number of Rural Community Banks (RCBs) present in the regions. Using these considerations, Northern region and Brong-Ahafo region have been selected as the project area. Northern region covers one-third of the territory of Ghana, is one of the poorest regions with 70% in the bottom 20% income category, cases of malnutrition and malnourishment are rampant with up to 16% considered food insecure; and about 72% of its land is vulnerable to desertification. Production of surplus depends a great deal on natural characteristics of the zone. Farm sizes tend to be relatively small in the northern region which is even arid with one rainy season. Brong Ahafo region was selected as it follows closely Northern region in the characteristics mentioned above. It is relatively fertile and has two rainy seasons. Moreover, it is close to the Northern region for ease of programme management and coordination. As Ghana's poverty is largely rural with 38.2% of the people in rural areas considered poor compared to 10.4 in the urban areas, the focus of the programme will be on rural areas in the Northern and Brong-Ahafo regions. The rural population of the two regions is close to 3 million people, 50% women and 34% youth, made up of 508,307 households, 30 clusters and 350 villages. A total of 75,000 households will be targeted by the programme as beneficiaries.

Income and poverty profile of rural population by region

	Inequality	No. of rural poor people (million)	Mean annual per capital income (GHS)	Number of Rural Community Banks ¹⁹
	GINI Coefficient			
	GLSS 7	GLSS 7, 2019 Est ²⁰	GLSS 6	2019

¹⁹ Extracted from Arb Apex Bank web page:

https://www.arbapexbank.com/region_select.cfm?Ashanti%20Region®ion_id=3&corpnews_catid=8

²⁰ 2019 population projection was used for the estimation <https://www.citypopulation.de/en/ghana/cities/>

Upper West	48.1	0.5	3,015.7	4
Northern	45.3	1.65	3,023.5	7
Upper East	43.7	0.62	1,801.9	5
Volta	39.7	0.71	4,382.2	14
Brong Ahafo	38.6	0.65	3,949.1	21
Eastern	35.4	0.31	3,919.1	23
Ashanti	37.9	0.48	8,205.4	29
Greater Accra	35.1	0.04	5,428.5	7
Central	37.4	0.26	3,975.7	20
Western	36	0.46	7,730.7	12

Target Groups and Targeting Strategy:

Target groups

Direct beneficiaries are classified into five target groups, described mainly based on poverty level, land ownership and access to the market. These are i) smallholder semi-subsistence households; ii) market-oriented smallholder households; iii) large farming households; iv) youth (age 18-35) and v) women. The table below summarises the target group characteristics;

Target group	Direct Outreach (HH)	per cent of outreach	Cultivable land ownership	Key characteristics
Smallholder semi-subsistence households	60,000	80%	Up to 2 Ha	Resource-poor with little or no access to credit; Rely on savings to finance agricultural activities; Revenue may fall below the upper poverty line of 1,341 GHS a year per adult;

				<p>Limited access to improved inputs, mechanisation services, post-harvest management and marketing; Low bargaining power;</p> <p>Family labour used for agricultural production with high women's involvement</p> <p>Depend on individual sales to traders and in local markets;</p> <p>Can suffer from periodic food insecurity and nutrition deficiency mainly during dry months</p> <p>Uncertain income from marketing agricultural produce;</p> <p>Involved in labour work to supplement income;</p> <p>Limited diversification of income.</p>
Market-oriented smallholder households	11,250	18%	More than 2 to 10 Ha	<p>Income from GHS 1,000 to 6,000 a month cash crop production;</p> <p>More diversified income, e.g. from off-farm activities and remittances;</p> <p>Combination of family labour and hired labour used for agricultural production</p> <p>Can be members in FBOs linked to offtakers;</p> <p>May consider using credit to access improved seeds, machinery for land preparation, harvesting, planting and storage facilities if readily available.</p>
Large farming households	3,750	2%	More than 10 Ha	<p>Have ability (collateral) and access to financial resources</p> <p>Use hired labour for farming activities</p> <p>Likely to be food secure, literate and influential in their communities</p> <p>Sometimes serve as nucleus farmers linked to a group of smallholders</p> <p>Target one or two specific commodities for commercial purposes and produce based on a contractual agreement</p> <p>Has access to market information and market intelligence</p>
Total	75,000	100%		
Rural youth (18-35)	30,000	40%		<p>High unemployment rate (especially between 20 to 29 years) old in Rural Ghana.</p> <p>Higher unemployment is female youth especially graduated individuals due to mismatch between education and industry</p> <p>Often unmarried due to unsteady income sources to support new families</p>

			Lack of employable skills, entrepreneurial training and opportunities Limited access to capital due to lack of collateral and other guarantees
Women	37,500	50%	Less access to land and credit compared to men More than 70 per cent women above 35 are married and with children Female-headed households suffer more from food insecurity and nutrition deficiency, especially in the Northern region.

Smallholder semi-subsistence households (upto 2 Ha): This group represent about 80 per cent of the target population of 75,000 (60 per cent women, 42 per cent youth). Typically, the farmers in this group are poor. They may cultivate not more than 2 ha of land²¹, depend essentially on family labour which is often limited. They represent about 80% of the target population. They are generally resource poor with little or no access to financial capital. Their crop yields are low due to the inability to use farm inputs and they are invariably food insecure. They are also distinguished by low income as they have little or no commodity for sale, their production is mainly for own consumption. Because of persistent population increase, there is pressure on their limited land resources leading to a shortened fallow period and land degradation. Climate change also impacts their productivity negatively and thus tends to exacerbate their precarious situation. They may be part of the farmer-based organizations or savings groups but such groups are hardly effective and activities carried out by them are commonly small scale. They rely primarily on own savings in kind – primarily retention of seeds/cutting at harvest to plant the following year. Due to inadequate capital, their access to improved production inputs, mechanizations, marketing and post-harvest management facilities are limited, may only have access when subsidized by the MoFA. . Their revenue may fall below the upper poverty line of GHS 1,34122 a year per adult.

These farmers are averse to seek credit from formal financial institutions because low level of production and productivity and the related risk and consequences of being unable to repay. They tend to rely on their lean personal savings and traditional sources of funds such as susu and VSLAs. They would only begin to consider obtaining a small loan to expand their operations when their marketable surplus increases.

Market-oriented smallholder households (more than 2ha and upto 10 Ha): This group represent about 18 per cent of the target population of 75,000. The smallholder farmers in this group are moderately poor but with a strong orientation to sell to the market. Typically they own more than 2 to 10 ha of land, augment their family labour with hired labour, and are capable of making some investments in farm inputs and assets. They constitute about 18% of the target population. They tend to target specific commodities for production for purely commercial purposes but diversify their production to include other crops for consumption.

²¹ The definition of smallholder farmers is referred from WFP's Comprehensive Food Security and Vulnerability Analysis, 2012

²² Ghana Living Standards Survey 6 (GLSS 6), Poverty Profile in Ghana 2013. Ghana Living Standard Survey 7 was held in 2018 and the survey concluded to keep the poverty line the same.

Depending on the land sizes allocated for cash crops, the farmers may earn from GHS 1,000 to GHS 6,000²³ a month separately from the earnings generated from off-farm activities and remittances. The farmers in this group are more likely to have a regular demand for credit and often are part of the out-grower models as their desire to increase marketable surplus drives them to demand for credit, especially when the interest rate is commensurate with the expected returns. They may be part of savings schemes so as to meet their own household and agricultural input needs and also as a basis for accessing credit which is usually dependent on evidence of capacity to save and repay. They are also likely to have account with formal financial institutions such as Rural Community Banks (RCB), credit unions, or commercial banks.

Large farming households (more than 10 ha): They will constitute 2 per cent of the beneficiaries. This group cultivates more than 10 ha of land using largely hired labour. They have better access to financial capital than the two other categories. Thus, they have substantial opportunity to acquire farm inputs, storage, and marketing facilities. They target specific commodities for commercial purposes and may have access to the market on a contractual basis. They earn substantial income from the sale of agricultural commodities and off-farm activities and are basically food secure. They are likely to be literate and influential in their communities. Commercial farmers generally specialize in one or two crops. Though they may not be considered poor, they may be targeted as those who can serve as drivers of change and important channels for finance, marketing and services to the smallholders. The farmers in this category may represent about 2% of the target population.

Thus, the main direct beneficiaries would be the semi-subsistence rural households and market-oriented farmers with a specific emphasis on women and youth. In all regions, women and youth producers are likely to have smaller farm sizes than men and have less access to credit. Another key category of beneficiaries are the large scale commercial farmers, small scale processors, and traders in the relevant value chains. Targeting criteria that may be used to select households include smallholder farmers with less than 5ha, membership of a saving group that has reasonable balance, linkage with financial institutions and willingness to be part of an FBO. Priorities would be given to those who have not benefited from GASIP/NRGP/RTIMP before.

Youth: Ghana National Youth Policy (2010) defines youth as those who are in the age range of 15-35 years old. The country has a youth bulge estimated to be 34 per cent of the total population. The rural population consists of 55.6 per cent youth while urban population consists of 44.4 per cent. Unemployment of youth is a growing concern in Ghana and reached 13.7 per cent in 2018. The formal sector is only able to engage less than 5,000 (2 per cent) of the 250,000 young people entering the labour market annually, leaving about 98 per cent to survive in the informal sector or outrightly unemployed. Approximately, 77 per cent of the youth have only basic educational qualification or less which prevents them from finding a decent job. Data indicates that attainment of education does not necessarily lead to an employment. Unemployment is highest among secondary school graduates.

In Brong Ahafo Region, 33.7% of the population consists of youth. Unemployment rate for youth is approximately 14.7 % for the age group between 20-24 years which is higher than other age group. The

²³ Reference is made to the baseline studies of on-going IFAD funded programmes

unemployment rate is highest for those who either attained secondary education or MSLC/BECE²⁴ certificate²⁵. The unemployment rate of female youth who are in the age range of 15-24 years old is 14.1%, which is 1.8 times higher than their male counterpart²⁶. Literacy rate is 62.1 per cent (56.9 per cent for girls, 79.1 per cent for boys). More than 65% of youth who are above 30 years old are married²⁷. In Northern Region (NR): 33 % of the population consists of youth. Unemployment rate for rural youth is highest (16.8%) for the age group between 15-24 years²⁸. The unemployment rate is highest for those who attained secondary education. The unemployment rate of female youth who are in the age range between 15-24 years old is 26.9% which is twice higher than their male counterpart²⁹. Literacy rate is 40.7 per cent (31.9 per cent for girls, 51.6 per cent for boys). More than 65% of the youth who are above 25 years old are married³⁰. Taking into the above situations in the two regions, AAFORD will focus its intervention for those who are in the age group between 20-24 years old, and especially for those who have attained secondary education or MSLC/BECE certificate. The gender gap will be also carefully examined when supporting youth.

AAFORD will be highly youth sensitive with around US\$ 27 million (40 per cent of investments) invested in youth. Youth will comprise 40 per cent of total direct beneficiaries (20 per cent women and 20 per cent men). The target group includes (i) youth (18-35 years) currently engaged (full time or part-time) in agricultural production and other rural activities at subsistence level with an interest to further develop their farming activities as a business, participate in marketing and financial linkages and increase their income, (ii) unemployed (or seasonal workers) youth interested to explore, identify and engage in better employment and self-employment opportunities both in agricultural production and other value chain related enterprises, including service provision, and allied sectors; and (iii) young graduates interested to apply their skills in the agriculture sectors as professional service providers, outreach agents commissioned by marketing and financial intermediaries to increase their outreach to the target households in the communities and as agribusiness entrepreneurs.

Women: Women represent roughly 51 per cent of the population of Ghana. Ghana is among the champions of gender equality in ECOWAS and ranks second among ECOWA nations in Gender Inequality Index in 2018 (0.538, better than Sub-Saharan African average of 0.569, 140th place globally). Ghana ranked first in MasterCard index of women entrepreneurs in 2018. This indicator measures various dimensions of gender inequality in access to education, employment, health and political empowerment. Ghana ranked 4th for its

24 Basic Education Certificate Examination

25 2015 Labour Force Report

26 2015 Labour Force Report

27 PHC (Population Housing Census) 2010, Brong-Ahafo Region

28 2015 Labour Force Report

29 2015 Labour Force Report

30 PHC (Population Housing Census) 2010, Northern Region

gender development index of Sab-Saharan Africa that measures the gender gap between men and women in terms of Human Development Index.

FAO (2018) reported that women constitute 58 percent of the rural labour force. Women have a critical role in agriculture and other livelihood activities. Women play dominant role in crop production and livestock rearing as the main sources of cash income. In the north, women are also engaged in collecting naturally growing produce such as shea nuts and fruits from the surrounding environment. Above FAO report indicate that there is a division of labour between men and women in farming. Male gender roles are associated with tasks that involve control over agricultural assets, mobility and decision making. Female gender roles are associated with manual work in agriculture and livestock, including pre- and post-harvest activities, food processing and household tasks. These distributions of labour have resulted to women's limited access to and control over agricultural assets and decision making.

Gender is still an important dimension of poverty and food insecurity in Ghana. About 62% of female-headed households fall into the two poorest wealth quintiles compared with 39% of male-headed households. Similarly, only 11% of female-headed households reach the wealthiest quintile in comparison with 21% of male-headed households. Across the northern regions, 30% of female-headed households are food insecure compared with 15% of male-headed households. In Brong Ahafo Region, 25% of households engaged in agricultural activities are headed by women³¹. More than 70% of women who are older than 30 years old are married. Average household size is 5.3 in rural Brong Ahafo³². 35% of women are illiterate compared to 25% of men³³. In the Northern Region, 7.6% of households engaged in agricultural activities are headed by women. More than 80% of women who are older than 30 years old are married³⁴. Average household size is 8.4 in rural³⁵. Only about 1.5% of female-headed households is literate while 8.4% of male-headed households are literate³⁶.

AAFORD will be highly gender sensitive with around USD 34 million (50 per cent of investments) invested in women. Women will comprise 50 per cent of total direct beneficiaries. More details of target groups, youth and women's roles and responsibilities and opportunities are presented in the PIM.

Youth mainstreaming strategy: Particular attention would be paid to the youth group who have attained secondary education, as their unemployment rate is highest, as well as youth that has the potential to be economically active and start a new enterprise. AAFORD will focus on three mechanisms for supporting youth employment and youth jobs (a) for youth already engaged in agricultural production but at subsistence level: support exposure to production and productivity-enhancing training, linkage to marketing

31 2015 Labour Force Report

32 PHC (Population Housing Census) 2010, Brong-Ahafo Region

33 PHC (Population Housing Census) 2010, Brong-Ahafo Region

34 PHC (Population Housing Census) 2010, Northern Region

35 PHC (Population Housing Census) 2010, Northern Region

36 PHC (Population Housing Census) 2010, Northern Region

and access to finance to upgrade and operate their production-related activities in business scale (b) for youth currently unemployed: provide practical, employable and income-generating skills and support them to find employment in the value chains promoted by the project and also to start up their enterprises; Develop youth technical capacities in these areas by engaging them as AAFORD youth facilitators (b) for educated/graduated youth: increase access to innovation and new technology and assist them to adapt to new approaches and become professional service providers and entrepreneurs. Engage such youth in the AAFORD young institutional intern initiative to develop their orientation, skills and employability.

Strategy and approach for gender and youth mainstreaming

The project will address gender disparities and the key constraints that limit women progress in agricultural activities and increase their access to financial services up to 50% by (a) creating enabling environment and ensuring that women have equal access to capacity building trainings. For example, extension or training services would be conducted through female extension officers or must follow the social norms in the communities selected for intervention (b) promoting productive opportunities that are suitable for women by ensuring that analysis is done to capture women's needs and priorities (c) increase women's access to skills and knowledge in financial literacy, digital literacy, savings and financial management as well as business development; (d) promote women leadership and representation in grassroots institutions and organization; (e) encourage women participation in decision making within the household. Furthermore, the project will select crops such as horticultural crops which intensively involve women.

Similarly, the project will segment youth into (i) single male youth, (ii) single female youth, and (iii) married youth couple and conduct a needs assessment for each group. As stated by government, youth unemployment is a factor of lack of unemployable skills, mismatch of education with industries and limited access to capital. AAFORD will therefore provide (a) practical, employable or income generation related skill trainings and (b) opportunity to adopt new innovation, approach and technology.

Project interventions would be aimed at men and women who belongs to semi-subsistence target group to enhance their living standards and reach market-oriented group. They will be formed into groups on the basis of common interest as it would be difficult for individual poor rural households to gain access to financial services and other support services. Groups can more easily gain such access, enabling individuals to benefit as a consequence. Social inclusion will rely on a baseline survey and community mobilization activities which are to be undertaken at the beginning of the project implementation. This will take into consideration the situation of women and youth and people with disabilities who represent about 3% of Ghana's population. Service providers will be recruited to mobilize the communities and have specific focus group discussions in the targeted communities, with focus on women, youth and people with disabilities.

AAFORD will pay particular attention rural households (HHs) in the selected clusters, with particular focus on livelihoods, nutrition and financial inclusion for women and youth. The project has about 3 million people made up of 508, 307 households comprising 50% women and 34% youth. Farmer-based organizations (FBOs) are the key channels for providing finance and technical support to raise productivity in the rural sector. A critical element of the project is strengthening the governance of farmers' organisations to enable them

provide the required services to their members in a transparent and sustainable manner. The expected outcome is the interplay between farmers' organisations and other stakeholders to create market opportunities and address issues along the value chains so as to maximize impact for the beneficiaries.

The Project will take a holistic approach to addressing financial constraints and other challenges along the value chains. To make sure that the constraints of the main beneficiaries, particularly women and youths, are addressed adequately, the Project will adopt a demand-driven approach. This would start with baseline survey to (i) determine the scope, capacity, and development needs of the FOs; (ii) markets, agro-processing enterprises and technologies (including constraints and potentials), critical infrastructures and services; and (iii) needs for capacity building for staff, service providers and beneficiaries.

A thorough institutional mapping of existing FOs in each of the two regions will be carried out before the beginning of the project implementation in order to fine-tune the strategy of intervention and the activities to be undertaken in support of the FO's capacity building. This mapping, scheduled to be carried out by specialized service providers, will assess the member characteristics (men, women, mixed, youth) and purpose, the type of services rendered to members, the level of maturity and governance and presence in the selected communities. The mapping will lead to a classification of the FOs in three maturity categories (low, medium, high) for which a differentiated approach, including milestones to move from one category to the next, and associated support package would be elaborated. In parallel to the mapping exercise, reputable partners will be identified to carry out the capacity building of the FOs.

Gender and youth mainstreaming activities

AAFORD must influence policy and provide impetus for elimination of gender discrimination and cultural biases against women to be relevant. Gender and youth mainstreaming should be maximised through identifying their issues and addressing them at every component of the intervention. The choice of commodities or enterprises must take into consideration the interest of the women and youth who are often marginalized. The project must appraise gender dynamics and identify the specific constraints women, the youth and the vulnerable face in the selected value chains and how to remove them. There should be a workshops to enable stakeholders appreciate the gains of involving women and other vulnerable groups in the project. Such workshops will also help in dispelling theories, long held notions and practices that lead to discrimination and may constitute an obstacle to the realization of the objectives of the project. Women participation must be stressed in all stakeholders' workshops.

Gender-based advocacy activities targeted at key stakeholders like traditional and religious leaders further contributes to knowledge and moderation of attitudes and practices towards women that may affect the project outputs. Linking the project with public agencies like relevant ministries and agencies will serve as a veritable bridge that would facilitate confidence building and acceptability of gender mainstreaming and the project in general. Gender sensitivity must also be reflected in the organizational framework of the project including the management structure of the PCU. Both formal and informal networks will be used as links and platforms for the dissemination of the mainstreaming agenda.

To ensure mainstreaming of gender, youth and the vulnerable, the project must gain the services of an expert at inception to promote sharpened awareness of the differential needs, perceptions and economic activities and integrating the needs of the vulnerable, women, youth and people who are physically challenged. At the implementation stage, mainstreaming of gender in the project will be maintained through enhancing the capacity of gender specialists to ensure participation of women in all activities.

Gap and training need assessment of the FBOs: A Gap Assessment of FBOs will be undertaken so as to identity their training needs and prepare a training plan. A consultant shall be identified to carry out the following tasks:

Benchmark FBOs into producers, processors and marketers: Based on the profile/analysis of the farmer groups, the consultant is requested to group them into producers, processors and marketers and benchmark their potentials in terms of legal status; their leadership structure/governance including internal administration; age of members; quality of group; economic performance (financial portfolio/strength, volume of sales, linkage to market and financial services, ability to serve their members or render various services to their members); years of existence, availability/quality of their growth plan, level of resilience in term of internal funding, level of dependence on external funding, sources of finance, etc. in benchmarking, the consultant will take cognisance of commodities, enterprises and gender ensuring membership of youths and women in the FBOs.

Classify the FBOs in terms of strong, moderate and weak and identify training Needs of the FBOs to strengthen the weak ones and determine pathways for their growth

Prepare the Framework and Operational Guidelines to strengthen the weak FBOs

Based on operational guideline prepare a Training Module Package and Training Plan:

Based on the main training needs identified for each category of the FBOs (weak, moderate and strong), prepare a Training Module Package (TMP) and establish a training plan (TP) for them, including the training of Master Trainers to step down the training to the FBOs.

Farmer organization strengthening: As it would be difficult for individual poor rural households to gain access to financial services and other support services, FBOs will be the main entry point for the project. However, many of the existing groups in the rural sector are ineffective because of lack of effective leadership, poor management and weak financial base. To become effective vehicles for development in the rural sector, the existing groups need to be strengthened. Given the existing social and cultural bias, it would be necessary to legitimise the participation of rural women, the youth and other vulnerable members of the communities in the project, guiding the project along gender-sensitive lines, to ensure that rural elites are not alienated by the focus on them. Provision should be made by the project to have enlightenment campaigns, meetings and discussions with relevant people and groups to ensure common understanding by all concerned of the principles behind the project approach, its objectives, strategy, and how it would be operated.

The project will strengthen the capacity of FBOs to enable them to serve their members better through efficient input delivery, bargaining power, and input and output prices to increase profitability. It will partner as much as possible with existing private and public institutions, as well as donor-funded projects/projects to avoid duplication of efforts and maximise impact on beneficiaries.

Competent service providers will be recruited competitively to organize the training of FBOs. The Project will strengthen the capacity of selected FBOs through training sessions on: (i) group dynamics promoting good governance of FBOs; (ii) group management; (iii) enterprise planning and management; (iv) participatory monitoring and evaluation; and (v) functional literacy. The training will be outsourced to consulting firms or consultants/research centres or universities. The Project will build on the existing social structure through strengthening selected grassroots organisations.

In order to facilitate FBOs' access to rural finance and the establishment of contracts with suppliers or traders, the service provider will also assist non-registered FBOs, including women and youth groups, in the development of bye-laws and registration with the relevant government departments to give them legal status. This activity will be implemented by a service provider under the overall coordination of the PCU in close collaboration with the relevant government departments.

The service provider will design and implement targeted capacity building of FBOs in the two regions, based on their needs identified by the gap/training needs assessment, using such approaches as training, sensitization, advocacy, mentoring and appropriate technical support. He/she is to:

Sensitize FBOs, as key VC actors, on the Value Chain approach and the need for them to be structured as entities that provide leadership and service to their members

Promote and coordinate the establishment of sustainable, gender sensitive and democratic Farmers' Organizations

Audit and categorize the FBOs into weak, moderate and strong, including proposing a support package that would enable them move from one category to the next

Package the FBOs as enforceable business entities with strengthened leadership, organizational, entrepreneurial skills, financial and management capacities to plan, implement and manage their crop production, processing and marketing as profitable agribusinesses.

Identify their capacity needs and design appropriate training modules that will address the gaps to make them more effective.

Train the FOs on group dynamics – group formation and development, good governance, leadership enhancement and development, including institutional performance management, entrepreneurial skill development, record keeping, input and product marketing, market information services, business plan development and gender mainstreaming.

Train FOs on business planning and budgeting, business transaction and negotiation skills, resource mobilisation, loan drive and recovery, institutions development/governance.

Use participatory approaches to develop appropriate by-laws for the FOs and ensure their registration with relevant State Ministry.

Organize learning visits/routes for the farmer groups within and outside the states with a view to facilitating experience/knowledge sharing on best practices, tested innovations, entrepreneurial and leadership skills, governance structure, savings mobilization, financial management, loan drive and recovery.

Train the FBOs on the preparation of their short-term vision (strategic development plans, SDP), and working with private sector operators, especially financial institutions, input dealers and marketers.

Strengthen the management, leadership and technical capacity of youth and women- only groups in order to empower them to retain control over produce, technology and income.

Build capacity of beneficiaries for sustainable ownership of assets.

Facilitate FBO members to open bank accounts

Extension Service Provision: With the realization that there is no sector in Ghana that can create jobs as quickly and sustainably as the agriculture sector, alleviating rural poverty requires strategic interventions to ensure the greatest impact. The strategy would be to focus on the poor producers, processors and traders that need assistance, especially, the semi-subsistence farmers and the small market-oriented farmers and small scale processors and marketers. The use of participatory approach of the project would result to active involvement and participation of the poor.

AAFORD will enhance their technical competence and raise their awareness to see agriculture as a business and Improve their income through efficient marketing arrangement and access road to enable them get good prices for their commodities.

The Project would need to scale up capacity building of the farmers' groups and link them to formal financial institutions. It will promote private sector and NGO involvement in extension through building the capacity of selected service providers to effectively serve the farmers.

The farmers need training in specific skills, e.g. agronomic practices and the selection, use and application of agro-chemicals and inputs. The Project will also promote improved processing methods and establish better linkages between producers, processors, service providers and end-users through enhancing the income-generating capacity of the poor rural men and women involved in the marketing chain. It will aim at strengthening agricultural system including improving the capacity of the public extension delivery system. Part of the strategy will be to improve their capacity and accountability in services delivery. Along with the farmers, extension agents (eas) in the regions shall assisted by service providers to understand the art of best agronomic and post-harvest handling practices to ensure improved production at economically viable cost to the farmers. This arrangement will lead to improved farmer-extension relationship and enhanced capacity of the extension workers to deliver training on market-led technology transfer in the regions and other key players in processing and marketing.

AAFORD will facilitate partnership arrangement between the farmer and off-takers, as well as service providers and the governments to provide sound technical assistance (extension, business and market information assistance) to enable the farmers increase productivity/production in a manner that satisfies their business partners (off-takers), as well as liaise constantly with the off-takers to keep to the agreed terms of partnership.

Specifically, AAFORD will engage and support government extension service, input service providers and off-takers to establish farmer managed demonstration plots for best agronomic practices to be given to the farmers in each region. The demo plots shall serve as practical demonstration tool on the use and application of improved technologies to the farmers. They will be used to provide agronomic trainings pre-season and 2 field days/practical demonstrations, in-season and before harvest. The trainings will be based on a well-developed package of practices (POP) handbook that is to be made available to the farmers.

The main tasks of the arrangement will include: (i) provide best agronomic and best training (ii) liaise with value chain clusters to use champion farmers to establish on-farm, farmer managed, farmer owned demo plots (iii) conduct bi-weekly practical demonstrations on demo-plots for farmers within the regions, providing field assistance on a day to day basis to farmers within their region (iv) ensure that the group leaders that benefited from certain exclusive trainings shall go on to share the knowledge with the rest of other farmers (v) organise monthly review meetings to discuss the progress of the Project, achievements and challenges as well as upcoming activities in concert with AAFORD management and (vi) provide a mechanism for data collection, collation and reporting. The service provider that will be designated to perform this task will have extensive experience in establishing and managing on-farm demo plots including conducting field days. The service provider shall also have experience and practical evidence in farmer group management and farm enterprise management training. The service provider shall have knowledge of and extensive experience with managing large number of farmers.

The following criteria shall apply in competitively selecting the service provider: demonstrated institutional capability, experience and successful past performance and corporate capabilities in commodity value chains, agricultural extension delivery (both technical and operational experience), participation in IFAD and other donor-funded activities will be an advantage.

Financial literacy inclusion: To promote savings culture and improve management of credit and finances at the producers' level, the Project will engage a reputable financial consultant to train staff of the service provider(s) (consultants' firms) to design and implement financial literacy capacity building of FBOs, based on their identified knowledge or understanding gaps or needs that are relevant to their purpose, using such approaches as training, sensitization, advocacy, mentoring, appropriate technical support and linkage to financial institutions. His specific tasks include identifying the financial literacy knowledge/capacity needs or understanding gaps that are relevant for the purposes of the Project in the two regions and design appropriate training modules that will address these gaps and make them more effective.

The service provider must have a strong institutional capability and a full complement of experts/professionals with strong entrepreneurial skills and degree in Agriculture, Agribusiness or related fields. The firm/consultant must have demonstrated work experience and successful performance for a minimum of five years and above in agriculture, agribusiness and value chain development. Previous experience in working with IFAD or other donor funded agency in value chain development will be an advantage. Fluency in the local language of the FBOs by Local staff is an advantage.

Needs Assessment and provision of infrastructure:

AAFORD will facilitate conduct of needs assessment and provision of physical infrastructures that will promote value chain development activities in the two regions. The project will engage the services of a Service Provider to carry out needs assessment of infrastructure in the two regions with the following terms of reference (ToR):

Conduct a needs assessment of the candidate infrastructures so as to ensure that the infrastructures are demand driven and aligned to the needs of the beneficiaries with particular concern for women and youth.

In addition to the needs assessment, identify and inventorise all community assets (skills, capacities, resources and interests) that can be leveraged by the project to facilitate routine operations and maintenance of the infrastructures.

Undertake a risk mapping of the infrastructures earmarked for the various communities and outline a risk management plan.

Coordination and monitoring of targeting aspects

The project must monitor closely its performance in service delivery to the target segment of AAFORD; namely, women (50%), youth (30%) and other vulnerable groups. ISU of AAFORD will work closely with the district assemblies to monitor the implementation progress of mainstreaming gender and youth as well as the project activities. M&E data will be collected and segregated by gender and age group to ease the monitoring. After mid-term, an Annual Outcome Survey will be conducted to obtain qualitative data as well as quantitative data to evaluate the program performance.

The project must monitor closely its performance in service delivery to women and other vulnerable groups. It will need to build capacity in social impact assessment, which would include training in participatory methods and gender analysis, identify baseline social indicators and carry out periodic beneficiary assessment to monitor effects on rural livelihoods and the entire market driven approach as a mechanism to bring about sustainable improvement in rural livelihoods for poor men and women..

A major issue of concern is food security, income generation and poverty reduction. Indicators such as crop yields, farm and non-farm income and household income status would have to be considered. Another important issue is community development where indicators such as extent of local resource mobilization, quality of leadership, farmer empowerment, measured by existence of viable farmer associations and groups and their ability to set priorities and access services that respond to priorities. Similarly, assessment of improvement in access education and other social services is also important. The assessment would need to pay particular attention to population factors, gender differences and generally the impact on disadvantaged and vulnerable groups.

With particular reference to gender, systematic monitoring and evaluation must be an integral part of the gender mainstreaming activities. At the output level, the involvement and participation of women in the activities of the project will be measured with indicators developed to assess the extent to which the specific

needs of women are addressed e.g. in terms of selection of commodities/enterprises access to finance and markets, service provision, inputs etc. The percent of women involved in direct implementation of the project will also be assessed. Gender specific indicators and milestones must be part of the monitoring and evaluation framework for the project. The use of outcome and performance indicators below disaggregated by gender and category of beneficiaries would be necessary

Benefits and risks

The success of the project is largely dependent on capacity building geared to the needs of the target group. The project would therefore make substantial provision for this and work out details of its capacity building activities. The approach would also involve improving on the ability of service providers to provide rural financial services and other necessary services to the rural people. The interventions would result to improved capacity of the target groups and service provider would have better skills, management capacity and motivation to render services to the target groups. They would also become more sensitized to the problems of rural people and be able assist and ensure complete involvement of women, youth and other disadvantaged groups as beneficiaries.

It is hoped that by the end of the project, several service providers and NGOs in the communities of primary focus would have been strengthened. Similarly, FBOs would have become more cohesive with better leadership and greater likelihood of accessing credit and other support services provided by the project and other agencies.

The interventions are designed to ensure sustainability and make the participating organizations, communities, groups and individuals viable channels for development. The project approach is also highly dependent on improved capacity of the service providers. If the service providers are weak the success of the project will be threatened.

Furthermore, significant differences exist in social and economic status of households in the rural communities and there must be particular attention to reach the very poor and disadvantaged groups. The project may fail if it does not pay attention to activities that are of importance to this group and ensure their participation as beneficiaries. In other words, to provide voice to the voiceless, there must be safeguards against social exclusion and elite capture.

The project must also be cautious to ensure that the relationship with the communities is one that counteracts the mentality of dependence on external assistance. In the project regions gender issues has religious connotations and may elicit certain sentiments; emphasis on gender mainstreaming may have the risk of a backlash.

Involvement of women in project activities where men are dominant may be resisted. Both men and women may feel uneasy whenever they are to participate in any activity together. On the other hand, excluding women in the project activities may distort project outcomes because women form the bulk of the core poor and play key roles in livelihood of the communities. The strategy to minimize these risks is to begin with gender awareness workshops for stakeholders, followed by advocacy visits to key stakeholders. The

involvement of existing and accepted women machinery and women based civil society organizations will help to mainstream gender in the project with minimal risks and threats.

Chapter 3: Programme Components

AAFORD is designed with two inter-related technical components and project management: Component 1: Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains; ii) Component 2: Expanding and directing affordable finance in a conducive environment and iii) Component 3: Project management.

The Project is designed to identify and close the gaps between demand for and supply of financing to support increased marketable surpluses and improved livelihoods in low-income smallholder farming communities in selected areas and value chains. Component 1 addresses Technical Assistance (TA) needs at three levels: (a) ultimate beneficiaries and their organizations at the community level; (b) intermediary market and financial institutions, through which smallholders typically obtain financing (including cashless pre-financing) and sell their surpluses; and (c) market-enhancing institutions that provide instruments such as warehouse receipts, insurance and guarantees to help mitigate risks that inhibit financial institutions from lending to smallholder agriculture. Component 2 mobilises funds and risk-mitigating instruments on terms that are affordable to the beneficiaries in the face of their limited returns on investment, and seeks to improve the environment in terms of coordination of interventions, knowledge of successful models for scaling up, and the policy, strategic, legal and regulatory framework. Component 3 provides for project management and implementation.

Component 1: Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains: The expected outcome is enhanced capacity for target groups to access affordable financing which will lead to increases in smallholder farmers' marketed surpluses and household welfare and increased business for financial institutions. This component focuses on TA to: (a) smallholder farmers and their associations, to introduce Good Agricultural Practices (GAPs) and access financial and marketing services compatible with their needs in order to raise productivity and surpluses; (b) rural households (especially women and youth) to improve their livelihoods, health and financial inclusion; (c) nucleus farmers, aggregators and processors to intermediate between smallholders and input, product and financial markets; and (d) financial intermediaries and market-enhancing institutions that provide instruments to help mitigate financial risks. It also supports outreach of institutions to the target groups and their intermediaries to meet the conditions for market transactions to take place and utilize the funds available through Component 2.

The component has three subcomponents: Subcomponent 1.1 works to build up demand by identifying the potentials, constraints and needs of key target groups (smallholders, women, youth) at the community level, providing TA that increases their knowledge of improved agricultural practices to raise productivity, financial and business skills, and by working through groups to access markets and finance. Subcomponent 1.2 similarly identifies opportunities at the level of intermediary institutions in both (i) marketing, building offtaker capacity to serve the key targeted groups and (ii) outreach (including market-enhancing instruments) in Subcomponent 2. Subcomponent 1.3 bridges the gap by supporting institutions to reach out and market their products to the key target groups and intermediaries.

Subcomponent 1.1: Develop capacities of target groups to expand marketable surpluses: The expected outcomes are that targeted beneficiaries have a better understanding of and ability to access affordable financial and marketing services (whose development is supported in Subcomponent 1.2 and outreach in Subcomponent 1.3); acquire skills for good agricultural practices and for income-generating activities; and build social capital through community-based groups. The first step is to identify the communities, beneficiaries, institutions and intermediaries in the project areas and assess their potentials and needs. The second step is to package and deliver TA tailored to each community's aspirations and needs. The third step is to facilitate access to financing smallholders, primarily through offtakers and other marketing intermediaries. This will involve sensitizing and training smallholder farmers and their associations about the features, benefits, risks, processes, rights and responsibilities of offtakers, as well as about seeking direct credit from retail financial service providers. It will orient farmers' organizations towards the inclusion of poor smallholders with a focus on women and youth and toward GAPs and post-harvest mechanisms that promote resilience to the effects of climate change, as well as food security and nutritional improvements. For specific target groups such as women, youth and other vulnerable groups, it will involve sensitization and training on entry points for financial inclusion (such as Community Savings and Credit Groups [CSCGs], use of Digital Financial Services [DFS] and other services such as output product prices and weather information), green skills for climate-resilient agricultural practices and environmentally sustainable livelihoods, and healthy nutritional practices.

Identification of key technical partners and service providers: The ISU will engage technical partners that are actively supporting smallholder agricultural value chains in Ghana, have complementary financial and technical resources and can use local service providers as needed to implement the services indicated in the activities and other subcomponents below. The technical partners will be selected according to criteria specified in the Project Implementation Manual (PIM), including capabilities with respect to climate change resilience and nutrition security factors.

Identification and needs assessment of community clusters: In order to focus limited project resources on piloting and achieving results that can be scaled up, a Service Provider (SP) will be engaged to identify clusters of communities in the project area (specified in the PIM) that include concentrations of smallholder farmers in selected value chains, economically active poor, presence of potential PFIs, presence of a BAC/BRC, and the crops and practices relevant to income, climatic, food security and nutritional concerns. Particular attention will be paid to the potential for increasing surplus through improved GAPs. Once the clusters and value chains to be targeted by the Project are agreed, the SP will carry out a stakeholder identification survey which will identify the relevant stakeholders and their critical challenges and needs, including existing CIs (such as FBOs, cooperatives, women and youth groups); input providers; offtakers; financial institutions; BACs/BRCs; agricultural research stations and MoFA programs; and government development programs where each District is provided with a factory, a dam, and/or warehouse. In addition, the survey will identify: (a) outreach and institutional development needs of CIs; (b) measures to upgrade smallholders' agricultural production technology and productivity; (c) their sensitization and capacity building needs with respect to (i) outgrower models relevant to their main marketable crops; (ii) accessing financial services through CSCGs, through intermediaries (offtakers and financial institutions), and via mobile phones (DFSs); (iii) climate change vulnerability and scope for local resilience strategies; and (iv) cost-benefit analysis of adopting climate resilient and nutrition sensitive production activities; and (d) key gaps in the

awareness, understanding and utilization of available financing mechanisms (direct and indirect) by smallholders and other target groups.

Based on the findings of the needs assessment survey, the SPs will structure capacity building packages tailored to the needs of the different target groups (see Capacity building of target groups and their CIs, below). These will include identification and development of the key messages to be delivered through awareness and sensitization sessions, contents of a range of training modules, ToRs for technical assistance and scope for exposure visits.

Mobilization of Youth Community Facilitators: In order to ensure effective and sustained engagement at the community level and facilitate transactions made possible through capacity-building, a pool of 4-5 Youth Community Facilitators (YCFs) (including one to focus on climate change resilience) from the selected communities will be engaged for each cluster (discussed further under Project Management) to facilitate community mobilization and interaction with AAFORD. The YCFs will comprise young women and men from the communities with social skills for community mobilization, as well as educational background to understand and interpret project objectives. Training will build their skills on strengthening CIs, gender mainstreaming, youth mobilization, nutrition sensitivity and climate-resilient agricultural practices. They will be responsible for ensuring inclusion of target groups (especially women and youth) in the relevant CIs; facilitating development of Community Outreach Development Plans (see next activity) and outreach of the project-supported activities to the target groups; community-level data collection and reporting; monitoring, identifying and reporting community-level implementation issues and assisting to solve these problems; and facilitating the outreach of marketing and financial institutions, project SPs and other value chain actors and facilitators. They will interact with the Youth Institutional Interns (YIIs) (see Subcomponent 1.2). The primary objectives are to provide a clear community-level focal point of interaction for other project stakeholders such as input suppliers and other value chain actors, financial intermediaries and project SPs, ensure smooth implementation at the cluster level and facilitate the ability of youth to work in public service and development institutions.

Community Outreach Development Plan (CODP): A SP will be engaged to support and oversee the YCFs to develop a 7-10 page CODP in each project cluster. The objective is to facilitate both implementation and sustainability of project interventions by building community consensus around clear road maps for sustaining and scaling up good practices, strengthening CIs and engaging with external ones, and enhancing access to product markets and financing. The desired social, economic and productive changes envisioned in the community through AAFORD implementation will be presented in the CODPs along with the specific project interventions, which will help to achieve these changes.

The CODP will define the specific project target groups in the community, the projected outreach of AAFORD activities to these target groups over the project duration, the approach for reaching the target groups and an overall budget estimate for capacity building (see below). It will include the scope for strengthening off-taker-outgrower models. It will also present needs for nutrition awareness raising and how training on healthy diets can be included in capacity building activities for different groups. Similarly, it will include specific climate-related risks to the community and mitigation measures to be integrated in project implementation activities, in particular to complement TA for improved agricultural technologies and practices to raise productivity. Against the framework of the CODPs, the ZCUs, in coordination with the SPs and YCFs, will prepare detailed annual cluster workplans and budgets presenting the physical and financial

targets to be achieved in each community cluster during the year. These targets will be related to outreach of activities such as strengthening CIs, developing livelihood investment plans (see next activity), training and technical assistance in areas such as production, marketing, business development, entrepreneurship, dietary diversification and nutrition standards. AAFORD SPs and partners responsible for implementing each activity will be identified along with the community-level coordination mechanisms between them. AAFORD will direct support to the communities based on the activities identified in the CODPs.

Capacity building of target groups: The expected outcomes of TA to target groups and their organizations are to increase smallholders' marketable surpluses in a sustainable way, strengthen their mutual support associations, build their relationships with marketing and financial institutions, and improve their livelihoods, climate resilience and health. Training will utilize existing groups to the extent possible (FBOs, CSCGs, youth groups), but may include group formation/management if a need is identified.

TA will be adapted to the identified needs of each community cluster and detailed in the CODPs in the following modules: (a) improved crop production technologies, including high yield varieties, Conservation Agriculture (CA) (such as minimum tillage), awareness and utilization of climate-resilient agricultural practices, crop diversification and selection of varieties for home consumption and nutrition, post-harvest management capacity through activities such as grading, drying and processing, and marketing through offtaker-outgrower models; (b) increased entrepreneurial and business management capacity and livelihood diversification, especially of youth and women, through capacity building, training (in particular, 'green skills' to take advantage of environment-friendly income-generating opportunities) and exposure visits facilitated by the SPs in coordination with the BACs/BRCs; and (c) improved financial literacy and access to financial and marketing services by exploring integration in agricultural value chain offtaker-outgrower models (including the One District One Factory [1d1f] initiative), certified warehousing and warehouse receipts models (through partnership with GCX), and linkages to other aggregators, processors and traders in coordination with MoFA and MoTI, and by strengthening savings habits through financial literacy training and formation of CSCGs for women. TA will also be provided (by a different SP) for formation and strengthening the governance of community associations (such as FBOs and youth and women savings or enterprise groups).

The nutrition related training and capacity building will focus on i) women's access to and control over productive resources such as capital, and farming inputs; ii) promoting the use of labour-saving technologies to enable women to manage caring, reproductive, and productive roles; iii) promoting nutrition-sensitive agriculture and food-based approaches; iv) promoting diversified farming: production and consumption of high-value crops and small livestock including small ruminants, poultry and fish to increase dietary diversity and nutrition security; v) promoting small irrigation schemes and household production systems to support year-round production, especially vegetables and fruits; vi) promoting food safety along the agricultural value chain: agro-processing, preservation, storage, distribution of food, and marketing; vii) intensifying nutrition and health behaviour change strategies in agricultural interventions; and viii) promoting and strengthening food fortification interventions.

The project SPs together with the YCFs will coordinate the implementation of these activities and will engage MoFA's extension services for supporting relevant services. The project will also partner with the Rural Enterprises Programme (REP) and its associated BACs/BRCs operating in AAFORD areas to facilitate business planning and access to financing for promising microenterprises arising out of this activity (see Subcomponent 1.2, Capacity building of selected partner intermediaries).

Support to Community Institutions (CIs): AAFORD will identify partner CIs (including offtaker-outgrower arrangements) in each community with potential and express desire to develop marketing and financial linkages. Based on the needs assessment and CODPs, partner CIs will be selected using criteria such as outreach orientation, current representation of AAFORD target groups (especially women and youth), current level of activity and member involvement, governance and management status and willingness to partner with AAFORD and adopt recommended institutional strengthening measures. AAFORD will consider mobilizing new CIs if existing CIs do not qualify as partners. Partner CIs will comprise mainly FBOs dealing with crop production and other value chain related activities; CSCGs, especially with women members involved in savings and credit activities, trading and services; and value chain-based enterprises and rural youth enterprise groups engaged in a range of agricultural and non-agricultural microenterprises.

The objective is to establish linkages between CIs and market and financial intermediaries (including offtakers and financial institutions) as a basis for mobilizing their own funds (e.g. by establishing a CSCG; see below) or engaging BACs/BRCs to facilitate their approach to financial institutions (if appropriate). TA will be tailored to assessed and expressed needs of the CIs, and facilitated by the YCFs.

The AAFORD SPs will capacitate the YCFs, together with the Youth Institutional Interns (YIIs) (see Subcomponent 1.2) engaged in the BACs/BRCs, to develop Institutional Business Plans (IBPs) for the CIs in each cluster having met the selection criteria and expressed a desire for capacity-building or to seek financing (either individually or together). Each IBP will detail the areas of investment chosen by the CIs for improving the knowledge, skills and livelihoods of the members. The first part of the IBP (3-5 pages) will detail how the CIs will strengthen their governance and management systems and address issues relating to inclusion of women, youth and other vulnerable groups; climate change; nutrition; financing; and linkages with external market and financial institutions. This will include how the CI intends to expand access to financial services, including savings mechanisms, credit (in kind and/or cash), reinvesting earnings, agricultural insurance, and DFS. The second part (4-6 pages) will focus on the details of the specific business area in which the CI members decide to collaborate, including: description of the business concept or model; market opportunities; strategic, operational and financial details such as projected profitability, financing plan and reinvestment plan; direct and indirect beneficiaries (particularly women and youth); outreach of benefits; measures to improve productivity, meet required market standards and address the effects of climate change.

Community-based savings and credit groups (CSCGs) for women and youth: The objective is to get targeted project beneficiaries that generally have been excluded from formal financial services onto the first rung of the ladder to access financial services. Smallholders (women in particular), especially those with smaller farm sizes, prefer saving over credit but often lack convenient and affordable means to save –which is also a precondition for eventually obtaining credit. Building on Ghana’s traditional daily savings culture (susu), international and local NGOs have had considerable success training groups at the community level to manage and fund their own CSCGs. When their financial needs exceed the capacity of the CSCG, it provides a stepping-stone to linking them with formal financial institutions (an objective of Ghana’s Financial Inclusion Strategy). AAFORD will partner with agencies that are already implementing CSCGs in Ghana to extend the model to women and youth groups in its targeted clusters, in order to facilitate community-level mobilization and management of savings and credit to support their income-generating activities and

household financial needs. In addition to forming new CSCGs in communities that lack them, existing CSCGs that prepare IBPs may be supported for strengthening and linking to formal financial institutions.

Subcomponent 1.2: Capacity building of institutional partners and intermediaries: The expected outcome is that products will be adapted and developed to suit the needs of target beneficiaries (whose capacities are being built in Subcomponent 1.1 and outreach in Component 2.1). This will involve the selection of partners that provide market-enhancing instruments (such as offtaking, aggregation, warehousing/storage, electronic trading, digital information services for product markets and insurance, guarantees, warehouse receipts and DFSs), as well as intermediary financial institutions such as commercial banks and rural/micro finance institutions. Training and TA aimed at product enhancement relevant to AAFORD beneficiaries will be available to these institutional partners and intermediaries based on capacity building needs assessment and innovative proposals. Intermediaries that provide linkages between smallholder farmers and output product/financial markets will be trained in models and management of these relationships.

Activities:

Mapping, needs assessment and selection of partner institutions: This exercise will engage a SP to map out the institutions (in consultation with BACs/BRCs) providing marketing, financial, risk mitigation and digital services in the project area, and assess their needs for capacity building to better serve the value chains, communities and beneficiaries being targeted by AAFORD (The SP will also deliver the capacity-building activity; see below). In addition, national institutions providing market-enhancing instruments (warehouses [GCX], insurance [GAIP], guarantees [GIRSAL, RDF], weather and price information [GMA, Esoko], digital financial services, etc.), as well as relevant Apex institutions (ARB Apex Bank, GHAMFIN), will be assessed for their potential and interest in serving intermediaries in project areas. Candidate partner institutions will be invited to orientation workshops on the potential business opportunities for increasing outreach to smallholder farmers (directly or through intermediaries), women and youth, and the possibilities available through this subcomponent. The expected outcome are the expressions of interest by and selection of institutional partners and intermediaries to receive the support indicated in the activities below (as well as under Subcomponent 2.1), based on: their active presence in AAFORD areas; their expressed commitment to serve AAFORD beneficiaries; licensing, regulatory and performance status (for PFIs); and sound governance structures. Such institutions and intermediaries will be able to seek partnership with AAFORD at any time.

In 2018-19, BoG undertook a number of measures to strengthen the financial system, including raising minimum capital requirements across the board, liquidating or consolidating a number of universal banks, and de-licensing some 357 MFIs. AAFORD expects to engage a number of universal banks that wish to build their loan portfolios for agricultural value chains, as well as RCBs, which have a clear mission to serve rural communities. MFIs are less likely to be involved, except with respect to rural MSMEs (currently being served through REP). The current landscape for agricultural lending will be assessed up front, and implementation arrangements and the role of the ARB Apex Bank will also be reviewed, as part of establishing the BFF.

Development of Outreach and Linkage Business Plans (OLBP): Selected partners will be given TA through a SP engaged by AAFORD to develop OLBP, which will clearly indicate the outreach, profitability and other benefits they will achieve in the project communities as a result of project support to increase their

capabilities to: (a) reach AAFORD targeted beneficiaries and intermediaries; (b) develop appropriate products and delivery mechanisms; (c) communicate relevant information through local FM radio services and mobile phones; (d) develop physical or software uptake capacity; and (e) market products (supported under 1.1.7). The OLBP will specify how GCX, GIRSAL and GAIP can support financing to project beneficiaries through PFIs and offtakers, and the gap between the costs of these instruments and the ability of potential borrowers to afford them. The objectives are to provide: (i) a sound justification for the capacity-building to be provided (see below), ensure partner buy-in and establish results indicators; and (ii) a basis for cost-sharing grants under the Blended Finance Facility (Subcomponent 2.1) to close the affordability gap.

In the orientation workshops (see above), the project SP will assist the interested intermediaries to prepare and submit a short concept note (1-2 pages). After the concept note is approved by the SPs and AAFORD ISU, the SPs will provide technical assistance to the intermediaries to help them develop and submit the detailed OLBP, which will support realization of the CODPs and IBPs (subcomponent 1.1) by aligning services to the needs of targeted beneficiaries and CIs, and planning how to deliver them to those groups and areas (supported under Subcomponent 2.1). The OLBP will also indicate how the partner institution can make use of YIIs both with project support and subsequently (see below). The IBP review committee in AAFORD will review and approve submitted OLBP as a basis for delivery of TA and capacity-building and outreach support (see below and Subcomponent 2.1).

Capacity-building of selected partner intermediaries: Partner institutions will receive TA support from the AAFORD partner SPs for activities identified in their OLBP, including: (a) sensitization and skills training for staff, in particular on multidimensional risk mitigation related to climate change and environment; (b) supporting the establishment of agricultural finance desks, training agricultural finance officers, or special windows for agricultural production financing; (c) product and systems development to enhance outreach, including rural/micro finance institutions (RMFIs) to adapt loan products to the seasonal nature of agricultural activities and their cash flows; and (d) sensitization and training of RMFIs to understand and utilize risk mitigation instruments, to finance business plans of intermediaries and FBOs, and to utilize available concessional and/or blended credit lines (in collaboration with other IFAD projects). Training of RMFIs on risk mitigation instruments and relevant products (such as warehouse receipts, agricultural loan portfolio guarantees, agricultural insurance) will include board members as well as managers and credit officers/analysts, to facilitate policies to adopt such products. The BACs/BRCs working with REP in the AAFORD areas will also be considered as AAFORD partners and receive training in evaluating and advising clients on the creditworthiness of their MSMEs and options for financing. Regional workshops will bring together BAC/BRCs and PFIs to promote mutual understanding and development of mutually suitable business planning and assessment tools.

Youth Institutional Internship (YII) Programme: In this capacity-building activity, up to 80 youth will be trained in skills identified by partner marketing and financial institutions as relevant to increasing their outreach to smallholder farmers (especially women and youth), offtakers and other agricultural value chain actors. They will be supported for up to three years (on a declining cost-sharing basis) as interns to the requesting institutions and to BAC/BRCs in collaboration with REP. This will be targeted toward graduates with a first degree in subjects relevant to finance, marketing, agriculture or environment, to give them practical skills and experience that will benefit partner institutions and enhance their subsequent employment prospects. The primary objective is to facilitate linkages with the YCFs (Activity 1.1.3) for

effective outreach (Activity 2.1.2); a secondary objective is to give youth practical skills and experience that will enhance their productivity and future employability prospects.

Cluster Linkage Problem-solving: Multi-stakeholder platforms meeting at the cluster level (using Value Chain Committees, if active, or a similar model) will be organized by YCFs to identify critical bottlenecks and challenges to implementation in a particular area and value chain, and to identify specific institutions and individuals to solve them. This process will facilitate development of partnerships among AAFORD, off-takers, financial institutions, and other support programmes. YCFs (see Subcomponent 1.1) will be assigned to help address issues at the cluster/beneficiary level, and YIIs may be tasked with facilitating institutional responses.

Subcomponent 1.3: Marketing and ICTs for outreach of rural financial and agricultural services: The expected outcome is the increased access to relevant information and services, including using mobile phones and adapted DFSs, needed to improve agricultural production, mitigate risks and lower costs. This activity focuses on sensitization and outreach to Project beneficiaries to implement OLBP of partner agencies (Subcomponent 1.2), including those providing meteorological and agricultural price information, taking advantage of support to develop products and channels of communication suitable for smallholder farmers. Based on their Business Plans, institutions providing these services will be able to apply for project co-funding of sensitization and outreach activities to target clusters and groups.

In particular, partnerships with key market-enhancing institutions will focus on marketing to intermediaries (financial and off-takers) serving smallholder FBOs in AAFORD clusters, and on utilizing YIIs (Subcomponent 1.2) and the BFF (Subcomponent 2.1). These partnerships will be built on the assessments in Subcomponent 1.2 (and OLBP if prepared), and fostered through forums in Subcomponent 2.2. This may include outreach by GCX and other warehouse operators to increase awareness and use of warehousing and receipts by FBOs and off-takers; development by GAIP of agreements with PFIs and BFF regarding how to cover and recover the costs of agricultural insurance; sensitization of AAFORD PFIs by GIRSAL on how to utilize guarantees to offset losses by clients as well as the PFIs, and to absorb the cost of guarantees while avoiding moral hazard concerns. It will also include using the YIIs attached to these partner institutions to build and maintain relationships with PFIs and BACs/BRCs in AAFORD areas.

Component 2: Expanding and Directing Affordable Finance in a Conducive Environment. The expected outcomes are increased outreach and uptake of affordable finance and supporting instruments, especially by smallholder producers; enhanced knowledge, enabling the replication of good practices; and an improved policy framework. Acting as a multi-stakeholder platform, this component will support the availability of affordable finance for selected agricultural value chains through blended finance, to make credit and risk mitigation instruments available on concessional or blended terms (Subcomponent 2.1). Together with capacity-building of both the demand and the supply sides in Component 1, this component is expected to bridge the gap that has excluded smallholder producers and their intermediaries from access to affordable finance. In addition, Subcomponent 2.2 will help to document good practices and lessons learned as a basis for replication and improvements in the policy and enabling environment.

Subcomponent 2.1: Blended Finance Facility (BFF): The expected outcome is expanded availability of affordable finance and market-enhancing instruments directed to smallholder production and its key intermediaries in selected agricultural value chains, in order to realize the benefits of capacity-building on

the demand side (Subcomponent 1.1) and on the supply side (Subcomponent 1.2), including the application of risk-mitigation instruments to lending to smallholders and other agricultural value chain actors.

Currently, the share of bank loans and advances flowing to smallholder producers is negligible and not readily accessible or affordable to them. In order to develop this nascent market by 'crowding in' funds and risk mitigation instruments at rates compatible with the returns to smallholder crop products, a BFF will be established to provide wholesale funds on concessional or blended terms to PFIs to on-lend for smallholder agricultural production, and cost-sharing grants (premium subsidies) that enable FBOs and their intermediaries to afford agricultural insurance, guarantees, warehouse receipts and other market-enhancing instruments. The objective is to 'crowd in' funds that are presently not available to targeted agricultural value chains, especially for the production end, into the BFF. The facility will also have a window to serve other value chain actors (offtakers, MSMEs, input suppliers) that have different rates of return and risk profiles from those of primary producers in the same value chains. This second window will also enable reflows from the Rural Enterprise Development Fund (REDF) to continue revolving beyond the close of REP, to benefit and improve the livelihoods of households and groups operating micro and small enterprises.

The BFF will be estimated based on a demand survey and it will be grounded on and supported through business planning referred to in Subcomponents 1.1 and 1.2 and by outreach activities referred to in Subcomponent 1.3, including FBOs, women and youth groups. This will include demand for investments financing, inputs and labor for improved agricultural practices to enhance climate change resilience. The BFF will seek to leverage commercial funds and risk mitigation instruments that are currently not reaching AAFORD target groups. Compatibility and accessibility of other comparable funds will also be considered. Interest rates at the wholesale and retail levels will be negotiated through the multi-stakeholder platform established in Subcomponent 2.2, taking into consideration the supply-side sustainability and the demand-side producers' reasonable returns on investment for poverty reduction, with the grant window available to help close gaps and incentivize the use of risk-mitigating instruments (especially agricultural insurance) needed to support loan portfolios for agricultural production.

The BFF will be capitalized with an initial contribution from IFAD with the expectation of mobilizing additional funds from other external sources such as the Agri-Business Capital (ABC) Fund and the Green Climate Fund (GCF), expected to reach US\$ 12-15 million. It will also be compatible with the REDF and REP's Matching Grant Fund in order to facilitate government contribution of revolving reflows for the benefit of agricultural value chains and rural MSMEs on a sustained basis (about US\$ 4-6 million expected). The BFF will utilize the existing disbursement structure of the credit line from the BoG through ARB Apex Bank to RCBs and non-bank PFIs, or directly to participating universal banks. The ARB Apex Bank shall manage the grant funds, as under REP. These arrangements will be reviewed and administrative arrangements will be put in place to ensure that BoG and/or ARB Apex Bank can continue to revolve the recovered funds beyond the end of the project, as an exit strategy (recognizing that funds will periodically need to be replenished to maintain their real value, as a consequence of the subsidized-pricing arrangements and loan losses). All PFIs must be licensed and meet minimum performance criteria.

The first step will be for the ISU to develop operational manuals, including criteria for selecting PFIs, flow of funds, administrative procedures, etc. These will be adapted from the operational manuals for REDF and REP Matching Grants. The second step will be for the BOG and the ARB Apex Bank to open accounts to receive the funds mobilized for the BFF.

Detailed description of the BFF and implementation mechanisms is presented below

Overview

The primary rationale underpinning the BFF is that financial markets presently are not accessible to smallholder agricultural producers. Although smallholder farmers are the backbone of agricultural production and the key to improved livelihoods and income distribution in rural areas, their rates of return are low relative to prevailing interest rates on loans that might enable them to obtain improved inputs and apply good agricultural practices in order to increase their yields and marketable surpluses. Although there is substantial liquidity in Ghana's financial system, it does not flow to smallholder agriculture when it is not profitable for financial intermediaries and when risks, uncertainty and loan losses are high. Although Rural and Community Banks' mission is to serve their communities, their financial strength and sustainability are often too precarious to bear such risks and potential losses, especially when there is strong demand for credit at higher market rates for trading, MSMEs, school fees, and other household and business uses. Although there is a growing number of instruments to mitigate risks, such as insurance and guarantees, understanding of their functions is low and their costs are often high – aggravating the problem of loan costs in excess of returns on investment. AAFORD capacity-building of beneficiaries and intermediaries is intended to raise understanding and demand for credit; BFF is set up to address the supply side.

AAFORD includes a Blended Finance Facility (BFF) that is intended to increase the supply of affordable financing for agricultural value chains for beneficiaries who do not have access to financial services or who are involved in activities along the value chains that participating financial institutions would not typically cover for the target groups from their own resources on their own. It is designed to leverage funding from participating financial institutions (PFIs) and from market-enhancing institutions that provide insurance, guarantees and other risk mitigation instruments, as well as beneficiaries' contributions. It aims at making agricultural value chain financing more affordable through a combination of: (i) wholesale funds at concessional rates lower than those available in the local market to participating financial institutions for on-lending to targeted beneficiaries; and (ii) results-based incentives to buy down the cost of risk-mitigating instruments such as insurance, portfolio guarantees and warehouse receipts, and to offset direct costs and risks of expanding agricultural loan portfolios. The key beneficiaries are smallholder farmers, women and youth in the AAFORD areas and their associations, who may receive financing directly or indirectly via offtakers (nucleus farmers, processors, aggregators). The BFF will also have a window for lending to offtakers, input suppliers, transporters, MSMEs, and other actors in rural and agricultural value chains that involve the above target group.

The objective of BFF is to overcome barriers to the accessibility of financial markets to agricultural producers and value chain actors by bridging the gap between their rates of return and the cost of funds available to them. This will be done both by lowering the cost of loan funds and by grants to share some of the costs of developing and mitigating the risks of agricultural loan portfolios. This is intended to minimize risk premiums that would otherwise exacerbate the cost of borrowing. An important reason for including a grant

instrument is that lessons of experience show that attempts to lower interest rates by providing wholesale funds at a concessional rate and mandating a fixed spread for retail FIs inevitably results in low take-up rates when FIs find that their costs and loan losses exceed that spread. In the absence of complementary incentives that offset costs and losses, the desired result of increased lending is not likely to be achieved.

Key financial principles to be considered in costing BFF revolving funds include: (i) maintain the value of principal in real terms through a wholesale rate sufficient to offset inflation, management expenses, and losses; (ii) allow retail PFIs sufficient spread between wholesale and retail rates to cover their operating costs, risk premium to cover expected loan losses, and a minimal profit margin to incentivize utilization of the funds; 37 and (iii) charge retail rates that are low enough to be affordable to targeted clients who are creditworthy but not so low as to attract clients whose rates of return on investment fall below minimum acceptable levels. However, it is recognized that these three principles may not be mutually compatible in a particular environment – in particular, with respect to agricultural production lending in Ghana. This will be dealt with through a combination of: (a) results-based subsidies to help close the gap; (b) negotiations to set both wholesale and retail rates according to the conditions of both the type of borrower and the type of FI; and (c) readiness to lower wholesale rates below sustainability, if necessary to achieve affordability objectives.

Key principles underlying subsidies are that they should be targeted, transparent, budgeted and capped. The drawback of concessional interest rates is that the subsidy element is hidden. This will be partially offset by including some transparent results-based subsidies to help leverage counterpart funds from FIs (blended finance), and, eventually, through the need to budget for replenishing the revolving fund as it decapitalizes.

Implementation

The BFF will be implemented using the same methodology as the Rural Enterprises Programme (REP) for its concessional credit and matching grant funds. This is in order to make it easy to set up, and also to establish a suitable vehicle for continuing to revolve the reflows from loans in the Rural Enterprise Development Fund (REDF) after the close of REP (constituting government contribution, since it would be from recovered funds). At the same time, AAFORD will review these arrangements with a view to seeing what modifications might enhance the sustainability and administration of the funds going forward.

37 Arbitrary spreads are more problematic for agriculture than for loans to traders and small enterprises because agricultural production loans are usually “bullet” loans with a single repayment at the end, so that the nominal rate is also the effective annual percentage rate (APR); whereas interest on microfinance loans is usually levied on a flat rate basis on the initial loan amount, but monthly repayments mean that the effective APR (and thus return to the PFI relative to the loan balance outstanding) is higher and can offset higher costs.

The BFF credit funds will be held in an account in BoG, and disbursed to microfinance institutions (RCBs, S&Ls, credit unions, NGOs) through the ARB Apex Bank and to universal banks directly, upon instruction from the AAFORD ISU. All PFIs must be licensed and meet minimum performance criteria (specified in the PIM).

The BFF will have two windows for concessional credit: (1) agricultural production; (2) other rural and agricultural value chain actors. These will have different negotiated interest rates to account for differences in the relative returns on investment, cost of funds, costs of loan handling, repayment schedules (bullet vs. monthly), and risks. Window 2 will initially be available to offtakers and agricultural value chain actors in AAFORD areas. When REDF reflows are incorporated, these will be available nationwide to MSMEs that meet current REDF criteria.

A third window for results-based incentives will adapt the REP Matching Grant Fund methodology, managed by ARB Apex Bank, to buy down the cost of market-enhancing and risk mitigation instruments such as warehousing, insurance and guarantees, and to share some of the costs and losses identified by PFIs as barriers to increasing their agricultural loan portfolios (in order to incentivize them to use the funds in Window 1).

In both cases (loans and grants), the ARB Apex Bank receives a fee upon disbursement (to be negotiated) to cover its costs of handling, monitoring and quarterly reporting.

Rationale: Leveraging Finance for Agricultural Value Chains

Targeting smallholder farmers poses a particular challenge because they have difficulty meeting the conditions for receiving loans directly from PFIs, even through their FBOs. Although their FBOs may be registered as associations, banks usually require corporate status for such entities. More problematic is meeting PFIs' security (collateral) requirements—which may exceed the minimum to comply with BoG prudential regulations. Also important is the risk factor: in the case of default, PFIs prefer to deal with offtakers, who can better enforce (or reschedule) payment through their relationships with their outgrower farmers. Thus it is assumed that the majority of loans will be secured by and processed through offtakers on behalf of their outgrowers. The loans may actually be designated to the FBOs or even individual outgrowers, but purchase of inputs and provision of services is provided by the offtaker using the funds, with the debt collected at harvest time when the farmers supply their output.

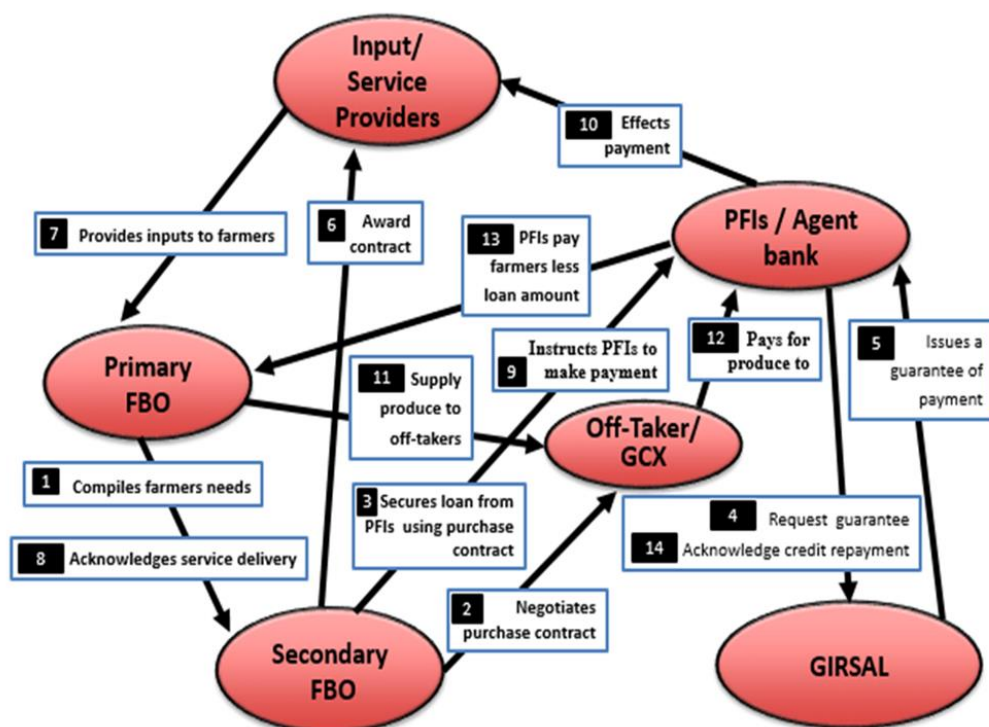
These relationships are portrayed in Figure 1. In some cases, community-level FBOs may be affiliated into a larger, secondary FBO that is better able to deal with offtakers and PFIs.

Figure 1 also portrays the role of risk-sharing instruments such as guarantees and insurance in enabling deals to take place that would otherwise be considered to have too much downside risk. Unlike enterprise lending, where defaults are likely to be random among clients ("idiosyncratic risks"), agricultural production loans bear substantial systemic risk (factors such as drought affect all farmers in the area). In particular, these include guarantees through the Ghana Incentive-based Risk Sharing System for Agricultural Lending (GIRSAL; represented in Figure 1) and the Rural Development Fund (RDF, set up by Danida), and agricultural insurance through the Ghana Agricultural Insurance Pool (GAIP). Likewise, the Ghana Commodity Exchange (GCX) has

been set up to provide warehousing and trading services that can facilitate transactions by offtakers. Despite the advent of these instruments, their usage has been limited, and experience has shown that banks and other FSPs continue to charge very high interest rates as perceived by the smallholder producers. The risk-sharing and mitigation schemes have not contributed significantly to overcoming the risk barrier to agricultural lending, let alone to reducing interest rates, although they have helped to quantify the risk premium that would have to be added to the base on-lending interest rate.

AAFORD is designed to help leverage such instruments for loan portfolios that benefit smallholder farmers. First, it provides TA to help these institutions adapt and market their products to smallholder farmers and their offtakers. Second, it has results-based grant funds under Window 3 to help buy down the costs of these instruments – which would otherwise add to the already high interest costs of loans. It is proposed initially to cover 70 per cent of the cost of insurance and guarantees for agricultural production loan portfolios, consistent with the current methodology under GASIP. Thus, as a supplement to Step 4 in Figure 1, the PFI would apply on behalf of the client to BFF for a matching grant to share in the cost of the guarantee and/or agricultural insurance.

Figure 1: Flow Chart for Agricultural Financing



These incentives for PFIs and their borrowers to utilize guarantees and insurance are intended to put the BFF in a better position to mobilize funds from international private and development-oriented sources (such as the ABC Fund) to be blended with lower-cost funds from IFAD, GoG and others (such as Green Climate Fund). This would enable BFF to use the funds initially available under AAFORD to leverage additional resources from international investors with social and development objectives. Although such financiers may price loans below fully commercial rates, their rates nevertheless tend to be higher than what can be absorbed through on-lending to smallholder farmers. AAFORD addresses such concerns by: (i) blending those funds with lower-cost Project funds to achieve a wholesale rate that is more affordable; and (ii) bringing in guarantees and insurance to mitigate the risk profile that might otherwise deter such investors. In addition, these instruments serve to help secure loans, consistent with BoG regulations for portfolio quality.

Sector review and demand survey

Because a market for loans to smallholder farmers essentially does not exist, the design of the BFF has been based on certain assumptions (drawn from experience) that need to be validated. Although lowering the interest on loans would in principle encourage increased demand from farmers, their risk aversion to loans may limit the actual extent of that demand. More importantly, experience has shown that attempts to lower interest rates by mandating a maximum spread of retail over wholesale rates for a line of credit tends to stifle demand from the financial intermediaries by making agricultural loans unprofitable – as well as risky. Furthermore, recent measures by BoG to raise minimum capital requirements, consolidate or de-license insolvent FIs, and strengthen prudential regulation may have heightened the reluctance of FIs to incur the actual and perceived risks of lending to agricultural value chains.

To provide a sound empirical basis for implementing the BFF, AAFORD will undertake a review and sample survey of the agricultural finance sector to take stock of: (i) the current status and demand for existing lines of credit for agricultural value chains, in particular the Outgrower and Value Chain Fund (OVCF), the Rural Development Fund (RDF), and the Rural Enterprise Development Fund (REDF); (ii) the current status of the different types of FIs that are potential partners for AAFORD (especially Rural and Community Banks, universal banks, credit unions, and savings and loan companies) and their understanding of and readiness to use instruments such as guarantees, insurance and warehouse receipts; and (iii) lessons of experience with respect to concessional lines of credit, mandated interest rate spreads, matching grants, insurance and guarantees.

The demand survey will help in determining the allocation of credit funds between Windows 1 and 2, i.e., adjusting the arbitrary allocation made at design stage. The relative costs of the different sources of funds should also be considered, with more expensive funds allocated to Window 2 to the extent consistent with the objectives of the different funders.

This review will include an assessment of the different channels through which additional funds for agricultural value chains might flow. Whereas RCBs are best positioned to receive funds through the ARB Apex Bank (even if the fund itself may be lodged in BoG), universal banks may be in a position to access funds directly from private international sources.

Steps for Establishing BFF

To prepare for administratively launching the BFF, the AAFORD Project Coordination Unit (PCU) will first prepare draft operational manuals, drawing on those for the REDF and Matching Grant programmes under the Rural Enterprises Programme (REP).

Accounts

BoG will then open accounts to receive funds – both in foreign exchange (for externally-provided funds) and in Cedis (for the GoG contribution of REDF funds at the end of REP, as well as for BFF reflows). If some funders have restrictions against investing contributed funds (to generate revenues that would help cross-subsidize the low wholesale rate to be offered), it may be necessary to set up separate foreign exchange accounts for different sources of funds. The ARB Apex Bank will also open (i) an account to receive funds from BoG that have been approved for disbursement to RCBs and other microfinance institutions (MFIs) that it will handle; and (ii) an account for results-based grants (Window 3).

Funding

Meanwhile, the PCU should be following up to formalize agreements with external funders that have been identified as potential contributors (in addition to IFAD and GoG). Those funders that are able to advance funds would then be requested to do so. For those whose methodology is refinancing of designated portfolios, it may be necessary first to build up a pipeline of proposals as a basis for estimating disbursements to be (re)financed over the next quarter in response to disbursement requests.

PFI

The PCU will issue a request for expressions of interest by financial institutions that wish to partner with AAFORD, to be able to access the BFF, as well as to receive capacity-building support if they are serving beneficiaries in the AAFORD Project areas. Criteria for selection would include:

Licensed and meets minimum capital, reporting and regulatory requirements of BoG;

For RCBs, ARB Apex Bank “Satisfactory” rating or above (however, “Fair” RCBs may be considered if they are the only formal FI serving a particular AAFORD cluster);

Serving or interested in serving AAFORD areas and target groups (smallholders, women, youth).

Contributions

The BFF is intended to be flexible enough to mobilize funding from different sources, including international private impact investors. Core funding from the AAFORD Project and GoG (reflows from REDF) available at a nominal cost makes it possible to absorb private funds at a higher (but still development-oriented) rate and blend them to meet the targeted low wholesale rate for on-lending to smallholder farmers for agricultural production. In particular, co-funding is being sought from The Green Climate Fund (GCF) and the Agri-Business Capital (ABC) Fund.

For investments (whether involving equipment³⁸ or just working capital) financed through BFF, the expected contributions as a share of the total investment amount are:

Borrower: 10% (so loan is for 90% of investment cost)

PFI: 18% (20% of loan amount)

BFF: 72% (80% of loan amount)

Pricing and Terms

Given the above shares, in calculating the average cost of funds to the PFI for on-lending, it will be necessary to include the true marginal cost of the funds provided by the PFI, as well as the rate charged on the funds from BFF. For RCBs, the cost of borrowing from the ARB Apex Bank is presently at 24%. Thus, even if BFF charges 0% on its contribution, the blended cost of funds to the PFI would be 4.8%. If the BFF charges 10%, the blended cost of funds would be 12.8%. This is the base rate on which the PFI’s markup should be calculated (not just the rate from the BFF). Thus the BFF would have to charge no more than 4% to keep the blended cost of funds to the PFI below 8%. Since the wholesale interest rate to PFIs is expected to be lower for Window 1 than Window 2 (serving commercial farms, offtakers, input suppliers, and MSMEs with a

³⁸ Investments involving equipment or other capital investment may be eligible for matching grants from REP or GASIP to reduce the amount that has to be borrowed.

higher ability to pay), it may make sense to allocate higher cost funds to Window 2, if compatible with the objectives of the investors.

The average cost of funds to BFF must also be considered. While funds from GoG (whether borrowed from IFAD or recycled from REDF) may be made available at a negligible (or even 0%) interest rate, those from external sources may come at a cost. In order to ensure that international investors that can earn a satisfactory return on their contributions, the weighted cost of all the loan funds in BFF must be considered in calculating the blended cost. That is, if half the resources come from international sources at 8% interest and the other half from IFAD and GoG at 2%, the blended wholesale rate to PFIs would be 5%. When funds are disbursed, they presumably would be charged proportionately to the different sources of funds.

The spread that the PFI adds to the wholesale rate should be sufficient to cover:

Operating costs (for RCBs, estimated to be on the order of 14-20% of loan portfolios);³⁹

Loan loss rate: normally 3-5%; expected to be higher on average (over several years) for agricultural loan portfolios

Profit margin: 3-5%;

Risk premium.

Uncertainty about the degree of risk is one reason FIs have been reluctant to lend for agriculture. Insurance and guarantees have helped to put a price on mitigating that risk by sharing in losses. The costs of risk-mitigating instruments for agriculture presently are:

Agricultural production insurance (50% coverage): 7-8% (GAIP)

Portfolio guarantee (50% coverage): 1% (GIRSAL; internally subsidized rate)

All of these costs would add a total of about 33% (28-39%) to the cost of funds if both insurance and guarantees are used – comparable to existing retail rates (ignoring the cost of funds), but well above rates that are considered affordable for agricultural value chains, especially production. BFF's onlending rates will be negotiated through the stakeholder platforms that are supported by AAFORD Subcomponent 2.2 to make sure the repayment burden on production loans for semi-subsistence smallholder farmers is minimized and provides for reasonable returns on their production activity.

The BFF grant window would buy down 70% of the cost of insurance and guarantees, so that they would add no more than 1-3% to costs.

Even if RCBs are willing to accept a zero profit margin in order to fulfill their mandate to serve their rural agricultural constituencies, the costs of providing credit would still need further subsidy to be both affordable to the targeted borrowers and not impose a net cost on the PFI. For this reason, BFF Window 3 will include the option to share in direct costs to PFIs of developing agricultural loan portfolios. The

39 GHAMFIN, Performance Monitoring and Benchmarkings of Microfinance Institutions in Ghana: Trends in the Industry during the 2000s, Accra: GHAMFIN, 2014, Table 3.11. Nevertheless, some RCBs are indicating that they add only 7-9% for operating costs.

parameters for doing so, as well as the considerations and determinants of interest rates and spreads, are to be discussed and negotiated in stakeholder Forums to be held by AAFORD.

Especially for Window 1, PFIs are expected to offer flexible loan products that can be adapted to the cash flow of the borrowers; i.e., the loan duration and grace period should be consistent with the crop cycle. TA support is provided under AAFORD Subcomponent 1.2 for the purpose of developing suitable products, especially for RCBs.

Sustainability

The BFF is not expected to fully retain its value in real terms over time without periodic replenishment, because funds will be priced below the rate of inflation in order to make retail interest rates affordable to smallholder farmers. In addition, loan losses and management fees will tend to diminish the reflows. Nonetheless, repayments during the Project period (and after) will be substantial, and it is critical to ensure that funds will continue to revolve. Thus a review will be undertaken of the administrative arrangements under BFF and REDF to make recommendations on how they might be utilized or amended to ensure that the funds continue to revolve on more or less the same terms. The objective is to institutionalize the BFF and set up for periodic replenishment, if the supply of funds dwindles below demand. The review would also assess the best mechanism for accessing additional international private funds, including what would be required for ARB Apex Bank to be able to access such funds directly and manage them, and the current capability of the Apex Bank to do so.

This review is to be undertaken early in AAFORD, before the end of REP, so that formal arrangements can be concluded for GoG to transfer the balance and future reflows of REDF funds into the BFF, as well as for similar arrangements at the end of AAFORD.

Flow of Funds: Disbursement and Recovery

Once PFIs have been selected, they would work with AAFORD ZCUs, Youth Community Facilitators, Youth Institutional Interns, and Business Advisory and Resource Centres (BACs/BRCs) to develop a pipeline of proposed loans for agricultural production (Window 1) and for offtakers and rural MSMEs (Window 2) in the AAFORD areas. On the basis of loans approved or being requested, the PFIs should submit at least a month in advance of each quarter estimates of the amounts of funds to be (i) committed and (ii) disbursed during the next quarter.

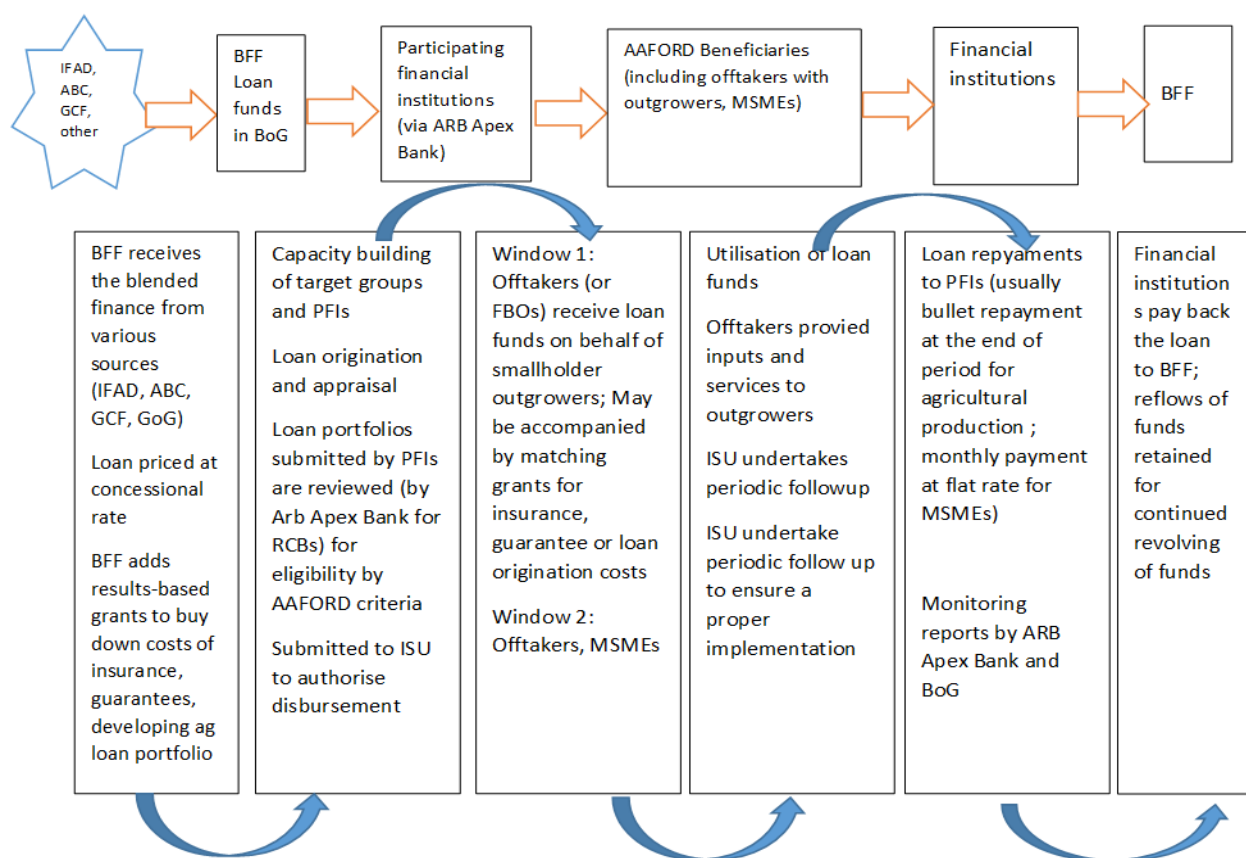
The flow of funds from BFF to PFIs and on to their clients, as well as reflows from clients to PFIs back to BFF, is depicted in Figure 2. The PFIs submit a package of loan proposals (normally on a quarterly basis) to ARB Apex Bank (or directly to BoG, in the case of universal banks) for review for consistency with BFF criteria, and authorization to disburse is sought from the ISU. When approved, the funds are disbursed by BoG to ARB Apex Bank for forwarding to its member RCBs or other participating MFIs (or directly by BoG to universal

banks). These PFIs then disburse to the borrower of record (for Window 1, this will usually be an offtaker, who will provide inputs and services to the associated outgrowers, who are the ultimate beneficiaries of the loan.

Disbursements from BFF would normally be charged proportionately across the sources of funds for each Window.

Loan recoveries then flow back in the same way. In the case of RCBs, ARB Apex Bank deducts the PFI's repayment obligation from its account with Apex Bank, regardless of actual repayment performance of the borrowers. This can cause liquidity problems for RCBs, and it is imperative that ARB Apex Bank monitor portfolio at risk (PAR) at the level of the PFIs.

BFF Flow of Funds



Subcomponent 2.2: Enhancing the environment for market access: The expected outcomes are the replication of success cases based on lessons learned, by engaging stakeholders in a learning process and a sustainable policy dialogue, enabling improvements in the overall framework to address the current weaknesses that inhibit public and private investment in agricultural value chains. Conducive policy dialogue, forums and stakeholder engagement are needed to improve the quality and efficiency of regulatory systems that govern access to key agricultural factors, particularly for smallholder farmers. Studies of lessons learned will provide a basis for replicating and scaling up successful models, and will help support improvement of the policy and legal framework.

Activities:

Collaboration with other IFAD programmes, Development Partners and Apex organizations for knowledge-sharing (informed by studies; see below), policy dialogue and replication. Annual Policy Forums will address issues such as: affordability of agricultural production financing and risk mitigation instruments; reducing production costs and enhancing productivity and returns on investment for smallholder producers (especially women and youths); development of market-enhancing institutions; development and status of FBOs, women and youth as clients of PFIs and intermediaries; warehouse receipts and their acceptability as collateral; identification of policy gaps of green agricultural financing in Ghana; etc. This will be implemented in partnership with an agency able to sustain the activity beyond AAFORD.

Lessons learned for replication: Studies will be undertaken to document lessons learned with respect to directed concessional and/or blended lines of credit to reduce producers' repayment burden, risk mitigation instruments, climate-resilient practices, and other lessons of experience to facilitate replication in other projects (e.g., with respect to making agricultural insurance more affordable; ensuring that some of the benefits of portfolio guarantees and insurance are passed on to smallholder farmers; minimizing adverse effects of climate change; inclusion of women and youth; etc.). The findings will feed into the other activities of this Subcomponent 2.2.

Enabling policy environment: This activity will involve development of the overall policy and the strategic and legal framework for expanding access of smallholders and other agricultural value chain actors to financial services. Drawing on the results of the above stakeholder consultations and studies, AAFORD will facilitate the updating of the agricultural finance strategy and action plan; implementation of the legal framework for warehouse receipts; and other relevant policy, regulatory and legal issues that arise.

The immediate policy issue to be addressed is legislation to formally recognize and specify the terms of warehouse receipts, which at present come under general contract law and are not widely understood or utilized. AAFORD also proposes to take the lead in engaging stakeholders to update the 2008 Agricultural Finance Strategy and Action Plan, recognizing that significant developments have taken place in the last decade (especially regarding various risk mitigation instruments, FBOs, and District-level coordinating mechanisms) and that there is a need for greater coordination of policies and approaches governing various government and donor-supported projects. In addition, AAFORD would support an annual Policy Forum that would identify additional policy and legal issues that need to be addressed, and could potentially be supported under Subcomponent 2.2, in partnership with other programmes.

Component 3: Project Implementation Support

Details of all implementation support aspects is presented in section 4.K.a

Chapter 4: Programme implementation structure and responsibilities

Project Management, Implementation Structure and Staffing

Project management and coordination

The Project's Lead Implementing Agency (PLIA) will be the Ministry of Finance (MoF) with close collaboration with the Ministry of Food and Agriculture (MoFA), and also the Ministry of Trade and Industry (MoTI). These ministries will form the core of an inter-ministerial platform by ministers to provide policy guidance and consistency with government's development agenda. It shall have an annual meeting cycle.

AAFORD's implementation will rely on a mix of community, public and private sector and technical service providers. Beneficiary households will play a lead role through CIs (farmer-based organizations, NGOs, women and youth groups, savings and credit groups, among others).

Project Steering Committee (PSC): A high-ranking inter-ministerial Project Steering Committee (PSC) will be set up for overall policy decisions and guidance at the central level. The Minister of Finance will designate the Chair of the PSC and an alternate. The committee will include representatives of all relevant ministries and agencies (MoF, MoFA, MoTI and representatives from the regions of implementation), and both public (representing financial sector intermediaries and agricultural market intermediaries) and private sector institutions and non-state actors' representatives (such as NGOs), those representing financial sector intermediaries and agricultural market intermediaries, and representatives of youth and women who operate along the relevant agricultural value chains as practitioners or advocates. The PSC will meet at least twice a year, and as necessary. The main responsibilities of the steering committee will include: (i) providing strategic and policy guidance to the Project Coordination Unit (PCU) for implementation and coordination of activities; (ii) ensuring overall conformity with government policies and strategies; (iii) reviewing project progress and performance; (iv) approving the Annual Work Plan and Budget (AWPB); (v) resolving implementation problems or conflicts; and (iv) assisting the ISU in obtaining government assistance and contributions to the project when needed. An PSC Technical Committee (PTC) will be constituted at the central level comprising members drawn from the PSC. The PTC will serve as a standing committee empowered to meet whenever needed to resolve implementation bottlenecks that cannot be settled at the zonal level and requires immediate attention.

Zonal Platforms: A zonal Platform (ZP) will be formed in each AAFORD implementation zone to oversee planning, review progress, facilitate linkages between project stakeholders and remove bottlenecks affecting smooth implementation. The ZP will comprise representatives of MoFA (Regional Agricultural Development Units (RADUs), MoTI, district assemblies, financial institutions, agricultural market intermediaries such as offtakers (aggregators, processors and nucleus farmers), input suppliers and representatives of farmer groups and civil society organisations, among others in the private sector. The ZP will meet at least twice a year, and as necessary. The ZP will constitute a Zonal Technical Committee (ZTC) from within the ZP members to meet whenever needed to resolve any project implementation bottlenecks encountered within the Zones.

Implementation structure: A two-level organisational structure will be established. The Implementation Support Unit (ISU) located in Sunyani and two Zonal Coordination Units (ZCUs); one in Sunyani and the other in Tamale. Each ZCU will be roughly anchored in the jurisdiction of the former Brong-Ahafo and Northern

regions. These zonal offices will represent the coordinating centres for the operational areas of AAFORD. (Refer to PIM for organizational structure, implementation modalities and procedures).

ISU: The ISU will be established in an implementation area of AAFORD to ensure effective implementation. Within the current targeting framework, the ISU is envisaged to be located in Sunyani. All ISU staff members will be competitively recruited from the professional labour market and will work on a full-time basis for managing AAFORD. The coordination unit will operate within the strategic framework of the Financial Services Division of the MoF⁴⁰, which will provide oversight and strategic direction to the ISU. A Central Project Coordinator (CPC) will head the ISU's day to day operations. The CPC will be assisted by a central technical support team and a central operations support team with the following composition. Wherever possible or relevant, synergies with other Project Units could be brought in subject to how complex such arrangement would be, especially in cases where the units are in different line ministries.

Central technical support team: The central technical support team will comprise the following officers: (i) Senior Monitoring and Evaluation Specialist (SMES), (ii) Senior Rural Finance Specialist (SRFS), (iii) Community Development, Livelihood and Gender Specialist (CGS), and (iv) Climate and Environment Specialist (CES). This team will carry out overall technical planning, implementation oversight and technical guidance to the Zones for AAFORD implementation.

Central operations support team: The team will consist of (i) Senior Finance Manager (SFM), (ii) Project Accountant (PA), (iii) Accounts Assistant (AA) (iv) Procurement Officer (PO), and (v) Procurement Assistant (PrA). This team will perform financial planning, management and control; project procurement, contracting and contract management and staff evaluation. It will monitor, record and report community and government levels.

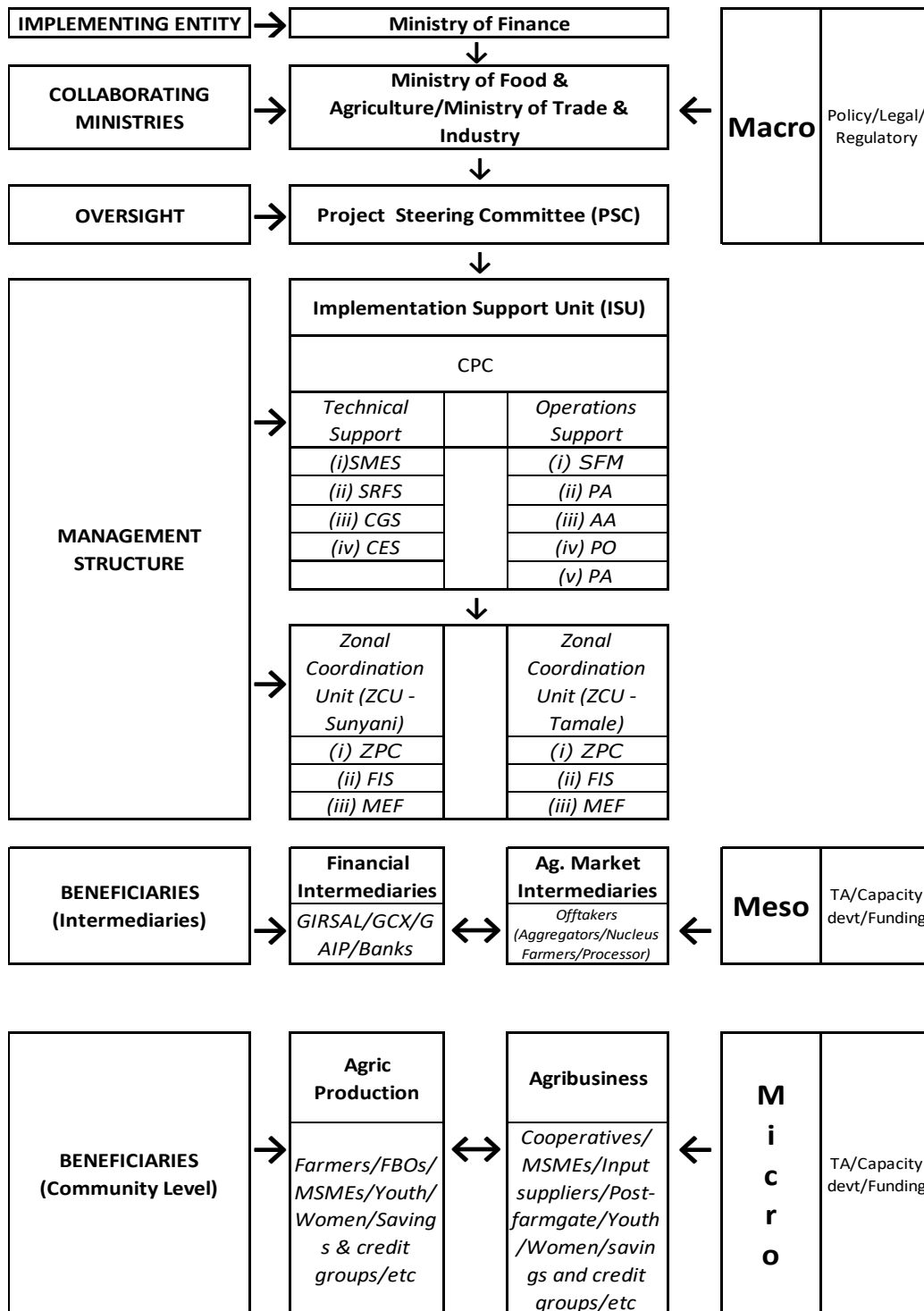
Zonal Coordination Unit (ZCU): The ZCUs will be responsible for the zonal operations of AAFORD and will be staffed by professionals competitively recruited to manage AAFORD at the ZPCU level on a full-time basis. The zonal team will comprise (i) ZCU Project Coordinator (ZPC), (ii) Field Implementation Supervisor (FIS), (iii) Monitoring and Evaluation Focal Point (MEF).

IFAD has a Complaints Procedure to receive and facilitate resolution of concerns and complaints with respect to alleged sexual exploitation and abuse (SEA). More information can be obtained from IFAD webpage: <https://www.ifad.org/en/document-detail/asset/40738506>.

40 Refer to PIM (Annex 10) for details

AAFORD Organogram

AAFORD ORGANOGRAM



(i) Central Project Coordinator (CPC), (ii) Senior Monitoring and Evaluation Specialist (SMES), (iii) Senior Rural Finance Specialist (SRFS), (iv) Community Development, Livelihood and Gender Specialist (CGS), (v) Climate and Environment Specialist (CES), (vi) Senior Finance Manager (SFM), (vii) Project Accountant (PA), (viii) Accounts Assistant (AA) (ix) Procurement Officer (PO), and (x) Procurement Assistant (PA), (xi) ZPCU Project Coordinator (ZPC), (xii) Field Implementation Supervisor (FIS), (xiii) Monitoring and Evaluation Focal Point (MEF)

Community level implementation: The ZCUs will carry out project implementation at the community level with the support of partners in the public and private sectors, such as service providers and NGOs. AAFORD will train (through ToTs) a pool of Youth Community Facilitators (YCFs) in each community cluster. Based on needs, the partner CIs will engage the YCFs to support AAFORD implementation at the community level and pay allowances supported by AAFORD. Additionally, AAFORD will train young graduates in skills identified by partner marketing and financial institutions as relevant to increasing their outreach to smallholder farmers (especially women and youth), offtakers and other agricultural value chain actors. The trained graduates will be supported as (Youth Institutional Interns) in the PFIs, offtaker institutions and in the BACs/BRCs in collaboration with REP. AAFORD will then deploy one YIIs in each community cluster to support project implementation in coordination with the partner CIs and the YCFs. The YIIs will be capacitated through training and technical assistance support, paid allowances, and provided with YII certificate at the end of the project. The support to the YIIs will contribute to IFAD's youth inclusion priority. After their engagement with AAFORD the YIIs can join the CIs to continue community-level services, become independent service providers, join agribusinesses and enterprises in the project area or be engaged as agents or full time staff of financial intermediaries in their delivery of services to value chain actors. The ZCU with the support of SPs, YIIs and YCFs will facilitate the development of CODPs in the community/clusters on an annual basis through participation of all the implementing partners. The ZCU will monitor and ensure that implementation is coordinated in each community according to these plans leading to harmonisation of resources and interconnectivity of the components.

Institutional development and expected outcomes through the use of various service providers: Different types of service providers will be used at various levels to develop targeted institutions. At the macro level, technical service providers will support ministries, departments and agencies to engage in a constructive consultative process with stakeholders leading to the development of agricultural sector policies and closing legal and regulatory gaps as necessary to advance an enabling environment for efficient financial and agricultural markets. At this level, support might also be required for sensitization on the new policies and regulations to promote their adoption and use in a sustainable manner. AGRA, as an AAFORD co-financing partner will participate in the implementation of the policy related interventions in collaboration with service providers, preferably partners and/or NGOs, with experience in policy development and advocacy and a history of practical engagement of communities targeted by AAFORD

The meso level has institutions such as agricultural market intermediaries and support services such as offtakers, input suppliers, financial intermediaries (such as Rural and Community Banks), and market-enhancing institutions (such as GIRSAL, GCX and GAIP). These institutions will be strengthened with capacity building interventions from technical and training services providers to (i) develop and market the services of agricultural market intermediaries towards improving the production, productivity, quality and market accessibility; and (ii) align the product offerings of financial intermediaries to improve access to their services by target beneficiaries along the agricultural value chain, especially those involved in production and women, youth and vulnerable groups. The service providers in this category include public institutions such as the business advisory and resource centres (BACs/BRCs) and private sector operators, including NGOs.

The community or micro level has the primary beneficiaries of AAFORD; the households and micro, small and medium enterprises who are active participants along the agricultural value chain. AAFORD will engage competent service providers which community development experiences (private sector, NGOs) to implement community level activities in coordination with YCF and YIIs.

Component wise roles and responsibilities: The component wise roles and responsibilities of the project staff are presented below;

Components	Activity	Lead responsibility	Field delivery by
Component 1: Technical Assistance for Development of Sustainable and Climate Resilience			
Sub-component 1.1: Develop capacities of target groups to expand marketable surpluses	Identification of key technical partners and service providers	Senior Rural Finance Specialist (SRFS)	Field coordinators supported by Capacity Building Service Providers (CBSPs) and community facilitators (YCFs & YIIs).
	Identification and needs assessment of community clusters	Community Development, Livelihood and Gender Specialist (CGS) & Climate and Environment Specialist (CES)	Field coordinators (FISs) supported by CBSPs and community facilitators (YCFs).
	Mobilization of youth community facilitators	Community Development, Livelihood and Gender Specialist (CGS)	Field coordinators (FISs) supported by CBSPs and community facilitators (YCFs).
	Development of Community Outreach Development Plan (CODP)	Community Development, Livelihood and Gender Specialist (CGS)	Field coordinators (FISs) supported by CBSPs and community facilitators (YCFs).
	Capacity building of target groups	Senior Rural Finance Specialist (SRFS) & Climate and Environment Specialist (CES)	Capacity Building Service Providers (CBSPs) supported by field coordinators (FIs) and community facilitators (YCFs & YIIs). Also, MoFA

			extension services unit and REP BACs/BRCs.
	Support to community institutions (CIs)	Community Development, Livelihood and Gender Specialist (CGS) & Climate and Environment Specialist (CES)	Field coordinators (FISs) supported by CBSPs and community facilitators (YCFs).
	Community-based savings and credit groups (CSCGs) for women and youth	Community Development, Livelihood and Gender Specialist (CGS)	Field coordinators supported by CBSPs and community facilitators (YCFs).
Sub-component 1.2: Capacity building of institutional partners and intermediaries	Mapping, needs assessment and selection of partner institutions	Senior Rural Finance Specialist (SRFS) & Climate and Environment Specialist (CES)	Field coordinators supported by Capacity Building Service Providers (CBSPs) and community facilitators (YCFs & YIIs). Also, REP BACs/BRCs.
	Development of Outreach and Linkage Business Plans (OLBP)	Senior Rural Finance Specialist (SRFS) & Climate and Environment Specialist (CES)	Field coordinators supported by Capacity Building Service Providers (CBSPs) and community facilitators (YCFs & YIIs). Also, REP BACs/BRCs.
	Capacity-building of selected partner intermediaries	Senior Rural Finance Specialist (SRFS) & Climate and Environment Specialist (CES)	Capacity Building Service Providers (CBSPs) supported by field coordinators (FIs) and community facilitators (YCFs & YIIs).
	Youth Institutional Internship (YII) Programme	Senior Rural Finance Specialist (SRFS) & Climate and Environment Specialist (CES)	Capacity Building Service Providers (CBSPs)/field coordinators (FIs)/community facilitators (YCFs).
	Cluster Linkage Problem-solving	Youth Community Facilitators (YCFs) &	YCFs with support from CBSPs and YCFs.

		Climate and Environment Specialist (CES)	
Sub-component 1.3: Capacity building of institutional partners and intermediaries	Outreach of financial and agricultural services	Senior Rural Finance Specialist (SRFS)	Bank of Ghana/ARB apex Bank/Field facilitators (YCFs, YIIs)/Consultants/REP BACs and BRCs.
Component 2: Expanding affordable finance in a conducive environment			
Sub-component 2.1: Expanding affordable finance in a conducive environment	Establishment and operation of Blended Finance Facility	Senior Rural Finance Specialist (SRFS)	Bank of Ghana/ARB apex Bank/Field facilitators (YCFs, YIIs)/Consultants/REP BACs and BRCs.
Sub-component 2.2: Policy dialogue	Enhancing the environment for market access	Central Programme Coordinator	Partners/Consultants

Planning and budgeting

As far as the day-to-day implementation of AAFORD is concerned, an approved Annual Work Plan and Budget (AWPB) will be the most important document in the project, and the principal guide on what to do and how to use resources. The AWPB will represent a commitment of project managers and implementing partners to carry out a set of activities, produce specific outputs and achieve certain targets. At inception, the Logical Framework (project strategy) will be reviewed and validated in a start-up workshop with the participation of representatives from all stakeholder groups. This review will help the relevant stakeholders to have a clear appreciation of the project strategy as an important aspect of the planning process.

In order to make planning more goal-oriented, the AWPB for each year in the life of the project will be prepared on the basis of the validated Logical Framework. All planned interventions would be implemented through an approved AWPB, which will be the primary source of input and output indicators. Annual work plans will specify a detailed description and schedule of activities to be undertaken with implementation responsibilities, required inputs, expected outputs, performance indicators and corresponding targets. The AWPB shall also include a procurement plan and a financing plan. Partners involved in the implementation of the various components of the project will be responsible for preparing the required work plans and budget according to an agreed format. The Implementation Support Unit (ISU) and Zonal Coordination Units (ZCUs) will ensure overall coordination and efficiency of the planning process. The ISU will also monitor efficiency of targeting, poverty focus, gender focus and youth focus.

The work planning process and timelines

The quality of the annual planning process that leads to an AWPB will greatly influence the quality of implementation and project results. There will therefore be a creative planning process to identify the best way to achieve project objectives and the most efficient way to use project resources from year to year. The AWPB for each year will be prepared at the beginning of the 4th quarter of the preceding year. A participatory planning process at cluster level will take place to develop the AWPB for each particular cluster. This bottom-up approach will ensure strong stakeholder participation, engender a sense of ownership of the programme and, to a large extent, facilitate smooth project implementation.

The process will be guided by the components and targets set for each expected outcome and output in order to ensure contribution to reaching programme objectives. Table 1 summarizes the indicative timelines for the AWPB preparation process.

Work planning will not stop with an annual plan. More is needed to achieve effective project implementation. At the time of implementation, each implementing agency will use the approved AWPB as a starting point for detailed activity planning, close supervision and coordination of field activities.

Table 1. Deadlines for Preparation of AWPB

Level	Activity	Deadline
Northern Zone	Strategic review of logical framework/ implementation experience and performance assessment at the Zonal level	September (1st week)
Central Zone	Strategic review of logical framework/implementation experience and performance assessment at the Zonal level	September (2nd week)
Cluster Level	Preparation of proposals that are transferred to Zonal Office	September 30
Zonal Office	Consolidation of Cluster contributions at Zonal level	September 30
Zonal Office	Zonal AWPB consolidated and submitted to ISU	October 10
ISC	National AWPB consolidated and submitted to Project Steering Committee (PSC)	October 24
PSC	Draft AWPB approved	October 30
ISU	Draft AWPB sent to external financiers	November 8

M and E

The monitoring and evaluation (M&E) system will generate comprehensive and reliable information to support planning and decision-making for results-based management. It will provide information on implementation progress and constant feedback into the Management Information System (MIS) to facilitate the identification of problem areas, evaluating the performance of implementing agencies and assessing achievements at the level of outcomes and impact.

An effective M&E system will create an historical overview of efforts made, problems faced, results delivered, lessons learned and objectives achieved, which will be used to deepen and share the knowledge about factors that influence implementation and project results and thereby help to improve implementation approaches.

The M&E system will facilitate monitoring at activity level and results measurement at higher levels, typically of project outputs, outcomes and impact. It will consist of a variety of tools and procedures that can be used to accomplish a number of tasks. These include collecting data from the field, recording data in a consistent manner, transmitting data to a central place, storing well organized data safely and in an easily accessible format, processing data so that it can be used and presenting information to implementing partners and other stakeholders in reports and through other means.

Indicator Selection

AAFORD will constantly monitor the progress of its achievements against established objectives and indicators by ensuring that data collection systems are sufficiently planned and implemented to ensure that information on the success and limitations of the project is adequately collected. The relevant set of Core Indicators (CIs) from IFAD's Operational Results Management System (ORMS) along with other indicators in the project logframe, will be adopted to help assess the projects' outputs and outcomes more accurately. It will take gender and youth targeting into account by whenever possible, disaggregating data in gender and youth (15-34 years).

The monitoring framework

M&E framework for AAFORD will consist of a monitoring framework and an evaluation framework. The monitoring function will involve regular collection and analysis of information to assist timely decision making, ensure accountability and provide the basis for evaluation and learning. It will be a continuing

function that will use methodical collection of data to provide implementing partners and the main stakeholders of the project with early indications of progress and achievement of objectives. The monitoring function will be integrated within the management structure of each of the project components or initiatives at the various clusters since monitoring information generated by the information system has project implementation teams as the primary users. All project interventions and initiatives will therefore operate and maintain their respective information on inputs and outputs using the platform provided by a web-based electronic information system.

The main role of the Senior M&E Manager at the National level and the M&E Officers at the Regional Project Coordination Units will be to provide oversight, tools, training and backstopping for other staff on all aspects related to M&E. The M&E staff to be recruited by Partner Service Providers will consolidate, check and analyze data submitted by field staff and use the information to prepare consolidated plans and reports and facilitate learning.

The main tools to be used for implementing the monitoring framework will include the Annual Work Plan and Budget, the Progress Reporting System, the Beneficiary Contact Information System, follow-up diagnostic studies and a web-based platform for data storage, retrieval and reporting.

The evaluation framework

Baseline data on beneficiaries and non-beneficiaries of the project will be collected within three months after the project has come into effect. The objective of the baseline assessment will be to provide the necessary benchmarks on indicators prior to the project intervention to aid easy and proper impact assessment. It will provide quantitative and qualitative data for effective tracking of outcome level indicators. The evaluation of the effectiveness and impact of the project will draw on the database created at baseline and during the monitoring process, supplementing it as necessary with data on project impact, and reviewing the combined information over an extended period to assess achievements.

The assessment of outcome indicators will be mandatory. Both project-specific outcomes and CI outcomes will be assessed on a "contribution" basis, using methodologies that are sound and at the same time manageable within the M&E budget as well as existing capacities. The adoption of the methodology or approach for Annual Outcome Surveys (AOS) is recommended for assessing the outcomes of the project. A combination of secondary data, database analysis and a panel survey with a control group (Randomized Control Trial survey) will be used to assess the effectiveness and impact of AAFORD in attaining its medium-term objectives. The RCT will provide the basis for ascertaining whether improved behavioral changes were actually caused by the project's interventions.

AAFORD will report on its impact through the project completion report. In the event that the project is not covered by IFAD's impact assessment programme, then the project will conduct a project impact assessment of some kind (at least by estimating contribution as opposed to attribution), with support provided by IFAD's new M&E capacity-building initiatives. For later impact measurement, interim post-implementation evaluation studies will be carried out.

Independent agencies or consultants would be brought in to conduct evaluations and impact assessments as and when they are due. The chosen agencies will carry out the surveying, checking on the monitoring information with a more objective viewpoint not only to assess whether specific interventions have been fully implemented but also assess the extent to which indicator targets for expected outcomes and impacts have been achieved.

Information gathering and organization

The collection and organization of information/data on project operation and performance will be participatory to the extent possible. Data on project implementation and outputs will be collected from the relevant office, project communities, stakeholders and other relevant sources. Information gathered will be matched with project objectives and targets to identify any gaps. This will present a fair assessment of what to include in the MIS.

Details about responsibility for data collection, method and frequency of data collection and synthesis for all input, output, outcome and impact indicators will be described in the M&E Plan that will be developed at project inception. Appropriate formats for data collection and synthesis will be developed and included in the M&E manual to aid information gathering and organization.

Development of Electronic Management Information System (MIS)

The development of a web-based platform for data storage, retrieval and reporting would necessarily be aligned to the information needs identified in the M&E plan as well as those that will be identified in future. The electronic MIS will serve as a centralized repository of data for all operational, performance and impact indicators for project interventions. It will serve as a one-stop system on which personnel at various levels within the organizational structure can rely for real time data as well as timely, accurate, and consistent reports on the status of implementation of interventions. The MIS will provide additional benefits by focusing the activities of the various teams, providing visibility on these activities and improving reporting capabilities.

The integration of GIS information in the MIS will improve analysis capabilities and help implementing partners gather and use data and generate the necessary indicators required to measure progress or otherwise.

Learning, KM and communication

In order that the benefits to be derived from AAFORD is optimized, stakeholders at the district, regional and national levels need to know about the achievements of the project and the value it creates. There are multiple benefits to be derived from communicating effectively about how the project is addressing the needs of the target population. Strategic communication of information about the project to key stakeholders will promote dialogue, participation, and a regular flow of information, thereby enhancing transparency and recognition.

The project will therefore develop a Knowledge Management and Communication Strategy, with the related activities captured in the AWP&B. Responsibilities for implementing the Knowledge Management and Communication Strategy will be assigned to the relevant persons or group of persons. The knowledge management strategy will capture and disseminate knowledge at various levels and will focus on issues that will be deemed to be critical during project implementation. To begin with, the priority will include the following: i) generating linkages among partners through transparency; ii) managing and sharing information, knowledge and experiences; and iii) conducting analysis that can provide the evidence base for policy interventions.

The output of the MIS will be used to inform knowledge management initiatives and will be disseminated within and beyond the intervention zone through existing information sharing networks and forums. Periodic knowledge sharing workshops will be organized to share learning among the implementing partners. Lessons documented by the National and Regional Project Coordination Units will be shared with other project stakeholders including the field staff. Analysis and documentation of lessons and good practices from the field will also be fed into the general knowledge management effort.

Implementation support and supervision missions.

Implementation support and supervision missions will be carried out by the lead Ministry (MOF) in close collaboration with IFAD and other co-financiers, including those to be undertaken at mid-term and project completion. Key performance indicators to be assessed will be: (i) programme outcomes; (ii) implementation of the AWPB, (i.e. progress in project outputs and activities); (iii) timing and quality of programming and M&E; and (iv) financial management and disbursement of funds. A status on these indicators will be prepared by the PCU.

Periodic and regular status and supervision reports will provide data for measuring and monitoring project performance during implementation, with results for CIs (and other indicators in the logframe) at output and outcome level being regularly measured and reported during supervision and at least once a year.

Chapter 5: Project Cost and Financing

Project costs and financing

Main assumptions. The project is financed over a six-year (6) period, and it is assumed to start in 2020 year. Costs have been estimated on the basis of prices prevailing during project design in October 2019.

Physical and price contingencies. Price contingencies have been applied on all costs, with the exception of grants.

Inflation. According to the Economist Intelligence Unit, a high inflation of 9.6 per cent will remain in 2019, given a weakening currency and strong growth in private consumption. The rate is expected to remain between 6-10 per cent target range for the upcoming few years, for a similar reason⁴¹. For the purpose of this analysis; annual local inflation rates have been set at between 9 to 6 per cent throughout the six project years. For foreign inflation, an average inflation around 4 per cent has been retained. Below table 1 is providing more details in regards forecasted local and international inflation rate for each year.

Table 1. Projected inflation rate

Forecasted inflation Rate	2019	2020	2021	2022	2023	2024
Ghana	9,1	8,4	7,5	6,8	6,3	6
Emerging market and developing economies	4,9	4,7	4,5	4,4	4,3	4,2

Source: IMF, 2019 ⁴²

41 Retrieved from Economist Intelligence Unit, on Sep, 2019.

42 International Monetary Fund. Source retrieved from: IMF Inflation rate on Sep 21st, 2019, Inflation rate, average consumer prices (Annual percent change). Link retrieved from: <https://www.imf.org/external/datamapper/PCPIPCH@WEO/OEMDC/>

Exchange rate. The exchange rate used is 1 US\$: GHS 5.5, which is calculated as the prevailing exchange rate during design mission that occurred in October 2019. 43

Taxes and duties. Part of the Government co-financing of the project will be in form of waiving of all taxes and duties on goods and services procured under the project. The rates and amounts of the taxes and duties in the project's costs presented below are defined only to determine the Government contribution and to value the total project cost.

The items to be imported for the project attract import and excise duties of varying proportions, and a value-added tax (VAT) levied on all imported goods. 44

Project costs

The total project costs including physical and price contingencies are estimated at US\$ 69.7 million over six years implementation period. Project costs by components are summarized in table 1, while a complete set of project summary tables and detailed costs tables are presented in attachments 1 and 2 of this appendix.

Project costs by components. Project investments are organized into three major components: (i) "Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains" (41 per cent of the total costs); (ii) "Expanding and Directing Affordable Finance in a Conducive Environment (52 per cent of the costs); (iii) "Implementation Support" (IS) (7 per cent of the costs). A summary breakdown of the project costs by components and financier is shown in table 2 below.

43 Operational UN exchange rate, retrieved from:
<https://treasury.un.org/operationalrates/OperationalRates.php>

44 The VAT in Ghana is technically 18.125 per cent of which standard VAT is 12.5%, NHIS and GET Fund are 2.5% each totaling 5% of the VAT inclusive amount. Assuming the VAT amount is GHS 100, VAT shall be GHS 12.5 and NHIS + GET Fund $(112.5 \times 5\%) =$ GHS 5.625. Total VAT shall than be 18.125%.

Table 2: Project costs by component and Financier (US\$'000)

Republic of Ghana													
Affordable agricultural financing for resilient rural development (AAFORD)													
Project Components by Year -- Totals Including Contingencies													
</													

Project financing/co-financing. The total project costs of US\$ 69.7 million will be financed by i) IFAD US\$ 15 million (IFAD Loan US\$ 11.5 million and IFAD Green grant US\$ 3.5 million) ; ii) AGRA (US\$ 1 million parallel financing); iii) GCF (US\$ 9.9 million); iv) GoG (US\$ 25.9 millions of which US\$ 7.9 million as most of the taxes and duties exemptions, US\$11.4 million as contribution through GIRSAL risk sharing facility, US\$ 6 million as REP revolving funds contribution and GoG (cash) 0.6 million); (v) Partnering Financial Institutions (US\$ 4.3 million); (vi) ABC Fund (US\$ 4.3 million); (vii) AfDB (US\$ 3.5 million); and (viii) Beneficiaries (US\$ 5.8 million cash, casual labour, inputs and equipment).

The domestic contribution is robust, for instance, for each US\$ 1 IFAD investment; domestic contribution is US\$ 2.4. Similarly, for each US\$ 1 IFAD investment, international contribution is US\$ 1.3. Domestic contribution (US\$ 36 million) accounts for a robust 52 per cent of the total project costs and includes (i) GoG (taxies and duties) in the amount of US\$ 7.9 million, (ii) GoG (REP) in the amount of US\$ 6 million, (iii) GoG (GIRSAL) in the amount of US\$ 11.3 million ;(iv) beneficiaries (cash & in-kind) in the amount of US\$ 5.8 million, (v) PFI in the amount of US\$ 4.3 million and (vi) GoG (cash) in the amount of US\$ 0.6 million. The international contribution is contributing 48 per cent of the overall project costs (equivalent to US\$ 33.65 million) comprising: (i) GCF (US\$ 9.9 million), (ii) ABC fund (US\$ 4.3 million), (iii) AfDB (US\$ 3.5 million), (iv) AGRA (US\$ 1 million) and (v) IFAD (US\$ 15 million, of which IFAD Loan US\$ 11.5 million and IFAD Green grant US\$ 3.5 million)

Expenditure and disbursement accounts. The project will be rolled out through the project management unit -which will manage and coordinate the flow of funds and the expenditures incurred on account of the project activities. Financial management and procurement procedures are described in annex 7. A summary of the total costs by expenditure accounts and financier is shown in Table 3 and a summary of expenditure accounts by components with totals including contingencies is presented in Table 4.

Expenditure Category Overview. Credit and Guarantee Funds is the major expenditure account, estimated at US\$ 41.3 million, or about 59 per cent of the total project costs. The other investment expenditure accounts are training and workshops for an amount of US\$ 9.1 million or 13.1 per cent of total costs, followed by grants and subsidies for an amount of US\$ 8 million or 12 per cent of total costs, Consultancies for an amount of US\$ 6.6 million or about 9.4 per cent of the total cost, equipment's, goods and services for an amount of US\$ 0.6 million or 1 per cent of total costs. The recurrent costs represent 5.7 per cent of total costs at US\$ 4 million, comprising salaries and allowances for an amount of US\$ 3 million or 4.2 per cent of total costs, operations and maintenance for an amount of US\$ 1 million (1.5 per cent of project costs). The breakdown of expenditure accounts by component is reflected at the Annex 7. The breakdown of expenditure accounts by component is reflected at the table 3 and table 4.

Disbursement flow. To enable easy monitoring of progress, the below graph forecast the expected disbursement per year. This will allow continuously tracking progress during supervisor and following up mission. Around US\$ 17 million (24 per cent) of project resources will be disbursed till Year 3 and the

remaining US\$ 52.7 million (76 per cent) will be disbursed in the last three years of the project. AAFORD disbursement pattern is represented below:

Graph 1. Disbursement flow-AAFORD (US'000)

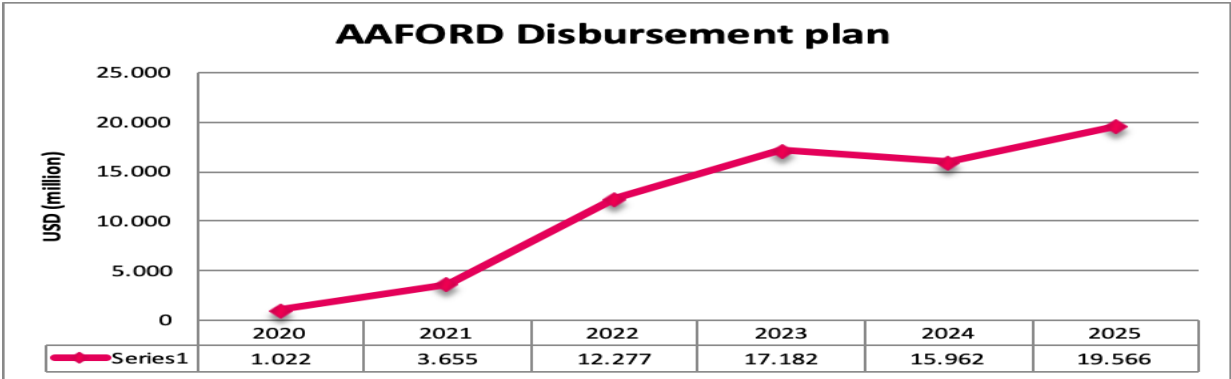


Table 3: Project costs by expenditure account and financier (USD'000)

Republic of Ghana																										
Affordable agricultural financing for resilient rural develo																										
Expenditure Accounts by Financiers																										
(US\$ '000)																										
	Government		IFAD		IFAD Green Grant		GCF		GoG (REP)		AGRA		PFI		GoG (GIRSAL)		ABC		AfDB		Beneficiaries		GoG (cash)		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Investment Costs																										
B. Equipments, Goods and Vehicles	116	18,1	525	81,9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	641	0,9
C. Consultancies	1.074	16,3	2.042	31,0	1.474	22,4	1.646	25,0	-	-	345	5,2	-	-	-	-	-	-	-	-	-	-	-	-	6.581	9,4
D. Training & Workshops	1.654	18,1	2.402	26,3	2.005	22,0	1.509	16,5	-	-	631	6,9	-	-	-	-	-	-	681	7,5	242	2,7	-	-	9.123	13,1
E. Grants and subsidies	1.450	18,1	843	10,5	-	-	2.464	30,8	-	-	-	-	-	-	-	-	-	-	-	-	3.243	40,5	-	-	8.000	11,5
F. Credit/Guarantee Funds_EA	3.411	8,3	2.496	6,0	-	-	4.308	10,4	5.976	14,5	-	-	4.267	10,3	11.360	27,5	4.290	10,4	2.840	6,9	2.371	5,7	-	-	41.318	59,3
Total Investment Costs	7.705	11,7	8.308	12,7	3.479	5,3	9.927	15,1	5.976	9,1	975	1,5	4.267	6,5	11.360	17,3	4.290	6,5	3.521	5,4	5.855	8,9	-	-	65.663	94,3
II. Recurrent Costs																										
A. Salaries and allowances	-	-	2.352	79,7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	20,3	2.952	4,2
B. Operating costs	190	18,1	859	81,9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.049	1,5
Total Recurrent Costs	190	4,8	3.211	80,3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	15,0	4.001	5,7
Total PROJECT COSTS	7.895	11,3	11.519	16,5	3.479	5,0	9.927	14,3	5.976	8,6	975	1,4	4.267	6,1	11.360	16,3	4.290	6,2	3.521	5,1	5.855	8,4	600	0,9	69.665	100,0

Table 4: Expenditure accounts by Components-Totals including Contingencies (USD'000)

Republic of Ghana Affordable agricultural financing for resilient rural development Expenditure Accounts by Components - Totals Inc (US\$ '000)	Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains						
			Expanding and Directing Affordable Finance in a Conducive Environment				
	Develop capacities of target groups to expand marketable surpluses	Outreach of financial and agricultural services	Marketing and ICTs for outreach of rural financial and agricultural services	Expanding and Directing Affordable Finance in a Conducive Environment		Value chain collaboration with other IFAD programmes	Implementation Support
							Total
I. Investment Costs							
B. Equipments, Goods and Vehicles	177	-	-	-	-	464	641
C. Consultancies	5.002	412	-	-	1.129	38	6.581
D. Training & Workshops	5.078	3.108	562	123	161	91	9.123
E. Grants and subsidies	-	-	-	8.000	-	-	8.000
F. Credit, Guarantee Funds_EA	-	14.200	-	27.118	-	-	41.318
Total Investment Costs	10.257	17.720	562	35.241	1.289	594	65.663
II. Recurrent Costs							
A. Salaries and allowances	-	-	-	-	-	2.952	2.952
B. Operating costs	-	-	-	-	-	1.049	1.049
Total Recurrent Costs	-	-	-	-	-	4.001	4.001
Total PROJECT COSTS	10.257	17.720	562	35.241	1.289	4.595	69.665
Taxes	1.727	638	102	6.387	216	291	9.361
Foreign Exchange	298	-	-	-	-	337	635

Total Cost per Component: Total Project Cost including physical and price contingencies are estimated at US\$ 69.7 million over a 6-year period. Component 2 on “Expanding and Directing Affordable Finance in a Conducive Environment” is the main investment and represents 52 per cent of the total project costs, while Component 1 on “Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains” representing 41 per cent of total project costs. ‘Implementation Support represent 7 per cent of the total project costs.

Project Financing: The Financing Plan covers i) an IFAD of US\$ 15 million, of which IFAD Loan is US\$ 11.5 million and IFAD Green Grant is US\$ 3.5 million (21.5 cent), ii) GoG (most of the taxes and duties) of US\$ 7.9 million (11.3 per cent), (iii) GCF of US\$ 9.9 million (14.3 per cent), iv) contribution from GoG (REP) of US\$ 6 million (8.6 per cent), v) AGRA of US\$ 1 million (1.4 per cent), (vi) contribution of GoG (GIRSAL) of US\$ 11.4 million (16.3 per cent), (vii) Partnering Financial Institutions of US\$ 4.3 million (6.1 per cent), (viii) ABC of US\$ 4.3 million (6.2 per cent), (ix) AfDB of US\$ 3.5 million (5.1 per cent), (x) beneficiaries contribution (cash & in-kind) of US\$ 5.8 million (8.4 per cent) and (xi) GoG (cash) of US\$ 0.6 million (0.8 per cent).

The base costs are calculated at October 2019 prices and include estimated duties and taxes. Total contingencies are respectively at US\$ 3.4 million or 5 per cent of total costs.

Investment costs are US\$ 65.7 million and represent 94 per cent of total costs. The foreign exchange component is at US\$ 0.6 million or 1 per cent of the total Project costs. The recurrent cost accounts for US\$ 4 million or equivalent to 6 per cent of the total costs. The exchange rate used is USD 1.0 = GHS 5.5. The cost per direct beneficiary household amounts to about US\$ 933 or US\$ 129 per beneficiary.

Below table 5 shows project components by year-total including contingencies in foreign currency respectively.

Table 5: Project Components by Year –Total including contingencies (USD’000)

Project Components by Year -- Totals Including Contingencies	Totals Including Contingencies (US\$ '000)						
	2020	2021	2022	2023	2024	2025	Total
A. Technical Assistance for the Development of Sustainable and Climate-Resilient Agricultural Value Chains							
Develop capacities of target groups to expand marketable surpluses	182	2,330	2,351	2,356	2,289	769	10,257
Outreach of financial and agricultural services	38	654	3,398	4,802	4,568	4,260	17,720
Marketing and ICTs for outreach of rural financial and agricultural services	-	-	-	180	187	195	562
Subtotal	220	2,984	5,749	7,338	7,024	5,224	28,539
B. Expanding and Directing Affordable Finance in a Conducive Environment							
Expanding and Directing Affordable Finance in a Conducive Environment	-	35	5,668	8,116	8,077	13,345	35,241
Value chain collaboration with other IFAD programmes	96	29	231	658	84	192	1,289
Subtotal	96	65	5,899	8,774	8,161	13,537	36,531
C. Implementation Support							
Implementation Support	706	607	629	1,070	777	806	4,595
Subtotal	706	607	629	1,070	777	806	4,595
Total PROJECT COSTS	1,022	3,655	12,277	17,182	15,962	19,566	69,665

Chapter 6: Financial Management

Financial Management Assessment

A Financial Management (FM) Assessment was conducted in October 2019 for the Ghana Affordable Agricultural Financing for Resilient Rural Development (AAFORD) in accordance with the IFAD's Project Fiduciary Risk Assessment at Design (2015). Given that the Financial Services Division of the Ministry of Finance (MoF) is currently managing the fiduciary functions for World Bank-financed projects, the project will build on existing FM arrangements which are assessed as adequate for ensuring: (1) that the funds are used only for the intended purposes in an efficient and economical way; (2) the preparation of accurate, reliable and timely periodic financial reports; (3) the safeguarding of the entity's assets; and (4) that adequate fiduciary assurances are provided through an independent audit of the project. The control risk is assessed as 'Medium' and the overall residual FM risk for the project is assessed 'Medium' due to the use of the GIFMIS which includes risk mitigating measures such as pre-auditing by the Internal Audit Unit (IAI) of MoF. The external auditing function will be performed by Ghana Audit Service.

Overview of Project and Institutional Arrangements

The project development objective (PDO) is to improve the income, food security and resilience of smallholder farmers including women and rural youth through skills development, increased access to finance and stronger farmers' organizations. The project will work with (i) GIRSAL to capacitate financial intermediaries to secure credit guarantees from the GIRSAL initiative and roll out affordable agricultural loans to poor smallholder farmers including women and rural youth; (ii) GAIP, GCX and a range of commercial banks, RCBs and rural MFIs and RCBs which express prior commitment to provide GIRSAL-linked services in the rural areas identified by AAFORD; (iii) Financial institutions that provide savings accounts to rural HHs and lend to agricultural value chain actors (farmers, offtakers, input suppliers), and sources of credit for on-lending to agricultural value chains (such as REDF, OVCF, RDF), as well as their apex associations (ARB Apex Bank, GHAMFIN).

The financial management and accounting functions of the project will be undertaken using the GIFMIS (GIFMIS is an integrated computerised Financial Management System that facilitates budget preparation and execution, accounting and financial reporting, cash management, assets management, human resource and payroll management) FM arrangements under the ISU of the MoF(FSD). The GIFMIS Secretariat of the Controller and Accountant Generals' Department (CAGD) shall set up the project's activity and accounting codes as well as customize reports that will show (i) sources of finance; (ii) cost category (iii) cost components; (iv) cost sub-components, etc. The Implementation Support Unit (ISU) will be responsible for preparation and submission of the IFRs every quarter in compliance with the legal agreement for submitting audited annual reports and for all the other FM activities of AAFORD. The project will be implemented under three components including: i) Building capacities of target groups, intermediaries and market-enhancing

institutions; (ii) Expanding and deepening outreach of market facilitators in a conducive environment; and (iii) Project Management, Monitoring and Evaluation.

Detailed Financial Management Arrangements

Policies and Guidelines. The policies, guidelines and operational procedures required to support implementation will be consistent with the Government of Ghana's financial procedures governed by Public Financial Management Regulations 2019 (L.I. 2378), Public Financial Management Act 2016 (Act 921), the Public Procurement (Amendment) Act 2016 (Act 914), Public Procurement (Amendment) Act 2016 (Act 914), and Public Procurement Act 2003 (663) and in line with IFAD policies.

Staffing. The Financial Services (FSD) Division of the Ministry of Finance will be responsible for accurate and appropriate financial accounting and management of resources made available to the AAFORD for effective execution and budget performance of the AWPB in accordance with IFAD policies and procedures.

Based on an assessment done in October 2019, the capacity of the Development Finance Unit of FSD (MoF) for the proposed project was found to be Moderately Satisfactory. The Finance department of the Unit is headed by a senior project accountant who holds an advanced degree (MBA) in Finance and Accounting with 13 years' experience in managing project finance and accounts. His experience includes managing World Bank-funded projects such as EMCB, NREG, EITI, GEMSTA and FSDP. He is assisted by a project accountant who also holds an advanced degree (MBA) in Finance with 10 years' experience in working on IFAD-funded project (RAFIP), World Bank-funded projects (EMCB, NREG, EITI, GEMSTA and FSDP), and USAID-funded project. To ensure adequate segregation of duties, the finance team of the Unit includes an Accounts Assistant.

The operational day-to-day fiduciary functions will be the responsibility of AAFORD Finance Manager in the ISU located in Sunyani in the Bono Region of Ghana. The staff members of the finance unit in the ISU will comprise (i) Finance Manager; (ii) Project Accountant; and (iii) Accounts Assistant. The finance team will use the national financial management system, the Ghana Integrated Financial Management Information System (GIFMIS) which is currently used by the FSD in managing all donor-funded project. The FSD and CAGD will be involved in the finance staff recruitment of the project. The Director of Finance of MoF will have fiduciary oversight responsibilities over the financial management of AAFORD.

The ISU of the FSD will manage the project funds on behalf of the executing agency (MoF), keep financial records according to international standards, implement internal controls, and ensure annual external audits to be conducted by Ghana Audit Service as part of the overall project planning, coordination, and implementation. The ISU will also be responsible for preparation and submission of the Interim Financial Reports (IFRs) every quarter in compliance with the legal agreement, submitting audited annual reports and for all the FM activities of AAFORD to project financiers and stakeholders.

The Director of Finance of MoF will have fiduciary oversight responsibilities over the financial management of AAFORD. If, on one hand due to workload, the Development Finance Unit of FSD is not in a position to take on the finance functions of AAFORD, then the CAGD will be requested to release staff having the

required profile for ISU and zonal offices on secondment. If on the other hand, the CAGD is not in a position by start-up to release staff having the required profile for ISU and zonal offices, then an external recruitment process will be carried out.

Budgeting. ISU will submit an annual work plan and budget to IFAD for no objection no later than two months before the beginning of each fiscal year of the GoG. The annual work planning and budgeting will be prepared by the ISU in collaboration with the Director of Finance. The ISU will monitor the project's implementation progress against the work plan/budget for the planned project expenditures under each disbursement categories/components.

Accounting and maintenance of accounting records. The Development Finance Unit of FSD (MoF) currently uses the GIFMIS in line with government policy for recording its transactions. It is recommended that the ISU works closely with the GIFMIS Secretariat of the Controller and Accountant General's Department to generating customized reports such as Withdrawal Applications, Bank Reconciliation Statements, Interim Financial Statements, Annual Project Financial Statements, etc.

The progress in using the system will be monitored closely by the IFAD FM Specialists to maximize the benefits of computerized accounting system. The FM Specialists will identify and provide mitigating measures for any challenges that may arise with the accounting system during implementation. It is expected that the GIFMIS system will be adequate for accounting purposes for the project.

GoG and Beneficiaries Contributions. The Finance team will be responsible in identifying, tracking and reporting on GOG's contributions to the project as well as that of the beneficiaries.

Taxation. IFAD funds will NOT be used to pay VAT, duties or other taxes imposed on the project. The exemption of taxes will be considered part of GoG's contribution to the project.

Supervision Plan. FM supervision would be conducted consistent with the risk rating for the project. The FM supervision missions' objectives will include reviewing the expenditures for eligibility, availability of supporting documentation and adequacy for documentation.

Funds Flow and Disbursement Arrangements

The proceeds of the financing will be used for eligible expenditures as defined in the Financing Agreement, and in line with the disbursement allocations specified in the relevant section of the Financing Agreement. IFAD funds will be disbursed into US Dollars Account at a commercial bank acceptable by the Fund and will be operated by the Financial Services Department of MoF. The regular signatories to the Designated Accounts will be the Central Programme Coordinator (CPC) and the AFFORD Finance Manager as Cat A and B signatories respectively. However, Chief Director of MoF and the Director of Finance (MoF) will be substitute Cat A and B signatories respectively in the absence of the regular signatories,

Designated Account. (IFAD Loan). The funds will flow into a Designated Account in a commercial bank in Ghana acceptable to the Fund. This is to avoid co-mingling of funds as well as ease bank reconciliations. Following the duly opening of the Dedicated Account and upon request of the Borrower (Withdrawal Application), based on the expenditure forecast for the first six months and may be modified during implementation of the programme if justified by treasury requirements, shall be deposited into it from the Loan. The proceeds from the Dedicated Account shall be used exclusively to finance the Programme's eligible expenditures as will be stipulated in Schedule 2 of the Programme Loan Agreement. Funds shall be periodically transferred from the Designated Account to the Programme Operational Account for the purpose of financing the Programme's eligible expenditures financed by IFAD. Generally, payments for the Programme's eligible expenditures will not be made directly from the Designated Account but through the Programme Operational Account except where it becomes necessary to effect the payment in USD such as the case of approved foreign official trip by Programme staff, Programme implementation partners, collaborators and Beneficiaries. The ceiling for the Authorised Allocation will be specified in the Letter to the Borrower (LTB) issued for AAFORD.

Government approved fund-flow processing would be used to accelerate cash-flow. The SOE method of disbursement will apply for the project. Other methods of disbursement will include advances, direct payments, and reimbursements. Payments made against advances would be secured against bank guarantees by a commercial bank and or bonds acceptable to IFAD. Training will be provided to accounts staff on IFAD procedures and all processes documented as part of the PIM and outlined in MOUs with districts. Zonal offices to be responsible for close monitoring of implementing entities, including submission of returns with copies of bank statements.

Periodic Financial Reporting

The Finance Manager in the ISU will be responsible for preparing the quarterly interim unaudited financial reports (IFRs). The IFRs will be submitted to the Fund 45 days after the end of each fiscal calendar quarter. The project shall use the revolving fund mechanism and the report-based withdrawal system. Hence, at a minimum, the constituents of the IFRs will be: (a) The FMR, which comprises: (i) a financial report (statement of cash balances, sources and uses of funds by expense category, budget-to-actual statement); (ii) a procurement report (implementation status of the procurement plan and summary of key procurement issues); and (iii) a physical progress report (implementation status of the AWP/B, linking physical outputs to financial execution); (b) The DA activity statement (and related bank statements), which includes: (i) reconciliation of the DA for the period; (ii) a schedule of cumulative advances received in and expenditures made from the DA; and (iii) forecast expenditures for the following two reporting periods; (c) The summary SOEs extracted from the DA by expense category, distinguishing between contracts subject to IFAD prior review and those subject to post review. In the event that the project's IFRs fall short of the above details, then the project will use other forms of replenishment methods. In such instance, the IFR, at a minimum, shall comprise of: (a) A statement of sources and uses of funds for the reported quarter and cumulative period from project inception, reconciled to opening and closing bank balances; (b) A statement of uses of funds (expenditures) by project activity / component, comparing actual expenditures against budget, with

explanations for significant variances for both the quarter and cumulative period; and (c) Designated Account Reconciliation Statement.

The project will also prepare annual financial statements in accordance with International Public-Sector Accounting Standards (IPSAS) – cash basis. The financial statements will comprise, at a minimum, of: (a) Sources and uses of funds (summary of Expenditures shown under the main program headings and by main categories of expenditures for the period); and (b) Notes to the financial statements, including background information on the project, the accounting policies, detailed analysis and relevant explanation of the main accounts/major balances, etc. In addition, the project shall provide, as an annex to the financial statements, an inventory of fixed assets acquired according to asset classes, dates of purchase, location, and cost.

Internal Controls and Audit

The ISU financial management manual and the provisions of the Public Financial Management Regulations (2019) and the Public Financial Management Law (Act 921 of 2016) will govern the project's internal controls. Furthermore, the controls will follow authorisation and approval processes in the Government PFM system, the GIFMIS. The internal auditors will undertake internal audit activities on a risks basis and they will submit the internal audit reports 45 days after the end of the months of March and September of each calendar year. The project will maintain fixed assets for all material assets that will be acquired or created using the project funds.

External Audit Arrangements

Annual audits will be conducted at the end of each Government of Ghana's Fiscal Year for the project. In line with its mandate as per the Ghana Audit Service Act (Act 584), the Auditor General is solely responsible for auditing funds under the Consolidated Fund and all public funds as received by Government ministries, agencies and departments. In this regard, and consistent with IFAD's policy to maximise use of country systems where feasible, the Ghana Audit Service (GAS) will conduct the external audit of AAFORD's financial statements and furnish copies to IFAD within six months of the end of the fiscal year. The technical capacity of the GAS is considered satisfactory having successfully and timeously audited other IFAD-funded projects, namely, RAFIP, GASIP and REP. with qualitative results, If due to work overload, the GAS is unable to carry out the audit then some other independent and qualified audit firms, acceptable to the IFAD, would be selected to carry out the audit of the project. The selection of auditors other than GAS shall be on competitive basis and in accordance with the IFAD's procurement guidelines and would be completed within six months of project effectiveness. The ToR of the auditors will be cleared by the Fund. The project financial statements including movements in the designated accounts will be audited in accordance with International Standards on Auditing (ISA) and a single opinion will be issued to cover the project financial statements in accordance with the Fund's audit policy. The auditors' report and opinion with respect to the financial

statements, including the management letter, will be furnished to the Fund within six months after the end of each fiscal year.

Conclusion. The overall financial management risk is assessed as 'Medium' and the overall residual FM risk for the project is assessed 'Medium' due to the use of the GIFMIS which includes risk mitigating measures such as pre-auditing by the Internal Audit Unit (IAI) of MoF. These include the use of the government's PFM system, GIFMIS, by the Development Finance Unit of MoF(FSD), the managing of finance by a Finance Manager with 13 years' experience in managing Donor-funded projects, the management of the FM functions of AAFORD by an existing project finance team who has experience with IFAD-financed and World Bank-financed projects, and the strengthening of the on-the-job training to be provided as and when for the internal auditors at MoF IAU and the project finance officers in the development Finance Unit of FSD (MoF). The project will maintain financial records and will submit to IFAD and GoG, quarterly unaudited interim financial reports (IFRs) 45 days after the end of each quarter. Additionally, the project management will submit the project-audited accounts six months after the end of each fiscal year, in accordance with the legal covenants to be agreed upon for the project.

Chapter 7: Procurement and Contracting

I. Assessment of Procurement Systems

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Appendix 1: Procurement Procedures

Assessment of Procurement Systems

Country Procurement Systems Assessment

Procurement Regulations applicable to AAFORD: IFAD's procurement guidelines specify that national procurement systems will be used under the conditions that the systems are assessed as satisfactory or better. The Project will adopt the Ghana Public Procurement Authority Act 2003 (663) and the Amended Act 2016 (Act 914), the Procurement Regulations (to be issued soon), and the IFAD Procurement Guidelines 2010. National systems will apply to all procurement except international competitive bidding (ICB) for contracts above an agreed threshold. The IFAD guidelines state that ICB procurement will follow the procedures recommended by the World Bank. Ghana national procurement systems can be relied upon to undertake procurement below the agreed ICB thresholds.

Legal Aspects and Procurement Practices: Public procurement in Ghana is regulated by New Ghana Public Procurement Authority Act 2016 (Act 914) that amended the Ghana Public Procurement Authority Act 2003 (663). The Ghana Parliament adopted Law 914 to make governmental procurement more fair and transparent by subjecting it to the principals of:

Open Announcement.

Governance.

Free Competition.

Equal Opportunity.

Innovative Approaches.

Enabling Environment for Micro, Small and Medium Enterprises.

E-Procurement

Equitable Evaluation.

Clearly, Act 2016, (Act 914) has improved the competitive nature of governmental procurement in Ghana as follows:

Act 2016, (Act 914) has taken good steps toward aligning the public procurement system with international standards. Notable developments include solidifying the scope of application of the law by limiting informal exclusions of competitive and transparent procurement procedures, enabling the use of e-procurement, and introducing framework agreements. Furthermore, Act 914 includes provisions on institutional arrangements in procuring entities by regrouping procurement entities, inclusion of entities that were not in Act 2003 (Act 663), revising thresholds upwards to reduce bureaucracy, abolishing the Ministerial Tender Review Board, adds a code of conduct for public officials and employees and private sector participants.

The Act 2016, (Act 914) creates the Public Procurement Complaint Board that will be in charge of dealing with all complaints submitted to it in relation to the violation of any of the provisions of this Law; where its decisions shall be binding on the parties of the complaint. The contracting authority shall then execute the decision within 5 days from receiving it without prejudicing the contractor's right to resort to court.

Prohibits resorting to the splitting of contracts in order to circumvent the conditions, rules and procedures.

The Act 2016, (Act 914) kept the methods of public procurement that existed under the Tender Law and supplement them with some new and special mechanisms such as the 'two-stage tender', framework contracts, as well as different procurement methods for complex transactions and contracts of interrelated and multilateral nature.

Obligates the procuring entities to use the Standard Bidding Documents that are issued by the Ghana Public Procurement Authority for Governmental services.

Establish the procedures for determining the cost estimate that includes market survey and previous similar purchases (these could be from the procuring entity or other sister organization).

Establish a standard procedure for evaluating abnormally low bids.

Obligates procuring entities to publish all tender opportunity on the newly established Electronic Procurements portal that include bidding documents, evaluation reports and the recommendations for awarding. Moreover, the procuring entities should publish its Procurement Plans on the Ghana Public Procurement website.

The Act 2016, (Act 914) allows the administrative authority to conduct a prequalification check for interested bidders to verify their technical, financial, administrative and human resources capabilities. Only prequalified participants will be allowed to bid.

Obligates procuring entities, before initiate the procurement process to verify the availability of funds allocated to them through the Ghana Integrated Financial Management Information Systems (GIFMIS), provided that the terms of the proposal include the fact that the contract is within necessary actual requirements.

The Law states that the Public Procurement Authority shall have a registry for the names, details and ranks of the suppliers, contractors and consultants according to their financial and technical capabilities, business reputation, track record and professional licenses. This registry will be updated annually and it is a mandatory eligibility requirement for a company to participate in bidding. In the meantime, the Public Procurement Authority also debar companies and individuals who have been debarred by the World Bank.

Introduces techniques specifically to promote greater opportunities for SMEs in the public procurement market, either directly or through subcontracting opportunities. Additionally, the law mandates the application and full rollout of e-procurement, an SME-friendly tool that facilitates participation of SMEs in public procurement, while boosting transparency.

At the same time, more improvements could still be made as regulatory framework suffers from a number of weaknesses the most important ones being:

Absence of Delegation: Even though delegation of authority is legally permitted under the law, there are no guiding principles on delegation. Lack of these guidelines in practice has directed all procurement decisions to the highest authority. This has caused delays and inefficiencies in the implementation of important programs. Development and issuance of guidelines on delegation of authority and approval thresholds can provide GOE with more efficient procurement.

The lack of Regulations to attend the Public Procurement Act 2003, (Act 663) as amended Act 2016 (Act 914).

There are no rules or written guidance that defines the nature of each procurement method and its applicability in different procurement actions.

There are no clear limits on the nature of communications that can occur when bidders are requested to provide additional information during the technical evaluation. Permitting broad exchanges of information between the bidder and the Evaluation Committee without specific criteria and strict guidelines could affect the transparency and fairness of the bid evaluation process.

The amended Act 2016 (Act 914) is silent on the issue of Community-based procurement. In order to achieve social and employment goals and a sustainable delivery of services in situations which are unattractive to private enterprises, such as small value health care contracts, agricultural extension and informal education services, considerations need to be given to a selection method that draws on the participation of the beneficiaries in the communities.

The Standard Bidding Document for Works and Consultancy Services does not have clauses on Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA).

The minimum time allowed for National Competitive Bidding is 2 weeks. This could result in submission of non-compliant bids because of lack of sufficient time to prepare and submit bids.

Project Specific Assessment

The review of the procurement system in the Ministry of Finance, the lead implementing agency, indicated that the procurement capacity is adequate. However, there is the need to improve in the following areas: (a) Low implementation rate of procurement plans due to lack of funds or late release of funds; (b) Shortlisting criteria for consultancy services (c) procurement filing; The overall assessment is medium to low. The details of the review are as follows:

Procurement planning: The legal framework provides thorough guidance on procurement planning, linking the planning process up with the budgeting process, hence providing an important first step towards actual integration of procurement planning in the budgeting process. According to the legal framework, all procurement shall be within the approved budget of the Procurement Entity.

At the same time, the procurement planning process suffers from a number of weaknesses the most important ones being:

The procurement planning is done and submitted a month before the end of the year. However, the budget is approved by Parliament in March of the year in which the plan relates. Clearly not less than 2 months are lost in the implementation of the procurement plan.

Where there are budget cuts to some activities in the procurement plan, the plan has to be revised to reflect the amounts approved by Parliament.

Despite agreement on an annual budget and improved predictability of disbursements, gaps remain in the system. The release of funds to meet contractual obligations is still irregular. Consequently, payments for goods, works, and services are frequently delayed.

In some instances, many planned activities are not implemented because funds are not released for those activities.

Observations also show that spending units sometimes do not receive funds until the end of the fiscal year. The funds must then be disbursed quickly, which strains adherence to procedures. Choices in procurement method are limited because of the insufficient time for open tendering. If more restricted procedures are not approved (shortage of time being the weak justification), financial resources go unused.

In some Request for Expression of Interest published, shortlisting criteria are not provided. The Ministry determines the shortlisting criteria at evaluation of expressions of interest.

Some files that were inspected were not up to date. Some documents such as Shortlisting reports were missing on files for consultancy services.

Preparation of bidding documents: The Amended Act 2016 (Act 914) indicated that the Ghana Public Procurement Authority will issue the necessary Standard Bidding Documents (SBDs) covering procurement of goods, works and services. The MoF has the capacity to prepare these SBDs.

Management of bidding process from advertisement to bid opening: In the procuring entity, compliance with the mandatory steps were existed as follows:

Advertisement for open tenders is mandated in at least one daily newspapers of wide national circulation and in the Electronic Procurements portal.

The minimum period provided by the current Manual for the preparation of national open tenders. However, the permissible time (2 weeks). This is not sufficient for the submission of competent bids.

Ensure that the place or site where tenders shall be submitted is open and accessible and provided with a secured tender box. A tender box exists.

Carry out public opening immediately after the closing date and time.

Bid evaluation and contract award: In many cases, evaluation of bids were carried out using criteria disclosed in the tender documents.

Preparation and signing of contract: Based on the recommendation of the evaluation committee the contract is signed with the lowest evaluated bidder. Unsuccessful bidders are not usually informed in writing that they have not won the contract.

Contract management during implementation, including dispute resolution methods: The information gathered from the assessed procuring entity confirmed that the lack of proper contract management and contract administration in place. This results in cost and time overruns.

Record-keeping: PE recordkeeping practices are generally good. Most files had a checklist of documents on a procurement file. However, in some instance, some documents were not on file. In addition, the assessed procuring entity confirmed that there is inadequate space for record keeping as a result of accumulated documents.

Staffing: The available expertise at PE level does meets the need for specialised procurement knowledge: However, the staff of the procurement department will not be able to add procurement responsibility of AAFORD. Therefore, it is recommended that two procurement staff should be employed to handle AAFORD Procurement.

AAFORD Procurement Arrangements

General Considerations

The responsibility for the implementation of the Project, and therefore for the award and administration of contracts under the Project, rests with the Borrower. The IFAD, for its part, is required to ensure that the proceeds of any loan or grant are used only for the purposes for which the loan or grant was granted. While in practice the specific procurement rules and procedures to be followed in the implementation of a Project depend on the circumstances of the particular case, seven (7) principles generally guide the Fund's requirements: 1) Ethics, 2) Accountability, 3) Competition, 4) Fairness, 5) Transparency, 6) Efficiency, Effectiveness & Economy and 7) Value for Money.

Ethics: The guiding principles of ethical behavior are impartiality, independence and integrity. No person or entity shall use his/her/its authority, position or office for personal gain, which will be defined as soliciting, accepting or otherwise benefiting from anything of material value, in any form, either in person or indirectly

through close relatives or associates, as a result of procurement financed by IFAD. Borrower/Recipient officials engaged in procurement activity have a duty to:

maintain and enhance the reputation of the Borrower/Recipient country by:

maintaining the highest standards of honesty and integrity in all professional relationships;

developing the highest possible standards of professional competence;

maximizing the use of IFAD funds and other resources for which they are responsible for the purposes for which these funds and resources were provided to the Borrower/Recipient country; and

complying with both the letter and the spirit of:

the financing agreement;

the laws and regulations of the Borrower/Recipient country;

accepted professional ethics; and

contractual obligations;

declare any personal interest that may affect, or might reasonably be deemed by others to affect, impartiality in any matter relevant to their duties (conflict of interest). In a situation of this nature, the official concerned should not participate in any way in the procurement process, to avoid mis-procurement; and

respect the confidentiality of information gained in the course of duty and not use such information for personal gain or for the unfair benefit of any bidder, supplier or contractor. Information given in the course of their duties shall be true, fair and not designed to mislead.

Accountability: The Borrower/Recipient is accountable to IFAD for all actions and decisions in relation to Project-funded procurement. This includes, but is not limited to:

Ensuring that the funds are used solely for the purpose for which they were provided; and

Ensuring that procurement is undertaken in accordance with IFAD Guidelines.

Competition: Full, fair and legitimate competition among eligible suppliers and contractors is the foundation on which Project-funded procurement activities should be based. The most common method of seeking competition is through a competitive bidding process, and, in this regard, IFAD specifies that all goods, works and services should be obtained through an agreed procurement process involving at least three separate suppliers or contractors whose business is directly related to the procurement being undertaken. It is recognized that it is neither practical nor efficient to advertise internationally for low-value contracts for goods, works or services, and the degree to which the principle of competition is required for each procurement activity will be outlined in the procurement method approved by IFAD within the procurement plan. Borrowers/Recipients will be expected to promote genuine competition at every opportunity and maybe required to provide evidence of:

fair and genuine competition in the compilation of shortlists and in the solicitation of bids; and

the effectiveness of competition during the bidding process.

Single sourcing and direct contracting do not provide the elements of competition required by IFAD. Only in exceptional circumstances will these approaches be considered and approved in procurement plans agreed with IFAD.

Fairness: IFAD's expectation is that Project-funded procurement will be open to as many eligible bidders from IFAD's developed and developing Member States as is practicable in order to meet the requirements of competition. IFAD expects Borrowers/Recipients to ensure that all prospective bidders are:

managed with a consistent approach and application of laws, regulations and requirements in respect of the procurement process;

offered a level playing field on which to genuinely compete; and

treated in a fair, impartial and unbiased way, so that principles of impartiality and equal opportunity can be demonstrated in all procurement activities.

In striving for fairness in its procurement operations, IFAD:

will not tolerate exclusion of, discrimination, bias or prejudice against, or favouritism or inequality towards any potential supplier or contractor, either directly or indirectly through manipulation of any part of the procurement process, including, but not limited to, the preparation of technical specifications, evaluation criteria or bidding requirements. Where any such activity is suspected or proven, IFAD reserves the right to take any preventative, corrective or punitive action it considers appropriate; and

will seek to address, in consultation with the Borrower/Recipient, any impositions that may deter or impinge on the attainment of fairness within the procurement process.

Transparency: IFAD expects the highest degree of transparency and openness within the procurement processes undertaken under its projects. A lack of transparency can be perceived as an attempt to withhold information, which in turn may make the fairness and integrity of the procurement process suspect.

Transparency within procurement relates to disclosing the public domain, information for parties involved, interested in or affected by the process, including but not limited to information on:

the availability of potential and existing procurement opportunities;

where to access relevant data;

the processes by which the procurement is being undertaken;

the mechanisms by which contracts will be awarded;

contract award data; and

appeal procedures.

Modes of communication/publication of such information will vary depending on the nature of the data but will generally be through existing means of public information (e.g. government websites, public notice boards or media) or in the procurement documentation relevant to an individual procurement activity (e.g.

bid notices and bidding documents). Borrowers/Recipients are required at all times to act openly, predictably and in accordance with the information provided.

Efficiency, Effectiveness and Economy: IFAD requires Borrowers/Recipients to demonstrate efficiency and economy in undertaking Project-related procurement, to avoid undue implementation delays and to achieve value for money. Procurement must be well organized, carried out correctly with regard to quantity, quality and timeliness, and at the optimum price, in accordance with the appropriate guidelines, principles and regulations. Processes must be proportionate to the procurement activity, so that the overall cost of conducting the procurement process is minimized and tailored to the size of the budget for the activity being undertaken, while upholding the guiding principles. Efficiencies can be obtained through a combination of methods. For instance, a strategic approach can be taken to planning, combining and conducting procurement activities so as to minimize loss of time and resources. For this reason, the design of all IFAD-funded projects must include a procurement plan.

Value for money: Underpinning all of the above is the need to obtain value for money for all Project procurement activities through the optimum combination of several factors, including:

applying sound, internationally recognized procurement principles;

ensuring that the goods, works or services procured meet the requirements for the task and are not over-specified;

ensuring that the goods, works or services are contracted on the best possible terms, taking into account their expected life cycle; and

ensuring that the provider/supplier of the goods, works or services is qualified, legally entitled and competent to execute the contract.

Best value does not necessarily mean the lowest initial price option, but rather represents the best return on investment, taking into consideration the unique and specific circumstances of each procurement activity; the balance of time, cost and quality required; and the successful overall outcome of the contract in meeting its original objectives.

Borrower/recipient officials engaged in procurement activity have a duty to:

Maintain and enhance the reputation of the borrower/recipient country by:

Maintaining the highest standards of honesty and integrity in all professional relationships;

Developing the highest possible standards of professional competence;

Maximizing the use of IFAD funds and other resources for which they are responsible for the purposes for which these funds and resources were provided to the borrower/recipient country; and

Complying with both the letter and the spirit of:

The financing agreement;

The laws and regulations of the borrower/recipient country;

Accepted professional ethics; and

Contractual obligations.

Declare any personal interest that may affect, or might reasonably be deemed by others to affect, impartiality in any matter relevant to their duties (conflict of interest). In a situation of this nature, the official concerned should not participate in any way in the procurement process, to avoid mis-procurement; and

Respect the confidentiality of information gained in the course of duty and not use such information for personal gain or for the unfair benefit of any bidder, supplier or contractor. Information given in the course of their duties shall be true, fair and not designed to mislead.

The Project will contribute to building up the in-house procurement capacity of the Ministry of Finance, instilling best practices and the required approach and methodology, and monitoring the timeliness and quality of the process. IFAD plans a training Project at AAFORD to familiarise AAFORD staff with IFAD Guidelines. The effectiveness of procurement will be assessed during supervision and alternate arrangements put in place if necessary.

The Standard Bidding Documents (SBD) will be developed by AAFORD to be used for undertaking procurement under this Project and consistency with IFAD Procurement Guidelines should be ensured. Concepts relating to Accountability, Competition, Fairness, Transparency, Efficiency, Effectiveness & Economy and Value for Money contained in IFAD's Procurement Guidelines and which are central to IFAD's Procurement Philosophy are discussed above.

The Procurement Process involves the purchasing, acquiring, hiring or obtaining of goods, works and services by any contractual means and can be defined in more detail as procurement of goods, procurement of works and procurement of services. The procurement cycle consists of General Procurement Notice, Tender Document Preparation, Pre-Qualification, Advertisement, Receipt of Tenders, Public opening of Tenders, Evaluate of Tenders, Award of Contract, Issue of Work Order or Purchase Order and Performance of contract.

Each Annual Procurement Plan will identify procedures which must be implemented by the Borrower in order to ensure consistency with the IFAD Procurement Guidelines. IFAD may require that all bidding documents and contracts and other records for procurement of goods, works and services financed by the Loans/Grants are:

Available for full inspection by the Fund of all bid documentation and related records;

Maintained for ten years after the project completion date; and

IFAD may also require that the Project cooperate with agents or representatives of the Fund carrying out an audit or investigation into procurement issues.

IFAD's review of and no objection to procurement plans is compulsory under all financing agreements directly supervised by IFAD. AAFORD is one such agreement.

IFAD monitoring and review to ensure that the procurement process is carried out in conformity with IFAD procurement Guidelines and with the agreed procurement plan, IFAD will review arrangements for procurement of goods, works and services proposed by the borrower/recipient, including:

Contract packaging;

Applicable procedures and procurement methods;

Bidding documentation;

Composition of bid evaluation committees;

Bid evaluations and award recommendations; and

Draft contracts and contract amendments.

The extent to which these review procedures will be applied to the project will be contained in the letter to the borrower/recipient and the procurement plan. For full details on the review processes, refer to IFAD Procurement Handbook.

Post-review: All other contracts will be subject to post-review and may be subject to procurement audit by the Fund. The Project staff will maintain accurate records of all procurement activities and documents related to the Project. The procurement files will be maintained for review by IFAD supervision missions and independent audits. The Project staff will also consolidate procurement activities into quarterly and annual progress reports.

Mis-procurement: IFAD will not finance expenditures for goods, works or consulting services that have not been procured in accordance with IFAD Procurement Guidelines and the financing agreement. In such cases, IFAD may, in addition, take other remedial action under the financing agreement, including cancellation of the amount in question from the loan and/or grant account by declaring it ineligible. Even if the contract was awarded following IFAD's "no objection" statement, the Fund may still declare mis-procurement if it concludes that this statement was issued on the basis of incomplete, inaccurate or misleading information furnished by the borrower/recipient, or that the terms and conditions of the contract had been modified without IFAD's approval.

Institutional Arrangements.

AAFORD Procurement Activities will be implemented under two institutional arrangements, namely the Implementation Support Unit (ISU) and Zonal Offices at Sunyani and Tamale. At the central level, an ISU will be established under the Ministry of Finance. With regard to procurement management, two procurement officers (Procurement Officer and Procurement Assistant) with required qualifications and experience will be recruited from the market. With additional TA to strengthen procurement capacity, the institutions can undertake implementation, facilitation, and coordination of the Project with reduced risk.

At the central level, the ISU anchored under the MoF will be responsible for implementing procurements under all Components.

The AAFORD ISU will be responsible to manage and oversee overall Project-related procurement including International Competitive Bidding (ICB), National Competitive Bidding (NCB) procurements and selection of consultants for larger consultancy contracts as well as National Shopping, though it will require extensive support. The majority of the procurement activities under AAFORD will be implemented through the application of NCB method; relatively few high-value/specialized procurement packages will attract ICB. Appropriate thresholds that can maximize the efficiency of procurement implementation but manage the governance risks will be specified in the Letter to the Borrower (LTB).

The two Procurement Officers (POs) will oversee and carry out AAFORD procurement. The POs will report to the Project Coordinator and their main responsibilities are to:

- establish and update procurement procedures for the Project based on the IFAD Procurement Guidelines;

- prepare and update the annual procurement plan (in coordination with relevant staff of the ISU based on the AWPB;

- ensure the timely and transparent procurement of goods, works and services as identified in the procurement plan and in accordance with the applicable rules and procedures;

- prepare bidding documents and coordinate the preparation of relevant inputs such as TORs, technical specifications and bills of quantities by technical staff or consultants;

- supervise the bidding processes including advertisements, bid opening, bid evaluation, negotiation and selection of contractors; prepare bid opening minutes and bid evaluation reports;

- draft contracts for signature by authorized Project representatives and contractors;

- manage the procurement monitoring database system; prepare periodic reports on the status of procurement for the Project;

- compile and confidentially keep up-to-date reports, documents and records of all procurement activities, ensuring proper documentation, transparency and ease of reference; maintain procurement files;

- monitor the administrative implementation of contracts in coordination with the Finance Unit;

- constantly review procurement arrangements in relation to the procurement plan to ensure consistency with the financing agreement and identify weaknesses, if any, and measures that should be undertaken to mitigate the risks posed by any weaknesses;

- maintain close liaison with IFAD on all issues pertaining to procurement;

- participate in Project management meetings and IFAD supervision missions, including the preparation of all information required, in particular the procurement records for facilitating post-procurement reviews;

- train Project and implementing partners staff on procurement issues; and

- carry out any other activities that are assigned by the Project management

AAFORD Special Procurement Committee (SPC) will be established by MoF in order to i) fast track each step of AAFORD procurement processes; ii) monitoring on the overall procurement processes of the Project

putting in place corrective actions when needed; iii) cooperate with AAFORD in planning procurement processes and in preparing procurement documentation in order to assure the right timing of the processes and that tender documents are accurately prepared; follow up on the requests of No Objections to avoid delays in treatment.

Works Procurement Arrangements

No major works is contemplated in AAFORD. However, the following procedures will apply to procurement of works.

Design of works: Design work will be centrally done through the ISU.

It is proposed that AAFORD specific prequalified list of bidders for use in tendering Works transactions. The prequalified list should be updated every two years and will require the IFAD's No Objection prior to being used for limited bidding.

Development of bidding documents: Bidding documents including pre-qualification documents will be prepared by the ISU.

Advertising: Request for pre-qualification advertisement will be placed in the newspapers and in the UNDB website by the IIS directing bidders to download the pre-qualification documents free of charge from specific website. Once the pre-qualification process is finalized, the invitation will be sent to the pre-qualified firms directing them on how to apply for the tenders.

Handling of submitted bids: Receipt of completed tenders from bidders will be handled by the ISU. Bid opening will also be handled by the ISU in attendance of bidders who choose to attend. As part of a quality due diligence review, officials from the ISU will attend bid opening. Bid evaluation and approval will be a responsibility of the IIS (PIU, and contracts committees).

Due diligence reviews, approvals and No Objections: Before the contract is awarded, the ISU will undertake a due diligence review and provide comments if they don't concur with the result. The ISU should provide the type of comments used in No Objections. The ISU will request IFAD's No Objection once the ISU is satisfied with the due process.

Contract administration: The ISU will be fully responsible for the smooth implementation of a works project so as to ensure that there are no cost and time overruns. An owner's engineer will be employed to assist the ISU in contract administration.

Goods and Services Procurement Arrangements

Goods: Goods and supplies such as vehicles, motorcycles and computers that may be required for the project will be procured centrally through the ISU in order to gain the benefits of bulk / quantity purchases.

Services: Most of the anticipated services will cut across the two zones. These services will be procured centrally by the ISU through.

Service Providers: The Project will be managed by the ISU and implemented by contracted service providers on performance related contracts. Service providers will include: (i) preselected public institutions who will have the status of Project Parties and be required to ensure that procurement actions undertaken by them

and financed by IFAD or Government be undertaken in compliance with the stipulated procedures of IFAD and Government; and (ii) non-preselected civil society or private sector entities such as NGOs that will participate in the Project. Service providers not pre-selected will be procured on the basis of IFAD procurement guidelines.

Performance based contracts: For Contracts, MoU and Framework Agreements between ISU and the vendors, it is suggested that performance-based contracts in the delivery of hardware and software goods and services will be adopted. Such contracts will focus on outputs and outcomes of service provision, with clear milestones, with triggers for contract extension linked to achievements. There will be no automatic extensions in time or scope. All contracts, MOUs and Framework Agreements will include the payment schedules with performance incentives and penalties, monitoring and quality assessment, and value-for-money assessment. They will also define the key responsibilities of the partners at national and field levels, and will be jointly monitored and supervised. This is not dissimilar to current government personnel procedures which incorporate performance-based assessment.

Applicable Procurement Rules and Regulations

Overriding principles

Procurement of goods, works and services shall be carried out in accordance with the provisions of the Borrower/Recipient's procurement regulations, to the extent such are consistent with the IFAD Procurement Guidelines and by observing the following specific principles:

Procurement will be carried out in accordance with Financing Agreement and any duly agreed amendments thereto;

Procurement will be conducted within the Project implementation period, except as provided under Article 4.10(a)(ii) of IFAD General Conditions;

The cost of the procurement is not to exceed the availability of duly allocated funds as per the Financing Agreement;

Procurement is to be consistent with the duly approved annual work plan and budget (AWP/B) including a procurement plan (for the first time, the procurement plan will cover the first 18 months of the Project implementation period);

Procurement is to result in the best value of money and fit for purpose.

All goods, works and services procured will be exempt from duties and taxes.

Procurement Planning

At the outset of the Project, the Project in conjunction with IFAD, shall establish a procurement plan covering the first 18 months of the Project, followed by 12-month successive plans synchronized with the annual work plans and budget during implementation. IFAD's review of and No objection to procurement plan is compulsory.

For each contract to be financed by IFAD proceeds, the types of procurement methods, estimated cost, prior review requirements and time-frame would be agreed between the Project and IFAD respectively in the Procurement Plan.

Procurement plan should be divided into goods, works and services and as a minimum, the procurement plan must contain the following information:

A brief description of each procurement activity to be undertaken during the period or the plan;

The estimated value of each activity;

The method of procurement to be adopted for each activity

The method of review IFAD will undertake for each activity;

In addition to the minimum information above, it is considered good practice for the procurement plan to capture additional information such as:

Planned timing of the procurement activities;

Procurement by Project component;

Dates for IFAD prior review;

The procurement plan shall be prepared in excel sheets and each procurement category (goods/works/consulting services/non-consulting services) in separate excel sheets as follows: -

For goods, Works and Nom-Consulting Services

Project title:

Financiers:

Period:

Type of procurement: goods/works/services

Code as per AWPB

Component/unit

Procurement tender number

Item description

Plan vs Actual with two rows:

planned

actual

Contract type: Lumpsum or exact /BQS

Total amount in USD

Procurement method

Prior or post review

Preparation of tendering process

bid document preparation and submission to IFAD

IFAD No objection

Bidding process

Publication/invitation/advertisement

Closing/opening

Evaluation process

Technical and financial evaluation and submission of report to IFAD

IFAD No Objection to award

Contract

Award and notification of award

Signing of the contract

Contract period

Contract completion date

Comments

For services

Project title:

Financiers:

Period:

Code AWPB

Component/unit

Procurement tender number

Item description

Plan vs Actual with two rows:

planned

actual

Contract type: Lumpsum or time based

Total amount in USD

Selection method

Prior or post review

Preparation of tendering process (terms of reference)

Preparation date

IFAD No objection

Bidding process/Request for Expression of Interest

Dated of invitation

Closing/opening

Shortlist

Date proposed for submission of shortlist to IFAD

Date of IFAD No Objection

Request for Proposal

Date prepared and submitted to IFAD

Date of IFAD No Objection

Invitation date

Date of opening

Evaluation process:

Technical evaluation

IFAD No Objection to technical evaluation report

Date of opening financial proposals

Date of submission of combined evaluation report

Date of IFAD No Objection to the report and award

Contract

Award and notification of award

Signing of the contract

Contract period

Contract completion date

Comments

Procurement Methods and Thresholds

Procurement Methods: The methods which are permitted for the procurement of works and goods are: a) international competitive bidding (ICB), b) limited international bidding (LIB) or restricted tendering, c) national competitive bidding (NCB) or open tender, d) international or national shopping or requests for quotations, e) direct contracting, and f) procurement from United Nations agencies.

The methods which are permitted for the procurement of non-consulting services are: a) international competitive bidding (ICB), b) national competitive bidding (NCB) or open tender, c) national shopping or requests for quotations, and d) direct contracting.

The methods which are permitted for the procurement of consulting services are: a) quality and cost-based selection, b) quality-based selection, c) selection under a fixed budget, d) selection based on consultant' qualifications, e) least cost selection, f) single-source selection, and g) selection of individual consultants.

For each contract to be financed by IFAD proceeds, the types of procurement methods, estimated cost, prior review requirements and time-frame will be agreed between the Project and IFAD respectively in the Procurement Plan. IFAD financed procurement of works, goods and consultancy services. While eventually the specific thresholds for procurement financed under the Project will be stipulated in the Letter to the Borrower, the recommendations are the following (based on the guidance established by the IFAD Procurement Manual):

Works estimated to cost more than USD 800,000 equivalent will be procured through International Competitive Bidding (ICB) method either through pre-qualification or post-qualification procedure using the World Bank's applicable Standard Bidding Documents (SBDs). Works estimated between USD 190,000 and USD 800,000 equivalent will be procured through the National Competitive Bidding (open tender). While works estimated below USD 190,000 will be procured through National Shopping (request for quotations). Direct contracting will have to be identified and approved by IFAD in advance for those cases which justify use of such method.

Goods estimated to cost more than USD 200,000 equivalent per contract will be procured through the International Competitive Bidding (ICB) method using the World Bank's applicable SBDs. Goods estimated to cost between USD 70,000 and USD 200,000 equivalent per contract will be procured through National Competitive Bidding (open tender). Goods estimated to cost less than USD 70,000 equivalent per contract will be procured through the Shopping methods (request for quotations). Direct contracting will have to be identified and approved by IFAD in advance for those cases which justify use of such method.

Consultancy services. Quality and Cost Based Selection will be the standard method applied unless otherwise approved. The following thresholds and processes will apply: i) International Request for Proposal (RFP)– for contracts with a value of USD 100,000 equivalent and above; ii) National Request for Proposal (RFP) – for contracts with a value of less than USD 100,000 equivalent and more than USD 10,000 equivalent. Contracts with a value of USD 10,000 equivalent or bellow, or procurement of individual consultancy or Technical Assistance services, will be based on National Shopping (request for quotation).

Non-Consultancy services. The following thresholds and processes will apply: i) Services estimated to cost more than USD 100,000 equivalent per contract will be procured through the International Competitive Bidding (ICB) method, ii) NCB (open tender) method – for contracts with cost between USD 10,000 and USD 100,000 equivalent. Contracts with a value of USD 10,000 equivalent or bellow, will be National Shopping (request for quotation from predetermined shortlist).

However, these financial thresholds may be adjusted as appropriate, with prior IFAD approval, depending of the nature of the assignment. And the method of procurement to be followed will be pre-determined in each approved annual procurement plan.

Definition of the applicable Procurement methods for Goods, Works and Non-consulting Services

International Competitive Bidding: International competitive bidding (ICB) is a procurement method suited to high-value requirements that would be of interest to the international business community. The objective of ICB is to provide all eligible prospective bidders located and operating both within the Borrower's/Recipient's country and abroad with timely and adequate notification of the Borrower's/Recipient's requirements and an equal opportunity to bid for the required goods and works. Where ICB is the identified method of procurement within an approved procurement plan, World Bank procedures as set forth in their guidelines will apply. The new Procurement Regulations for Investment Project Financing (IPF) Borrowers of the World Bank available at:

<https://policies.worldbank.org/sites/ppf3/PPFDocuments/Forms/DispPage.aspx?docid=4005&ver=current>, the competitive bidding is now called "Request for Bids (RFB)". RFB is a competitive method for the solicitation of Bids. It should be used when, because of the nature of the Goods, Works, or Non-consulting Services to be provided, the Borrower is able to specify detailed requirements to which Bidders respond in offering Bids. The minimum period allowed for preparation of Bids/Proposals shall be forty two (42) Calendar Days for open international competitive procurement. The Standard Procurement Document for Request for Bids is available at: <http://pubdocs.worldbank.org/en/299661509568509693/SPD-Request-for-Bids-GOODS-1-envelope-OCT-2017.docx> for Goods and at: <http://pubdocs.worldbank.org/en/328641509642865653/SPD-Request-for-Bids-SMALL-WORKS-1-Env-OCT-2017.docx> for works.

Limited international bidding (LIB) is essentially ICB by direct invitation without open advertisement. It may be an appropriate method of procurement where:

Contract amounts are small;

There is only a limited number of suppliers or contractors; or

Other exceptional reasons exist that may justify departure from full ICB procedures.

Under LIB, borrowers/recipients should seek bids from a list of potential suppliers or contractors broad enough to ensure competitive prices. This list should include all suppliers and contractors when there are only a limited number. Domestic preferences are not applicable in the evaluation of bids under LIB. In all respects other than advertisement and preferences, ICB procedures apply to procurement under LIB, including the publication of the contract award.

National Competitive Bidding (NCB) is the competitive bidding procedure normally used for public procurement in the country of the Borrower/Recipient, and may be the most efficient and economical way of procuring goods or works that, by their nature or scope, are unlikely to attract foreign competition. NCB may be the preferred method of procurement where foreign bidders are not expected to be interested because:

Contract values are small;

Works are scattered geographically or spread out over time;

Works are labor-intensive; or

The goods or works are available locally at prices below those on the international market.

NCB procedures may also be used where the advantages of ICB are clearly outweighed by the administrative or financial burden involved. Advertising for procurement under NCB may be limited to the national press of the Borrower's/Recipient's government or, where possible, a free and open-access website. Bidding documents may be in an official language of the country, and local currency is generally used for the purposes of bidding and payment. The procedures are to provide for adequate competition in order to ensure reasonable prices, and the methods used in the evaluation of bids and the award of contracts are to be objective and made known to all bidders, and are not to be applied arbitrarily. The procedures will also include public opening of bids, publication of results of evaluation and of the award of contract, and provisions for bidders to protest. In addition, bidding documents will provide clear instructions on how bids should be submitted, how prices should be offered, and the place and time for submission of bids. Adequate response time for preparation and submission of bids will be provided. If eligible foreign firms wish to participate under these circumstances, they are to be allowed to do so.

Shopping is a procurement method that entails comparing price quotations from several suppliers or contractors (usually at least three) to ensure competitive prices. It is an appropriate method for procuring readily available, off-the-shelf goods or standard specification commodities that are small in value, or simple civil works of small value. Requests for quotations should indicate the description and quantity of the goods, together with desired delivery (or completion) time and place. Quotations may be submitted by mail, electronic mail or facsimile. The evaluation of quotations will follow the principles of competition. The terms of the accepted offer are to be incorporated in a purchase order or brief contract. Under international shopping, the purchaser is to solicit quotations from at least three suppliers in two different countries. National shopping may be used where the desired goods are ordinarily available from more than one source in the country of the Borrower/Recipient at competitive prices.

Procurement from United Nations agencies. There may be situations in which procurement from specialized agencies of the United Nations, acting as suppliers and pursuant to their own procedures, may be the most economical and efficient way of procuring relatively small quantities of off-the-shelf goods. Use of such agencies as supply sources, together with the Project component and the type of goods or works to be procured from such sources, are to be expressly and specifically agreed between the Borrower/Recipient and IFAD before proceeding with the application of this method of procurement.

Direct Contracting (for Goods, Works and non-consulting services) consists in procuring goods or works without competition (by single or sole-source selection). Due to its non-competitive nature, DC may be only permitted in the following exceptional circumstances:

An existing contract for goods or works awarded in accordance with procedures acceptable to IFAD, may be extended for additional goods or works of a similar nature to a maximum of 25 per cent (%) of the original contract value, with the prior approval of IFAD, provided that no advantage could be obtained by further competition and that the prices on the extended contract are reasonable. Provision for such an extension, if considered likely in advance, is to be included in the original contract;

Standardization of vehicles, equipment or spare parts to ensure compatibility with existing vehicles, equipment or machinery may justify additional purchases from the original supplier. For such purchases to be justified, the original vehicles, equipment or machinery should be suitable; the number of new items should generally be less than the existing number; the price should be reasonable; and the advantages of another make or source of equipment are to have been considered and rejected on grounds acceptable to IFAD;

The required equipment is proprietary and obtainable only from one source;

The contractor responsible for a process design requires the purchase of critical items from a particular supplier as a condition of a performance guarantee; and

Purchases from the original supplier may also be justified in exceptional cases and emergencies, such as in response to a natural disaster, conflict and post conflict, or in countries where there are restrictions to free markets and enterprises.

Any request for direct contracting from a Borrower/Recipient must be accompanied by a detailed justification, which IFAD will examine carefully to ensure that it is satisfied that no other alternative selection methods can be used.

IFAD Prior Review Thresholds

In accordance with paragraph 80 of the IFAD Project Procurement Guidelines, the following will be subject to prior review by IFAD:

First five contracts for goods and equipment and thereafter, award of any contract for goods and equipment estimated to cost USD 50,000 equivalent or more;

First five contracts for works and thereafter, award of any contract for works estimated to cost USD 100,000 equivalent or more;

First five contracts for consultancy services, and thereafter, award to a firm of any contract for consultancy services estimated to cost USD 50,000 equivalent or more;

First five contracts for non-consultancy services, and thereafter, and thereafter, award to a firm of any contract for non-consultancy services estimated to cost USD 10,000 equivalent or more;

First five contracts for individuals, and thereafter, award to an individual of any contract for consulting services estimated to cost US\$ 5,000 equivalent or more;

Award of any contract through direct contracting, single source selection, including selection of United Nations' agencies, irrespective of the amount. Furthermore, for consultancy services, all Terms of Reference, Short-listing (if applicable) and draft contracts will be subject to IFAD prior review.

Aforementioned may be modified from time to time as notified by the Fund to the Borrower.

Register of Contracts: Procurement carried out under the Project will be recorded and registered against the Procurement Plan. In addition, all contracts, with or without prior IFAD approval, will be listed in the Register of Contracts maintained by the procuring entity with the dates of approval as provided by IFAD. When a contract is amended, the amendment will be recorded in the Register of Contracts. If a contract is cancelled or declared ineligible for financing by IFAD, this information will be written in the Register of Contracts. As this register facilitates the review and approval of payment requests on contracts, it is to be updated and submitted to the IFAD country Project director on a monthly basis. The sample form to be used and instructions are detailed in Annex 6 of IFAD's Loan Disbursement Handbook. It will also be necessary that the ISU prepare annual statistics disaggregated by type and methods of procurement, for the overall procurement transactions carried out for the Project.

RECORD KEEPING

The IFAD General Conditions for Agricultural Development Financing require that Borrower/recipients retain documents and records for review by IFAD at any time within a period of three (3) years after completion of the bid or contract. The following table shows what procurement files, folders or dossiers should contain:

Document	Preferred format
(i) A copy of the published advertisement or shortlist (if applicable) *	Hard and/or Soft copy
(ii) A copy of the published pre-qualification and invitation documents and any amendments, extensions or clarifications that were requested and issued*	Hard and/or Soft copy
(iii) A record of tender opening signed by all present	Hard and/or Soft copy
(iv) A full copy of each bid received and evaluated, plus clarifications requested and responses received	Hard and/or Soft copy

(v) A copy of the evaluation report*	Hard and/or Soft copy
(vi) Signed minutes of all meetings relating to the procurement, including pre-bid and negotiation meetings where these were held	Hard and/or Soft copy
(vii) A contract award notice*	Hard and/or Soft copy
(viii) Any letter of tender acceptance to the supplier, contractor or consultant*	Hard and/or Soft copy
(ix) The signed contract document and contract acceptance*	Hard and/or Soft copy
(x) Any contract amendments*	Hard and/or Soft copy
(xi) All contractual correspondence between the procuring entity and a supplier, contractor or consultant	Hard and/or Soft copy
(xii) Post-contract documents relating to the fulfillment of contract obligations, in particular photocopies of bank guarantees or payment guarantees	Hard and/or Soft copy
(xiii) Signed minutes of any meetings related to contract management, including contract progress or review meetings	Hard and/or Soft copy
(xiv) Signed delivery documents evidencing delivery of supplies or signed completion certificates in relation to a contract for services or works under the contract, including any contract delivery records	Hard and/or Soft copy
(xv) A copy of all invoices for works, services or supplies, including work papers verifying the accuracy of payments claimed and details of the actual payment authorized	Hard and/or Soft copy
(xvi) A copy of cumulative payment worksheets/records evidencing management of all payments made	Hard and/or Soft copy
(xvii) A copy of all submissions to and all decisions of the appropriate approval authority related to the procurement, including the approval of the invitation documents, approval of the evaluation report(s), contract award, approval of contract documents and contract amendments and any decision to suspend or cancel procurement proceedings	Hard and/or Soft copy
(xviii) A copy of any claims made by the procuring entity with respect to any warranty, non-warranty, short supply, damage and other claims upon the provider or upon the procuring entity	Hard and/or Soft copy

(xix) In the case of IFAD prior review, all submissions and correspondence in relation to the seeking of IFAD's no-objection	Hard and/or Soft copy
(xx) any other communications relating to the procurement in questions, including internal entity correspondence	Hard and/or Soft copy

*Ideally, drafts of these published documents and reports should also be retained for completeness and to provide a full picture of how the published document evolved. It is, however, accepted that where issues of space exist this may not always be possible in practice.

Appendix 1: Procurement Procedures

Goods and Works and Non-consulting Services

International Competitive Bidding

The procedure for ICB is lengthy to ensure quality of bids and approvals at various stages from IFAD, about several steps shall be observed in all cases to safe guard against misuse of the funds. These are:

Preparation of bid documents:

Prepare full documentation that is detailed enough for prospective bidders to make realistic and accurate bids. There will be no use of trade names for vehicles and equipment, (e.g., Toyota Land Cruiser); rather request bids for 4x4 LWB, station wagon with 7 to 10 seats, engine size in the range of e.g. 2.0 to 3.0 litres etc. plus other requirements such as radio, air-condition etc.

All bidding documents for the procurement of goods, works and services would be prepared by the procurement officer with the support of the technical expert(s), who would supply specifications, terms of reference, Bills of Quantities and evaluation and post-qualification criteria as required.

All bidding documents and contracts for the procurement of goods, works and services financed by IFAD loan and grant would include a provision requiring bidders, suppliers, contractors, sub- contractors and consultants to permit IFAD to inspect their accounts, records or other documents relating to the bid submission and contract performance and to have them audited by IFAD-appointed auditors and investigators, as appropriate

Goods and equipment should be grouped into sizeable packages to cater for economies of scale, efficient and timely procurement.

Submit prepared bid documents to IFAD to obtain the no objection.

Once the no objection is obtained, ISU may proceed to advertise in one or more English-language newspapers or other publications that, together, have sufficient circulation outside Ghana to allow effective competition for the procurement. Additionally, the ISU should advertise in the UNDB Website.

The Project shall also advertise in the dedicated government portals or its own website and at least two local dailies of nationwide circulation following the format prescribed by IFAD.

A small fee equal to the cost of printing a Bidding documents should be charged.

All bidders will be given enough time to prepare and present their bids. For vehicles and equipment and related items, the bidding period shall be 42 days at least while for complex bids such as civil works where site inspections are necessary, 60 days will be given.

The Project should ensure that the tender box where tenders must be submitted is open and accessible and that the tender box has two locks, with each key to the lock kept by a different officer and that the tender box remains locked until the time for tender opening.

Each tender that is delivered shall be placed unopened in the tender box by the person delivering the tender or by the staff of the Project immediately upon receipt of the tender if it is delivered by post. If a tender is too large to be placed in the tender box, it shall be received in the manner determined by the Project if no other manner is set out in the tender document.

Bid opening.

Once the deadline for receiving bids has passed bids will be opened. All bidders shall be at liberty to attend the opening ceremony in person or through their appointed representatives. The bid prices shall be read out lot by lot as stipulated in the bidding documents. Tenders submitted later than the specified period shall be rejected and returned unopened.

A bid opening committee shall be appointed by the Project Coordinator consisting of at least three members. The procurement officer or his/her authorized designate shall be the Secretary

The terms of the committee shall be as follows:

Immediately after the deadline for submitting bids, the bid opening committee shall open all bids received before that deadline.

Check that the bids are marked for the correct bid opening.

Check for any withdrawals and confirm that such withdrawal is authentic. Any bid withdrawn in writing shall not be eligible for evaluation or consideration in the bid process.

Check that bid packaging shows no sign of tampering. If there is damage, then this must be stated and included in the minutes

Those submitting bids or their representatives may attend the opening of proposals/bids. All bidders' representatives present must sign a register, detailing their name and the name and address of the company they represent.

The bid opening committee shall assign an identification number to each bid and write it on each copy of the bid document.

As each bid is opened, the following shall be read out loud and recorded in a document to be called the bid opening register—

The name and address of the person submitting the bid;

The currency of the bid and total price, where applicable including any modifications or discounts received before the deadline for submitting bids.

The total price of the bid may not be read out where a bid consists of numerous items that are quoted separately

The total price of the bid shall not be read out where a bid is preceded by a technical evaluation and such bid has not met the technical evaluation criteria. Where a bidder has failed the technical evaluation, the entity shall return the financial proposal unopened.

If applicable, what has been given as bid security or whether samples have been submitted where applicable;

The number of pages paginated/serialized by each bidder for each bid submitted

The number of copies submitted with the original bid

No bidder shall be disqualified by the procuring entity during opening of bids.

The Committee shall provide a copy of the bid opening register to a person submitting a bid;

Each member of the bid opening committee shall —

(a) Sign each original and copies of bid on one or more pages as determined by the bid opening committee; and

(b) Initial, in each bid, against the quotation of the price and any modifications or discounts, where applicable.

The bid opening committee shall prepare bid opening minutes which shall set out the following: -

A record of the procedure followed in opening the bids; and

The particulars of those persons submitting bids, or their Representatives, who attended the opening of the bids.

To acknowledge that the minutes are true reflection of the proceedings held, each member of the bid opening committee shall—

Initial each page of the minutes;

Append his or her signature as well as initial to the final page of the minutes indicating their full name and designation.

A person who causes the physical loss of bid documents commits an offence.

The chairperson should close the bid opening meeting, reminding bidders that they must not seek to influence the evaluation process and that the successful bid will be communicated in due course.

Where bid openings for more than one procurement process are conducted at the same time, they must be conducted consecutively, with one opening completed, recorded and bid removed before the next opening commences.

Bid Evaluation.

This is the process by which the best evaluated bid is selected for award of contract from among all the bids received. Bid evaluation is important and any delay at this stage may involve requesting bidders to extend validities or lead to price increases. The evaluation committee should carry out the evaluation and quality of goods should be evaluated against costs. The lowest bidders should not necessarily be selected but the best value for money bid considering Project needs. Special considerations such as standardizing on model of vehicle should be considered at this stage. The evaluation team must use only the criteria provided for in the bid documents and no other criteria should be introduced.

Evaluation consists of the following stages:

A preliminary evaluation is undertaken soon after opening bids to ascertain that the bid is responsive and conforms to all eligibility and other mandatory requirements in the bid documents and that the bid has been submitted in the correct format, has been signed by the authorized person, and that the correct number of copies, bid security (if required), validity and any required samples have been provided. Any bid that does not meet the requirements is rejected.

Technical evaluation is then conducted on bids that pass the preliminary evaluation for technical conformity. The technical evaluation precedes the financial evaluation. If the bid does not meet the technical requirements, it is not responsive and does not proceed to financial evaluation.

Financial evaluation which considers prices read out at bid opening, corrections for arithmetic errors, currency, discounts e.t.c is undertaken. Bids are then ranked according to their evaluated price and the successful bid is the lowest evaluated price.

Bid evaluation shall be done by the Evaluation Committee appointed by the Project Coordinator within 7(seven) days after the opening of the bids.

Evaluation committee should include members with a relevant type of skills, knowledge and experience relevant to the procurement requirement as far as possible, which may include:

Technical skills;

End-user representatives;

Procurement and contracting skills;

Financial management or analysis skills;

Legal expertise.

The procurement officer shall be the secretary.

The terms of reference for the evaluation committee shall be as follows: -

Examine all bids received if they conform to all the eligibility and other mandatory requirements in the bid documents

Evaluate and compare all the responsive bids other than bids rejected as non-responsive.

Assess the technical and financial aspects of the bids as per criteria in the documents as well as undertake the negotiation of the process

Carry out the evaluation with due diligence if needed.

No member of the committee shall communicate with the bidder who has submitted a bid that is under consideration of the evaluation;

The evaluation committee shall prepare an evaluation report containing a summary of the evaluation and comparison of bids and shall submit the report to the person responsible for procurement for his or her review and recommendation and submission to the accounting officer for approval.

The report prepared under paragraph (f) shall include

A summary of all bids received and opened

The results of the preliminary evaluation, with reasons why any bid was rejected;

details of any minor deviations accepted and the way in which such deviations were quantified and taken into account in the evaluation and comparison of the bids;

The scores awarded by each evaluator for each bid as applicable for services;

Avoid using point/Score/merit system for evaluation of works and goods procurement.

A summary of the relative strengths and weaknesses of each bid as applicable;

The total score for each bid as applicable for services;

The evaluated price of each bid, showing any discounts, corrections or adjustments to the bid price and any conversion to a common currency

the ranking of the bids each according to its total evaluated price

the results of any confirmation of qualification conducted and

A recommendation to award the bid to the lowest evaluated bidder or to the person who submitted the proposal with the highest total score and such other recommendation as may be necessary

The evaluation report shall be signed by each member of the evaluation committee

The committee in writing may request a clarification of a bid from a bidder to assist in evaluation and comparison of bids. The clarification shall not change the terms of the bid;

The evaluation shall be carried out within a maximum of thirty days after opening.

The evaluation committee may, after bid evaluation, but prior to the award of the bid, conduct due diligence and present the report in writing to confirm and verify the qualifications of the bidder who submitted the lowest evaluated responsive bid to be awarded the contract in accordance with this Act. The conduct of due diligence may include obtaining confidential references from persons with whom the bidder has had prior engagement.

To acknowledge that the due diligence report is a true reflection of the proceedings held, each member who was part of the due diligence by the evaluation committee shall—

Initial each page of the report; and

Append his or her signature as well as their full name and designation.

Award of Bid

The evaluation team will make a report and a recommendation for award to the lowest evaluated bidder to the Accounting Officer who will award the bid based on the evaluation report. The ISU will then seek for a no objection from IFAD before awarding the bid.

All bids shall be evaluated by the evaluation committee for the purpose of making recommendation to the Accounting Officer through the procurement officer to inform the decision of the award of the contract to the successful bidders.

The successful bid shall be the bid with the lowest evaluated price.

Contract formation and performance.

Once a no objection has been granted, a contract with the awarded bidder is entered into for performance of the contract.

The existence of a contract shall be confirmed through the signature of a contract document incorporating all agreements between the parties and such contract shall be signed by the Project Coordinator and the successful bidder. The Project shall enter into a written contract with the person submitting the successful bid based on the bid documents and any clarification that emanate from the procurement proceedings.

The written contract shall be entered into within the period specified in the notification.

The bid documents shall be the basis of all procurement contracts and shall, constitute at a minimum—

Contract Agreement Form;

Notification of Award;

Bid Form;

Special Conditions of Contract;

General Conditions of Contract;

Schedule of Requirements;

Price schedule or bills of quantities submitted by the bidder;

Technical Specifications.

If the person submitting the successful bid refuses to enter into a written contract in writing as required, he or she shall forfeit his or her bid security and the procurement process shall proceed with the next lowest evaluated bidder

A successful bidder shall submit a performance security equivalent to not more than ten per cent of the contract amount before signing of the contract if provided in the bid document. In case the contract is not fully or well executed, the performance security shall unconditionally be fully seized by the Project as compensation without prejudice to other penalties provided for. The bank or authorized financial institution shall also be obliged to pay an additional interest of one percent (1%) for every day of payment delay after ten (10) working days from the receipt of the claim provided this requirement is disclosed in the performance security and if it is necessary to take the matter to courts, and that the court rules in favour of the procuring entity, this interest shall continue to accrue up to the time the courts' decision is executed.

The performance security may not generate interest and it shall be determined in accordance with the form provided for in the bidding document and may be paid in form of a bank guarantee, issued by an authorized financial institution. The bid document shall provide for, if necessary, other forms of performance security that may be requested from the successful bidder. The bank or authorized financial institution shall be obliged to give to the Project all the amount of the performance security upon claim by the Project.

If the contractor is foreign, the guarantee shall be issued by a local bank or authorized financial institution issued by a corresponding bank in Ghana recognized the Bank of Ghana.

Payments.

Under no circumstances, will payments for goods and services be realised before receipt of the goods or the services have been delivered and physical verification of the receipt of vouchers and the actual goods undertaken.

The inspection and acceptance shall be done by the Inspection and Acceptance Committee appointed by the Project Coordinator to ensure that the correct quantity is received and the technical standards have been met.

Notwithstanding the appointment of a Contract Manager who will manage the procurement subject on a day to day basis, it is the Inspection and Acceptance Committee who issue Interim / Progress / Completion / Final Certificates as required and who confirm that payment may be made.

The appointment letter for the Inspection and Acceptance Committee members should make clear the duties of those members and insist that they satisfy themselves personally that work has been done in accordance with the contract before authorizing payments.

The inspection and acceptance committee shall be composed of a chairman and at least two other members, including the head of the user component appointed on the recommendation of the Procurement officer.

The inspection and acceptance committee shall immediately after the delivery of the goods, works or services—

inspect and where necessary, test the goods received;

inspect and review the goods, works or services in order to ensure compliance with the terms and specifications of the contract;

Accept or reject, on behalf of the Project, the delivered goods, works or services.

Ensure that the correct quantity of the goods is received;

Ensure that the goods, works or services meet the technical standards defined in the contract

Ensure that the goods, works or services have been delivered or completed on time, or that any delay has been noted;

Ensure that all required manuals or documentation has been received; and

Issue interim or completion certificates or goods received notes, as appropriate and in accordance with the contract

For complex and specialized procurement contract, the Accounting Officer shall appoint a contract implementation team which shall include members from the procurement function, and the head of the component, the relevant technical department and a consultant where applicable

For the purpose of managing complex and specialized procurement contracts the contract implementation team shall be responsible for—

Monitoring the performance of the contractor, to ensure that all delivery or performance obligations are met or appropriate action taken by the procuring entity in the event of obligations not being met;

ensure that the contractor submits all required documentation as specified in the bidding documents, the contract and as required by law;

Ensure that the procuring entity meets all its payment and other obligations on time and in accordance with the contract.

ensure that there is right quality and within the time frame, where required;

review any contract variation requests and make recommendations to the Accounting Officer for considerations and such reviews for variation shall be clearly justified by the technical department in writing backed by supporting evidence and submitted to the head of the procurement function for processing;

manage handover or acceptance procedures as prescribed;

make recommendations for contract termination, where appropriate;

ensure that the contract is complete, prior to closing the contract file including all handover procedures, transfers of title if need be and that the final retention payment has been made;

ensure that all contract administration records are complete, up to date, filed and archived as required; and

ensure that the contractor acts in accordance with the provisions of the contract

Ensure discharge of performance guarantee where required.

The Project may co-opt a member of the contract implementation team from another procuring entity or outsource

Where a supplier/contractor furnished the Project with a performance security, the Security shall be returned to the supplier/contractor within thirty (30) days following the final acceptance by the Project. The thirty (30) days referred to shall include the retention period except in cases of procurement for works where the period shall commence from the date of practical completion or handover, whichever is earlier.

No works, goods or services contract shall be paid for before they are executed or delivered and accepted by the Project except where so specified in the bid documents and contract agreement. Such an advance payment shall not be paid before the contract is signed. Under exceptional circumstances advance payment may be granted and shall not exceed twenty per cent (20 %) of the price of the bid and shall be paid upon submission by the supplier/contractor to the Project of an advance payment security equivalent to the advance itself and that security shall be given by a reputable bank or any authorized financial institution issued by a corresponding bank in Ghana recognized by the Bank of Ghana, in case the supplier/contractor is a foreigner.

Supplier/contractor shall use the advance paid only in activities related to the bid. If the supplier/contractor uses the entire advance or part of it in other activities that are unrelated to the bid, the advance shall immediately be considered as a debt which shall be paid by seizing the entire security or part of it.

International Competitive Bidding with Prequalification Procedure (Recommended for Civil Works)

In addition to the above-mentioned procedures, Prior issuing the bidding documents to the pre-qualified firms the following steps will be taken:

Development of bidding documents: Bidding documents including pre-qualification documents will be prepared by the ISU.

Advertising: Request for pre-qualification advertisement will be placed in the newspapers and in the UNDB website by the ISU directing bidders to download the pre-qualification documents free of charge from specific website. Once the PCU finalise the pre-qualification process, the invitation will be sent to the pre-qualified firms directing them on how to apply for the tenders.

National Competitive Bidding

For National competitive bidding (NCB), the same principles of ICB apply to NCB, except that publication of a Specific Procurement Notice in UNDB Website. The Project shall advertise in the dedicated government portals, its own website and at least one local dailies of nationwide circulation.

National Standard Bidding Documents (SBD) shall be used for undertaking procurement under this Project and consistency with IFAD Procurement Guidelines shall be ensured.

National Shopping

This method will be applied by obtaining three quotations from various sources. Contracts will be awarded on the basis of quotations obtained from 3 qualified contractors/vendors/service providers in response to a written invitation (request for quotations).

Procurement of Consulting Services

Principles

The procurement of consulting services under the IFAD will be guided by the following principles:

The need for high quality services;

The need for economy and efficiency;

The aim to give qualified consultants from Ghana and all other eligible IFAD member countries an opportunity to compete in providing services;

The need to encourage the development and use of local consultants; and

The importance of transparency in the selection process.

Definition of Consultants

The term “consultants” includes a wide variety of consulting firms, engineering firms, management firms, architectural firms, legal practices, university and research institutions, auditors, banks, UN agencies and other multinational agencies, as well as individuals.

Consultants may associate with each other to complement their respective areas of expertise, or for other reasons. Such an association may be for the long term (independent of any particular assignment) or for a specific assignment. If “association” takes the form of a joint venture or of a sub-consultancy, all members of the joint venture shall sign the contract and shall be jointly and severally liable for the entire assignment.

Selection Methods

Contracts for the procurement of consultancy services may be awarded on the basis of:

Quality and Cost Based Selection (QCBS),
Quality Based Selection (QBS),
Fixed Budget Selection (FBS),
Least Cost Selection (LCS),
Consultants' Qualification (CQS),
Individual Consultants' Selection (ICS), and
Single Source Selection (SSS).

Quality- and Cost-based Selection (QCBS)

The QCBS method involves competition among consulting firms in such a manner that the quality of the proposal as well as the estimated cost of services are taken into account, and the firm with the highest combined quality and cost score is awarded the contract.

The selection process involves the following steps:

Preparation of Terms of Reference (TOR);

Preparation of cost estimate and the budget;

Advertising for Expression of Interest (EOI) or Statement of Capability;

Preparation of the short list of consultants based on evaluation of EOI;

Preparation and issuance of the Request for Proposals (RFP) to the short-listed consultants; RFP consists of: (i) Letter of Invitation, (ii) Information to Consultants, (iii) the TOR, and (iv) proposed contract.

Receipt of proposals;

Evaluation of technical proposal (i.e., evaluation of quality);

Evaluation of financial proposal (i.e., evaluation of cost of services);

Combined quality and cost evaluation;

Negotiations and award of the contract to the firm with the highest combined quality and cost score.

Important considerations for implementing each step are discussed briefly below.

Selection Process

The Terms of Reference (TOR) shall define the objectives of the assignment, scope of assignment outlining services necessary to carry out the assignment, clearly state the expected outputs, and shall include

background information which would facilitate the preparation of the proposals. In general, the TOR should clearly state WHAT the client wants done, while it is the responsibility of the consultants to show HOW that will be done.

Cost Estimate: A realistic cost estimate shall be made to provide the client with reasonable estimate of resources needed to carry out the assignment. Cost estimates shall include cost of personnel (foreign and local personnel) broken down into fees and social costs, logistical support, physical inputs (vehicles, equipment), and expenses such as airfares, communication, office supplies and production of required reports.

Advertising: To obtain expressions of interest (EOI) or statement of capability, the assignment shall be advertised in Member countries and as required internationally (in case of International REOI) and in local newspapers of national circulation. Sufficient time (at least 14 days) should be allowed for the preparation and submission of EOI. To enable submission of comparable EOIs from prospective consultants, the advertisement should specify minimum information to be submitted. This should include:

Eligibility criteria “evaluated through pass/fail system”

Company profile, including name of the country in which the firm is registered “evaluated through point system”;

Experience of projects related to the assignment, including brief descriptions of most recent relevant assignments (location, client, cost, staff involved) “evaluated through point system”;

Financial capabilities (for large and complex assignments) “evaluated through point system”.

Short List of Consultants: The short list is obtained from evaluation of EOIs submitted in response to the advertisement. The short list shall consist of minimum three firms. Once the short list is finalized, Requests for Proposals (RFPs) are issued and submitted to the shortlisted consultant.

Preparation and Issuance of the Request for Proposals (RFP): the RFP will consist of (i) Letter of Invitation, (ii) Information to Consultants, the TOR, and (iv) proposed form of contract. The Information to Consultants should not indicate the budget (since cost is a selection criterion), but shall indicate the expected professional time input for key staff. The standard RFP shall be used with minimum modifications.

Receipt of Proposals: Sufficient time shall be allowed for preparation and submission of proposals. Depending on the complexity of the assignment, 4–6 weeks shall be allowed. The technical and financial proposals shall be submitted at the same time but in separately marked envelopes. Opening of the proposals shall take place immediately after the closing time for submission of proposals. The technical proposal shall be opened but the financial proposals shall remain sealed and deposited in a safe place until the technical proposals have been evaluated.

Evaluation of Proposals: A two stage evaluation shall take place: firstly, the evaluation of technical quality and, secondly, the evaluation of cost of services and combination of the technical and financial scores. Evaluation shall be by a committee of relevantly qualified individuals in the areas covered by the assignment (technical, financial, social and legal). The evaluation of technical quality is based on the criteria specified in

the RFP, but generally covers the following: (i) consultants' specific experience; (ii) methodology, approach and workplan; (iii) proposed key personnel; (iv) transfer of knowledge. The following weights are indicative and may be adjusted for specific circumstances. The proposed weights shall be disclosed in the RFP.

Consultant's specific experience:	5 to 10 points
Methodology, approach and workplan:	20 to 50 points
Key personnel:	30 to 60 points
Transfer of knowledge:	0 to 10 points
Total:	100 points

The RFP would normally include criteria for combining quality and cost to obtain a single combined total score. For example, Quality and Cost would be combined in proportions 70-80% for quality of proposal and 30-20% for cost of services.

Negotiations and Contract Award: Negotiations shall be carried out with the firm with the highest combined technical and financial score. Objective of negotiations is to reach a common understanding about the TOR, the methodology, proposed staffing, client's inputs, and conditions of contract. The consultants shall not be allowed to substitute key staff unless justified by long delays between submission of proposals and award of contract. The consultants should also not be expected to reduce their unit costs since price has already been taken into account in the selection. The contract shall be signed after successful negotiations.

Rejection of All Proposals

All proposals may be rejected if (i) they are non-responsive to the TOR, or (ii) the costs are substantially higher than the estimated cost. In the latter case, measures for increasing the budget should be explored. In any case, the IFAD "No Objection" is required before proceeding with the rejection of the bidding and proceeding with an alternative course of action.

Quality-Based Selection (QBS)

QBS is appropriate for the following types of consulting assignments:

Complex or highly specialized assignments with need for demonstrable innovation by the consultants, e.g., country economic studies, urban master plan, financial sector reforms;

assignments with high downstream impact, e.g., policy studies, management studies, engineering design of complex infrastructure;

assignments which could be carried out in different ways, such that it is difficult to compare proposals (examples include management advice, policy studies)

For these types of assignments, short-listed consultants shall be asked to submit technical proposals and the firm with the highest technical proposal invited to submit a financial proposal and negotiate a contract.

Selection under Fixed Budget

For assignments which are simple in nature and can be easily defined, the consultants may be selected under a fixed budget. The RFP should indicate that selection will be based on Selection under Fixed Budget. The process takes the following steps.

Short-listed consultants are requested to submit technical and financial proposals.

The technical proposals are evaluated without opening the financial proposals. The technical proposals are ranked on basis of technical score.

All the financial proposals are opened. The proposals above the budget are rejected.

The firm that has submitted the highest ranked technical proposal among those below the budget shall be awarded the contract.

Least-Cost Selection

This is applicable for assignment of a standard or routine nature (e.g., audit) with well-established performance standards. A minimum qualifying score for the “quality” is established. Technical and financial proposals are submitted in two separate envelopes from a short list of consultants. The firm with the lowest price among those scoring above the qualifying score shall be awarded the contract.

Consultants’ Qualification

This method is applicable for small assignments for which the need for preparing and evaluating competitive proposals is not justified. The steps in the selection process are:

prepare TOR;

request expressions of interest and information on consultants’ experience and suitability for the assignment;

establish a short list;

select the firm with the most appropriate qualifications;

invite the selected firm to submit a combined technical and financial proposal; and

negotiate a contract.

Single-Source Selection

This is selection without competition and is most applicable under the following conditions:

Continuation of existing or previous contract awarded on competitive basis before;

Need for rapid selection, such as in an emergency;

Very small assignments; and

When only one firm is qualified to handle the assignment.

The selected firm is asked to submit a technical and financial proposal, and these become the basis of negotiations and contract award.

Project Affordable Agriculture Financing for Resilient Rural Development (AAFOR)
Procedure Intern ICB for goods, works or non services)

national Competitive Bidding (

Individual consultants (IC).

IC are employed on assignments for which (a) a team of experts is not required, (b) no additional outside (home office) professional support is required, and (c) the experience and qualifications of the individual are the paramount requirement. Advertisement for seeking expressions of interest (EOI) is encouraged, particularly when the Borrower does not have knowledge of experienced and qualified individuals or of their availability, or the services are complex, or there are potential benefits from wider advertising, or if it is mandatory under national law. All invitations for EOIs should specify selection criteria that are solely based on experience and qualifications.

Individual consultants are selected on the basis of their relevant experience, qualifications, and capability to carry out the assignment. They do not need to submit proposals and shall be considered if they meet minimum relevant requirements which shall be determined by the Borrower on the basis of the nature and complexity of the assignment, and assessed on the basis of academic background and relevant specific experience, and, as appropriate, knowledge of local conditions such as national language, culture, administrative systems, and government organization. The selection shall be carried out through the comparison of the relevant overall capacity of at least three qualified candidates among those who have expressed interest in the assignment or have been approached directly by the Borrower. Individuals selected to be employed by the Borrower shall be the most experienced and best qualified, and shall be fully capable of carrying out the assignment. The Borrower shall negotiate a contract with the selected individual consultant after reaching agreement on satisfactory terms and conditions of the contract, including reasonable fees and other expenses.

Individual consultants may be selected on a single-source basis with due justification in exceptional cases such as:

tasks that are a continuation of previous work that the consultant has carried out and for which the consultant was selected competitively;

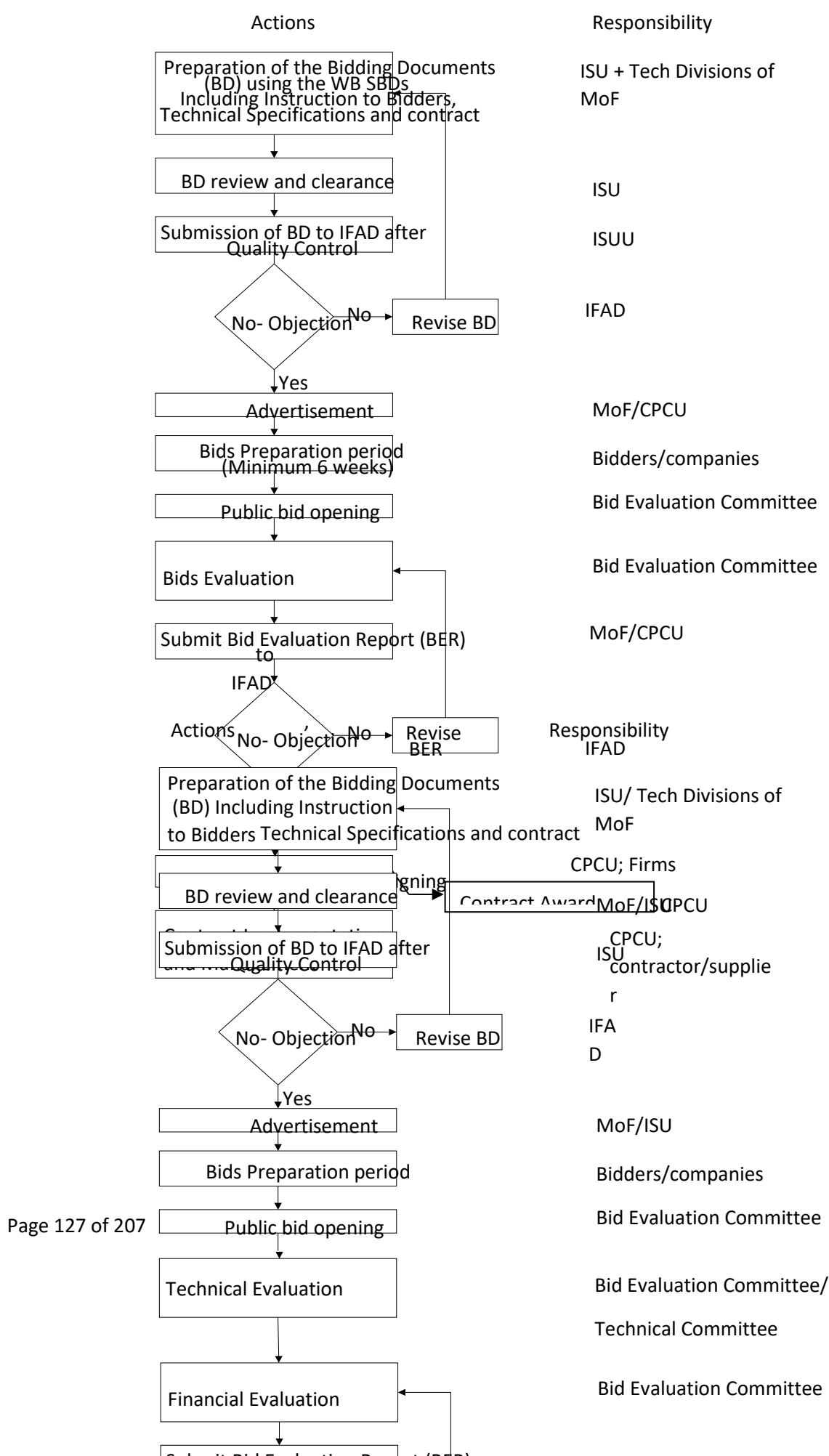
assignments with a total expected duration of less than 3 (three) months;

urgent situations; and

when the individual is the only consultant qualified for the assignment. The Borrower shall submit to IFAD for its review and no objection the TOR of the assignment, a sufficiently detailed justification, including the rationale for single-source selection instead of a competitive selection process, and the basis for recommending a particular individual consultant in all such cases.

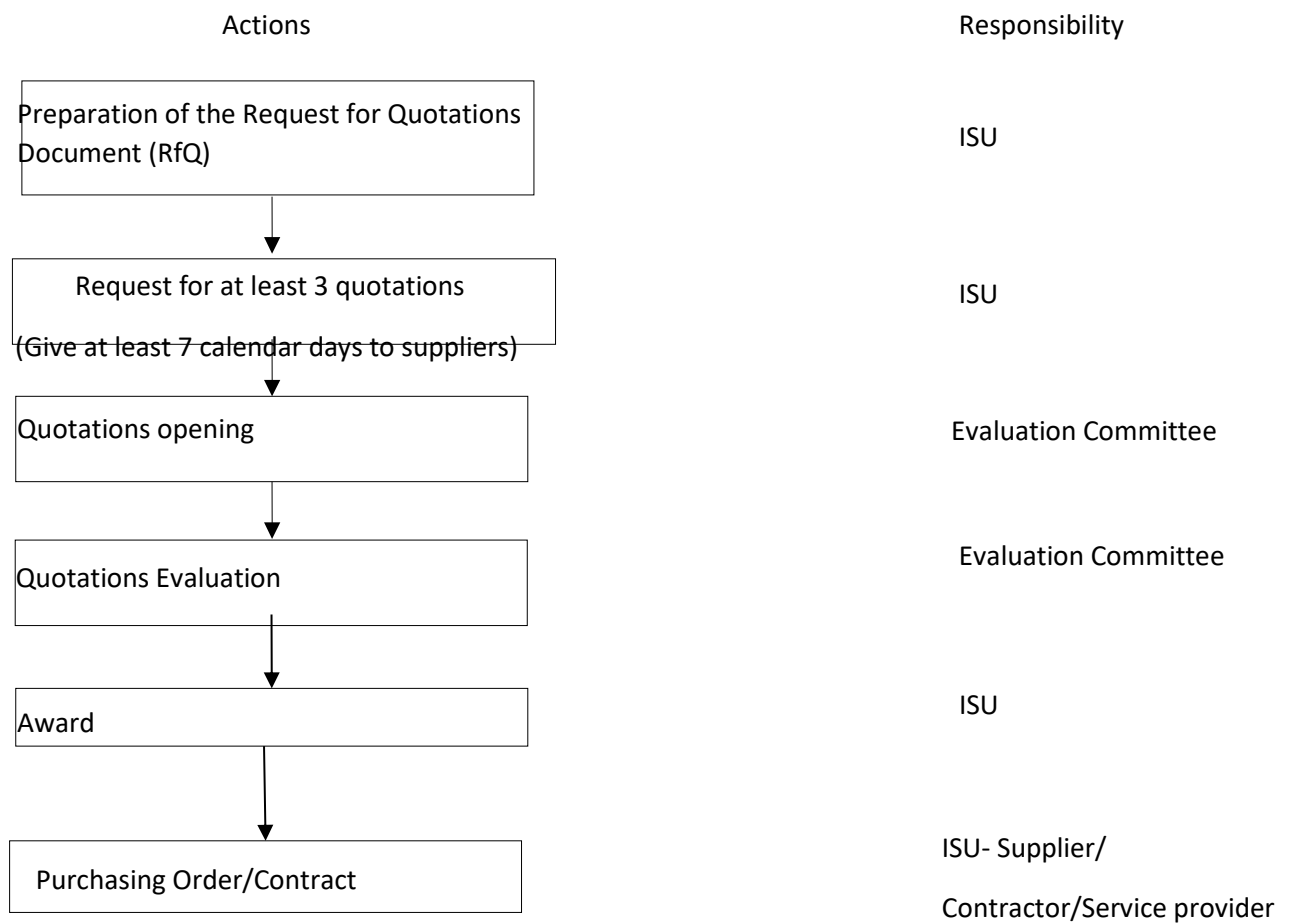
Government officials and civil servants of the Borrower's country may only be hired under consulting contracts in the Borrower's country, either as individuals or as members of the team of experts proposed by a consulting firm, provided that such hiring does not conflict with any employment or other laws or regulations, or policies of the Borrower's country and if they (i) are on leave of absence without pay, or have resigned or retired; (ii) are not being hired by the agency they were working for before going on leave of absence without pay, resigning, or retiring and (iii) their hiring would not create a conflict of interest

PROCESS FLOW DIAGRAMS FOR PROCUREMENT UNDER AAFORD

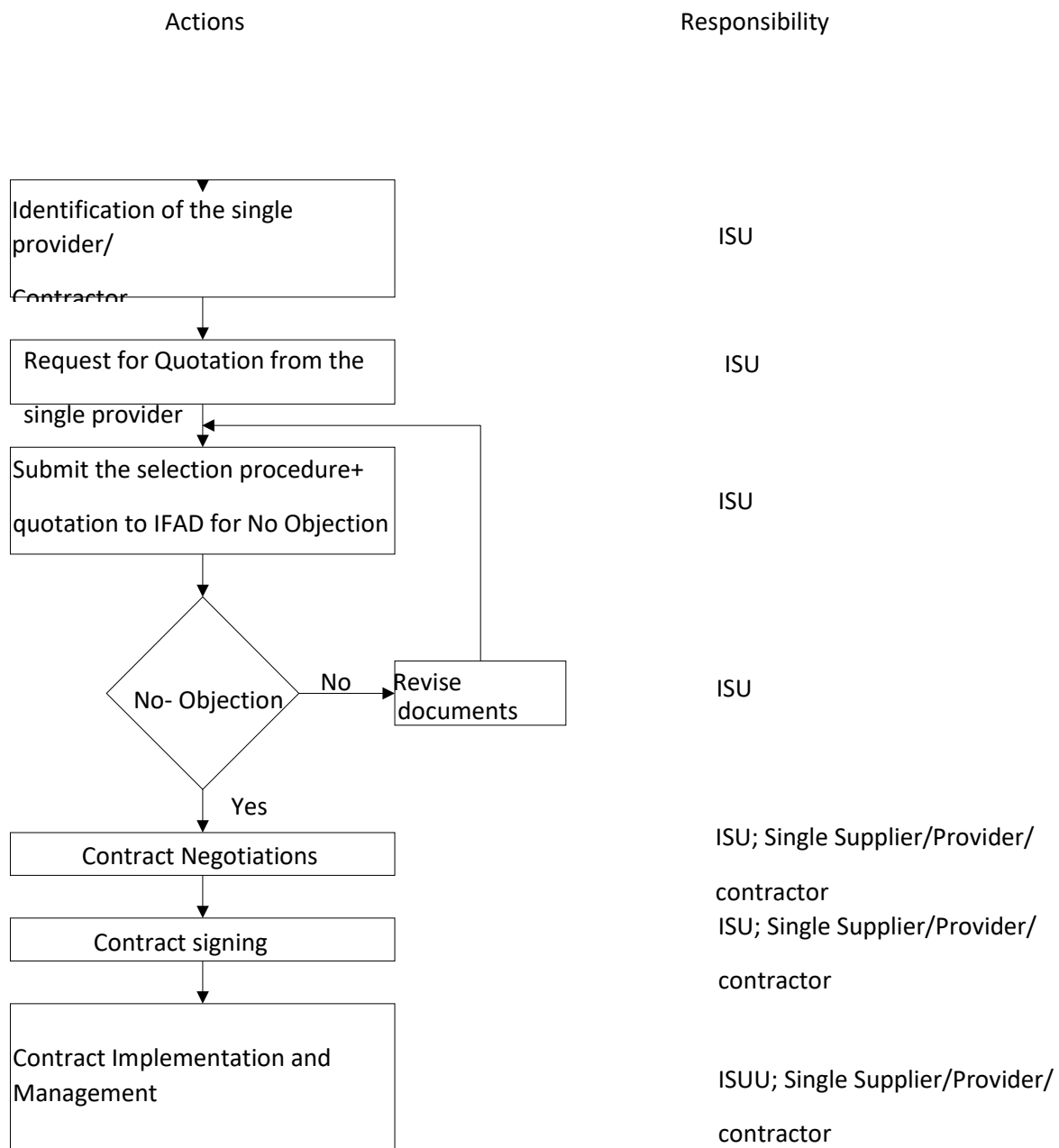


Project: Affordable Agricultural Financing for Resilient Rural Development GHANA (AAFORD)
Procedure: Shopping (for goods; works or non-consulting services)

Project: Affordable Agricultural Financing for Resilient Rural Development GHANA (AAFORD)

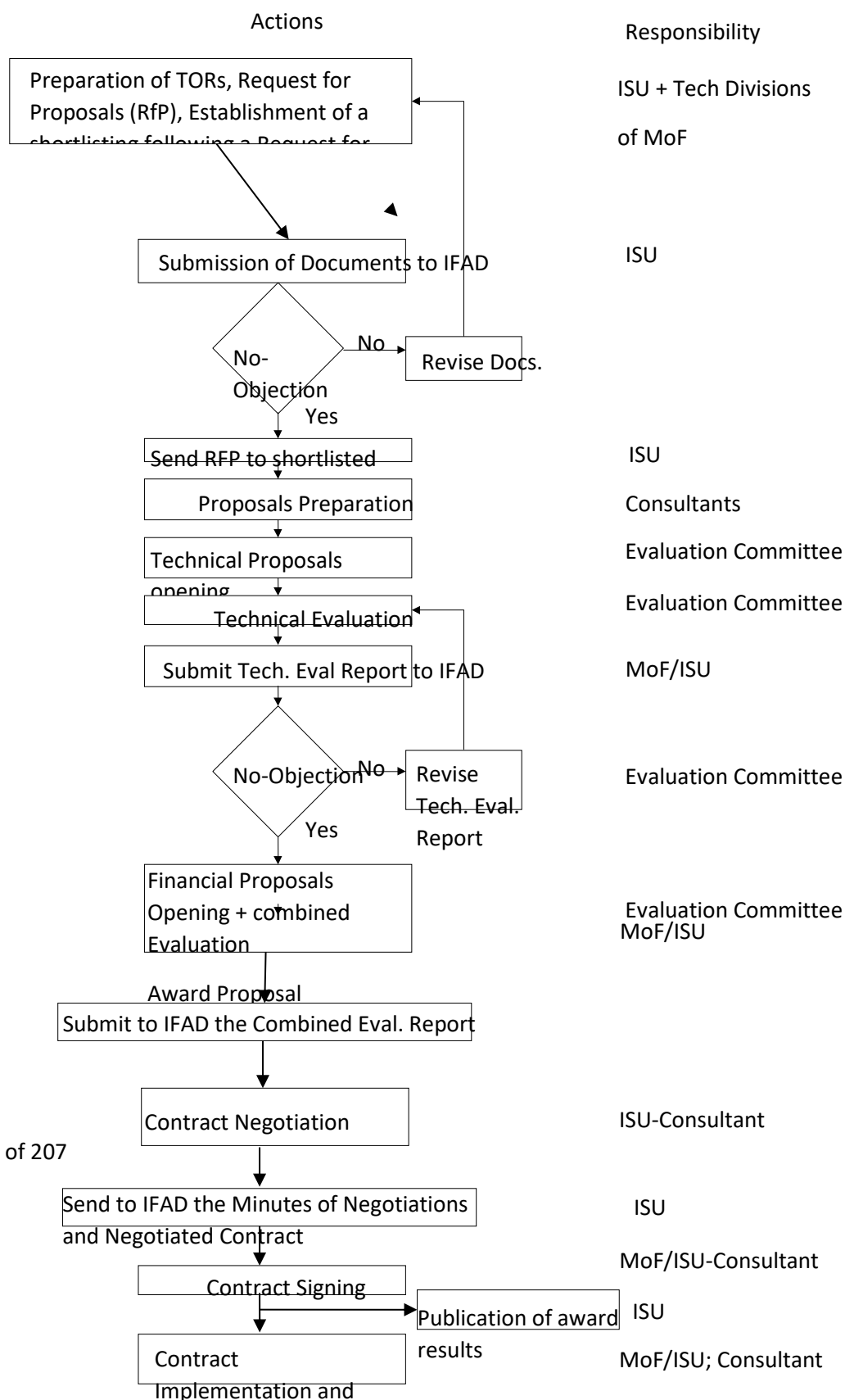


Procedure: Direct Contracting



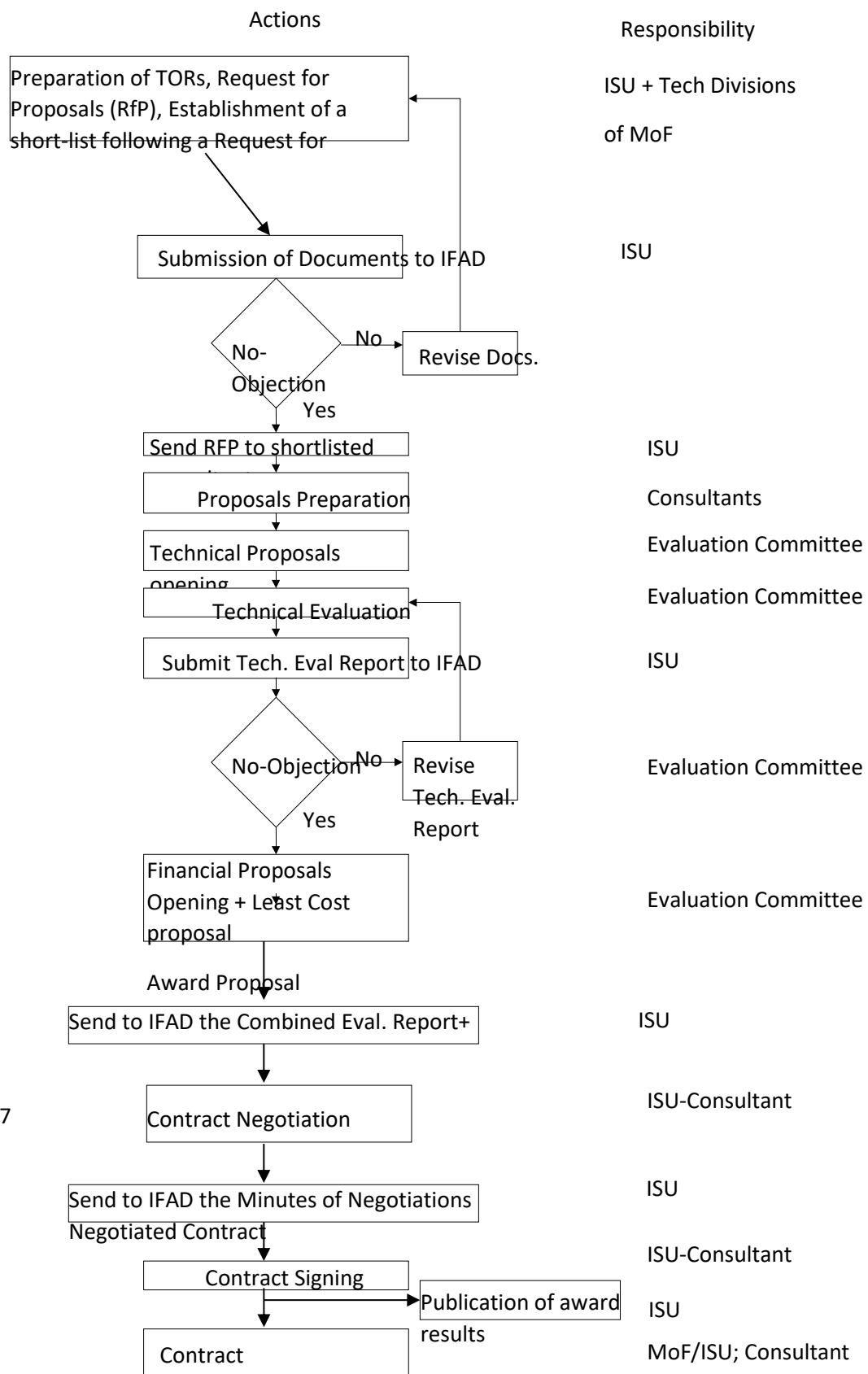
Project: Affordable Agricultural Financing for Resilient Rural Development GHANA (AAFORD)

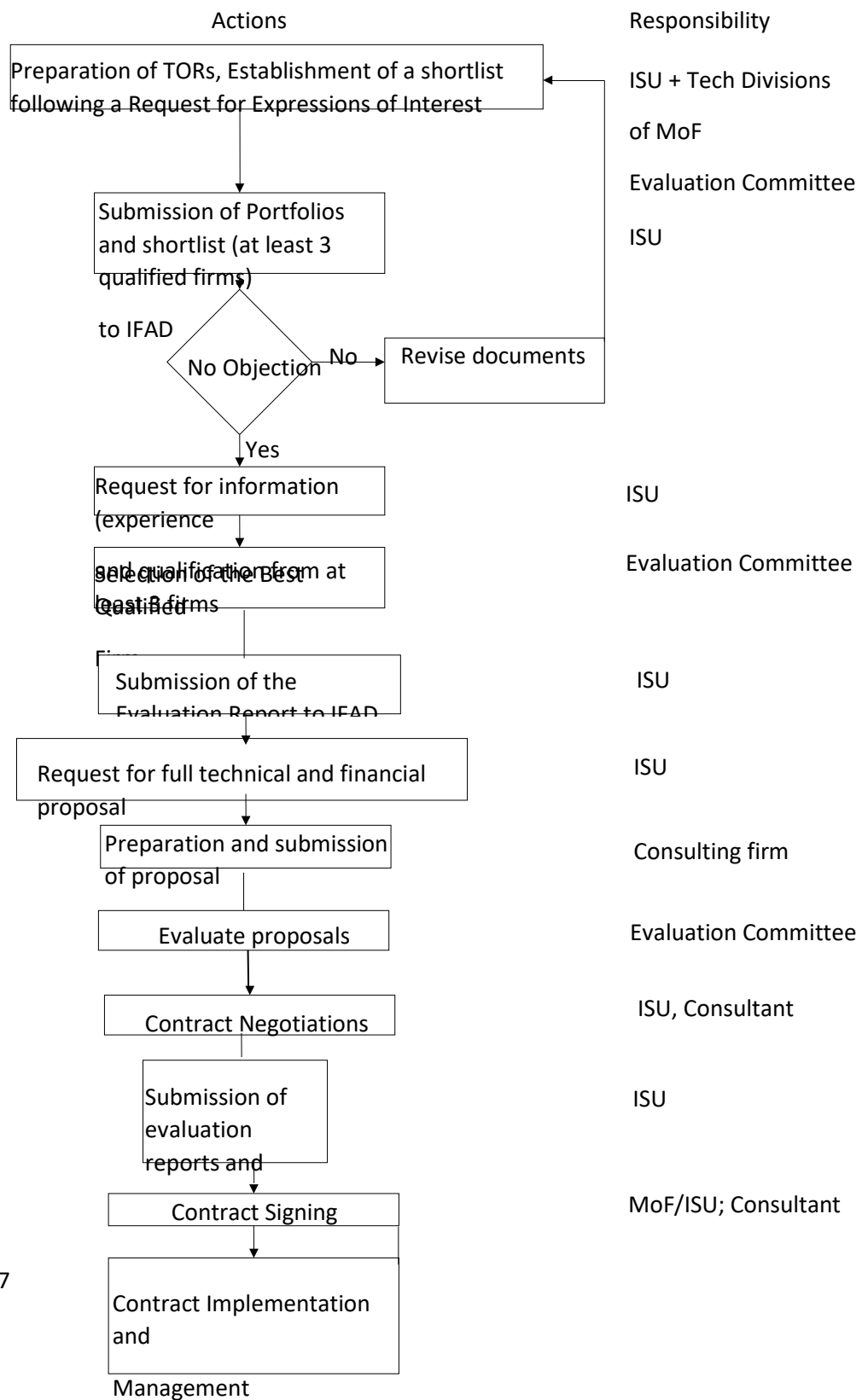
Procedure: Quality and Cost Based Selection (QCBS for Consulting Services)



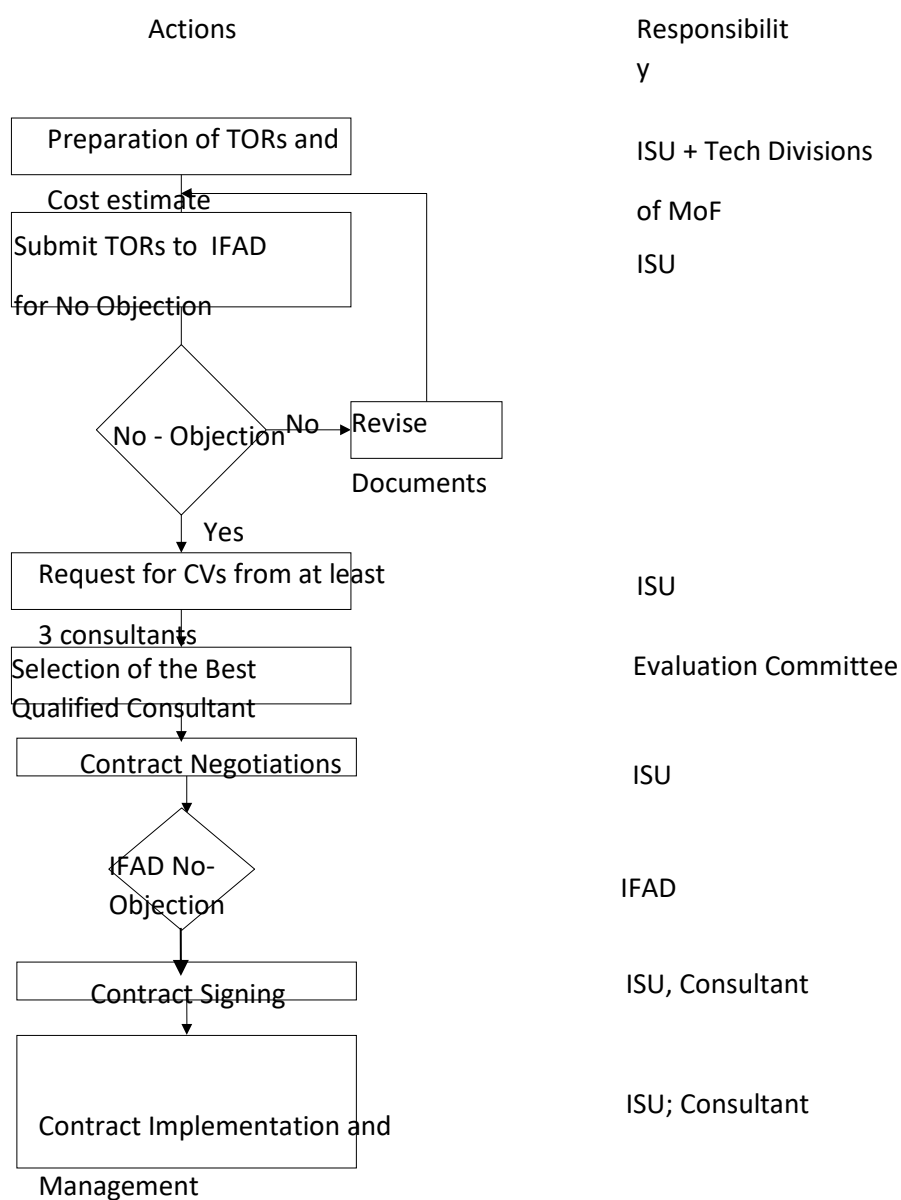
Project: Affordable Agricultural Financing for Resilient Rural Development GHANA (AAFORD)

Procedure: Least Cost Selection (LCS for Consulting Services)

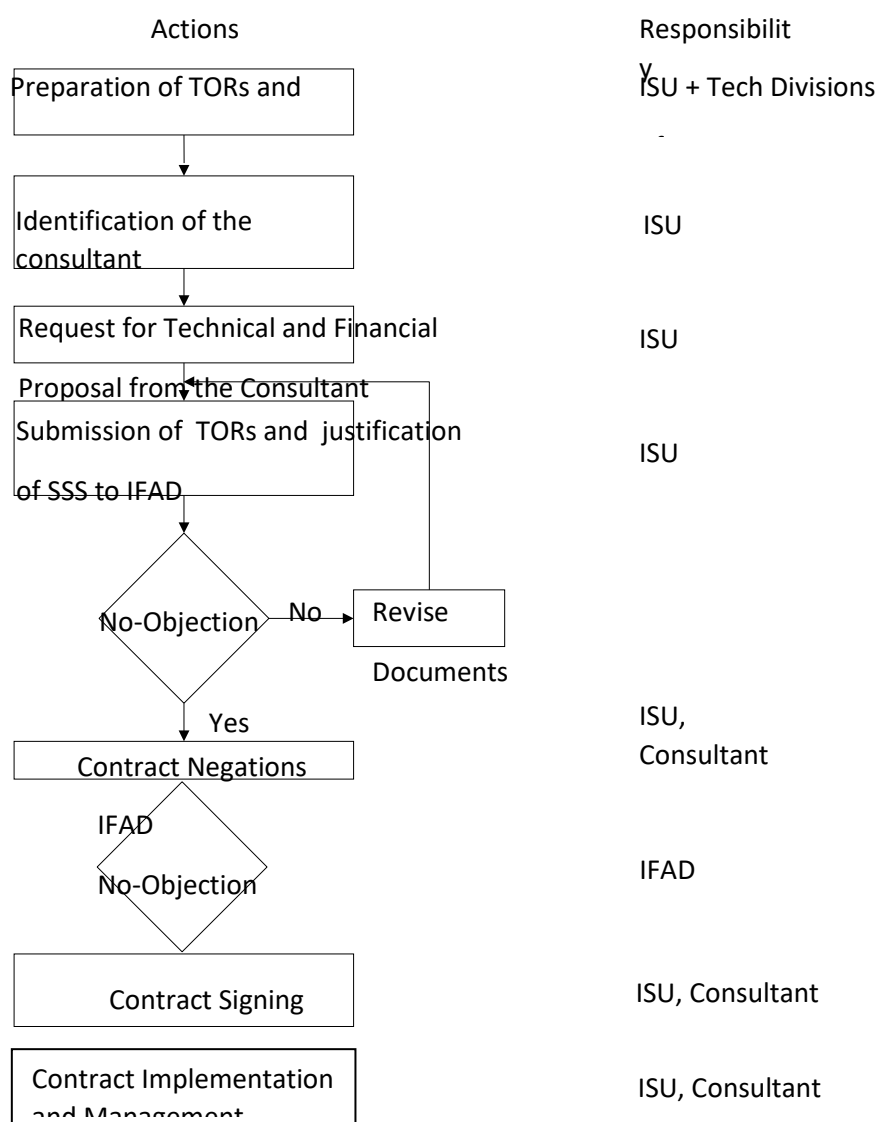




Project: Affordable Agricultural Financing for Resilient Rural Development GHANA (AAFORD)
Procedure: Selection of Individual Consultants (IC)



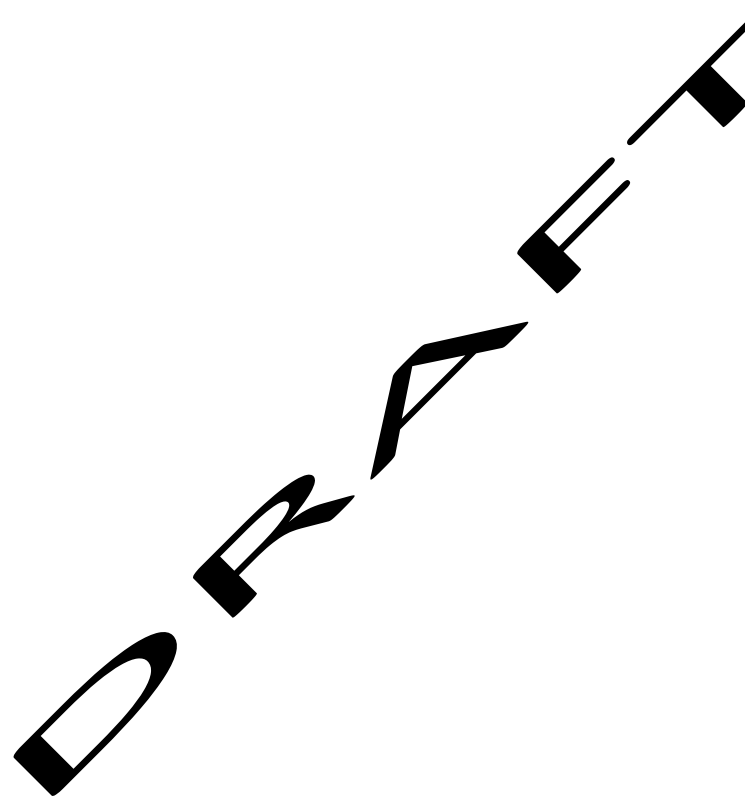
Project: Affordable Agricultural Financing for Resilient Rural Development GHANA (AAFORD)
Procedure: Single Source Selection (SSS)



Chapter 8: Environment and Social Management Plan

Parameter	Activity	Performance Indicator	Target	Responsibility for monitoring during project implementation	Monitoring means	Recommended frequency of monitoring	Recommended Enhancement measures
Risk associated with fertilizer application		Soil test has been done to determine quality of fertilizer (Yes/No)	All PO's test representative soil samples of production sites	ISU in collaboration with MoA extension workers	As part of sub-project approval	Annual reports, mid-term reports, closing	

Limit nitrate use in sensitive watersheds serving urban areas.	Is the organic alternative being applied (Yes/No)	All PO's apply organic Alternative	ISU in collaboration with MoA extension officers	As part of project environmental monitoring by ISU	Annual reports, mid-term report, closing
Select non-ammonium sources of nitrogen such as urea.					



Risk of deforestation and Land degradation	Encouraging zero-deforestation value chains and developing certification schemes	Physical monthly inspections.	All stakeholders are trained in sustainable practices	ISU in collaboration with MoA extension officers	As part of project environmental monitoring by ISU	Annual reports, mid-term report, closing
	Supporting landscape planning involving local communities and the strengthening of local governance capacity;					
	Identifying areas that should not be cleared (e.g., streams and bodies of water) and limit the clearing of land to the areas that are most suitable for agricultural production and avoiding the use of fire as a land clearing method;					
	Increasing awareness and education on sustainable forest management;					
	Promoting forest-based alternative livelihoods involving women.					

Capacity building to stakeholders	Prepare training material adapted to the needs of each stakeholder	Stakeholders trained	All stakeholders are trained in sustainable practices	ISU in collaboration with local governments and Department of Environment	As part of project approval	Before implementation of activities	Include capacity building material for sustainable development practices as part of subcomponents training
Involvement of women and youth	In order to increase participation of youth and women, the Project's field extension agents should give priority to women and youth in training activities related to nursery implementation and management, food storage and processing, seed selection and breeding, marketing, organization and negotiation skills.	Women and youth trained	50% Women and 40% Youth	ISU in collaboration with local governments and Department of Environment. Ministry of Women, Children and Social Protection and Ministry of Youth and Sports,	As part of project approval	Bi-annually	Include capacity building material for sustainable development practices as part of subcomponents training
Environmental and Social Management Plan							

Part in	Key issue	Potential impact				
value chain	affecting	Environmental	Social & Institutional	Economic	Standard Mitigation Measures	Monitoring & indicators

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reduction	<ul style="list-style-type: none"> Land preparation – land clearing, cultivation and other issues Use of earth- moving machines, e.g. tractors for clearing Use of agro-chemicals Use of pesticides Ensure that dressings do not exceed recommended doses. Reduce leaching through appropriate choice of fertilizer to suit soil conditions, split applications and fertilizer placement 	<ul style="list-style-type: none"> Forest and Woodland loss Land & soil degradation Water and soil pollution Flooding Erosion Bush fire Biodiversity loss Waste management 	<ul style="list-style-type: none"> Increased youth, women and men employment directly and indirectly Increased sense of pride and responsibility by participating youth and women Resource conflicts Possible agitation from youth not presently included in the programme Social exclusion - women and youth and PLWD Use of child labour 	<ul style="list-style-type: none"> Increased household income and reduced poverty Increased youth employment and social well-being Improved nutrition and food security Increased ability of women and youth to manage their enterprises in productive and profitable manner, thereby increasing GDP and manpower development Increased import substitution especially of rice But increasing associated environmental and social costs 	<ul style="list-style-type: none"> As much as possible, discourage the opening of virgin forests Train farmers in sustainable land management practices and agrochemical management Deliver training and agricultural inputs to farmers on-time to enable them to adjust and adapt their planting and harvesting methods and timing Adopt and enforce health, safety and environment rules at production sites Encourage full exploration of the value chain including 	<ul style="list-style-type: none"> Number of farmers that received training on sustainable land preparation Change in forests area Results from periodic soil and water analysis Health, safety and environment manual Number of value chain enterprises around soil testing and agrochemicals management Stakeholder Engagement Plan
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Part in value chain	Key issue affecting	Potential impact				
		Environmental	Social & Institutional	Economic	Standard Mitigation Measures	Monitoring & indicators
Processing	<ul style="list-style-type: none"> Use of processing machine Parboiling of Rice 	<ul style="list-style-type: none"> Waste generation Air, water and land pollution GHG emission from machines Use of wood for heating/parboiling 	<ul style="list-style-type: none"> Unsafe and non-healthy working conditions Possible use of child Labourers Migration influx to processing sites 	<ul style="list-style-type: none"> Increased sales and household income Increased youth employment and social well-being Improved processing capacity, value additions and value chain development Improved nutrition and food security Increased ability of youth to manage their enterprises in productive and profitable manner, thereby increasing 	<ul style="list-style-type: none"> Encourage the use of renewable and low-carbon energy sources during processing operations Adopt health, safety and environment rules at processing sites Train farmers in sustainable agro- processing practices to reduce environmental impacts Step up knowledge management and information dissemination to showcase the achievement of the project 	<ul style="list-style-type: none"> Number of operators adopting renewable low carbon technologies Number of enterprises established focusing on processing Number of entrepreneurs adopting sustainable processing operations Knowledge management /communication plans, stakeholder meeting reports, communication project flyers/leaflets

Part in value chain	Key issue affecting	Potential impact		Economic	Standard Mitigation Measures	Monitoring & indicators
		Environmental	Social & Institutional			
				<p>GDP and manpower development</p> <p>☐ Increased import substitution of Rice</p> <p>☐ But increasing associated environmental and social costs</p>		

Part in value chain	Key issue affecting	Potential impact				
		Environmental	Social & Institutional	Economic	Standard Mitigation Measures	Monitoring & indicators
Marketing	Construction of market infrastructure	<ul style="list-style-type: none"> Dust, smoke, noise, ground movement / vibration Deforestation Water pollution Flooding and erosion from poorly constructed culverts, roads, etc. 	<ul style="list-style-type: none"> Better access to market Better access to production and processing sites by supervisory agencies Improved access to rural communities Conflict over land and demand for compensation where infrastructure is to be constructed Labor and working conditions 	<ul style="list-style-type: none"> Improved market penetration Access to market information and market linkage and support services Strengthened market value chain, with more profitable enterprises Improved storage and reduced waste and postharvest losses 	<ul style="list-style-type: none"> Use construction equipment with moderate decibel during construction Develop/adopt and enforce health, safety and environment rules at construction sites Lawful and willing consent of community/or individuals on land site for market infrastructure Roads must be constructed with drainages Develop contingency plans for dykes/spillways to manage unexpected circumstances. 	<ul style="list-style-type: none"> Observation of construction equipment for dust, noise, smoke, vibration, etc. Work inspection report on the environmental quality of market infrastructure Health, safety and environment plans Copy of consent of community /individuals on market infrastructure land site

Part in value chain	Key issue affecting	Potential impact		Economic	Standard Mitigation Measures	Monitoring & indicators
		Environmental	Social & Institutional			
Transportation	<ul style="list-style-type: none"> Use of motorized and heavy transportation machines 	<ul style="list-style-type: none"> GHG emission from transportation 	<ul style="list-style-type: none"> Influx of rural Migrant workers to agri- enterprise sites and processing areas Increased number of service providers, which boost the economy 	<ul style="list-style-type: none"> Increased ownership of motorized and other transport system Increased number of service providers Increased GDP 	<ul style="list-style-type: none"> Organize transport entrepreneurs into an association for easy management Develop a code of conduct, and health, safety and environment regulation for transport operators 	<ul style="list-style-type: none"> Code of conduct for transport operators Minutes of meetings of transport operators' association

Part in value chain	Key issue affecting	Potential impact				
		Environmental	Social & Institutional	Economic	Standard Mitigation Measures	Monitoring & indicators
Capacity building to stakeholders	Prepare training material adapted to the needs of each stakeholder	Reduce negative impacts on environment	Change in behavior and attitudes	Increased revenues due to good practices	Include capacity building material for sustainable development practices as part of subcomponents training	Project reports
Involvement of women and youth	Gender and youth gap	More pressure on resources , migration	Gender and inequality, poverty	More revenues	Targets for youth and women with disaggregated data	Project reports/ M&E

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Table Environmental and Social/ Climate Monitoring Plan

Parameter	Activity	Monitoring Indicator	Responsibility for monitoring	Monitoring means	Recommended frequency of monitoring	Estimated Monitoring Costs (USD)
ENVIRONMENTAL/ SOCIAL/ CLIMATE MONITORING						
Sub projects/ business plan Environmental Screening for	Environmental Screening and impact assessment for sub project financed by the facility and financial institutions	Compliance reports	PMU, financial institutions, EPA	ESIA reports Adherence to laid legal and policy requirements	Once business plans are developed and submitted for approval	100,000
Strengthened capacity and business planning for FOs and or cooperatives, MSMEs (disaggregated by gender and Youth), to design business plans and access green lines products from	Banks, MFIs supportive and adopt tools and methods developed etc. to respond to climate change and variability	Baseline on status of the sustainability principles of the financial system	ISU, financial institutions, EPA	Project reports, banks MFIs reports, stakeholder surveys	Annually	150,000

financial institutions and other MFIs and commercial banks and implement diversified, climate resilient livelihood options.

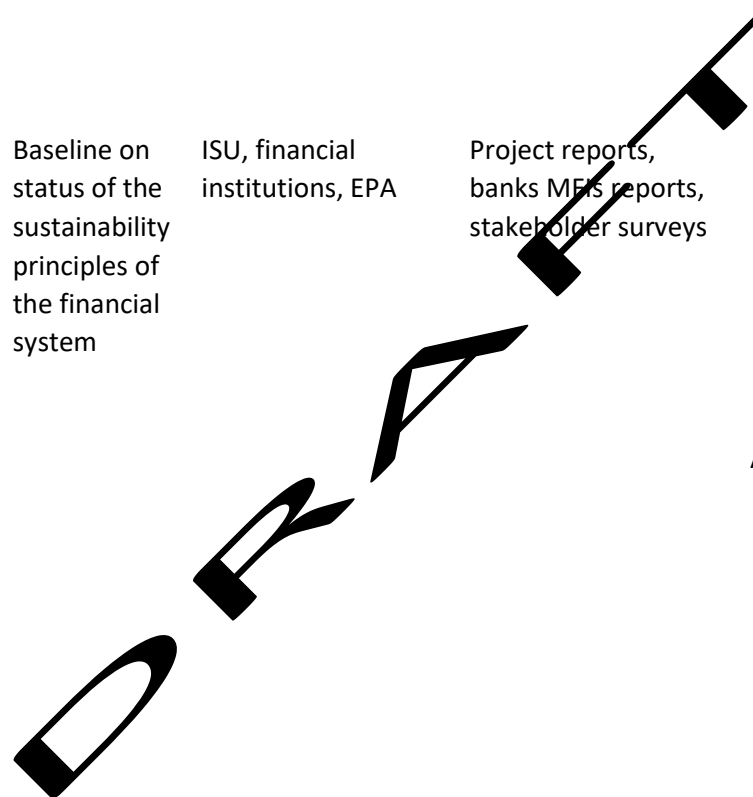
Improved readiness and capacities of financial institutions on green lending

Technical Assistance to enhance governance and management of loan products and green lines policy gap (identification, definition, gap assessment including gender and closing the gap.)

Baseline on status of the sustainability principles of the financial system

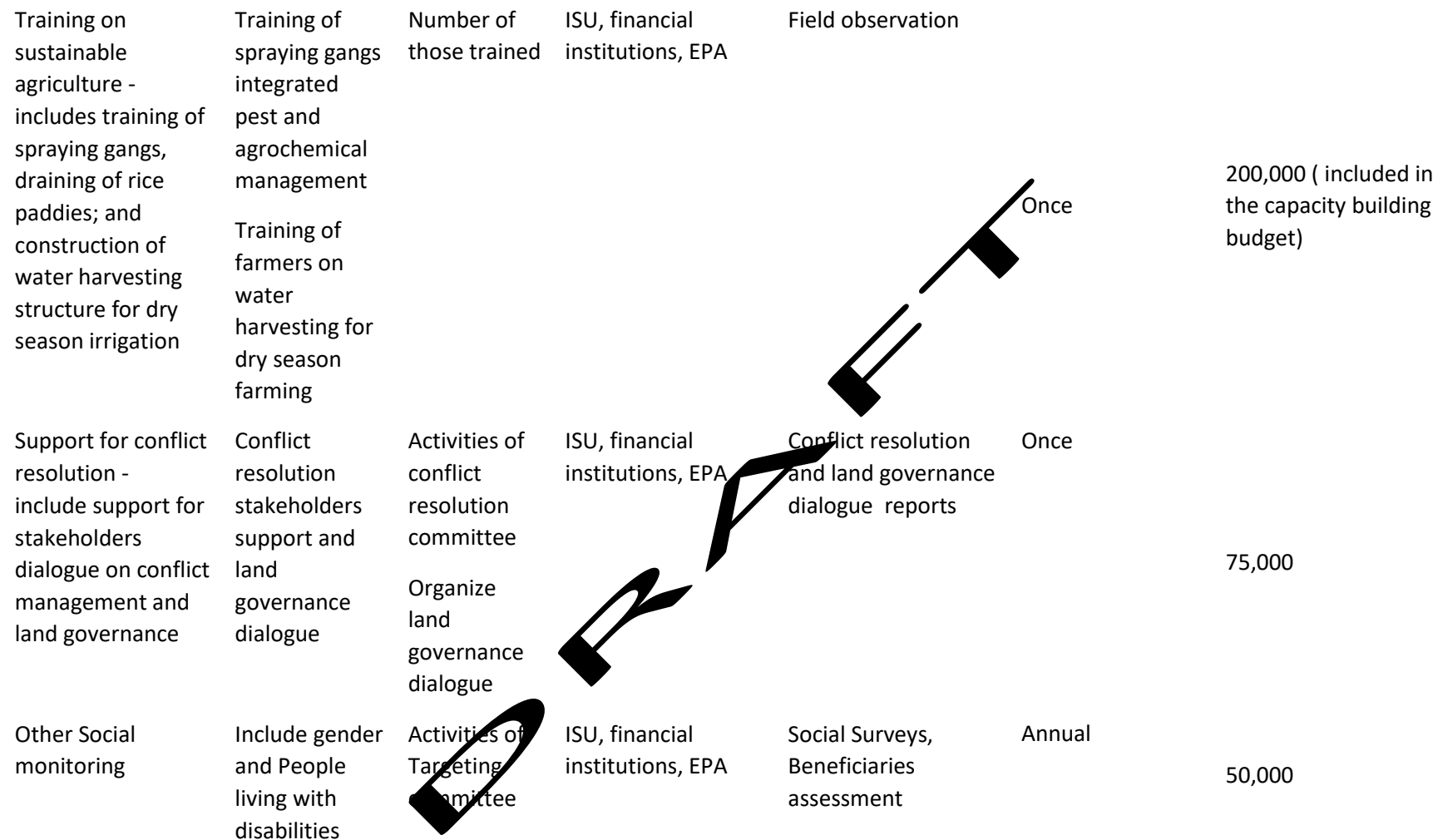
ISU, financial institutions, EPA

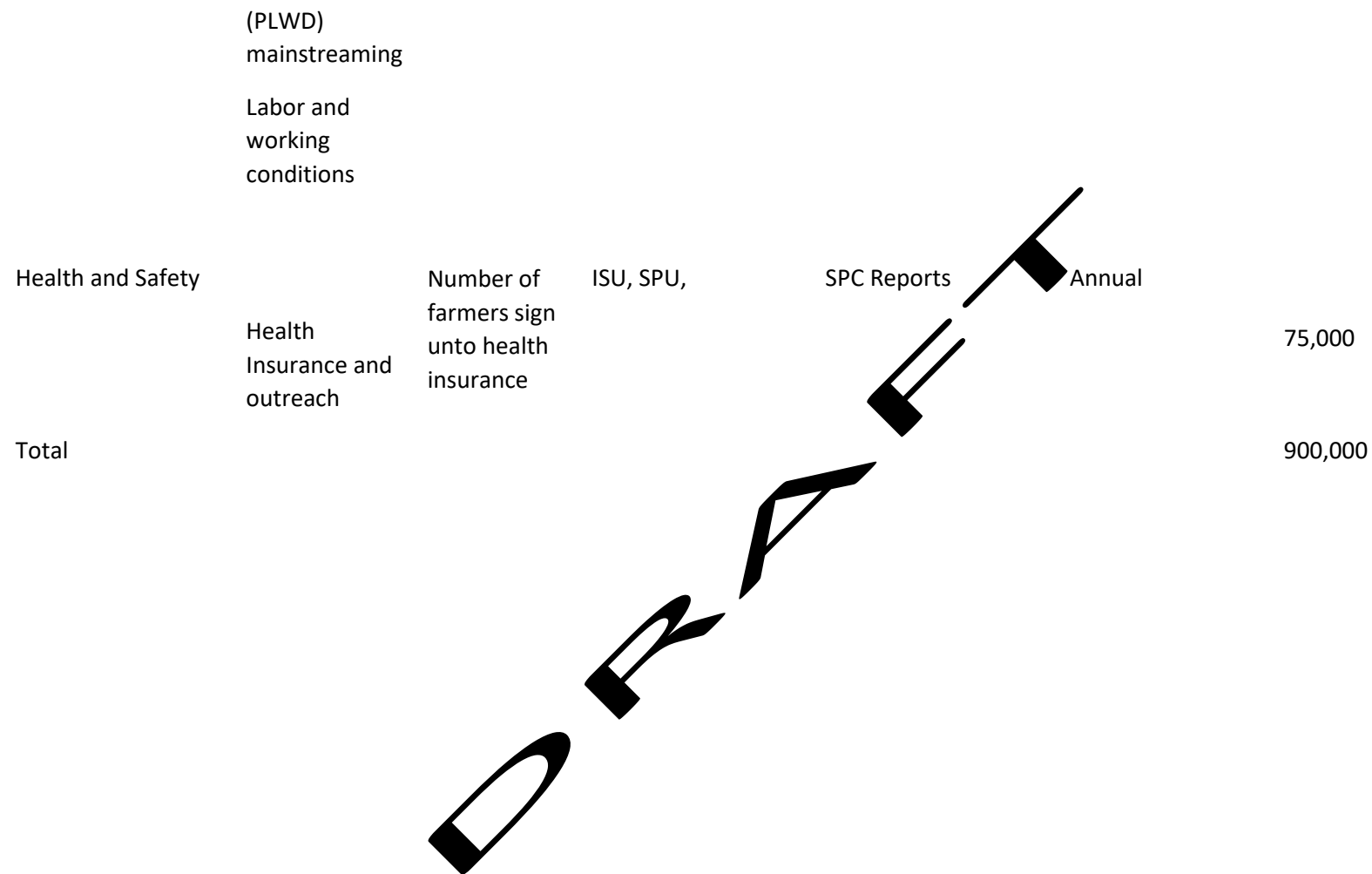
Project reports, banks MFIs reports, stakeholder surveys



Annual

250,000





Guiding questions for environment and social screening		Yes/No	Comments/explanation
Category A – the following may have significant and often irreversible or not readily remedied adverse environmental and/or social implications.			
Project location			
Would the project develop any wetlands? (Guidance statement GS1)	No		
Would the project cause significant adverse impacts to habitats and/or ecosystems and their services (e.g. conversion of more than 50 hectares of natural forest, loss of habitat, erosion/other form of land degradation, fragmentation, and hydrological changes)? (GS 1, 2 and 5)	No		
Does the proposed project target area include ecologically sensitive areas, 45 areas of global/national significance for biodiversity conservation and/or biodiversity-rich areas and habitats depended on by endangered species? (GS1)	No		
Is the project location subjected to major destruction as a result geophysical hazards (tsunamis, landslides, earthquakes, volcanic eruptions)?	No		
Natural resources			
Would the project lead to unsustainable natural resource management practices (fisheries, forestry, livestock) and/or result in exceeding carrying capacity. For example, is their development happening in areas where little up-to-date information exists on sustainable yield/carrying capacity? (GS 4, 5 and 6)	No		

45 “Sensitive areas” include: protected areas (national parks, wildlife/nature reserves, biosphere reserves) and their buffer zones; areas of global significance for biodiversity conservation; habitats depended on by endangered species; natural forests; wetlands; coastal ecosystems, including coral reefs and mangrove swamps; small island ecosystems; areas most vulnerable to climate change and variability; lands highly susceptible to landslides, erosion and other forms of land degradation and areas that include physical cultural resources (of historical, religious, archaeological or other cultural significance) and areas with high social vulnerability.

Would the project develop large-scale ⁴⁶ aquaculture or mariculture projects, or where their development involves significant alteration of ecologically sensitive areas?	No	
Would the project result in significant use of agrochemicals which may lead to life-threatening illness and long-term public health and safety concerns? (GS 14)	No	
Does the project rely on water-based (ground and/or surface) development where there is reason to believe that significant depletion and/or reduced flow has occurred from the effects of climate change or from overutilization? (GS7)	No	
Does the project pose a risk of introducing potentially invasive species or GMOs which might alter genetic traits of indigenous species or have an adverse effect on local biodiversity? (GS1)	No	
Does the project make use of wastewater (e.g. industrial, mining, sewage effluent)? (GS7)	No	
Infrastructure development		
Does the project include the construction/rehabilitation/upgrade of dam(s)/reservoir(s) meeting at least one of the following criteria? (GS8) more than 15 metre high wall or more than 500 metre long crest or more than 3 million m ³ reservoir capacity or incoming flood of more than 2,000 m ³ /s	No	
Does the project involve large-scale irrigation schemes rehabilitation/development (above 100 hectares per scheme)? ⁴⁷ (GS7)	No	

⁴⁶ The size threshold to trigger an Environmental and Social Impact Assessment (ESIA) may vary based on the country context and fragility of specific locations. Some countries have regulations on minimum size (usually ranging from a unit area of 10 to 50 hectares) and these will be adopted where they exist. However, where there are no standards, it is proposed to use 25 hectares as an aquaculture unit size to trigger ESIA.

⁴⁷ The size threshold to trigger an Environmental and Social Impact Assessment (ESIA) may vary based on the country context and fragility of specific locations. Some countries have regulations determining size of irrigation development requiring a full ESIA and these will be

Does the project include construction/rehabilitation/upgrade of roads that entail a total area being cleared above 10 km long, or any farmer with more than 10 per cent of his or her private land taken? (GS10)	No	
Does the project include drainage or correction of natural water bodies (e.g. river training)? (GS7)	No	
Does the project involve significant extraction/diversion/containment of surface water, leaving the river flow below 20 per cent environmental flow plus downstream user requirements? (GS7)	No	
Social		
Would the project result in economic displacement ⁴⁸ or physical resettlement of more than 20 people, or impacting more than 10 per cent of an individual household's assets? (GS13)	No	
Would the project result in conversion and/or loss of physical cultural resources? (GS9)		
Would the project generate significant social adverse impacts to local communities (including disadvantaged and vulnerable groups and indigenous people) or other project-affected parties? (GS13)	No	
Other		
Does the project include manufacture and transportation of hazardous and toxic materials which may affect the environment? (GS2)	No	
Does the project include the construction of a large or medium-scale industrial plant?	No	
Does the project include the development of large-scale production forestry? (GS5)	No	
Rural finance		

adopted where they exist. However, where there are no standards, it is proposed to use 100 hectares as an irrigation development unit size to trigger an ESIA.

⁴⁸ Economic displacement implies the loss of land, assets, access to assets, income sources or means of livelihoods (guidance statement 13).

Does the project support any of the above (Q1 to Q22) through the provision of a line of credit to financial service providers? (GS12)	No	
Category B – the following may have some adverse environmental and/or social implications which can be readily remedied.		
Location		
Does the project involve agricultural intensification and/or expansion of cropping area in non-sensitive areas that may have adverse impacts on habitats, ecosystems and/or livelihoods? (GS1, 2 and 12)	No	
Natural resource management		
Do the project activities include rangeland and livestock development? (GS6)	No	
Does the project involve fisheries where there is information on stocks, fishing effort and sustainable yield? Is there any risk of overfishing, habitat damage and knowledge of fishing zones and seasons? (GS4)	No	
Would the project activities include aquaculture and/or agriculture in newly introduced or intensively practiced areas? Do project activities include conversion of wetlands and clearing of coastal vegetation, change in hydrology or introduction of exotic species? (GS4)	No	
Do the project activities include natural resources-based value chain development? (GS 1, 6 and 12)	Yes	The project will support Cereal production (maize, millet, sorghum, rice) and vegetable crop (onion, garlic, cabbage etc,)
Do the project activities include watershed management or rehabilitation?	Yes	
Does the project include large-scale soil and water conservation measures? (GS 1 and 5)	No	
Infrastructure		
Does the project include small-scale irrigation and drainage, and small and medium (capacity < 3 million m3) dam subprojects? (GS 7 and 8)	Yes	The project will develop small scale hydro-agricultural and water

		mobilisation infrastructure.
Does the project include small and microenterprise development subprojects? (GS 12 and 13)	Yes	The project will target youth and women led microenterprises.
Does the project include the development of agroprocessing facilities? (GS 2, 6 and 12)	Yes	The project will support improved storage and the development of small processing units for income generation.
Would the construction or operation of the project cause an increase in traffic on rural roads? (GS10)	No	
Social		
Would any of the project activities have minor adverse impacts on physical cultural resources? (GS9)	No	
Would the project result in physical resettlement of less than 20 people, or impacting less than 10 per cent of an individual household's assets (GS13)?	No	
Would the project result in short-term public health and safety concerns? (GS14)	No	
Would the project require a migrant workforce or seasonal workers (for construction, planting and/or harvesting)? (GS13)	No	
Rural finance		
Does the project support any of the above (Q24 to Q37) through the provision of a line of credit to financial service providers? (GS12)	Yes	The project will establish partnership relationships with microfinance institutions (MFIs) to finance the activities of farmers organization/cooperatives.

Annex 1 – Eligibility Screening Form

Letter of Interest (Eligibility Screening Form)

Please complete all the required spaces in this form

1. Name: Surname ----- Other Names:-----
-----Maiden name (for married women):-----
2. Sex: (a) Male { } (b) Female { }
3. Date of birth: -----
4. Highest Education Level: (a) No formal education { } (b) Primary School { } (c) Secondary School { } (d) Vocational school (e) Tertiary Education { }
5. Which community do you belong to: -----
6. How long have you lived in this community: -----
7. How do you belong to this community: (a) by birth { } (b) by marriage { } (c) other (specify):-----
8. Local Government Area (LGA): ----- State: -----

9. What enterprise are you interested in (see list of selected enterprises for the LGA): -----

10. Do you have any experience in this enterprise: (a) Yes { } (b) No { }. If yes, how many years: -----

11. Do you belong to any youth or women organization: (a) Yes { } (b) No { }. If yes, what is the name: -----

12. Do you belong to any cooperative society: (a) Yes { } (b) No { }. If yes, what is the name: --

13. Do you have access to any land for the enterprise: (a) Yes { } (b) No { }.

14. If yes to question 13, where is the land located-----;
and what is the area size of the land? -----

15. What kind of title do you have to the land: (a) Government paper { } (b) Inheritance from parent { } (c) husband or wife's consent { } (d) family allocation { } (e) community's allocation { } (f) Others (specify):-----

Endorsements:

Applicant: I certify that the information provided here is correct

Name: -----

Signature: -----

Date: -----

Community/traditional leader:

Name: -----

Sign: -----

Date: -----

Verifications:

Comments by the Local Government Liaison Office:-----

Name of Officer: -----

Designation: -----

Sign and date: -----

Comments by the RCU Office:-----

Name of Officer: -----

Designation: -----
--

Sign and date: -----

Screening:

Comments by service providers:-----

-----Categorical comments (a) Applicant Eligible { } (b) Applicant Ineligible { }

Annex 2 - Environmental and Social Screening Forms for Subprojects

A: Screening Form for Agri-Enterprise Projects

General Information

Project Name:

Name of incubator / applicant:

Name of Cooperative:

Contact person's details:

Name of Apex Group:

Contact person's details:

Project Location:

Project sector (e.g. rice farming, vegetable processing, etc.)

Estimated Cost:

Proposed Date of Commencement:

Expected Project duration:

Site (estimated area in ha):

Any equity/contribution brought into the project:

Any plan for new construction:

A1. Screening for Environmental and Social Issues

Question	Yes	No	Additional explanation of 'Yes' response
Will the sub-project develop any wetlands?			
Would the sub-project result in economic displacement ⁴⁹ (loss of assets or access to resources) or physical resettlement			

⁴⁹ Economic displacement implies the loss of land, assets, access to assets, income sources or means of livelihoods (see SECAP Procedure Guidance Statement 13)

Question	Yes	No	Additional explanation of 'Yes' response
Would the sub-project result in conversion and/or loss of physical cultural resources?			
Will the sub-project have significant social adverse impacts (affecting access to and/use rights to land, access to potable water and water for other uses) on local communities or other project-affected parties?			
Will the project trigger unsustainable natural resource management practices (fisheries, forestry, livestock, and significant increase in use of agrochemicals) that exceed the carrying capacity?			
Does the sub-project include conversion of significant areas (above 50 ha) of natural forests/other wild lands?			
Would the project potentially cause significant adverse impacts to habitats and/or ecosystems and their services (e.g. habitat loss, erosion/ other form of land degradation, fragmentation, hydrological changes)?			
Does the proposed project target area include ecologically sensitive areas ⁵⁰ ; areas of global significance for biodiversity conservation and/or biodiversity-rich area; habitats depended on by endangered species?			
Does the project involve fisheries development in situations where little information exists on sustainable yield?			
Could the project pose a risk of introducing invasive alien species?			
Does the project involve the transfer, handling or use of genetically modified organisms/living modified organisms that may have an adverse effect on threatened biodiversity?			

⁵⁰ 'Sensitive areas' include: protected areas (national parks, wildlife/nature reserves, biosphere reserves); areas of global significance for biodiversity conservation; habitats depended on by endangered species; natural forests; wetlands; coastal ecosystems, including coral reefs and mangrove swamps; small island ecosystems; areas most vulnerable to climate change and variability; lands highly susceptible to landslides, erosion and other forms of land degradation and areas that include physical cultural resources (of historical, religious, archaeological or other cultural significance) and areas with high social vulnerability due to poverty, disease, ethnicity and race.

Question	Yes	No	Additional explanation of 'Yes' response
Is the project site close to any oil and gas installation such as flow stations, oil terminal, oil or gas pipeline right of way?			
Has oil spill/ or pipeline fire ever been recorded around project site?			
Does the project involve land use changes (agricultural intensification and/or expansion of the cropping area) and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?			
Will the project result in increased use of agrochemicals which may affect the natural environment/human health?			
Does the project include small-scale irrigation and drainage projects, and water impoundment including small dams (except in wetlands)?		<input checked="" type="checkbox"/>	
Does the project involve agricultural intensification and/or expansion of cropping area in non-sensitive areas?		<input checked="" type="checkbox"/>	
Do the project activities include rangeland and livestock development?			
Does the project involve artisanal fisheries where there is information on sustainable yield?			
Do the project activities include aquaculture and/or mariculture?			
Do the project activities include watershed management or rehabilitation?			
Does the project include large-scale soil and water conservation measures?			
Does the project include small and micro enterprise development sub-projects?			
Does the project involve credit operations through financial service providers, including credit for pesticide/other agrochemicals, livestock purchasing, irrigation, etc.?			
Do the project activities include natural resources-based value chain development?			
Would any of the project activities have minor adverse impacts on physical cultural resources?			

Question	Yes	No	Additional explanation of 'Yes' response
Would the project have low probability to have physical resettlement or economic displacement?			
Does the project include development of agro-processing facilities?			
Will the project require a migrant workforce during construction?			
Will the project require seasonal workers to plant and/or harvest produce?			
Will the construction or operation of the project cause an increase in traffic on rural roads?			

Guidance for sub-project categorization

"Yes" response to any of questions 1-13	Sub-project Environmental and social category is A	ESIA is required for subproject
"Yes" response to questions 14-31	Sub-project Environmental and social category is B	Sub-project to adopt the ESMP in the general ESMF
"No" response to almost all questions	Subproject Environmental and social category is C	No further analysis is required

B: Screening Form for (Market) Infrastructure Sub-Projects

Name of market infrastructure:

Infrastructure type:

Location:

Proposed Date of Commencement:

Expected Project duration:

Estimated cost:

Estimate number of communities to be served:

Estimated number of entrepreneur to be served:

B1: Screening for (Market) Infrastructure Sub-projects

Question	Yes	No
Will the project activities include construction/rehabilitation of rural roads or other rural infrastructure in protected/sensitive areas ⁵¹ ?		
Does the project include construction of roads or other infrastructure that entail the total area being cleared of 50 ha or above?		
Does the project include construction of dam (s)/reservoir (between 5-15 m high with a reservoir exceeding 2 million m ³)?		
Does the project involve large-scale irrigation schemes rehabilitation/development (above 100 ha)?		
Does the project involve significant extraction of ground water (significantly above recharge capacity)?		
Does the project include water-based (ground or surface) development where it is believed that significant depletion due to climate change or overutilization has occurred?		
Does the project involve significant extraction, diversion or containment of surface water?		
Does the project include drainage or correction of natural water bodies (e.g. river draining)?		

⁵¹ 'Sensitive areas' include: protected areas (national parks, wildlife/nature reserves, biosphere reserves); areas of global significance for biodiversity conservation; habitats depended on by endangered species; natural forests; wetlands; coastal ecosystems, including coral reefs and mangrove swamps; small island ecosystems; areas most vulnerable to climate change and variability; lands highly susceptible to landslides, erosion and other forms of land degradation and areas that include physical cultural resources (of historical, religious, archaeological or other cultural significance) and areas with high social vulnerability due to poverty, disease, ethnicity and race.

Will the project include construction/rehabilitation of rural roads that pass through oil infrastructure locations such as flow stations, tank farms or oil and gas pipelines?		
Would any of the project activities have minor adverse impacts on physical cultural resources?		
Does the project include development of agro-processing facilities?		
Will the project require a migrant workforce during construction?		
Will the construction or operation of the project cause an increase in traffic on rural roads?		
Has the government or community guaranteed the lease of the land for the (market) infrastructure?		
Is there any plan in place for sustainability of the infrastructure during the project life time?		
Does the project include specific measures to protect against dust (such as dust masks and water spraying)?		
Has arrangement been made to pay adequate compensation for private property that may be affected by the construction of the project?		
Will construction equipment with moderate decibels be used and the timing of use be so that people will experience less discomfort?		
Will tree and vegetation replanting be carried out to stabilize slopes and re-green road sides?		

Guidance for categorization

"Yes" response to any environmental and social category is A

ESIA is required

"Yes" response to Environmental and social category is B

Sub-project to adopt the general ESMP in the ESMF

"No" response to almost all questions 1-13 and 'Yes' to questions 14-19

No further analysis is required

C: Climate Screening Form for Sub-Projects

To be used with the environmental and social screening forms.

Screening for Climate Issues

Question	Yes	No	Additional Explanation of 'Yes' response*
Is the project area subject to extreme climatic events such as flooding, drought, tropical storms, or heat waves?			
Do climate scenarios for the project area foresee changes in temperature, rainfall or extreme weather that will adversely affect the project impact, sustainability or cost over its lifetime?			
Will the project make investments in low-lying coastal areas/ zones exposed to river flooding and coastal storm surge?			
Will the project promote agricultural activity in marginal and/or highly degraded areas that have increased sensitivity to climatic events (such as on hillsides, deforested slopes or floodplains)?			
Is the project located in areas where rural development projects have experienced significant weather- related losses and damages in the past?			
Will the project develop/ install infrastructure in areas with a track record of extreme weather events?			
Is the project target group entirely dependent on natural resources (such as seasonal crops, rain-fed agricultural plots, and migratory fish stocks) that have been affected by in the past decade by climate trends or specific climatic events?			
Will climate variability likely affect agricultural productivity (crops/ livestock/fisheries) or the associated incidence of pests and diseases for the project target groups?			
Would weather-related risks or climatic extremes likely adversely impact upon key stages of identified value chains in the project (from production to markets)?			
Is the project investing in climate-sensitive livelihoods that are diversified?			
Is the project investing in infrastructure that is exposed to infrequent extreme weather events?			

Is the project investing in institutional development and capacity building for rural institutions (such as farmer groups, cooperatives) in climatically heterogeneous areas?			
Does the project have the potential to become more resilient through the adoption green technologies at a reasonable cost?			
Does the project intervention have opportunities to strengthen indigenous climate risk management capabilities?			
Does the project have opportunities to integrate climate resilience aspects through policy dialogue to improve agricultural sector strategies/policies?			
Does the project have potential to integrate climate resilience measures without extensive additional costs (e.g. improved crop variety, capacity building; or including climate risk issues in policy processes)			
Based on the information available would the project benefit from a more thorough climate risk and vulnerability analysis to identify additional complementary investment actions to manage climate risks?			

Guidance for categorization

"Yes" response to any of questions 1-9

Sub-project Climate risk is high

Climate risk Analysis is required for sub-project

"No" response to almost all questions

Sub-project climate risk is moderate

Sub-project to adopt the ESMP in the general ESMF

Annex 3 - Environmental and Social Guidelines for contractors⁵²

(for reference in contractor agreements/contracts)

Sound environmental and social management of construction projects can be achieved only with adequate site selection and project design. As such, the ESMP for projects involving any new construction, or any rehabilitation or reconstruction for existing projects, should provide information as to screening criteria for site selection and design including the following:

Site Selection

Sites should be chosen based on community needs for additional projects, with specific lots chosen based on geographic and topographic characteristics. The site selection process involves site visits and studies to analyze: (i) the site's, suburban, or rural characteristics; (ii) national, regional, or municipal regulations affecting the proposed sites; (iii) accessibility and distance from inhabited areas; (iv) land ownership, including verification of absence of squatters and/or other potential legal problems with land acquisition; (v) determination of site vulnerability to natural hazards, (i.e. intensity and frequency of floods, landslides, etc.); (vi) suitability of soils and sub-soils for construction; (vii) site contamination; (viii) flora and fauna characteristics; (ix) presence or absence of natural habitats and/or ecologically important habitats on site or in vicinity (e.g. forests, wetlands, rare or endangered species); and (ix) historic and community characteristics.

The rules (including specific prohibitions and construction management measures) should be incorporated into all relevant bidding documents, contracts, and work orders.

Prohibitions

The following activities are prohibited on or near the project site:

Cutting of trees for any reason outside the approved construction area;

Hunting, fishing, wildlife capture, or plant collection;

⁵² Adapted from Ministry of Agriculture, Irrigation and Water Development, Republic of Malawi (2015) Environmental and Social Management Framework for Programme for Rural Irrigation Development in Malawi, pp.76-80.

Use of unapproved toxic materials, including lead-based paints, asbestos, etc.

Disturbance to anything with architectural or historical value;

Building of fires;

Use of firearms (except by authorized security guards);

Use of alcohol by workers.

Construction Management Measures

Solid, sanitation, and hazardous wastes must be properly controlled, through the implementation of the following measures:

Waste Management:

Minimize the production of waste that must be treated or eliminated;

Identify and classify the type of waste generated. If hazardous wastes (including health care wastes) are generated, proper procedures must be taken regarding their storage, collection, transportation and disposal;

Identify and demarcate disposal areas clearly indicating the specific materials that can be deposited in each;

Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, lakes, or wetlands). All garbage, metals, used oils, and excess material generated during construction should only be disposed in authorized areas, incorporating recycling systems and the separation of materials.

Maintenance:

Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands);

Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in water courses, drainage canals or in sewer systems;

Identify, demarcate and enforce the use of within-site access routes to limit impact on site vegetation;

Install and maintain an adequate drainage system to prevent erosion on the site during and after construction.

Erosion Control

Erect erosion control barriers around perimeter of cuts, disposal pits, and roadways;

Spray water on dirt roads, cuts, fill material and stockpiled soil to reduce wind-induced erosion, as needed;

Maintain vehicle speeds at or below 10mph within the work area, 15mph or below within 200m of the site, and abide by the relevant speed limits at all times to / from the work area.

Stockpiles and Borrow Pits

Identify and demarcate locations for stockpiles and borrow pits, ensuring that they are 15 meters away from critical areas such as steep slopes, erosion-prone soils, and areas that drain directly into sensitive water bodies;

Limit extraction of material to approved and demarcated borrow pits.

Site Cleanup

Establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for construction debris.

Safety during Construction

The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:

Carefully and clearly mark pedestrian-safe access routes;

If school children are in the vicinity, include traffic safety personnel to direct traffic;

Maintain supply of supplies for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction;

Conduct safety training for construction workers prior to beginning work;

Provide personal protective equipment (PPE) and clothing (such as goggles, gloves, respirators, dust masks, hard hats, steel-toed and -shanked boots, etc.,) for construction workers and enforce their use;

Post Material Safety Data Sheets for each chemical present on the worksite;

Require that all workers read, or have read, all Material Safety Data Sheets. Clearly explain the risks to them and their partners, especially when pregnant or planning to start a family.

Encourage workers to share the information with their physicians, when relevant;

Ensure that the removal of asbestos-containing materials or other toxic substances be performed and disposed of by specially trained workers;

During heavy rains or emergencies of any kind, apply construction safeguards guidelines;

Brace electrical and mechanical equipment to withstand unexpected events during construction.

Nuisance and Dust Control

To control nuisance and dust the Contractor should:

Maintain all construction-related traffic at or below 15 mph on streets within 200 m of the site;

Maintain all on-site vehicle speeds at or below 10 mph;

To the extent possible, maintain noise levels associated with all machinery and equipment at or below 90db;

In sensitive areas (including residential neighborhoods, health centers, schools, etc.) more strict measures may need to be implemented to prevent undesirable noise levels;

Minimize production of dust and particulate materials at all times, to avoid impacts on surrounding families and businesses, and especially to vulnerable people (children, elderly);

Phase removal of vegetation to prevent large areas from becoming exposed to wind;

Place dust screens around construction areas, paying particular attention to areas close to housing, commercial areas, and recreational areas;

Spray water as needed on dirt roads, cut areas and soil stockpiles or fill material;

Apply proper measures to minimize disruptions from vibration or noise coming from construction activities.

Community Relations

To maintain cordial community relations, the Contractor should:

Following the country and ESMP requirements, inform the population about construction and work schedules, interruption of services, traffic detour routes, as appropriate;

Limit construction activities at night. When necessary ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures;

At least five days in advance of any service interruption (including water, electricity) the community must be advised through clearly visible posters at the project site and at central community locations;

Where possible, particularly for tasks that can also be performed through low-skilled manual labor (such as digging of shallow trenches, etc.), make use of labor from the local community.

Chance Find Procedures for Culturally Significant Artifacts

In case culturally valuable materials (incl. shrines, graves, etc.) are uncovered during excavation:

Stop work immediately following the discovery of any materials with possible archeological, historical, paleontological, or other cultural value, announce findings to project manager and notify relevant authorities;

Protect artifacts as well as possible using plastic covers, and implement measures to stabilize the area, if necessary, to properly protect artifacts;

Prevent and penalize any unauthorized access to the artifacts;

Restart construction works only upon the authorization of the relevant authorities.

Environmental Supervision during Construction

The bidding documents should indicate how compliance with environmental rules and design specifications would be supervised, along with the penalties for non-compliance by contractors or workers. Construction supervision requires oversight of compliance with the manual and environmental specifications by the contractor or his designated environmental supervisor. Contractors are also required to comply with national and state regulations governing the environment, public health and safety.

Annex 4 – Checklist for Construction Works

Based on the National Environmental (Construction Sector) Regulations (2011), at every construction facility the following checklist should be implemented:⁵³

(1) Every facility shall implement programmes on best practices as set out in Schedule I of the Regulations.

(2) Every facility shall provide base for ancillary equipment and bund wall for containment of waste oil in the event of any unanticipated discharge or spillage.

(3) Every operator of construction facility/site shall ensure:

- (a) it has a functional, adequate and appropriate drainage system for the project;
- (b) the separation or diversion of clean water runoff to prevent it from mixing with water containing high solid particle content;
- (c) it minimizes the volume of water to be treated prior to release (same as storm water control system);
- (d) the use of color coding for the drainage system such as blue for surface water drains and red for foul water drains;
- (e) safe movement of materials and fuel to and from site;
- (f) tanks are clearly labelled with their contents and storage capacity;
- (g) workers are trained to carry out the outlined procedures in the Emergency Response Plan as specified in Schedule II to the Regulations;
- (h) absorbent materials and other containment equipment (e.g. spill kits) suitable for the construction type, are available in adequate quantity on site; and
- (i) all tanks are properly covered.

(4) The operator shall ensure:

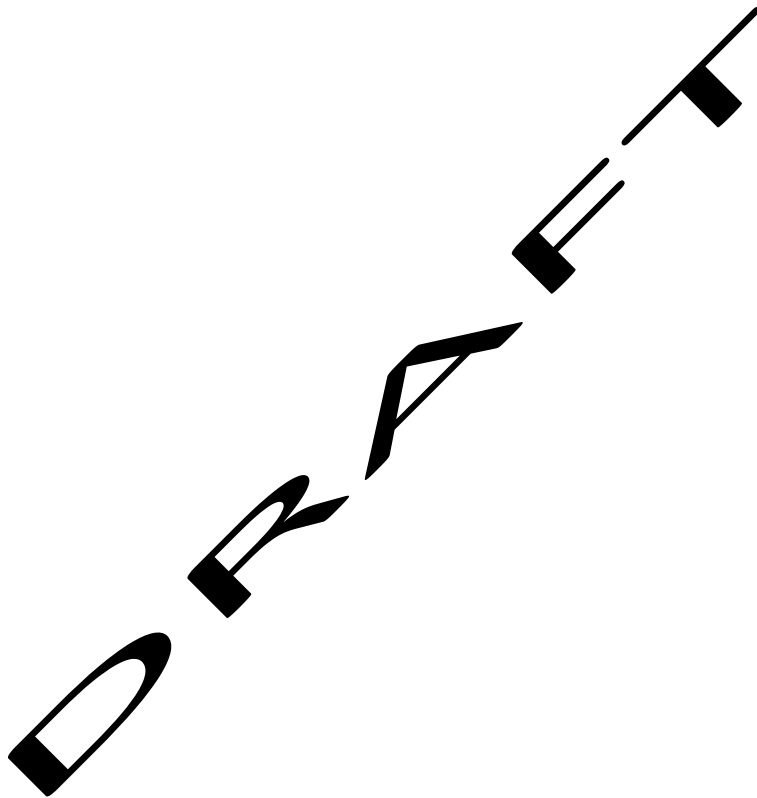
- (a) high standard of housekeeping;
- (b) that dust/particulate matter arising from loaded trucks entering or leaving the site is kept to a minimum level by the use of tarpaulin materials as cover and that water sprays or other

⁵³ National Environmental (Construction Sector) Regulations (2011). S.I. No.19.

dust suppression or collection methods are used at every dusty place where work is carried out;

(c) appropriate use of Personnel Protective Equipment (PPE) by all persons at construction site as in Schedule VI to the Regulations;

(5) Every facility shall have an Emergency Response Plan in accordance with the guide template specified in Schedule II to these Regulations.



Annex 5 - Social Inclusion Strategy

“In every country, certain groups (...) Confront barriers that prevent them from fully participating in their nation’s political, economic, and social life. These groups are branded by stereotypes, stigmas, and superstitions. They often live with insecurity. And such disadvantages not only preclude them from capitalizing on opportunities to lead a better life, they also rob them of dignity.”⁵⁴

Social inclusion means different things to different people. In its flagship publication on the topic, the World Bank defines social inclusion as “the process of improving the ability, opportunity, and dignity of people, disadvantaged on the basis of their identity, to take part in society.”⁵⁵ A strategy for social inclusion should therefore both address the above-mentioned ‘barriers’ as well as strengthen the capacities that disadvantaged groups in society require to make the most of development opportunities and realize their full potential.

PADRIR will directly contribute to social inclusion by actively focusing on unemployed youth and women, which together with people with disabilities and widows remain among the most disadvantaged groups. Using the World Bank’s advice to focus on three critical ‘inclusion domains’ of markets, services and spaces, PADRIR will help promote social inclusion in the project area through the following instruments and policies:

Markets (Land, Regulatory Framework)

Negotiate with traditional authorities in local communities for long-term land access by women and youth for agri-enterprise activities;

Negotiate with state governments to allocate larger plots of unused (but suitable) farmland and provide security of tenure for women and youth associations for agri-enterprise activities;

Support legislative reform establishing gender parity in land ownership and inheritance;

Closely monitor project progress, hold regular meetings with leaders/representatives of women and youth organizations to discuss project challenges, and provide additional (technical) support where needed.

Services (Training, Financial, Labour, ICT)

⁵⁴ World Bank (2013) Inclusion Matters: The Foundation for Shared Prosperity (WB: Washington, D.C.), p.xv.

⁵⁵ Idem, p.4.

Provide refresher, advanced and/or top-up skills training on-site for women and youth (on any relevant topic that hinders progress in their agri-enterprises) in combination with intensive mentoring support;

Support opportunities for information sharing, whereby women and youth who are currently not part of the project can visit the agri-enterprise sites and whereby entrepreneurs can share their experiences (including reasons for failure and success);

Negotiate with agricultural banks to provide preferential credit arrangements for high-potential women or youth agri-entrepreneurs;

Encourage contractors / service providers to give employment preference to local community members (e.g. via 'code of conduct');

Organize a 'hackathon' together with a technology-oriented innovation centre to develop a special app for rural youth in the project area to promote farming and facilitate market access as well as create an online platform that allows women and youth to showcase their achievements and experiences with wider society and other relevant actors (e.g. government and donor agencies).

Spaces (Physical, Cultural, Social)

Liaise with local police to ensure security in farming areas, markets and access routes;

Organize public awareness-raising campaigns in consultation with local CSOs to promote farming, encourage inclusive community-level decision-making, prevent intra-community conflict and reduce gender-based violence;

In general, ensure that initial screening, selection and support to project beneficiaries by community leaders and others at the grassroots level is based on merit and need rather than lingering primordial considerations;

To prevent climate-induced exclusion, recommended climate change adaptation and mitigation measures should be given priority. Many beneficiaries may not be able to bounce back once they are affected by hydro-meteorological disasters such as flooding and erosion.

DRAFT

Annex 1: Terms of reference of Key staff

IMPLEMENTATION SUPPORT UNIT (ISU)

Central Project Coordinator (CPC)

Key Responsibilities

The Central Project Coordinator (CPC) will be responsible for the overall management of AAFORD; oversight of implementing agencies; developing partnerships; and leadership of coordination mechanisms for agricultural systems and financing. The CPC will report to the Chief Director, MoF. The person will coordinate activities and ensure AAFORD implementation according to the terms and conditions of the loan financing agreement, Project Design Report (PDR) and the Project Implementation Manual (PIM). S/he needs to ensure effective and timely implementation of the project, with special attention to providing overall inter-agency coordination and facilitation at various levels. (S)he will have the initial responsibility of coordinating pre-programme activities and have overall responsibility of the day to day activities of AAFORD when it becomes effective. S/He will report directly to the Chief Director of the Ministry of Finance.

The CPC will have responsibilities broadly categorised into implementation readiness, leadership, coordination and management.

Implementation readiness

Oversee the establishment of the implementation support unit (ISU) and the two zonal coordination units (ZCUs)

In consultation with MoF facilitate the establishment of the Programme Steering Committee (PSC).

Initiate the design of the M&E system for the Project

Finalize the Programme Implementation Manual (PIM), Finance and Administration Manual and other guidelines;

In collaboration with MoF facilitate the effective promotion of the AAFORD at the national, zonal and district levels across the country through stakeholder workshops and mass media. Coordinate training workshops on project strategy and approaches

In consultation with key stakeholders, ensure the preparation of zonal annual work plans and budgets (AWPBs) and a consolidated AWPB and procurement plan.

Leadership and Coordination:

The CPC shall have overall leadership and coordination responsibilities, such as:

Act as Secretary to and support the Chair of the Programme Steering Committee (PSC)

Engage in policy dialogue, networking and coordination with a broad range of stakeholders including parliamentarians, government officials at various levels, development partners, banks and private sector operators and implementation consultants

Proactively engage with current and potential partners to support effective programme implementation and impact, either through direct linkage under a memorandum or coordination of complementary programmes

Promote knowledge sharing and learning within the programme and with other partners.

Contribute to country programme management through membership of the IFAD Country Programme Management Team (CPMT)

Liaise with the IFAD Country Director on any matter relating to implementation

Coordinate preparation of Annual Work Plan / Budgets (AWPBs) with implementing agencies

Oversee the effective and efficient implementation of the programme at the central and zonal offices.

Ensure the holistic implementation of the programme as well as the programme outcomes and levels are seamlessly joined in the pursuit of market-led poverty alleviation amongst poor rural households

Direct, strategize and supervise the day-to-day operations of the programme, guided by the PDR, PIM and the AWPB, providing any necessary amendments to ensure smooth performance

Identify and engage Implementation Partners and relevant technical assistance.

Management: The management responsibilities of the CPC shall include:

Prepare, arrange approvals and sign contracts for all project activities in line with stated guidelines

Manage and monitor project progress, in particular through regular interaction with implementing agencies (Financial industry intermediaries eg GIRSAL, GCX, GAIP, FIs, agricultural product market intermediaries eg GCX, etc and implementing consultants)

Day-to-day coordination of project activities

Manage procurement activities in accordance with the rules of IFAD and GoG

Oversee the monitoring and evaluation function to ensure a results-oriented M&E and reporting system, and undertake periodic studies and consultancies to evaluate project outcomes and impacts and objectives

Recommend modifications to project implementation modalities as needed to overcome constraints and achieve objectives

Facilitate the recruitment of project supporting staff and management staff of the ISU office and zonal offices.

Develop and regularly appraise staff and provide feedback and support to enable them perform their jobs.

Carry out any other project activities to be assigned from time to time.

Programme Management and Coordination

Oversee the preparation of AWPBs of the Programme with the participation and inputs of all key stakeholders.

Ensure the design and establishment of a participatory results based Monitoring and Evaluation and its effective operation.

Ensure that all contractual obligations are adhered to.

Develop and regularly appraise staff and provide feedback and support to enable them perform their jobs. Reward innovation in critical reflection, problem solving and learning

Establish and maintain good working relationships with all programme participants and stakeholders – including MoF and other Government agencies, development partners, private sector and NGOs

Promote collaboration among Development Partners (DPs) and the private sector on value chain development.

Take full responsibility for procurement of goods and services and approve contracts for all transactions after obtaining the necessary no objections.

Take full responsibility to implement the activities in annual work plan and budget

Ensure timely preparation and submission of mandatory reports e.g. M&E data and reports and their wide access and distribution.

Promote knowledge sharing and learning within the programme and with other partners.

Commission mandatory and ad hoc evaluation studies to gain insights necessary to reorient programme implementation as necessary.

Mobilize relevant technical assistance in a timely manner, with clearly demarcated responsibilities that are based on the participatory and demand-driven principles of the programme

Support external missions to foster joint learning process that improves programme implementation to achieve impact.

Undertake any other responsibility that will ensure smooth and effective implementation of the Programme.

B: Qualifications and Experience

Advanced degree in Business Administration, Agriculture, Project Management, Agricultural Economics or other relevant academic background (essential)

Other related professional courses

At least 10 years of relevant work experience in agricultural development issues including policy design and implementation of agricultural value chain programmes. Experience working with the private sector (essential).

Experience in working for International Financial Institutions or donor-funded programmes or similar market-oriented rural development interventions (essential);

Knowledge of Government and IFAD or donor-funded policies and procedures on gender, environment and general programme finance and administration management (essential);

Ability to develop and foster partnerships (essential);

Prior experience in project management is a plus

Possess high managerial experience and knowledge of strategic planning approaches;

Staff management experience including recruitment, appraisals and managing performance (essential).

C: Skills

Good level of proficiency in Microsoft Applications including MS Project;

Demonstrated ability to train and build capacity of others;

Experienced in electronic data processing and analysis and data base development;

Strong partnership building skills from both the private and the public sector;

Strong analytical and market oriented skills

Basic understanding of the public procurement procedure is a plus

D: Core competencies:

Attentive to detail while also keeping the bigger picture in sight;

Ability to share ideas and learn from others to enhance the program delivery and overall performance;

Highly self-motivated and sets a higher bar for stronger performance;

High sense of integrity and trustworthiness

Senior Rural Finance Specialist (SRFS)

The Senior rural Finance Specialist (SRFS) shall function as the chief operating officer and be in charge of the operational implementation of AAFORD. The SRFS will report to the Central Project Coordinator (CPC).

Key Responsibilities

The Senior Rural Finance Specialist (SRFS) will be responsible for the operational implementation of AAFORD and managing its field operations; oversight of technical assistance activities of implementation consultants; coordination of operations with implementation partners including agribusiness product market institutions, financial intermediaries, community operations and coordination with beneficiaries and supporting institutions; oversight of zonal implementation operations such as liaising with zonal level implementation partners; fund management of the BFF including its establishment and implementation; overall planning of technical inputs into annual work planning process, supervision of implementation and controlling of agreed activities; operational reporting for effective implementation among others.

Technical Leadership and Operational Implementation: The SRFS shall have overall leadership and coordination responsibilities including the following:

Oversee the finalization of the various ToRs for the selection of partners for the delivery of interventions such as capacity building service providers (CBSPs), community development agents like the community youth facilitators (YCFs) and youth institutional interns (YIIs)

Contract administration for all technical partners including signing off on inception reports, workplans, monitoring and reporting mechanisms

Ensure effective oversight for community development, livelihoods and mainstreaming of gender, youth and climate resilience in the implementation of the project activities

Develop and/or finalise relevant documentation to ensure the (i) establishment of bank accounts with BoG and ARB Apex Bank to operationalise the BFF and (ii) operate the BFF in line with its policies and procedures manual. The BFF policies and procedures manual shall be one of the relevant documentations to be finalise by the SRFS.

Oversee the effective and prudent management of the BFF to ensure it achieves its defined objectives

Coordinate all technical input for the preparation of Annual Work Plan & Budgets (AWPBs) key technical staff and in cooperation with implementing agencies

Management: The management responsibilities of the SRFS shall include:

Support the CPC to manage and monitor project progress, in particular through regular interaction with implementing agencies (Financial industry intermediaries eg GIRSAL, GCX, GAIP, FIs, agricultural product market intermediaries eg GCX, etc and implementing consultants)

Day-to-day technical coordination of project implementation activities

Monitoring and controlling of technical operations and to use the feedback to support the M&E team to ensure a results-oriented M&E and reporting system

Recommend modifications to project implementation modalities as needed to overcome constraints and achieve objectives

Oversee and lead the zonal implementation team (staff and consultants) to ensure successful achievement of set targets

Carry out any other project activities to be assigned by the CPC from time to time.

Senior M&E and Knowledge Management Specialist

Line Management: Reports to the Central Project Coordinator (CPC) and has close working relationships with all officers and implementing partners on the Project.

The Senior M&E and Knowledge Management Specialist will be responsible for monitoring and evaluation and knowledge management. (S)he will be responsible for guiding the overall M&E/Knowledge Management and Communication Strategies and implementation of related activities within the project as well as providing timely and relevant information to the CPC and project stakeholders including staff of implementing partners and consultants of external M&E related missions.

A. Functions and Responsibilities shall include:

M&E System Development and Management in close collaboration with Regional M&E Officers, cluster-based value chain actors, Youth community facilitators, and staff of implementing partners;

Facilitating the development of the Consolidated Annual Work Plan and Budget (AWPB), ensuring alignment with the project logframe, Community Outreach Development Plans and related targets;

Assessing M&E capacity of the project, implementing partner staff and primary stakeholders, ensuring that the required capacity is in place;

Critically assess achievement of outcomes and results, gather and analyze data to enhance management's efforts towards effectiveness, efficiency and sustainability of the project;

Supporting the NPC to monitor efficiency of targeting, poverty focus, gender focus and youth focus of the project;

Prepare timely and appropriate reporting on progress and problems of program implementation including quarterly and annual operational and financial progress report on AAFORD activities;

Facilitating external supervision and evaluation missions;

Establishment of a functional knowledge management system that involves thematic studies, analysis, documentation and dissemination of information and lessons learned.

Carry out any other activities that are assigned by the Central Project Coordinator.

B. Qualifications and Skills

Essential

At least a Masters' degree in Agricultural Economics, Project Management, Social Sciences or other related fields;

At least 10 years of relevant work experience in M&E System design, planning and implementation of development projects;

Possess excellent understanding of rural development issues related to markets, private sector development, decentralization and participation of the poor;

Ability to use M&E methods and approaches including quantitative and participatory approaches in surveys, surveillance systems, and evaluations;

Possess high managerial experience and knowledge of strategic planning approaches;

A solid understanding of public policies, development approaches with a focus on participatory processes, market economy management, and gender issues.

Ability to produce high-quality briefs and reports.

C. Desirable

Good level of proficiency in Microsoft Applications including MS Project;

Demonstrated ability to train and build capacity of others;

Experience in electronic data processing, analysis and data management;

Strong analytical and market-oriented skills.

D. Duration

The position will be on a contract basis for two (2) years with the possibility for extension depending on satisfactory performance and availability of funds.

Institutional Development and Gender/Youth Mainstreaming Officer

The Institutions and Gender/Youth Mainstreaming Officer will be responsible for the sub-component 'Develop capacities of target groups to expand marketable surpluses' and for ensuring performance of service providers that may be contracted to implement activities under this sub-component. His/her specific duties include:

Responsible for coordination of activities of the sub-component

Provide guidance to service providers that may be hired to implement the activities of the sub-component

Oversee selection of target FOs and beneficiaries in collaboration with relevant officers of the programme

Liaise with other relevant programmes and government technical departments

Liaise with financial institutions for linkage arrangement between them and FOs

Contribute to the design of training programmes and enlightenment campaigns and other activities of the programme

Provide periodic report of the activities of the sub-component

Contribute to the annual work plan and budget for the sub-component

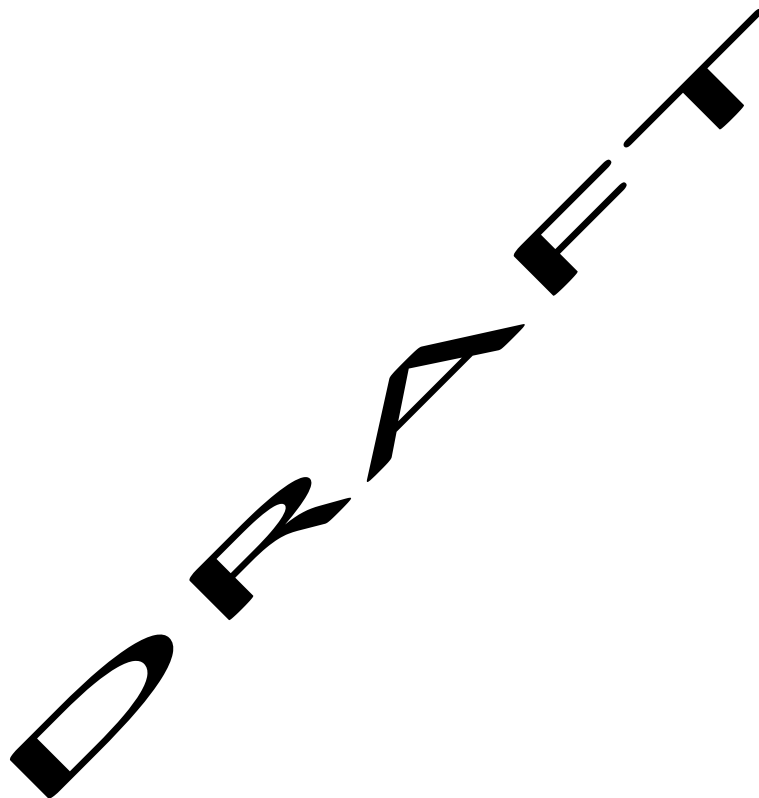
Report to the Programme Coordinator and carry out any other activities assigned by him/her

QUALIFICATION

Masters or higher University degree in Sociology, Economics or other relevant discipline

Minimum of five years post qualification experience with implementation of similar project

Practical knowledge of participatory approaches and gender/youth mainstreaming



CLIMATE FINANCE AND NATURAL RESOURCES MANAGEMENT OFFICER

The Climate finance and Natural Resources Management Officer will assist the AFFORD Team in the implementation of Component 1 and 2 activities related to green lending and capacity building of beneficiaries on climate smart agriculture.

Specific duties and responsibilities:

Assist the overall implementation and monitoring of the Blended Financing Facility (BFF) and related extension programming. Responsibilities include assisting with:

Planning, implementation and quality assurance of the BFF and market enabling institutions, financial institutions to enhance governance and management of loan products and green lines policy gap (identification, definition, gap assessment including gender/ youth and closing the gap)

Provide technical assistance on green lending and climate risk management, development of a package of tools and instruments (smart credit-scoring tool combining detailed cash flow estimates with risk assessments - similar to the ones used by the FIs, to assess social, environmental and climate risks and to define an improved course of action for assessing social, environmental and climate risks to enhance sustainability, loan agreement requirements for climate-smart agricultural and land management practices, CO2 measurement etc., and compliance tool) and encourage agriculture to more comprehensively calculate the credit worthiness and projects submitted in the context of climate change risk; gender considerations to be included.

Awareness raising and training on climate resilient agriculture to beneficiaries (FBOs, MSMEs, nucleolus farmers, financial institutions, off takers, market enabling institutions)

Coordination, guidance and quality assurance of Component 1 and 2 activities related to climate change and sustainable management of natural resources

Coordination and support to the service providers or specialists hired for implementation, specifically those responsible for pre-service and in-service training and the training of FBOs; (FBOs, MSMEs, nucleolus farmers, financial institutions, off takers, market enabling institutions)

Providing technical support to the field teams;

Performs other related duties as assigned by the project coordinator

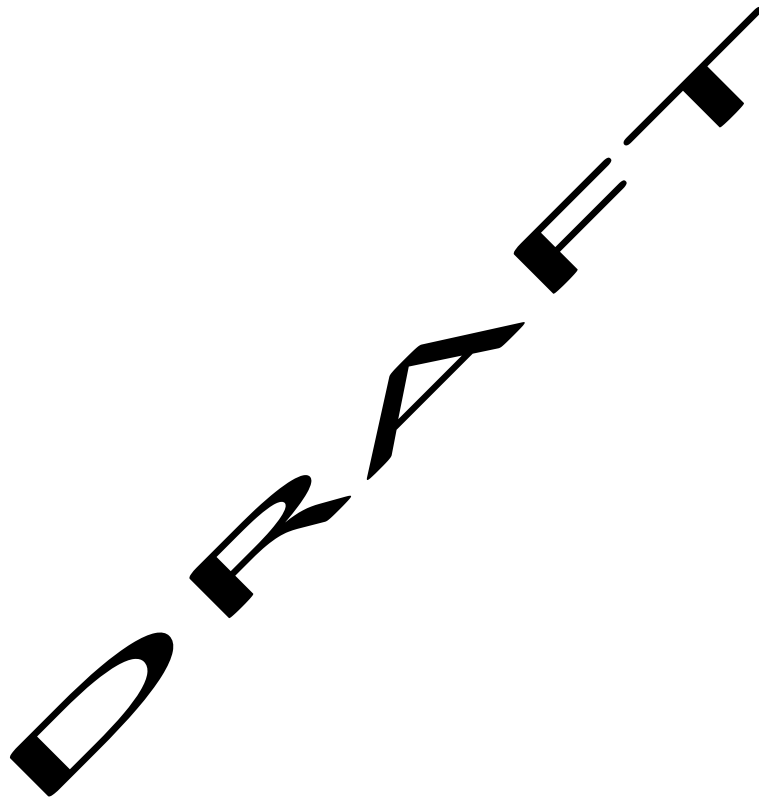
Qualifications:

Education: Minimum of a B.Sc., preferably M.Sc., in Rural Development, Environmental Sciences, Climate Change and climate finance, Agronomy, Economics, Agricultural Economics, Anthropology, Sociology, Forestry or other related fields with sound knowledge of

contemporary issues in the rural finance, agriculture and food security in Ghana and natural resource management;

Experience: Prior experience in rural finance, climate finance agronomy, agricultural adaptation to and mitigation of climate change; experience green lending, with preferable knowledge and experience value chain development

Skills and knowledge: Experience with project implementation activities; good interpersonal communications skills; computer literacy and good command of spoken and written English; documented writing skills; ability to work independently and in multi-ethnic environments.



Community/Institution Development, Gender and Social Inclusion Officer

The Community/Institutions Development and Social Inclusion Officer will be responsible for the sub-component 'Develop capacities of target groups to expand marketable surpluses', mainstreaming of IFAD's target segment; namely, women, youth and disables, and ensuring performance of service providers that may be contracted to implement activities under this sub-component. His or her specific duties include:

Responsible for coordination of activities of the sub-component

Provide guidance to service providers that may be hired to implement the activities of the sub-component

Oversee selection of target Farmer Organizations (FOs) and beneficiaries in collaboration with relevant officers of the programme

In coordination with the ZCU,

liaise with other relevant programmes and government technical departments and build synergies where relevant

Liaise with financial institutions to build linkage among the financial institution and FOs

Contribute to the design of training programmes and enlightenment campaigns and other activities of the programme

Periodically review the progress of mainstreaming activities and make relevant adjustment when deemed necessary

Provide periodic report of the activities of the sub-component

Contribute to the annual work plan and budget for the sub-component

Report to the Programme Coordinator and carry out any other activities assigned by him/her

QUALIFICATION

Masters or higher University degree in Sociology, Economics or other relevant discipline

Minimum of five years post qualification experience with implementation of similar project

Practical knowledge of participatory approaches and gender/youth mainstreaming

Programme Financial Manager

Line Management: Report to to the Central Programme Coordinator (CPC), and have close liaison with the Regional Programme Offices

The Financial Manager (PFM) will be responsible for the planning, directing and controlling the financial functions for the AAFORD. This will include preparation of Programme budget, conducting financial analysis and preparing financial reports/statements, developing and implementing an effective and efficient financial accounting, managing the payroll system and maintaining accurate and current records.

A. Duties and Responsibilities shall include:

Manage AAFORD's financial, accounting and monitoring and reporting systems, using acceptable accounting principles, concepts and conventions with due consideration to International Financial Reporting Standards (IFRS);

Ensure that all financial transactions within and involving the AAFORD is done in accordance with the Financial Agreement, IFAD's Financial Management Guidelines, General Conditions of Financing, Letter to the Borrower (LTB), and all other relevant Government of Ghana regulations, e.g. Financial Administration Act, 2003 (Act 654), Internal Audit Agency Act, 2003 (Act 658), Financial Administration Regulation, 2004 (L.I. 1802); Procurement Act, 2003 (Act 663), etc.

Manage AAFORD's Budgets and Control the Disbursement of Funds

Ensure that the Programme Management is informed of on-going financial transactions/activities and that Zonal Coordinators and officers and Implementation Partners, know their financial responsibilities in line with prevailing Government of Ghana practices, IFAD and other Cooperating Institutions (CIs);

Ensure that finance and other relevant Programme staff are fully appraised of the contents of the Programme Finance and Administration Manual (FAM); A counter-signatory to programme fund releases as required for Programme financial transactions and also sign as witness to all contracts as much as possible;

Oversee the establishment and maintenance of an acceptable computerized accounting system

Ensure preparation and submission of withdrawal applications to IFAD and/or cooperating institutions (CIs), and follow up to ensure that the Programme does not encounter liquidity challenges.

Oversee preparation of quarterly, half-yearly and annual consolidated statements of Programme accounts as an integral part of the Management Information System for submission to the PSC, MoFA, IFAD and other CIs;

Ensure that Designated Accounts, Operational Accounts, and Zonal Bank Accounts have been maintained in accordance with the provisions of the loan agreement LTB and Finance and Administration Manual (FAM).

Ensure the fiduciary capacity assessment of participating district assemblies;

Facilitate the conduct of internal audit missions by the MoFA Internal Audit unit on the basis of agreed AWPB.

Ensure the smooth implementation of the annual external audit of programme funds, under TOR agreed by IFAD and in accordance with IFAD's audit guidelines, for timely submission to IFAD in accordance with provisions of the LTB.

Ensure that goods and services have been procured in accordance with the loan agreement, LTB, FAM and in accordance with the GoG and IFAD rules and procedures.

Offer professional advice on AAFORD's financial arrangements and performance;

Undertake any other responsibility that will ensure smooth and effective implementation of the Programme and commensurate with this role.

B. Qualifications and Experience

Have advanced degree (in Accounting/Finance or a related field of specialization)-essential

Qualified Accountant with ACCA, CIMA, ICA (Ghana), CIMA (England and Wales), CPA or related financial management qualification (essential)

Experience in setting up and maintaining a computerized accounting system (essential).

At least 7 years of relevant post-qualification working experience of which 3 years must in a senior management position in a reputable organization.(essential).

Practical working experience with Government of Ghana, donor-funded projects, and auditing experience (essential).

Have a good understanding of tax and statutory requirements

Skills

Presentation of highly complex financial and non-financial information

Inspiring confidence and developing highly working relationships with finance and non-finance colleagues within Programme, Cooperating Institutions and implementing partners.

Procurement Officer:

The Procurement reports directly to the Central Project Coordinator, and is responsible for managing procurement processes and contract administration aspects. As head of the procurement unit, the incumbent will be tasked to ensure compliance with Government of Ghana Public Procurement Regulations and ensure due diligence to comply with IFAD Procurement Guidelines and handbook.

Installation of appropriate procurement systems and procedures for effective planning and monitoring of procurements under the project;

Oversee preparation and consolidation of inputs to the Annual Procurement Plan;

Finalize, within three months after start of duty, a draft manual on procurement;

Continuously coordinate and train (on the job if necessary) ISU staff or consultants in the preparation of terms of reference, specifications and proactive follow-up of these inputs in the bidding processes;

Prepare bidding documents based on acceptable bidding standards;

Ensure all prior review requirements such as obtaining of the No Objections from IFAD are complied with in a timely manner;

Ensure that all the due bidding processes are adhered to: sufficient publications, strict adherence to deadlines, transparency in communications with bidders, publication of bid results, etc.;

Ensure acceptable record keeping in procurement with at least a complete procurement file for each procurement from start to contract finalization. Maintain all procurement records in a form appropriate for regular auditing and spot checks by supervision missions;

Communicate to all implementing entities and service provider their responsibilities and requirements with respect to procurement in keeping with prevailing government practices which are acceptable to IFAD;

Oversee the contracting process, including ensuring that Evaluation Committees have people with appropriate expertise;

Monitor implementation of contracts: report status and problems to the Project Coordinator on a monthly basis; and intervene to address problem upon request by the Coordinator;

Ensure that goods and services financed have been procured in accordance with the loan agreement and the Government of Ghana procurement regulations;

Work with the Finance Manager to ensure that tax exemptions for the procurement of goods for the project are secured at the appropriate time;

Prepare quarterly reports of progress with implementation of the Procurement Plan, and regularly inform the Project Coordinator of problems and make proposals to overcome bottlenecks;

Carry out any other activities that are assigned by the Project Coordinator.

Minimum Qualifications

The candidate should have a Bachelor's degree in procurement and supply and must be a member of the Chartered Institute of Procurement and Supply or equivalent.

Skills and Experience

At least seven years of relevant work experience, preferably including experience in procurement in government/donor projects or large institutions;

Appreciation of the evolution of the public sector procurement reforms in Ghana;

Ability to work well in teams and to interact with a wide range of private sector partners and government representatives;

Knowledge and experience of matching grant processes;

Knowledge of work planning and reporting;

Excellent quantitative and analytical skills;

Computer-literate and well-versed in the use of Excel and Word.

Procurement Assistant

Reporting to the Project Procurement Officer, the Project Procurement Assistant will handle a variety of tasks that include: assisting in procurement, preparation of procurement plans, market survey and research in accordance with laid down regulations and procedures; and preparation of periodic and annual Procurement Management Reports and any other related duties as may be assigned from time to time.

Academic and Professional Qualifications

The Project Procurement Assistant MUST;

Be in possession of a minimum of a Higher National Diploma (HND) Certificate in Business, Accounting, Mathematics or its equivalent qualification from a recognized institution;

Have level six (6) Diploma in Purchasing and Supply Management from the Chartered Institute of Procurement & Supply or its approved equivalent from a recognized institution;

Have a Valid Membership to the Ghana Chapter of the Chartered Institute of Procurement and Supply (CIPS) or its approved equivalent from a recognized institution;

A bachelor's degree in any of the following field: Procurement, Logistics, Finance, Business Administration, Economics, Project Planning and Management, Commerce or any other relevant discipline will be an advantage;

Have a minimum of five (5) years of experience in public procurement of Goods, Works and Services, three (3) of which must be in a donor-funded project;

Be Computer literate with practical working knowledge of e-procurement

ZONAL COORDINATION UNIT (ZPU)

Zonal Project Coordinator (ZPC)

Key Responsibilities

The Zonal Project Coordinator (ZPC) will manage zonal activities and ensure AAFORD is implemented in accordance with the Programme Implementation Manual (PIM) and related documents. In particular, the ZPC will ensure effective and timely implementation of the project with special attention to providing overall inter-agency coordination and facilitation at the zonal level. The ZPC will have overall responsibility of the day to day activities of AAFORD in the relevant zone.

The ZPC will report to the Central Project Coordinator (CPC).

The ZPC will be responsible for zonal leadership, coordination and management.

Zonal Leadership and Coordination: The ZPC shall have overall leadership and coordination responsibilities including:

Act as Secretary to and support the Chair of the Zonal Programme Steering Committee (ZSC)

Function as a member of the project management team

Establish and maintain good working relationships with all project participants and stakeholders including MoFA, MoTI and other government agencies, development partners and private sector at the zonal level

Oversee the effective and efficient implementation of the programme at the zonal level

Identify and engage implementation partners and relevant technical partners such as the capacity building service providers

Promote knowledge sharing and learning within the project with other partners at the zonal level in coordination with the CPC.

Support external missions to foster joint learning process that improves project implementation to achieve the desired impact

Management: The management responsibilities of the ZPC shall include:

Ensure timely preparation and submission of mandatory reports e.g. M&E data and reports and their wide access and distribution

Direct and supervise the day to day operations of the programme, guided by the PDR, PIM and the AWPB

Regularly appraise staff and provide feedback and support to enable them perform their jobs

Ensure a participatory results-based Monitoring and Evaluation

Carry out any other project activities to be assigned by the Central Project coordinator (CPC) from time to time.

DRIVER

FIELD IMPLEMENTATION SUPERVISOR (FIS)

The Field Implementation Supervisor (FIS) will oversee field operations in a designated AAFORD zone. The FIS will report to the Zonal Project Coordinator (ZPC).

Key Responsibilities

The Field Implementation Supervisor (FIS) shall facilitate the work of all AAFORD partners in a given zone, coordinate and harmonise their operations in line with the annual workplans. Thus, the FIS will provide input into the works and oversee the zonal activities of technical partners including implementation consultants; coordination of operations with implementation partners such as agric product market institutions, financial intermediaries, community institutions and beneficiaries. The FIS will supervise the implementation and controlling of agreed activities, monitor progress towards achieving agreed targets, reporting on these activities for efficient and effective outcomes.

The responsibilities of the FIS shall include the following:

Identify zonal plans of each implementation partner such as the capacity building service providers

Ensure the harmonisation and effective coordination of the zonal, community and institutional level activities of implementation partners to promote synergies

Provide support to partners as needed regarding getting the cooperation of institutions (government, private and public sectors, consultants, etc) and beneficiaries at all levels

Support the monitoring and evaluation function by providing monthly reports highlighting weaknesses and opportunities for impact enhancement and making appropriate recommendations

In particular, provide support to the work of capacity building service providers (CBSPs), community development consultants such as the community youth facilitators (YCFs) and youth institutional interventions (YIIs)

Liaise with the zonal monitoring and evaluation officer to ensure timely reporting and problem resolution by the Zonal Project Coordinator as well as management.

Carry out any other project activities to be assigned by the ZPC from time to time.

Position Title: M&E Focal Point

Line Management: Reports to the Coordinator, Regional Project Coordination Unit with a dotted technical reporting line to the Senior M&E and Knowledge Management Specialist at the ISU.

A. Functions and Responsibilities shall include:

Review and manage the project M&E to ensure a proper flow of information to and from the ZCU to the ISU and especially the provision of timely and adequate information for decision making;

Ensure that appropriate M&E procedures are prepared, established and implemented at the Regional level so as to provide sufficient basis for review of project implementation progress and for recommendations on necessary changes in emphasis;

Review on regular basis the status of Project implementation with a view to adopting corrective measures and bringing to the attention of the ZCU any problems/issues arising thereof which may impede the implementation of the Project;

Facilitate the development and consolidation of the Regional Annual Work Plan and Budget (AWPB), ensuring alignment with the project logframe, Cluster specific Community Outreach Development Plans and related targets;

Prepare quarterly, semi-annual and annual Monitoring Reports on all aspects of Project implementation and progress, including but not limited to services in the areas of training, strengthening of producer organizations, marketing, financial services and technology promotion;

Coordinate and facilitate field surveys and provide technical backstopping to Project implementers;

Coordinate and consolidate progress reports from implementation partners/service providers on the implementation of project-related activities;

Responsible for facilitating Annual Review Workshops and other such related activities aimed at assessing project progress;

Documentation and dissemination of lessons learnt/good practices as part of the knowledge management and communication strategy;

Coordinate the monitoring of efficiency of targeting, poverty focus, gender focus and youth focus in the implementation of Community Outreach Development Plans;

Facilitate external supervision and evaluation missions;

Carry out any other activities that are assigned by the Regional Programme Coordinator.

B. Qualifications:

At least a Bachelor's Degree in Social Science or Agricultural Economics or any related discipline;

At least 5 years M&E working experience in a donor-funded project;

Computer Literate especially in software of Microsoft Office, MS Excel, MS Access and MS Project;

Familiarity with the deployment of M&E tools for strategic planning and performance monitoring;

Highly organized with methodological approaches to data management (in manual and computer based forms);

Data analysis and strong background with spreadsheets & databases (Excel & Access)

Excellent writing and presentation skills.

C. Skills

Good level of proficiency in Microsoft Applications including MS Project.

Demonstrated ability to train and build capacity of others.

Experienced in electronic data processing and analysis as well as data base management.

Ability to synthesize and present information in a structured manner.

Strong analytical and market oriented skills.

D. Duration

The position will be on a contract basis for two (2) years with the possibility for extension depending on satisfactory performance and availability of funds.

TOR FOR SERVICE PROVIDERS

CONSULTANCY SERVICES FOR CAPACITY-BUILDING OF AAFORD COMMUNITY FACILITATORS

Background information:

Community Facilitators

In order to ensure effective and sustained engagement at the community level and facilitate transactions made possible through capacity-building, a pool of 4-5 community facilitators (CFs, including one to focus on climate change resilience) from the selected communities will be engaged for each of about 30 clusters of communities in the AAFORD project areas. They will be expected to facilitate community mobilization and interaction with AAFORD. The CFs will comprise young women and men from the communities with social skills for community mobilization, as well as educational background to understand and interpret project objectives.

A service provider (SP) is required to help recruit the CFs and build their skills on strengthening community institutions, gender mainstreaming, youth mobilization, nutrition sensitivity, and climate-resilient agricultural practices. They will be responsible for ensuring inclusion of target groups (especially women and youth) in the relevant CIs; facilitating development of Community Outreach Development Plans (see below) and outreach of the project-supported activities to the target groups; community-level data collection and reporting; monitoring, identifying and reporting community-level implementation issues and assisting to solve these problems; and facilitating the outreach of marketing and financial institutions, project SPs and other VC actors and facilitators. They will interact with the Youth Institutional Interns (YIIs) that are being trained under a different sub-components and attached to partner institutions in or serving the communities. The CFs will provide a clear community-level focal point of interaction for other project stakeholders such as input suppliers and other value chain actors, financial intermediaries and project SPs, ensure smooth implementation at the cluster level, and facilitate the ability of youth to work in public service and development institutions.

Community Outreach Development Plan (CODP)

The SP will also support and oversee the CFs to develop a 7-10 page Community Outreach Development Plan (CODP) in each project cluster. The objective is to facilitate both implementation and sustainability of project interventions by building community consensus around clear road maps for sustaining and scaling up good practices, strengthening community institutions and engaging with external ones, and enhancing access to product

markets and financing. The desired social, economic and productive changes envisioned in the community through AAFORD implementation will be presented in the CODPs along with the specific project interventions, which will help to achieve these changes. Although the CF will have primary responsibility for the initial draft of the CODP, the SP will be responsible for assuring the quality and standardization of the final products.

The CODP will define the specific project target groups in the community, the projected outreach of AAFORD activities to these target groups over the project duration, the approach for reaching the target groups, and an overall budget estimate for capacity building. It will include the scope for strengthening offtaker-outgrower models. It will also present needs for nutrition awareness raising and how training on healthy diets can be included in capacity building activities for different groups. Similarly, it will include specific climate-related risks to the community and mitigation measures to be integrated in project implementation activities, in particular to complement TA for improved agricultural technologies and practices to raise productivity.

The CODPs will serve as inputs to the regional ZCUs to prepare detailed annual cluster work plans and budgets in coordination with the SPs and CFs, presenting the physical and financial targets to be achieved in each community cluster during the year. AAFORD will direct support to the communities based on the activities identified in the CODPs.

Institutional Business Plans (IBPs)

The AAFORD SP will capacitate the CFs to work together with the YIIs based in the Business Advisory and Resource Centres (BACs/BRCs), to develop Institutional Business Plans (IBPs) for those community institutions (CIs) in each cluster that have met the selection criteria and expressed a desire for capacity-building or to seek financing (either individually or together). Each IBP will detail the areas of investment chosen by the CIs for improving the knowledge, skills and livelihoods of the members. The first part of the IBP (3-5 pages) will detail how the CI will strengthen their governance and management systems and address issues relating to inclusion of women, youth and other vulnerable groups; climate change; nutrition; financing; and linkages with external market and financial institutions. This will include how the CI intends to expand access to financial services, including savings mechanisms, credit (in kind and/or cash), reinvesting earnings, agricultural insurance, and digital financial services (DFS). The second part (4-6 pages) will focus on the details of the specific business area in which the CI members decide to collaborate, including: description of the business concept or model; market opportunities; strategic, operational and financial details such as projected profitability, financing plan and reinvestment plan; direct and indirect beneficiaries (particularly women and youth); outreach of benefits; measures to improve productivity, meet required market standards and address the effects of climate change.

Although the YCF and YII will have primary responsibility for the initial drafts of the IBPs, the SP will be responsible for assuring the quality and standardization of the final products.

Assignment Objectives

AAFORD will engage consultancy services to recruit, train and manage 4-5 YCFs in each of 30 clusters, facilitate them in preparing CODPs and IBPs, and assure the quality and standardization of the results. YCFs will typically be engaged for three years.

Duties and responsibility of Service Provider

To Community Facilitators

Develop a recruitment strategy and criteria for recruiting CFs from the communities in AAFORD clusters to ensure that they have the social skills for community mobilization, as well as educational background to understand and interpret project objectives, and will be accepted by the community as focal points for interaction with institutions and other SPs serving the communities. CFs could include youth who are from but not presently residing in the communities and who are willing to return to live there during their service.

Undertake the recruitment in consultation with the AAFORD ZCUs.

Develop a training strategy and guidelines, including to ensure that there is at least one CF in each cluster with a special focus on and knowledge of (i) finance; (ii) business skills; and (iii) good agricultural practices for increased productivity and climate change resilience. All CFs should be sensitized on issues of gender, youth, climate change, and nutrition.

Provide support and oversight to the CF, reporting to the AAFORD ISU semi-annually.

Recruit replacements if needed when CFs resign before their terms are up.

Community Outreach Development Plans and Institutional Business Plans

Develop a simple format for CODPs and IBPs (see discussion of their content above);

Develop a training strategy and guidelines for CFs in preparing CODPs and IDPs in close collaboration with the communities/cluster and the CIs;

Train the CFs and facilitate them in several initial preparations of draft CODPs and IBPs until they are able to continue on their own;

Review draft CODPs and IBPs, provide feedback, and edit revised versions as needed to produce final versions of acceptable quality.

Duration of Assignment

4 years [needed to oversee CFs for 3 years after recruitment & training the first year]

Qualification and Experience of the Firm and of staff

The firm has proven capacity and track record in training and working with youth in the areas of agricultural practices, finance and business skills; in working with rural communities in Ghana; and in business planning.

Staff requirements include.....

Deliverables

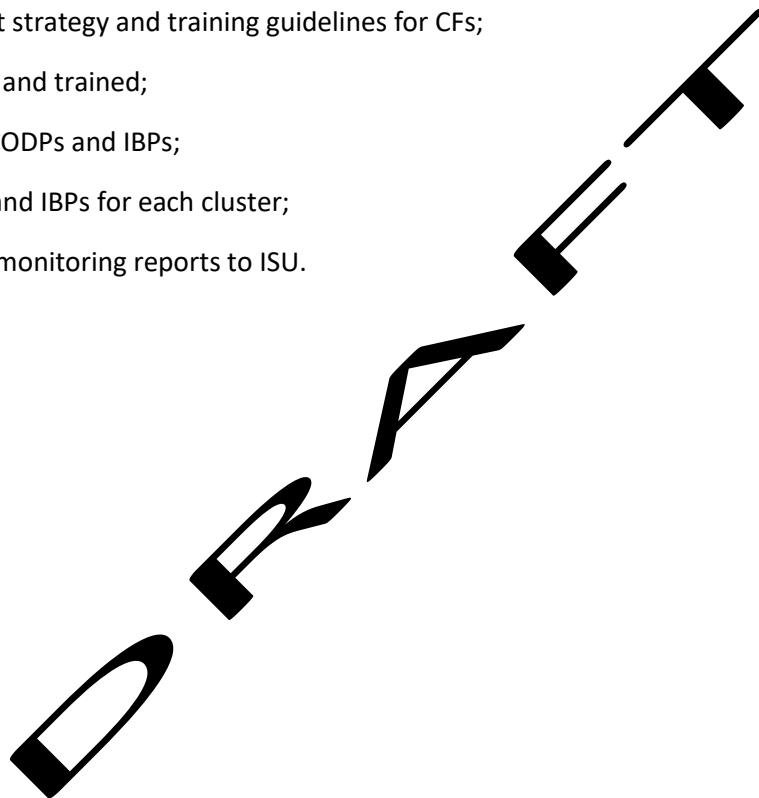
A recruitment strategy and training guidelines for CFs;

CFs recruited and trained;

Formats for CODPs and IBPs;

Final CODPs and IBPs for each cluster;

Semi-annual monitoring reports to ISU.



Terms of Reference

Background

Ghana has a long history of attempting to channel credit to the agricultural sector. Specialized rural finance institutions in Ghana date from Bank of Ghana (BoG) regulations in 1976 permitting “Rural Banks”⁵⁶ serving local communities to be established with much lower minimum capital than commercial banks. Rural Banks were expanded in the 1980s with government/BoG support to service the introduction of “akuafo checks” to pay cocoa farmers. Establishment of the ARB Apex Bank in 2002 under the IFAD-supported Rural Financial Services Project (RFSP) strengthened the Rural and Community Banks (RCBs) into a network serviced by a central agency. The Agriculture Development Bank (ADB) was established in 1965 to counter commercial banks’ risk aversion to the agricultural sector, but suffered from poor repayment and economic conditions in the 1970s and 1980s. After restructuring in 1988, the share of smallholders in ADB agricultural loans rose from 15% to 24% over the decade, but restructuring in 2004 as a universal bank led to a decline in its agricultural loan portfolio in order to comply with prudential requirements (although it remained subsidy-dependent).⁵⁷

In the 1980s, the Government of Ghana (GoG) abandoned earlier policies that mandated the share of bank loans going to agriculture and maximum interest rates. However, high interest rates have persisted in Ghana’s financial system (due to a combination of high inflation, government borrowing and non-performing loans, and weak competition and efficiency). Commercial interest rates in excess of return to agricultural production stifle demand for credit, and more profitable and less risky lending opportunities in other sectors divert supply.

Although the share of agriculture in Ghana’s Gross Domestic Product (GDP) has declined over time, it remains a critical source of livelihood for 45% of the workforce and hence for poverty reduction through development of the rural economy. Efforts to promote agriculture have persistently included lines of credit at interest rates or spreads set below market levels, to make them more affordable for agricultural production and rural enterprises. Whether through the ADB, the Export Trade, Agricultural and Industrial Development Fund (EDAIF), or projects supported by development partners, these lines of credit have faced challenges in both uptake and recovery.

As a basis for the Affordable Agricultural Finance and Resilient Rural Development (AAFORD) Project to introduce a Blended Finance Facility (BFF) for lending to agriculture at affordable rates, a review is needed of lessons learned from past attempts, and of the current status of universal banks, Rural and Community Banks (RCBs), and other microfinance institutions

⁵⁶ Later extended to include “Community Banks,” which may serve fishing and other non-agricultural communities and tend to be more urban-based.

⁵⁷ World Bank, “Ghana’s Development Finance Institutions: Review of Current Status and Principles for Reform,” Washington DC, The World Bank, Finance and Markets, 2016.

(MFIs), following consolidation and clean-up by the BoG, with respect to their capacity to lend to agricultural value chains.

Affordable Agricultural Finance for Resilient Rural Development (AAFORD) Project

<< insert boilerplate on GoG has funds from IFAD for this project, etc....>>

As part of AAFORD's mandate to promote consultations among relevant stakeholders and to improve the policy environment for agricultural value chain financing, it intends to prepare a strategic framework and action plan for agricultural and rural finance that could serve as a foundation for development and marketing of financial products suitable for agricultural producers and value chain actors in Ghana, as well as for improvements in the policy, legal and regulatory environment. This will include a two-day Stakeholder Workshop that would draw on the approach and methodology undertaken in Ghana in 2008 and in Uganda in 2005,⁵⁸ as well as on various studies and documentation on programmes and institutions related to agricultural value chain financing in Ghana. A small technical team will then draw on the findings and recommendations of the workshop to prepare the Agricultural Finance Strategy and Action Plan (AFSAP). AAFORD wishes to procure a consultant to facilitate the Workshop and lead the preparation of the AFSAP.

The Assignment

The overall objective is to lay the groundwork for implementation of a Blended Finance Facility to increase the supply of affordable finance and risk mitigation instruments for agricultural production and value chains – supported by capacity building both on the demand side (smallholder farmers, offtakers associated with the demand side and rural households) and the supply side (adaptation of products suited for and outreach to those target groups).

In particular, the consultant is expected to:

Review the current status of existing credit lines targeted to agricultural value chains and rural enterprises and the challenges regarding their uptake and recovery, specifically: Outgrower and Value Chain Fund (OVCF), Rural Development Fund (RDF); Rural Enterprises Development Fund (REDF); and EXIM Bank (former EDAIF).

Review lessons learned with respect to concessional lines of credit, mandated interest rate spreads, matching grants; in particular, challenges for increasing uptake of credit lines, insurance, guarantees and warehouse receipts; including experiences with credit and recovery under the Millennium Development Authority (MiDA), Root and Tuber Improvement and Marketing Programme (RTIMP), and Rural Enterprise Development Fund (REDF).

Review the current status (following measures by BoG to raise minimum capital requirements and strengthen the financial sector) of financial institutions (FIs) with respect to their liquidity,

58 Dialogue Seminar on Agricultural Finance :Richard L. Meyer, Richard Roberts, Adam Mugume, "Development Rural Financial Markets in Uganda: The Way Forward," Kampala: Bank of Uganda/KfW/GTZ/Side Financial Systems Development Programme, 2004; "Agricultural Finance Action Plan Matrix," BoU/KfW/GTZ/Side Financial Systems Development Programme, 2004

capital adequacy, and capability to lend to agricultural value chains – especially universal banks, RCBs and other MFIs that serve rural households;

Undertake a sample survey of about 20-30 FIs to (a) validate the above analysis; (b) assess their demand for funds to on-lend to agriculture and for accompanying risk mitigation instruments (in particular, insurance through GAIP and guarantees from GIRSAL or RDF) and their readiness to lend against warehouse receipts; (c) estimate the ratios of operational costs, loan losses and profit margins to loan portfolios, and their evolution over time;⁵⁹ as a basis for determining reasonable spreads for on-lending to agriculture; and (d) estimate the additional costs and risks they would incur to increase their loan portfolios to smallholder farmers (either directly or as outgrowers secured by their offtakers, such as nucleus farmers, processors and aggregators).

Deliverable Outputs

Inception report specifying methodology for the sample survey.

Interim report, including first draft of lessons learned and status of financial institutions.

Draft report on results of survey.

Organization of stakeholder workshop and presentation of findings.

Final report incorporating comments and feedback from workshop.

Qualifications

The consultant is expected to demonstrate

At least 10-15 years of experience in rural/agricultural/micro financial sector development;

Demonstrated standing in the field, including relevant reports and publications;

Familiarity with rural and agricultural finance policies, projects and experience in Ghana;

Experience with surveys of financial institutions and analysis of financial data;

Strong presentational, interpersonal and writing skills;

An advanced degree in economics, management or finance, or business.

⁵⁹ With reference to the baseline study for the Rural and Agricultural Finance Programme (RAFiP); GHAMFIN's Performance Monitoring and Benchmarking Reports; and the 2006 GHAMFIN study on Microfinance Poverty Outreach and Performance Assessment: A Study of Rural Microfinance Institutions and Government Programmes in Ghana.

DRAMA

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Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 9: Integrated Risk Framework (IRF)

Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

Risk categories	Risk Probability	Risk Impact	Mitigations/comments
1. Political and governance	Medium	Medium	Government is stable and democratic elections have resulted in peaceful changes. Election of the president and members of parliament is planned in 2020.
2. Macroeconomic	Medium	Medium	Major currency fluctuations pose problems for enterprises, farmers and their organizations and critically affect prices of agricultural exports and imported inputs. These are however outside the control of the programme.
3. Sector strategies and policies	Low	Medium	Sector strategies and policies provide support for agriculture, inclusive finance, rural development and enterprise development, set strategic direction and policy formulation, contribute to policy dialogue, and strengthen financial institutions and FBOs.
4. Technical aspects of project or program	Medium	High	<p>AAFORD will address these constraints by i) focusing on a limited geographical area (two zones), ii) partnering with other ongoing IFAD projects, e.g. REP supported BAC/BRCs, GASIP supported Farmers Based Organisations (FBOs) in the project areas; iii) enhancing target groups' access to rural finance by focusing on both demand side interventions (increasing production, productivity, value addition, post-harvest techniques, institutional capacities) and supply side pathways e.g. setting up the Blended Finance Facility (BFF) and supporting the delivery of the BFF resources in partnership with Ghana Incentive-based Risk Sharing System for Agricultural Lending (GIRSAL), Ghana Agricultural Insurance Pool (GAIP) and Ghana Commodities Exchange (GCX).</p> <p>Farmers indeed tend to be risk-averse and to perceive borrowing as an avoidable risk. The primary target, therefore, will be semi-subsistence and market-oriented farmers who wish to expand their marketable surplus, whether by adding some additional acreage or through productivity-raising inputs. AAFORD will also try to expand the use of available risk-mitigation instruments, including insurance to offset production risks, guarantees to offset PFIs' default risks, and warehouse receipts to permit taking advantage of higher off-season prices.</p> <p>Whereas farmers tend to avoid the risk of borrowing against their existing land holdings and crops, they have proven more willing to borrow for a marginal expansion, in collaboration with an offtaker who can provide the market as well as secure and manage the financing. Indirect access to credit through the offtaker also helps insulate the FBOs against risk of crop failure, as it is easier to renegotiate terms with the offtakers (who are often paid in kind rather than in cash) than with financial institutions. In some cases, the offtaker may actually be a legally constituted cooperative consisting of both producers and processors, which can both represent their mutual interests and satisfy the collateral requirements of the PFIs. The model has also worked to enable larger nucleus farmers (especially in the northern part of the country) to expand with minimal direct investment by borrowing to</p>

Risk categories	Risk Probability	Risk Impact	provide inputs and services (e.g., tractor) to outgrowers who can expand Mitigations/Comments
			<p>AAFORD will focus on a successful model that has emerged both from RTIMP experience (as well as USAID and other projects) and from recent observations in the field: building on an on-going relationship between an offtaker (usually a processor or nucleus farmer; sometimes an aggregator) and FBOs of outgrowers, and borrowing for an expansion of operations.</p> <p>One reason that PFIs (especially RCBs) are interested in working with FBOs is to gain their members as clients. AAFORD will provide capacity-building in financial literacy and VSLAs to encourage them to save in formal financial institutions. Nevertheless, there is a risk that such savings, and other assets held by smallholders, will be insufficient to meet the security requirements for loans from those institutions. This risk is mitigated in part by focusing on the offtaker-FBO model, in which a nucleus farmer or processor is much more likely to be able to provide the required security to take a large loan that is then passed on in bits (in-kind) to his farmers .</p> <p>To help close any remaining gap between assets and collateral requirements, working with GIRSAL is especially important. A GIRSAL guarantee can serve as collateral for 50% of the investment amount.</p> <p>When inputs are provided free or on credit, there is always a risk that people will come forward to receive them in order to sell at a profit, rather than utilize them directly for production. This risk will be mitigated by (a) working with existing FBOs that have an on-going relationship with offtakers; and (b) focusing on expansion of existing production. This will tend to exclude new entrants and 'free riders.' The offtaker provides the inputs and associated services (such as plowing) in stages, not all at once. Members of FBOs who divert the additional inputs may jeopardize their on-going relationship with the buyer.</p>

Risk categories	Risk Probability	Risk Impact	Mitigations/comments
5. Institutional capacity for implementation and sustainability	Medium	High	<p>AAFORD will mitigate this risk by i) establishing the Implementation Support Unit (ISU) in the project area itself and strengthening the ISU's implementation support and monitoring capacity by establishing Zonal Project Coordination Units (ZPCUs) in each of the two project zones; ii) AAFORD will not rely solely on ISU and ZPCU staff for implementation. The project will also partner with implementation service providers (SPs), deploy community facilitators and youth interns to support the partnerships between the project communities and the local private/public project partners. The ISU and ZPCU staff will be responsible for capacity building, monitoring, quality control and technical backstopping. Even in the case of temporary delays in staff replacement, implementation will not be delayed.</p> <p>Although the AAFORD implementation structure has many parts, the function of each part is well defined. The ISU will be responsible for overall coordination, financial management procurement, technical backstopping and developing the national level stakeholder partnerships; ZPCUs will be responsible for implementation support to the service providers (SPs), field level monitoring and quality control. ZPCUs will report to the ISU; SPs will carry out direct implementation at community level (through the facilitators), develop partnerships at the intermediary level, coordinate with the ZPCUs and report the ISU;</p> <p>The clarity of the roles will facilitate reporting and flow of information. The location of the ISU in the project area will facilitate close coordination between different implementation stakeholders and swift attention to challenges. The physical proximity between the ISU and the Zonal Steering Committee will develop regular communication and strong relation between them and ZSCs involvement in resolving local challenges which may be impeding implementation. At the macro or national level, the Development Finance Unit of Ministry of Finance's Financial Sector Division will coordinate AAFORD's implementation and ensure its consistency with wider national objectives and synergies with GoG activities to increase and expedite the flow of credit to the agricultural sector.</p>
6. Financial management	Medium	High	<p>Public Financial Management systems at country level is considered sufficiently solid and accompanied by a skilled civil service. The ongoing portfolio is showing moderately satisfactory FM performance. The utilization as lead implementing agency of a newly established office (GIRSAL was created in 2017) poses a number of fiduciary challenges that will need to be addressed during the detailed programme design.</p>

Risk categories	Risk Probability	Risk Impact	Mitigations/comments
7. Procurement	Low	High	<p>AAFORD will mitigate the risks through the following steps:</p> <p>i) Relevant training will be provided to the procurement staff during project start-up workshops. The training will also contribute to building up the procurement capacity of the Project staff to follow the required procurement approach and methodology, orient staff members to best practices and train them to monitor the quality and timeliness of documents submitted to IFAD for supervision missions and for prior review; ii) s management and monitoring teams will be formed, led by the Central Project Coordinator (CPC) and including the technical and the procurement teams, and beneficiaries (if necessary). These teams will be responsible for contract supervision, monitoring, and application of the conditions of contract. Close monitoring will be done to prevent poor performance of service providers by ensuring their adherence to contract documents; iii) Procurement clinics on procurement record keeping will be provided to AAFORD procurement staff to ensure that the complete procurement documentation, including a procurement filing checklist, is kept on procurement files at the ISU; iv) Provide contract management training to all AAFORD staff.</p>
8. Stakeholders	Low	Medium	<p>AAFORD will be built on to the on-going IFAD projects to complement its activities where possible. As a part of the design mission, the project objectives will be discussed and understood by the key stakeholders (relevant ministries, financial Institutions, development partners and beneficiaries).</p>
9. Environment and social	Medium	Medium	<p>Project's environmental and social category is B and climate risk assessment is medium with the risk mitigation measures incorporated in the project. Financing from the Green Climate Fund will be sought recognizing the higher costs that climate change imposes on the development efforts and investments.</p> <p>This risk is mitigated by a range of measures such as capacity building on climate resistant agricultural practices, facilitating climate proof agricultural loans and enabling greater outreach of agricultural insurance services (details in SECAP review note).</p>
Overall	Medium	High	

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Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex 10: Exit Strategy

Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

Annex 10: Exit Strategy

1. AAFORD's exit strategy is built on
2. i) profitable linkages between private-sector buyers/offtakers and target households (producers)
3. ii) successful engagement of financial institutions in supporting the pro-poor business linkages between offtakers and producers
4. iii) strengthened community level institutions and human capacities
5. iv) successful linkages of community institutions to external resources; and
6. v) increasing the presence of a network of technical service providers to continue strengthening AAFORD's achievements.

7. Profitable, pro-poor linkages between private-sector offtakers and target households: AAFORD will support the development of profitable linkages between private-sector offtakers and target households (producers). It will orient the offtakers to the potential of the smallholder farmers (which will be realised through project support) to meet the offtakers' requirements. AAFORD will also facilitate the development of win-win contracts between the offtakers and FBOs (on behalf of individual farmers). AAFORD will provide capacity building and training inputs to target households to assist them to respond to the requirements of the contracts with the offtakers. Thus, the capacity building inputs to the target households will focus on increasing the quality and quantity of produce to meet the offtakers requirements. The target households' success in producing the quality and the standards required by the offtakers will result in the successful implementation of the win-win contracts resulting in profits both for the target household and the offtakers. Once these profitable linkages are active and bottlenecks are removed through project support, the business relationship will continue based on market demand and supply principles. With the growth in this business relationship, the offtaker will increase the business volumes in the community to achievement economies of scale which will increase the outreach of these linkages to new smallholder farmers.

8. Successful engagement of financial institutions in supporting pro-poor business linkages between offtakers and producers

9. AAFORD will assist a range of partner financial institutions to provide financial support to the pro-poor business linkages between offtakers and producers unlocked through AAFORD interventions. When these business ventures are successful the financial institutions will continue supporting the continuation and growth of these businesses. Thus, the successful engagement of the financial institutions will develop the pathway for AAFORD to make a smooth exit. Further, the success of the pro-poor business partnerships in the AAFORD clusters will motivate the financial institutions to tap into this business segment even outside the AAFORD supported clusters. Consequently, the financial institutions will automatically engage in the scaling up of the AAFORD supported pro poor business models in other communities outside the AAFORD clusters and even in other regions in the future.

10. Revolving nature of the blended finance facility: The IFAD contribution to the blended finance facility will be perpetually revolving in nature and the reflows will immediately available for extending fresh loans. This measure will help to perpetuate the BFF beyond the life of the project.

11. Strengthening community level institutions and human capacities

12. AAFORD will strengthen community institutions (CI), mainly FBOs, VSLAs and youth and women enterprise groups by
 - i. focusing on their institutional development;
 - ii. enabling their financial sustainability; and

- iii. developing their technical capacity to ensure that they can continue providing services to target households even after AAFORD.

13. *Institutional development of the CIs:* This will involve strengthening the governance and management roles in the CIs and ensuring transparent financial management practices within them. Capacity building and training will be supported focusing on governance, management and leadership aspects, project management areas, book keeping and financial management areas and a range of other technical areas to develop the human capacities necessary for their transparent and robust management. AAFORD will also develop the pro-poor orientation of the CIs and enhance their focus on increasing membership to include at least 60% members from semi-subsistence smallholder household categories, women and youth. Clear protocols for consultative decision-making and conflict resolutions will be established. These inputs will provide a strong platform for pro-poor focus and institutional continuity of the CI's even after AAFORD. Where relevant, AAFORD will support the registration of these institutions and the opening of their bank accounts.

14. *Financial sustainability of the CIs:* The financial sustainability of CIs will enable them to continue nurturing and guiding the AAFORD supported activities in the communities and will set the stage for AAFORD to make a smooth exit. AAFORD will assist the CIs to develop their financial sustainability plans which will outline how they can meet the future costs of their developmental services to the target households even after AAFORD. Broadly, the CI's will be encouraged to meet these costs through the following arrangements,

- Mobilising member savings with the mandate to invest this capital in revenue generating activities. AAFORD will promote savings culture within all institutional levels.
- Earning a slender commission on the volume of business brokered by the FBOs between the marketing actors and the members. AAFORD will facilitate the development of transparent norms for the FBOs for the collection and utilisation of such financial revenue;
- Where relevant, earning a slender financial margin by intermediating credit support from financial institutions to the target households;
- Collecting fees for training, technical assistance and capacity building inputs to member households
- Retaining a part of the revenue earned during the current season for supporting members' productive investments in the following season. AAFORD will facilitate discussion sessions to develop consensus amongst members to allow the FBOs to retain a part of the revenue for supporting investment activities in the following season. AAFORD will also develop the capacity of the FBOs to manage these funds. The contracts between the FBOs and the offtakers will be so structured to facilitate retained earning at FBO level.

15. **Linking community level institutions to external resources**

16. AAFORD will link the FIs to three categories of external resources in order to build their capacity to continue providing community level services after AAFORD; These categories are

- i. linkages to financial institutions (only where relevant);
- ii. linkages to marketing and production development actors; and
- iii. linkages to technical service providers.

17. **Linkages to financial institutions:** The strong engagement of the CI's and financial institutions (only where relevant) will enable AAFORD to make a smooth exit.

18. **Linkages to marketing and production development actors:** Strong connection of the CI's to marketing and production development actors will facilitate

AAFORD to make a smooth exit. During AAFORD implementation the CIs will be at the centre stage of business plan development, negotiations and the contractual arrangements to solidify partnerships with marketing. The CIs will be linked to production support actors such as input suppliers, suppliers of machinery services and advisory services (private sector, agriculture universities and research centres) for supporting production improvement. They will also be linked to marketing actors comprising both export and domestic market oriented agribusinesses. The involvement of the CIs in developing marketing and production support linkages to the target households will develop their capacity to continue with these functions even after the first six years and will enable AAFORD to make a smooth exit.

19. **Linkages with technical service providers:** AAFORD will link the CIs to AAFORD technical service providers active in delivering technical support related to institutional, community and business development areas. The technical service providers will be drawn from private consultancy firms as well as large NGOs active in the area. AAFORD will capacitate the CIs to establish direct lines of communication with these service providers. This will empower the CIs to engage these service providers even after AAFORD completion based on requirement.

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Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex: AAFORD Assessment Questionnaire & FM Risk Summary Table

Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

FINANCIAL MANAGEMENT ASSESSMENT QUESTIONNAIRE (FMAQ)¹

Project # / Name Affordable Agricultural Financing for Resilient Rural Development (AAFORD)	Date : 04/10/2019
Implementing Entity: Ministry of Finance	
Self-assessment completed by - Paul Kwesi Agbo	Date : 04/10/2019
Review completed by _____ Daniel Pasos, FMS _____	Date : 9/10/2019

Implementing Entity: Ministry of Finance, Ghana

Topic		Response	Remarks
1.	Organization and Staffing		
	Implementing Entity NOTE: In the case of a Government Department, the FMS should initially focus on the status of the country PFM systems in order to gauge level of fiduciary risks to which the proposed project may be exposed. Once an understanding of the PFM environment has been ascertained, the FMS should switch focus down to project level and focus on the department(s) or unit(s) that will financially administer the project.		
1.1	Which entity is the LPA? What is the entity's legal status?	Ministry of Finance Public(Government of Ghana Establishment	
1.2	Will financial management of the project be the responsibility of the LPA or be undertaken within the-PIU?	PIU	

¹ This questionnaire should be used as guidance for and in support of the Summary Project Fiduciary Risk Assessment @ Design (Annex III).

Topic		Response	Remarks
1.3	Has the entity implemented a donor financed project in the past - if so, please provide details?	Yes Economic Management & Capacity Building Project (EMCB), Ghana Extractive Industry Transparency Initiative Project (GEITIP), Natural Resource & Environmental Governance Project (NREGP), Rural and Agricultural Finance Project (RAFIP), Ghana Economic Management Strengthening Project (GEMSP), Financial Sector Development Project, (FSDP)	
	Staffing		
1.4	What is the (proposed) organizational structure of the accounting department? Attach an organization chart.	Hierarchical Structure with the head being the Finance Manager, supported by a Project Accountant who supervises an Accounts Assistant	
1.5	Identify the (proposed) accounts staff, including job title, responsibilities, educational background and professional experience. Attach job descriptions and CVs of key accounting staff.	The Senior Project Accountant- Prepares the yearly budget with the Technical officers of the beneficiary Implementing Agencies. Assign request for payment to respective officers for processing. Review and processed request for payment before submission to authorized signatories. Reviews all cash forecast prior to the preparation of Withdrawal application/ reimbursement of designated project accounts. Analyse expenditure variances to inform management on the process of all activities, etc	
1.6	Are written position descriptions that clearly define duties, responsibilities, lines of supervision, and limits of authority for all of the officers, managers, and staff?	Yes for the proposed staff	
1.7	Is the finance and accounts staff adequately qualified and experienced?	Yes	

Topic		Response	Remarks
1.8	Are the project accounts and finance staff trained in IFAD procedures?	Yes	We may need refresher training
1.9	Are any Finance Staff appointed on contract What is the duration of the contracts Indicate key positions not contracted yet, and the estimated date of appointment	No position is contractual. The staffs are permanent Government staff.	The PIU intends to contract the accounting positions (staff) due to the location of the CPCU outside of MoF Head Office
1.10	What is training policy for the finance and accounting staff?	They are sponsored by the Ministry of Finance or Projects that they work on to attend both local and Foreign trainings	
1.11	Is there evidence that finance staff are regularly transferred to other Government departments At what frequency are personnel transferred?	None of the finance staff have been transferred to other department since 2007	
1.12	Is the project finance and accounting function staffed adequately?	Yes	

Summary of Project Fiduciary Risk Assessment at Design

Project # AAFORD, GHANA

Implementing Entity: Ministry of Finance

	Initial Risk Assessment	Proposed Mitigation	Final Risk Assessment
Inherent Risk			
1. TI Index	M	-	M
2. RSP Score	M	-	M
Control Risks			
1. Organization and Staffing	L		L
2. Budgeting	M		M
3. Funds flow and Disbursement Arrangements	L		L
4. Internal Controls	M		M
5. Accounting Systems, Policies & Procedures	M	To be well documented and shared	L
6. Reporting and Monitoring	M	Customize GIFMIS financial reports for project-specific report	L
7. Internal Audit	M	Audit unit of MoF to regularly audit the project	M
8. External Audit	M	Prompt audit will be requested	L
Project Fiduciary Risk @ Design	M		M

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Affordable Agricultural Financing for Resilient Rural Development Project Design Report

Annex: Gasip Ccva Revision. July Final

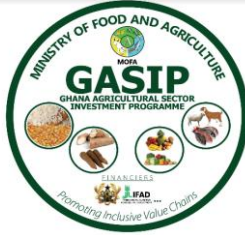
Document Date: 10/12/2019
Project No. 2000002672
Report No. 5177-GH

West and Central Africa Division
Programme Management Department

CLIMATE CHANGE VULNERABILITY ASSESSMENT IN NORTHERN, UPPER EAST, UPPER WEST AND SELECTED DISTRICTS IN BRONG-AHAFO REGIONS FOR GASIP CLIMATE CHANGE ADAPTATION



*Climate Change Team
Department of Geography and Resource Development
University of Ghana*



Ghana Agricultural Sector Investment Programme (GASIP)

CLIMATE CHANGE VULNERABILITY ASSESSMENT IN NORTHERN, UPPER EAST, UPPER WEST AND SELECTED DISTRICTS IN BRONG-AHAFO REGIONS FOR GASIP CLIMATE CHANGE ADAPTATION

FINAL REPORT

JULY 2018

COVER PHOTOS: Courtesy of Assessment Team

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LIST OF ACRONYMS

ALP	Adaptation Learning Programme
CAADP	Comprehensive Africa Agriculture Development Programme
CAPI	Computer Assisted Personal Interview
CBOs	Community-based Organisations
CCVA	Climate Change Vulnerability Assessment
CLMcom	Climate Limited-area Modelling Community
CM5A-LR	Climate Model version 5A Low resolution
CMIP5	Climate Model Intercomparison Project Phase 5
CNRM-CM5	Centre National de Recherches Météorologiques
CORDEX	Coordinated Regional Climate Downscaling Experiment
CSOs	Civil Society Organisations
CWSA	Community Water and Sanitation Authority
DCEs	District Chief Executives
DDA	District Directorate of Agriculture
DEM	Digital Elevation Model
DP	Development Partners
EPA	Environmental Protection Agency Ghana
FC	Forestry Commission
FGDs	Focus Group Discussions
GASIP	Ghana Agricultural Sector Investment Programme
GCMs	Global Climate Models
GES	Ghana Education Service
GFDL-ESM2G	Geophysical Fluid Dynamics Laboratory- Earth System Model
GIS	Geographic Information System
GH-NDC	Ghana Nationally Determined Contribution
GIDA	Ghana Irrigation Development Authority
GIRSLA	Ghana Incentive-Based Risk-Sharing System for Agricultural Lending
GIS	Geographic Information System
GloVis	Global Visualization Viewer

GLSS	Ghana Living Standards Survey
GMet	Ghana Meteorological Agency
GNFRS	Ghana National Fire and Rescue Service
GPS	Global Positioning System
GSGDA	Ghana Shared Growth and Development Agenda
GSS	Ghana Statistical Service
HH	Household
IFAD	International Fund for Agricultural Development
IPCC	Intergovernmental Panel on Climate Change
ITCZ	Inter-Tropical Convergence Zone
JJAS	June July August September
LULC	Land Use Land Cover
METASIP	Medium Term Agriculture Sector Investment Programme
MIROC5	Model for Interdisciplinary Research on Climate, version 5
MMDAs	Metropolitan, Municipal and District Assemblies
MODIS NDVI	MODIS Normalized Differential Vegetation Index
MOFA	The Ministry of Food and Agriculture
MPI-ESM-LR	Max Planck Institute-Earth System Model low resolution
NADMO	National Disaster Management Organization
NCCAS	National Climate Change Adaptation Strategy
NCCP	National Climate Change Policy
NCCMP	National Climate Change Master Plan
NGOs	Non-Governmental Organisations
NOAA	National Oceanic and Atmospheric Administration
RCMs	Regional Climate Models
PHC	Population and Housing Census
RCP	Representative Concentration Pathways
REMO	Regional Model
SADA	Savannah Accelerated Development Authority
SMCA	Spatial Multi-Criteria Analysis
SMHI	Swedish Meteorological and Hydrological Institute

SPSS	Statistical Package for Social Sciences
TNC	Third National Communication
TOR	Terms of Reference
UNHCR	United Nations High Commissioner for Refugees
UNFCCC	United Nations Framework Convention on Climate Change
USGS	United States Geological Survey
VCI	Vegetation Condition Index

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EXECUTIVE SUMMARY

The Ghana Agricultural Sector Investment Program (GASIP) set out to undertake a Climate Change Vulnerability Assessment to comprehensively understand vulnerabilities of local livelihood strategies to climate change in the Northern, Upper East, Upper West and selected districts in the Brong-Ahafo region of Ghana. The Assessment was mainly done to identify and confirm perceived climate risks and existing adaptation options. A key aspect of this Assessment was an analysis based on gender and age vulnerabilities to climate change. The Assessment also captures future climate change vulnerability scenarios of the Assessment area. This Assessment, therefore, provides information for decision-making and a baseline for project interventions and implementation.

The Assessment employed an integrated and participatory approach combining secondary and primary data. Additionally, a qualitative assessment was conducted to determine the more detailed perceptions of change in climate stresses, sensitivity and the corresponding behavioural responses. The methodology included stakeholder mapping, household surveys, focus group discussions, key informant interviews, climate projections and vulnerability mapping.

This document gives in-depth information on the current state of climate change impacts on livelihood vulnerabilities. It also contains an analysis of current and potential exposure and sensitivity to climate-related risks and hazards in the Assessment area differentiated on gender and age basis. **Effective and sustainable adaptation options are proposed as a set of recommendations to be implemented within the national context of climate change adaptation.**

The baseline information generated indicates an increase in both the mean minimum and maximum temperature for all the stations across the Assessment area. A slight increase in annual total rainfall and the number of rainy days was observed for the entire assessment area. All the districts in the Assessment area were found to be exposed to flood, drought, dry spells, bushfires, pests and diseases, changes in rainfall pattern, windstorm, climate-induced erosion and seasonal temperature changes with varying degrees of sensitivity. **The districts of the three northern regions were mainly found to be more exposed and sensitive to the assessed climate-related risks and hazards compared with the selected districts in the Brong-Ahafo region.** There was a slight gender-based exposure observed for flood, pest and diseases, bushfires and climate-induced erosion. Some coping and adaptation measure employed by people in the Assessment area include dry season farming using irrigation, multiple cropping, alternating food crop use, use of improved crop varieties, construction of fire belts, migration, reducing the quantity of food consumed and sale of firewood.

Projected climatic scenarios indicate that average annual temperature is likely to increase between 1°C and 2 °C by 2050. A slight increase in annual rainfall with high variability and reduction in the number of rainy days is projected for the Assessment area over the same period. This will make communities in the Assessment area especially those along the Black and White Volta Rivers and their tributaries highly vulnerable to floods.

The vulnerability maps provide information on district-specific exposure and sensitive to climatic risks and hazards that could be targeted to build the resilience of communities and households most of whom are smallholder farmers. The identified on-farm adaptation options that could be employed to address the vulnerability challenge are conservation agriculture, irrigation schemes, water use efficiency, agroforestry, adaptive trials and establishment of demonstration sites for climate-resilient varieties of planting materials. In addition, off-farm adaptation options such as access to financial support, awareness and knowledge creation, capacity building for agricultural extension officers, access to seasonal climate and weather information and institutional support will be needed.

Strengthening the integration of gender-specific adaptation options into GASIP programs and projects will be useful in its adaptation efforts in the Assessment area. There is the need to promote active involvement and participation of women, youth, aged and other vulnerable persons in the formulation and implementation of climate change adaption projects in the districts. Provision of resources to the women and youth will also enhance the adaptation measures in the four regions. Effective climate change adaptation option requires the provision of requisite human, financial and material resources to climate change vulnerable persons. Adequate financial resources such as soft loans, insurance packages, grants and livelihood support financial programmes must be provided to smallholder women farmers to enable them to adapt to the effects of climate change.

CHAPTER 1: INTRODUCTION



1.1 BACKGROUND: VULNERABILITY OF NORTHERN GHANA TO CLIMATE CHANGE

Vulnerability, within the context of climate change, is defined as “the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes.” In this sense, vulnerability is a function of (1) the degree of the system’s exposure to climate hazards; (2) its sensitivity to such hazards; and (3) its adaptive capacity (IPCC, 2007a, 2007b; 2014). Specifically, the three components are defined as follows:

- Exposure: the nature and degree to which a system is exposed to significant climatic variations. According to the IPCC, global warming impacts will continue due to the probability of droughts, severe heat waves, heavy rain, and sea level rise increases over time (Parry et al., 2005).
- Sensitivity: the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli. The effect may be direct or indirect. Indicators of sensitivity may be linked to demographic characteristics, geographical location and land use systems among others.
- Adaptive capacity: the ability of a system to adjust to climate change – including climate variability and extremes – to moderate potential damages, to take advantage of opportunities, or to cope with the consequence.

These three components form the parameters for assessing vulnerability to climate change and providing the necessary information for promoting resilience (**Figure 1.1**). This is critical because, within any socio-ecological systems, groups, households, and individuals respond differently to climate impact based on the available information and abilities to develop and implement appropriate strategies (Ludena & Yoon, 2015).

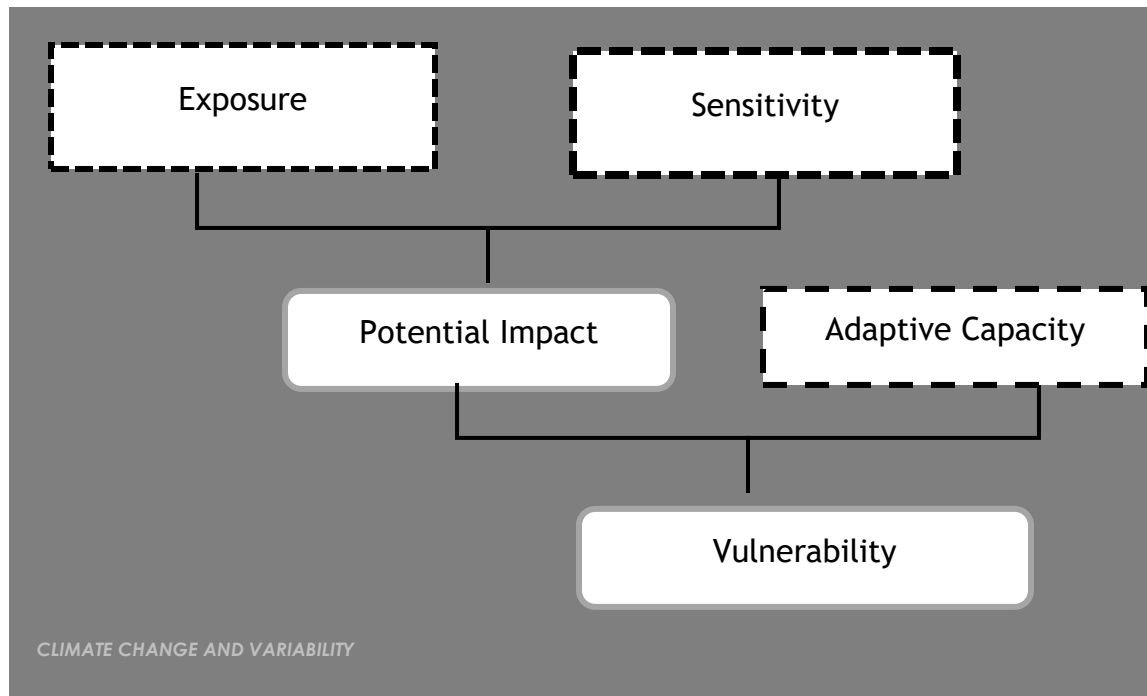


Figure 1. 1 Framework for assessing climate change vulnerability within socio-ecological systems

Source: Adopted from IPCC, 2007b

Northern Ghana has been identified by numerous studies (Owusu, 2018; Saito et al., 2018; Acheampong et al., 2014; Armah et al., 2011) as more vulnerable to the impacts of climate change than the southern portion of the country due to the combination of climatic and non-climatic stressors. The Third National Communication (Government of Ghana, 2015) identified long dry-spells, frequent flooding, erratic rainfall and rising temperatures as the main climatic stressors prevalent in the area. Poverty and out-migration of the youth are the non-climatic stressors that exacerbate the climatic vulnerability of the Northern Ghana (Songsore, 2010). Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity. The majority of the population in Northern Ghana lives in abject poverty and their livelihoods revolve around rainfed subsistence agriculture (Laube et al., 2012) rendering them more vulnerable to the impacts of climate change.

Various projection on the climate of Northern Ghana as summarized by the Ghana's Third National Communication indicates that mean annual rainfall totals relative to 1980-2010 is likely to decrease by 3% in 2014, 1% in 2060 and 3% in 2080. Over the same period, the mean monthly

maximum temperature is likely to rise by about 2°C, 3°C and 4°C in 2040, 2050 and 2080 respectively. A combination of a rise in temperature and a reduction in rainfall implies that climate change will ominously aggravate water scarcity and droughts in Northern Ghana. Yaro (2013) observed that, because of climate change, rivers, ponds, and streams are drying up, groundwater layers are shrinking and the availability of potable water is decreasing. Extreme weather events associated with climate change projection also implies that flooding could even become more severe and frequent (McSweeney et al. 2010). Currently, flooding has been identified as a major hazard for Northern Ghana with devastating effect on communities. According to Armah et al 2010, the Ministry of Food and Agriculture (MOFA) estimates indicated that floods destroyed 70,500 hectares of land and 50,000 people in Northern Ghana were directly and indirectly affected with 20 deaths recorded in 2007. In the following year, more than 325,000 people were directly affected, needing external livelihood support (Bonye and Godfred, 2011). In 2010, the National Disaster Management Organization (NADMO) reported that approximately 700,000 people were displaced and 23,588 acres of farmland were destroyed by floods in the Central Gonja District in the Northern Region when flooding affected 55 rural communities (NADMO, 2010; 2011).

Rising temperatures, increasingly erratic rainfall patterns and more droughts that are frequent and floods create challenges for food security and management of land, water and other natural resources (Adaptation Learning Programme ALP, 2014). These challenges are particularly critical for rural communities, where rainfed agriculture and livestock rearing are the primary livelihood strategies. These strategies are strongly dependent on rainfall and other climatic variables, making them highly sensitive to climate change. For the poorest women, youth and men, this sensitivity coupled with the low capacity to adapt, results in a high vulnerability.

This Assessment report is divided into four chapters. The first chapter gives an overview of the scope of work, the context and Assessment area. The second chapter explores baseline information on the exposure, sensitivity and adaptation to climatic hazards in the Assessment areas. The third chapter presents the scenario of climate change and analysis of future vulnerability to climate hazard. The fourth and concluding chapter presents possible local adaptation options that could be employed within the national context to build community resilience.

1.2 CONTEXT

Based on climate, soil and vegetation conditions, Ghana is divided into six main agro-ecological zones, including Sudan savannah, Guinea savannah, Transition zone, Deciduous forest, Evergreen forest and Coastal savannah (**Figure 1.2**). Over the past 50 years, rainfall and temperature conditions across these six agro-ecological zones of Ghana have experienced varying degrees of change (Minia, 2008). Rainfall seasons in Ghana are dictated by the Inter-tropical convergence zone (ITCZ) shifting annually between the northern and southern hemispheres.

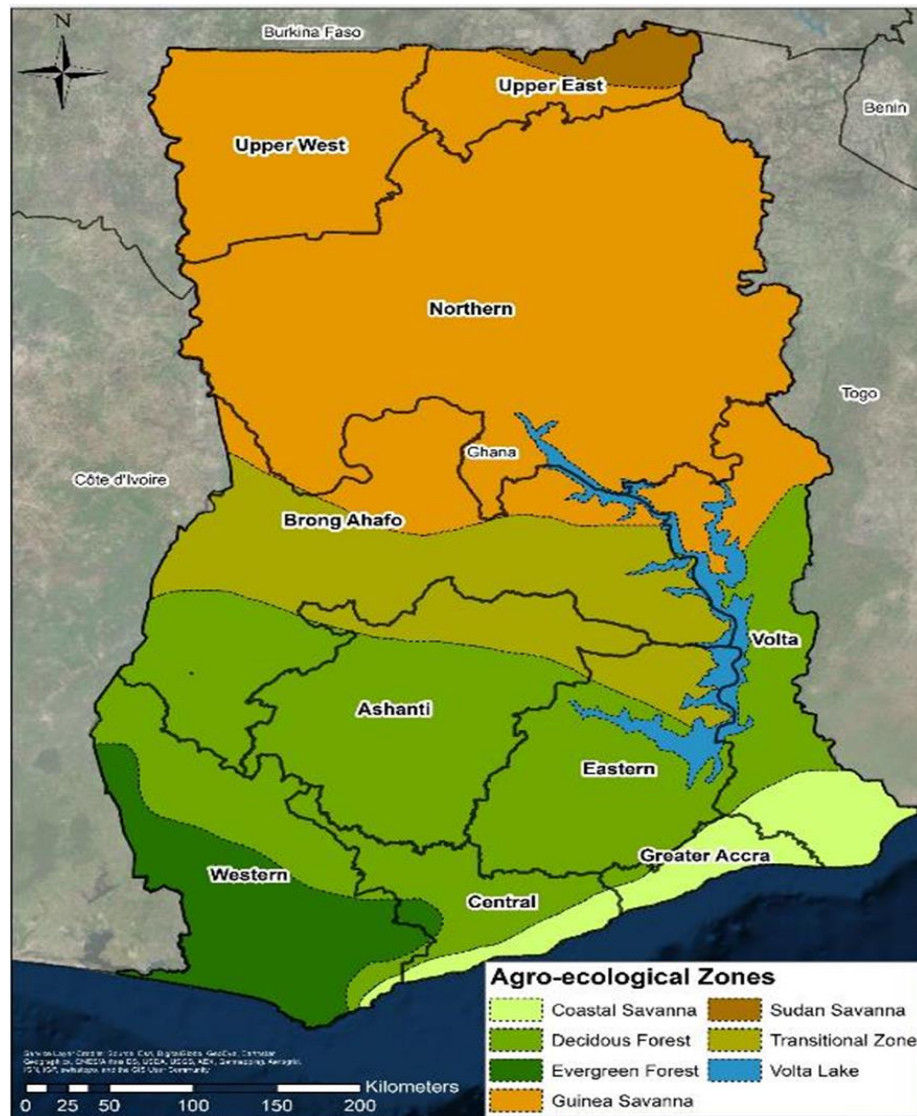


Figure 1. 2 Agro-ecological zones of Ghana

From available data, annual rainfall shows significant inter-annual and inter-decadal variations (**Figure 1.3**). Temperature data indicate a warming climate in Ghana with the drier northern area warming more rapidly than southern Ghana. The mean annual temperature of Ghana has risen by approximately 1 °C, over the past 50 years (Government of Ghana, 2015) representing an average rate of increase of ~0.14 °C per decade between 1950 and 2012 (**Fig. 1.4**).

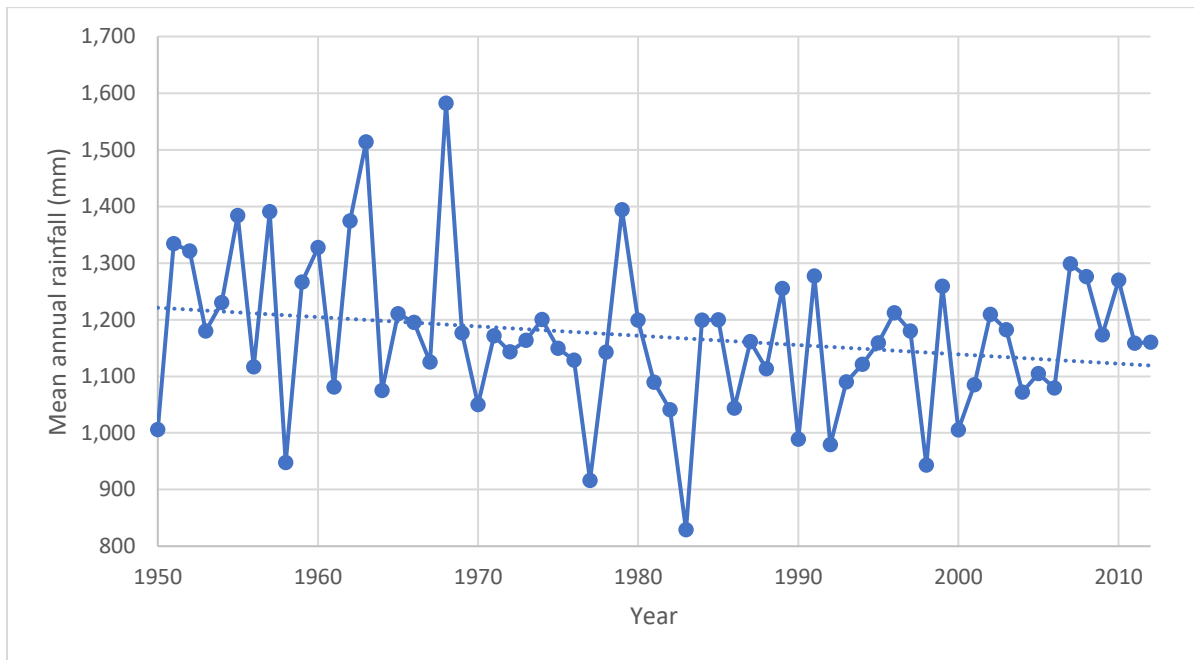


Figure 1. 3 Change in annual rainfall for Ghana from 1950 to 2012. The dashed line is a nonsignificant linear trend line ($y = -1.65 + 4430$; $R^2 = 0.05$; $p = 0.08$)

Data Source: <http://sdwebx.worldbank.org/climateportal/index.cfm>.

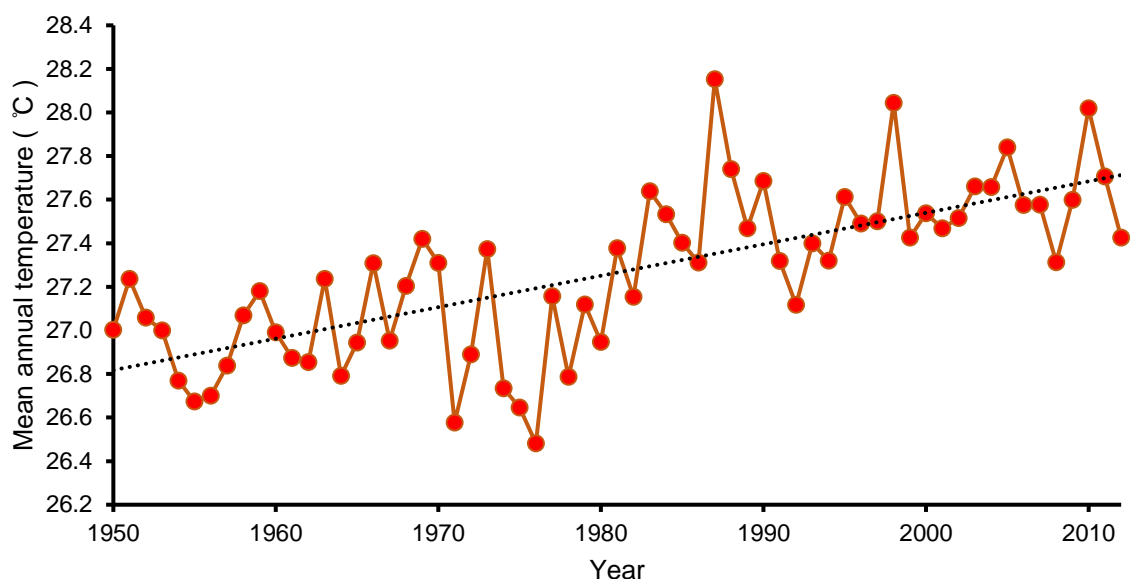


Figure 1. 4 Change in annual temperatures for Ghana from 1950 to 2012. The dashed line is a significant linear trend line ($y = 0.01 - 1.33$; $R^2 = 0.50$; $p < 0.01$).

Data Source: <http://sdwebx.worldbank.org/climateportal/index.cfm>

The Government of Ghana acknowledges climate change to be a major sustainable development challenge (Government of Ghana, 2015). Efforts continue to be made together with stakeholders at multiple levels to ensure that climate change issues are mainstreamed into the country's main development blueprint — Ghana Shared Growth and Development Agenda (GSGDA1 and 2). The agricultural sector, which contributes approximately 44.7% of Ghana's Gross Domestic Product (GLSS 6, 2014) is presently among the most vulnerable sectors to climate change impacts. With future climatic change projections indicating more negative impacts on Ghana's agriculture, urgent government-led, multi-sectoral and multi-agency action is needed.

The Ghana Agricultural Sector Investment Programme (GASIP) was launched in 2016 with financial support from the International Fund for Agricultural Development (IFAD) to promote agricultural development in the country. The goal of GASIP is to provide a framework and institutional basis for a long-term engagement and financing for scaling up investments in private sector-led pro-poor agricultural value chain development. GASIP is expected to contribute to the realization of Ghana's Medium Term Agriculture Sector Investment Programme (METASIP), which provides the road map for the CAADP compact in Ghana. MOFA is implementing GASIP

with the aim to promote a “standard setting approach” that will drive its policy, serve as a core investment for value chain development in Ghana, and for aligning parallel financing to complement, following the modalities that each of the Development Partners (DP) prefer.

The GASIP in its effort to fully understand and comprehend the climate change vulnerabilities of local livelihoods strategies established a Climate Change Vulnerability Assessment focusing on the Northern, Upper East and Upper West Regions and Selected Districts in the Brong Ahafo Region of Ghana. This Climate Change Vulnerability Assessment hereafter called “the Assessment” was designed to provide accurate and reliable baseline data on climate change vulnerability to inform GASIP’s adaptation and mitigation options. Based on identified climate-related risks and hazards from this Assessment with emphasis on the agricultural sector, strategies for adapting to the identified risks and hazards across social groups and classes are recommended.

1.3 SCOPE OF THE ASSIGNMENT.

The present Assessment was commissioned by GASIP and prepared by a team of researchers and scientists from the Climate Change unit of the Department of Geography and Resource Development, University of Ghana. Through needs assessment with communities in the selected target areas, the Assessment team was tasked to undertake a vulnerability analysis to include gender and youth using a suitable methodology. Additionally, the Assessment was to determine the main climate risks being faced by women, men, youth (15-24 years), and young adults (25-35 years) in the selected communities and their priorities to manage these risks. According to the TOR, the Assessment was specifically expected to:

- Carry out multi-stakeholder consultations in the selected communities to identify and confirm perceived climate risks, existing adaptation options, including their costs, benefits and challenges or constraints for adoption;
- Collect and synthesize available biophysical and socio-economic maps and data at the targeted level;
- Based on available information, provide baseline analysis/maps outlining the exposure of the target groups (women, men, youth (15-24 years), and young adults (25-35 years) to prevalent climate shocks and stresses;

- Source available regional climate models, downscaled based on statistical or dynamic simulations;
- Identify gender-based indicators to monitor vulnerability reductions and sustainability of adaptation measures based on age groupings and in the context of the project implementation;
- Conduct an analysis of potential impacts and vulnerabilities in the project area (differentiated on gender and age basis) using climate scenarios from a representative ensemble of climate models for the period up to 2030/2050.
- Formulate recommendations to adapt to climate change, based on the climate simulation and the analysis of possible impacts on women, men, youth (15-24 years), and young adults (25-35 years in the target communities

1.4 ASSESSMENT AREAS (SPATIAL UNIT)

The spatial unit of this Assessment is the three northern regions (Northern, Upper East and Upper West) and eight selected districts that fall within the Savanna Agricultural Development Agency (SADA) zone of the Brong-Ahafo region of Ghana (See **Figure 1.5**)

1.4.1 Brong-Ahafo Region.

The Brong-Ahafo Region covers an area of approximately 39,557 square kilometres. In terms of land size, it is the second largest region in Ghana (16.6%). The Brong-Ahafo region shares boundaries with the Northern Region to the north, the Ashanti and Western Regions to the south, the Volta Region to the east, the Eastern Region to the southeast and Cote d'Ivoire to the west. Brong-Ahafo has 27 administrative districts, with District Chief Executives (DCEs) as the political heads like all other districts in the country. Eight of these districts that fall within the Savannah SADA zone, namely Kintampo North, Kintampo South, Sene West, Sene East, Pru, Atebubu Amantin, Banda and Tain Districts were the focal areas for this assessment in this region.

Brong-Ahafo region has a tropical climate, with high temperatures averaging 23.9°C and a double maxima rainfall pattern. Rainfall ranges from an average of 1000 mm in the northern parts to 1400 mm in the southern parts. Two main vegetation types the moist semi-deciduous forest (in the

southern and southeastern parts) and the guinea savannah woodland (in the northern and northeastern parts) dominate the local ecosystem. The region contributes about 30 percent of the local food requirements of Ghana (Ghana Statistical Service, 2013). It is also a major cocoa and timber producing area.

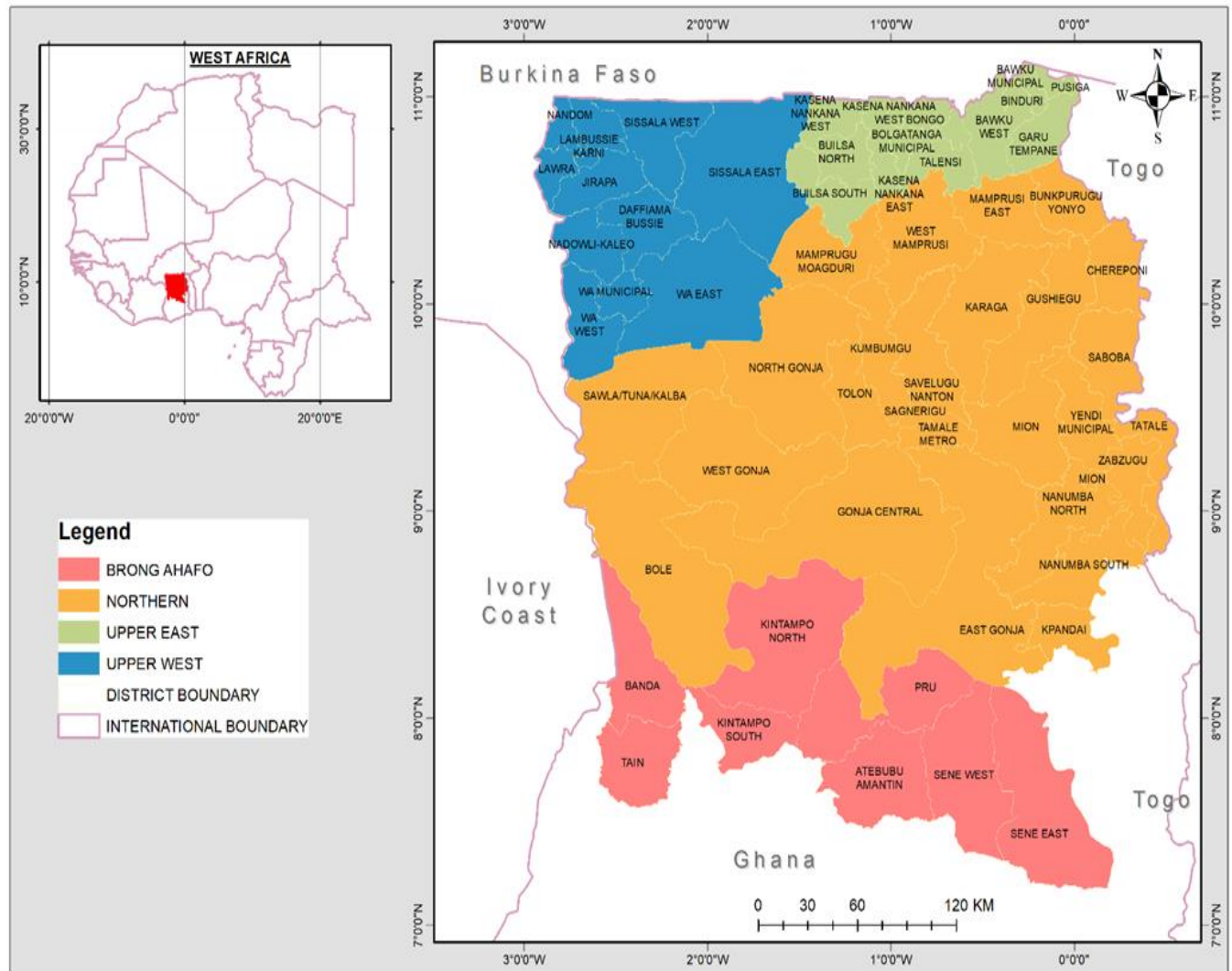


Figure 1. 5 Map showing the focal areas for the Assessment.

1.4.2 Northern Region

The Northern Region, which occupies an area of about 70,383 square kilometres, is the largest region in Ghana in terms of land area. It shares boundaries with the Upper East and the Upper West Regions to the north, the Brong Ahafo and the Volta Regions to the south, and two

neighbouring countries, the Republic of Togo to the east, and the Ivory Coast to the west. The land is mostly low lying except in the northeastern corner with the Gambaga escarpment and along the western corridor. The Black and White Volta rivers and their tributaries drain the region. The Northern region presently has 26 administrative districts.

The climate of the region is relatively dry, with a single rainy season and over 90% of the rainfall occurring between May and October (Owusu, 2018). The amount of rainfall recorded annually varies between 750 millimetres and 1,050 millimetres. The dry season usually starts in November and ends in March/April with maximum temperatures occurring towards the end of the dry season (March-April) and minimum temperatures in December and January (Ghana Meteorological Agency (GMet), 2012). The *harmattan* winds, which occur from December to early February, have a considerable effect on temperatures in the region, making them vary between 14⁰C at night and 40⁰C during the day. The rather harsh climatic conditions adversely affect economic activity in the region and in the health sector, enable cerebrospinal meningitis to thrive, almost to endemic proportions. The region also falls in the *onchocerciasis* zone. The main vegetation is grassland, interspersed with guinea savannah woodland, characterised by drought-resistant trees such as acacia, (*Acacia longifolia*), mango (*Mangifera indica*), baobab (*Adansonia digitata* Linn), shea nut (*Vitellaria paradoxa*), dawadawa, and neem (*Azadirachta indica*). The majority of people in the region are engaged in agriculture. The major crops they produce include yam, maize, millet, guinea corn, rice, groundnuts, beans, soya beans and cowpea (GLSS 6, 2014; Ghana Statistical Service, 2013).

1.4.3 Upper East Region

Upper East is geographically located in the northeastern corner of Ghana. It is bordered to the north by Burkina Faso, the east by the Republic of Togo, the west by the Upper West Region and the south by the Northern Region. The total land area is about 8,842 square kilometres. The landscape is relatively flat with a few hills to the East and southeast. The soil in this area is shallow and low in fertility, weak in organic matter, making it prone to erosion. The vegetation found here is that of the savannah woodland, characterized by short scattered drought-resistant trees and grass that is burnt by bushfire or scorched by the sun during the long dry season. The mean annual rainfall ranges between 800 mm and 1100 mm. Rainfall is highly erratic across the region. There

is a long spell of dry season from November to mid-February, characterized by cold, dry and dusty *harmattan* winds. The main occupations in the region are agriculture and its related work. The main produce are millet, guinea-corn, maize, groundnut, beans, sorghum, tomatoes, and onions in the dry season. Livestock and poultry production are also important (Ghana Statistical Service, 2013).

Table 1 Key characteristics of physical, social, economic and livelihood systems of the Assessment Areas

Characteristic	Spatial unit of Assessment			
	Brong-Ahafo	Northern	Upper East	Upper West
Geographic location	Latitude: 7° 45' 0" N Longitude: 1° 30' 0" W	Latitude: 9° 30' 0" N Longitude: 1° 0' 0" W	latitudes 10° 30' 11" N Longitude 0° 1°	Latitude: 10° 20' 0" N Longitude: 2° 15' 0" W
Population (2012/2013)^a	2,265,434	2,445,061	1,034,688	688,328
Agriculture labour force (%)^b	566,066 (69.1%)	523,278 (71.2%)	242,077 (67.1%)	176,600 (73.2%)
Population in poverty¹	648,367	1,079,494	474,818	477,631
Mean annual average temperature (°C)	26.7	27.6	28.0	27.6
Mean annual rainfall (mm)	1,230	1,112	970	1,013

a= Ghana Statistical Service, 2015

b= GLSS6, 2014

1.4.4 Upper West Region

The Upper West region covers a geographical area of approximately 18,478 square kilometres. This constitutes about 12.7 per cent of the total land area of Ghana. Upper West is bordered to the North by the Republic of Burkina Faso, on the East by Upper East Region, to the South by Northern Region and to the West by the Ivory Coast. The region is located in the guinea savannah agro-ecological zone. The vegetation in the region consists of grass with scattered drought-resistant trees such as acacia, (*Acacia longifolia*), mango (*Mangifera*), baobab (*Adansonia digitata* Linn), shea nut (*Vitellaria paradoxa*), dawadawa, and neem (*Azadirachta indica*). The heterogeneous collection of trees provides all domestic requirements for fuel wood and charcoal, construction of

houses, cattle kraals and fencing of gardens. The shorter shrubs and grass provide fodder for livestock. Over 80% of the economically active population are engaged in agricultural production. The major crops grown in the region are maize, millet, groundnut, okro and rice (Ghana Statistical Service, 2013).

1.5 METHODOLOGY

1.5.1 Study Design

The Assessment was undertaken using an integrated and participatory approach combining secondary and primary data in response to the TOR. **Figure 1.6** is a flow chart that shows the methodological steps used for the present Assessment. Secondary data were collected from annual reports of decentralized departments in the district as well as the Regional Directorate of Agriculture, Ghana Health Services (GHS), Ghana Education Service (GES) and GMet. Other sources of secondary data were collected from the 2010 Population and Housing Census (PHC); Ghana Living Standard Survey (GLSS), Ghana Statistical Service (GSS) reports; Ghana Demographic Health Reports; and District Human Development reports.

The secondary data review output helped the Assessment Team in identifying and implementing key questions and themes into the primary data collection instruments including household questionnaires (administered to households), focus group discussion guides, baseline risks and hazard and future climate scenario mapping for the Assessment area. Under the vulnerability framework, climate variability and change impacts are usually experienced at the household level—either directly through household production systems or indirectly through the ecosystem value. At the same time, a qualitative assessment was conducted to determine the more detailed perceptions of change in climate stresses and the corresponding behavioural responses. In this way, the outcomes of the qualitative focus group discussions provide in-depth insights into the patterns emerging from the quantitative work.

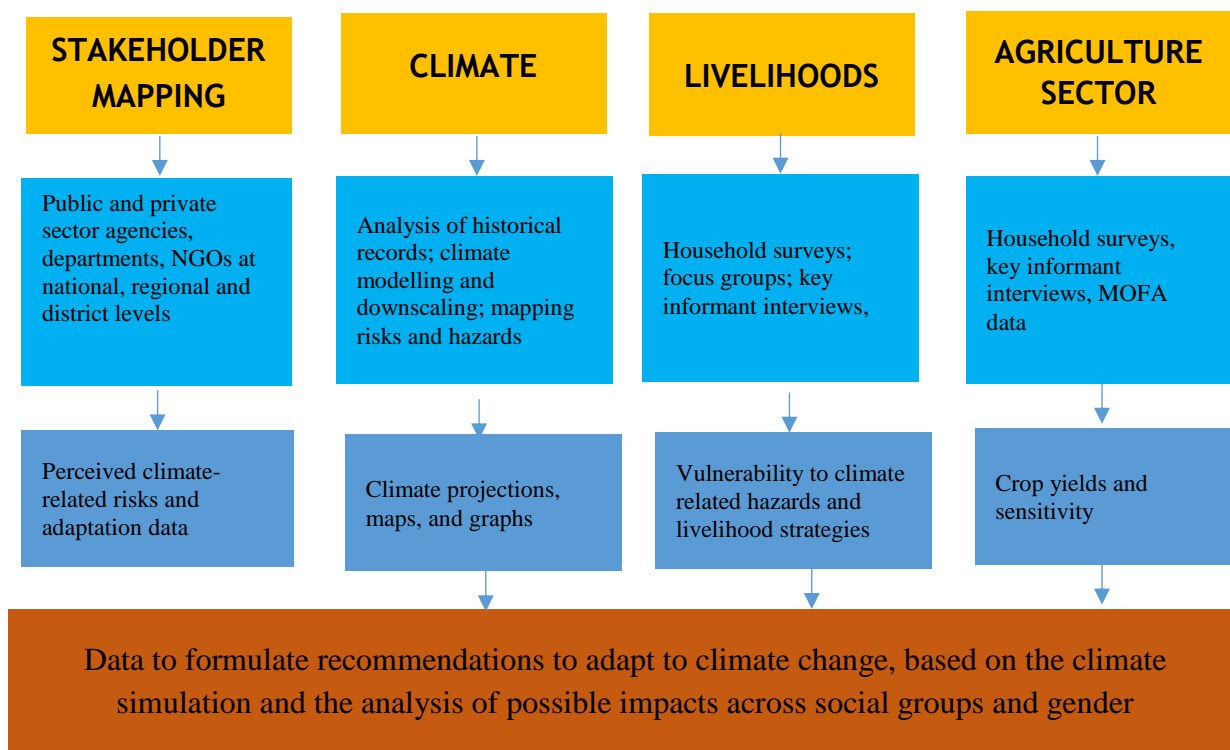


Figure 1.6 Methodology employed for the Assessment

1.5.2 Implementation Strategy

1.5.2.1 Sampling Strategy:

A multistage stratified sampling method was used to collect primary data for this Assessment. This sampling approach helped the Assessment Team capture relevant stakeholders and target groups for the analytical framework. Overall, there were four (4) levels of stratification:

- Level 1: Administrative regions: Sampling was done by proportional representation across the four regions: Northern, Upper West, Upper East and Brong-Ahafo
 - Level 2: Administrative districts: District Level – To adequately capture the situation on the ground across all the regions for this Assessment, all the districts in the focus regions were visited. Subsequently, the sample frame consisted of 8 SADA districts in the Brong Ahafo, 26 districts for Northern, 15 districts in Upper East and 11 districts in the Upper West.
 - Level 3: Localities: Localities within each district were classified for sampling purposes into urban and rural. In selecting localities for the survey, particular attention was paid to the inherent, yet significant variability concerning their agro-ecological features and livelihood systems.
 - Level 4: Households: Using available census data and most recent estimates of localities population size, a proportional representative sampling technique was adopted. The focus was on the head of household. The selection was based on every Nth household depending on the number of houses. Where there were compound housing with more than one household, one household out of the lot was selected for each housing compound. Due to the importance of gender in climate change vulnerability, emphasis was placed on gender and youth. Female-headed households were therefore purposely targeted and interviewed.
- The sample size decision was based on traditional criteria for external validity, time, resources, and logistics.

1.5.2.2 Primary Data Collection

Household Survey: All households within the same geographical area may be exposed to a particular climate-related shock or stressor, but the levels of sensitivity and adaptive capacity vary from one household to another. To capture this individual variation, a quantitative household questionnaire survey was designed to classify typical groupings of exposure, sensitivity and adaptive capacity and reveal variations in patterns based on household characteristics and decision making across all of the groups surveyed (**Appendix 1**). The household survey collected information on socio-demographic characteristics, access to basic services including electricity, energy, water and sanitation, households perception of exposure and sensitivity to identified climate related risks and hazards (**Table 2**), agriculture (crops) sector vulnerability to climate-related risks and hazards,

source of climate information, local adaptation strategies to identified climate-related hazards. Overall, 1829 household interviews were conducted across the study area (Appendix 3).

Table 2. Climate-related hazards and their description

Climate-related hazard	Definition in the context of this assessment
Flood	A temporary overflowing of a large amount of water beyond its normal confines, especially over what is normally dry land.
Drought	<p>A drought is a prolonged period of below-average precipitation in a given region; resulting in prolonged shortages in the water supply, whether atmospheric, surface water or groundwater.</p> <p>Drought is unavoidable result of climate variability — that sometimes leaves areas far short of their average water supplies for months or years at a time. Drought is the result of a complex interplay between natural precipitation deficiencies on varying time and space scales and can be exacerbated by human water demand and inefficiencies in water distribution and usage.</p> <p>The economic, social, and environmental impacts suffered because of drought are the product of both natural event and the vulnerability of society to extended periods of precipitation deficiency.</p>
Dry spells	Period of abnormally dry weather, shorter and less severe than a drought. Available evidence indicated that dry-induced natural disasters have increased due to climate change effects with their temporal and spatial coverage.
Pests and diseases	An organism that has a detrimental effect on crops, livestock, and forestry. Pests can stunt a plant's growth, especially smaller ones, disturb the soil, harm the foliage's appearance, and drastically reduce the overall quality of fruits and vegetables. When left untreated, pests often result in the plant's death. Ants, snails, slugs, caterpillars, spider mites, whiteflies, fungus gnats, and aphids are the most common types.
Bushfires	A bushfire is an uncontrolled fire that burns grass, bush or woodland, scrubland and can threaten life, property and the environment.
Windstorms	A storm with very strong wind or violent gusts but little or no rain.
Climate-induced erosion	The action of climate change causing surface processes that remove soil, rock, or dissolved material from one location on the Earth's crust, and then transport it away to another location.
Changes in rainfall pattern	Change in the incidence of rainfall due to climate change.
Seasonal temperature changes	A process whereby the degree of hotness of the atmosphere changes.

Climate-induced soil infertility	The inability of a soil to sustain agricultural plant growth due to change in climate elements including precipitation, temperature, sunshine. Most of the processes responsible for soil infertility such as soil organic matter mineralization and erosion are enhanced by higher temperature and more intense precipitation.
Increase in temperature	An abnormal rise in the degree of hotness of a body or atmosphere.

Focus Group Discussions: To gather local communities' concerns on climate change risks and household adaptation strategies, we organized focus group discussions (FGDs) at the sampled communities. In each locality, three FGDs were conducted separately, one with men and one with women and one with the youth (ages between 15-24 where is the 25-35 group?), Each group consisted of between eight and 13 participants who were identified with the assistance of local (informal) leadership and chosen because they represented different socioeconomic groups residing within the community. A topical interview guide (**Appendix 2**) was used to structure these informal discussions, and each session included at least one facilitator and one recorder. The interview guide covered local perceptions of changes in climate over the previous 20 years, the impact of severe weather events on agriculture and socioeconomic well-being in general in the last 5 years, and responses to perceived climate change. The group discussion enabled the study to gain more insight and compliment the use of the household survey in taking information on the generality of issues within the agro-ecological system and vulnerability indicators. This tool was effective in generating the participation of respondents and enhanced the researcher-target group interaction. **Photos 1, 2, 3 and 4** show participants in FGDs.



Photo 1 Men focus group discussion at Kajeji in Sene West



Photo 2 Youth focus group discussion at Parambo Sawaba in Pru district.



Photo 3 Women focus group discussions at Kwame Danso, Sene East of the Brong Ahafo Region



Photo 4 Women focus group discussions at Parambo Sawaba, in the Pru District of the Brong Ahafo Region

1.5.2.3 Statistical Downscaling of Global Climate Models

The study used daily rainfall, minimum and maximum temperature data obtained from the GMet covering the period between 1980 to 2014,- thirty-three (33) years of records. Eight stations were selected for the study based on the quality and completeness of data (Atebubu and Wenchi in the Brong Ahafo region, Bole, Tamale and Yendi in the Northern region, Bolga and Navrongo in the Upper East region and Wa in the Upper West region). The selected stations, although limited are a good representation of the Assessment area because of their spread and the fact that the rainfall mechanism is the same (Owusu 2018). All the other gauge stations in the region had huge missing gaps. The stations with at least 80 percent data availability were selected for the study. Stations, which did not meet minimum criteria for all the relevant variables, were eliminated. All the stations were subjected to rigorous quality control checks to eliminate influences in the data other than the climate.

For the development of the climate change scenarios, five regional climate models (RCMs) emanating from three global climate models (GCMs) namely: SMHI, CLMcom, and REMO from the CORDEX Africa domain datasets were used in the study. The climate change projections were produced by downscaling the simulations of three GCMs from the new CMIP5 global climate projections, namely: the Max Plank Institute MPI-ESM-LR, National Centre for Meteorological research CNRM-CM5, GFDL-ESM2G of NOAA, CM5A-LR of REMO and MIROC5 of SMHI. The simulations were done for the emission scenarios pathways RCP 2.6 and RCP 8.5 for the selected RCMs. The simulated precipitation and temperature (minimum and maximum) of GCM/RCMs combination were extracted for each of the eight selected locations in the Assessment area for the analysis.

The downscaled RCMs for the selected stations in the Assessment area were transformed such that the magnitude and distribution of the transformed variable come as close to the gauged points. The quantile-quantile statistical technique was applied to make the statistical distribution of the downscaled variables as close as possible to the statistical distribution of historical observation. Further to the quantile-quantile, transformation was done for the removal of the residual bias. A delta change correction was applied to allow the downscaled data and the gauge data to have the same mean on the historical period.

For each station, the ensemble mean of the projections (**Figure 1.7 and 1.8**) from the models were used in the analysis. A comparison of the uncorrected and bias-corrected projections was done with the annual and monthly spread of data to demonstrate the effect of bias correction.

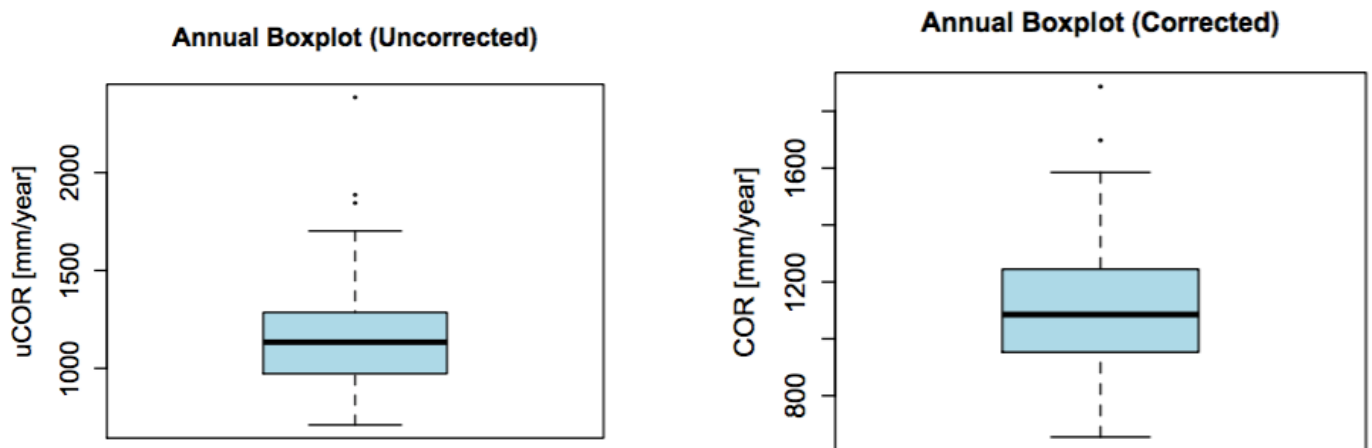


Figure 1. 7 Annual spread of rainfall over the Assessment area from uncorrected and bias corrected projections of ensemble mean

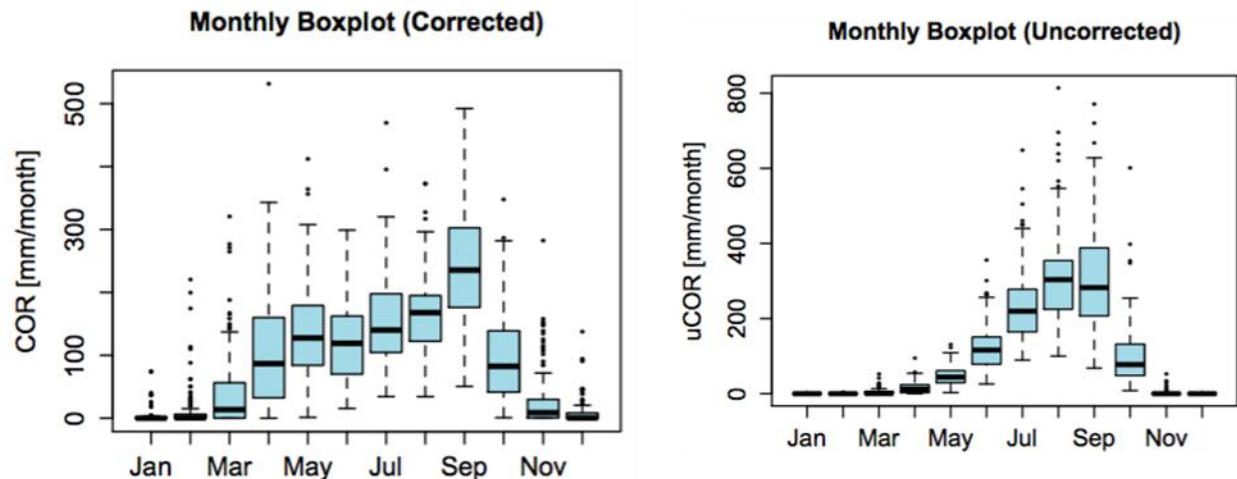


Figure 1. 8 Monthly variation and spread of rainfall the Assessment area from uncorrected and bias corrected projections of ensemble mean

Time series of rainfall, minimum and maximum temperatures averaged for eight (8) stations in the Assessment area were analyzed from 1960 to 2080. Rainfall characteristics analyzed include number of days of rainfall, heavy rainfall events and dry spell. Number of days with rainfall

amount exceeding 0.85mm is considered as a rainy day and the number of days with rainfall amount exceeding 10mm is considered as a heavy rainfall event. Dry spell duration is defined here as three or more consecutive days without rainfall within the rainfall season (June, July, August, September-JJAS).

1.5.2.4 Risks and Hazards Mapping

Spatial data used for the mapping exercise are summarized in Table 3.

Table 3 Spatial data for mapping risks and hazards in the Assessment area

Spatial Data	Type	Source
Landsat 8	Raster	USGS Global Visualization Viewer (GloVis).
MODIS NDVI data	Raster	LPDAAC, USGS
SRTM 90-m DEM	Raster	NASA
Soils	shapefile	RS/GIS Lab
Waterbodies	shapefile	RS/GIS Lab
Administrative boundary	shapefile	RS/GIS Lab
Communities	shapefile	Fieldwork
Climate (rainfall & temperature)	statistics	Ghana Meteorological Agency

Data Preprocessing

Landsat8: Land cover map for the area was generated from the Landsat images. Based on this objective, Band 6, 5, 4 was retrieved and stacked for each image. Stacked images were mosaicked and classified using the maximum likelihood supervised classification algorithm into four map classes; *Agricultural land, Savanna, Bare/Built up, and Waterbodies*. The Land use/land cover Map is shown in **Appendix 4**

MODIS NDVI Data – MODIS NDVI data are available as 16-day NDVI composites with spatial resolution of 250-m and pixel values ranging from 0-255 (8-bit unsigned integer greyscale). Thus, pixel values were first rescaled to standard values of NDVI, which is within a range of -1 to 1. Rescaled images were stacked and subset to the region of interest. **DEM Processing** – The ‘fill’ geoprocessing tool in ArcGIS was used to fill data voids in the DEM before using for further analysis. The filled DEM data was used to generate slope percent and elevation map.

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Mapping Methods

The mapping methods used in this exercise were grouped in three. **Table 4** provides a summary of the methods used to generate hazard/risk map for each indicator specified.

Spatial Multi-Criteria Analysis (SMCA): The SMCA mapping procedure involves three main steps in mapping risks: (a) selection of suitable criteria that influence the phenomena, (b) determining and applying weights of influence based on experts’ judgement, (c) overlaying using a weighted linear combination. This procedure was used to prepare flood risk, bushfire and climate-induced erosion base maps for the Assessment area.

Vegetation Condition Index (VCI): VCI is a remote sensing based method for mapping agricultural drought in areas with varying ecological conditions (Liu & Kogan, 1996; Quiring & Ganesh, 2010; Seiler, Kogan, & Sullivan, 1998; Wang, 2001). It provides information on drought-related vegetation stress and measures intensity, time of onset, duration, dynamics and impacts of drought on the overall vegetation condition. Long-term (2000-2014) satellite data from MODIS was used to compute the VCI for agricultural drought assessment within the Assessment area. VCI was computed using the following formulae;

$$\text{Vegetation Condition Index (VCI)} = (\text{NDVI}_j - \text{NDVI}_{\min}) / (\text{NDVI}_{\max} - \text{NDVI}_{\min})$$

Equation 1 VCI Computation

Where NDVI_{\max} and NDVI_{\min} represent maximum and minimum NDVI of each pixel calculated for each year and j represents the index of current year. The output value for VCI range from 0 to 1 with 0 indicating extreme drought conditions and 1 indicating above normal vegetation condition or no drought (Kogan, 1995). The mean for the 14-year VCI computed was used to generate final drought hazard map for the Assessment area.

Kriging: Kriging is a method used to interpolate spatial data. In this mapping exercise, climate data was converted to point spatial data. Then the kriging algorithm was used to predict the unknown values of other geographical locations based on the point data. This method was used to generate all climate baseline maps and projections.

Table 4 Summary of methods and criteria used for hazard/risk mapping

Risk/ Hazard Indicator	Method	Criteria/factors used	Output Maps
Flood	Spatial Multi-Criteria Assessment (SMCA)	<ul style="list-style-type: none"> • Slope percent • Elevation • Soil Texture • Land use/land cover 	Flood risk Map
Bushfire	Spatial Multi-Criteria Assessment (SMCA)	<ul style="list-style-type: none"> • Potential fire weather • Slope • Potential fuel load 	Bushfire prone map
Climate Induced Erosion	Spatial Multi-Criteria Assessment (SMCA)	<ul style="list-style-type: none"> • Rainfall • Land cover/land use • Soils • Slope 	Erosion map
Drought	Vegetation Condition Index (VCI)	<ul style="list-style-type: none"> • Mean Annual VCI 2000-2014 	Drought Hazard Map
Changes in Rainfall pattern & Projections	Kriging	<ul style="list-style-type: none"> • Rainfall records 1980-2014 • Ensemble mean of projections (1960 – 2050) 	Baseline Precipitation Map 2030 & 2050 projections Maps
Seasonal Temperature Change & Projections	Kriging	<ul style="list-style-type: none"> • Minimum/maximum temperature records 1980-2014 • Ensemble mean of projections (1960 – 2050) 	Baseline minimum/maximum temperature maps
Community Vulnerability Sensitivity	Distribution analysis	<ul style="list-style-type: none"> • Field data 	Climate-induced hazards sensitivity maps for 11 indicators

1.5.2.5 Training of Enumerators

The Assessment Team was divided into two groups — one from Accra and the other in Tamale. The Accra team undertook their fieldwork in the selected districts in the Brong Ahafo Region. This team comprised of the project leaders, field supervisors and enumerators recruited from the University of Ghana. The Tamale team undertook all Assessment related fieldwork in the three northern regions. Before the fieldwork began, the team (field supervisors and enumerators) were trained about both the contents of the questionnaire, specifics of the research sample, logistics

including tablet and GPS use and sampling strategies. The training included question-by-question evaluation to enable enumerators to understand the logic behind them and the practical exercise (enumerators practised the questionnaire with one-another) using a CSS-Pro CAPI enabled tablet. Both teams liaised with the District Directorate of Agriculture and local assembly persons to conduct the interviews.

1.5.2.6 Data Handling and Analysis

Throughout the course of the assessment, the Assessment Team applied its standard rigorous management procedures that it applies in all its research projects, while at the same time accommodating the specific aspects of this Assessment exercise within this framework. Field enumerators had a specific interview sample broken down by location, and other stratification criteria. On the field, each completed questionnaire was automatically synced into an online database and this allowed for screening and monitoring to check for quality. A GPS monitor was activated to track the location and time of interview. Daily reviews of transmitted interviews were checked to identify anomalies for correction.

Overall, data analysis was guided by the objectives of the study. Data were analysed using qualitative and quantitative techniques with the aid of analytical computer software including Statistical Package for Social Sciences (SPSS) and ArcGIS. Spatial data used as metadata was done in ArcGIS 10. The Assessment Team also analysed the relevant impacts and vulnerabilities in the Assessment area using climate scenarios from a representative ensemble of climate models for the period 2030 and 2050.

CHAPTER 2: ASSESSMENT FINDINGS



2.1 DEMOGRAPHIC CHARACTERISTICS BY DISTRICTS

The Assessment found a number of social and demographic variation. This section presents a picture of the different levels of exposure, sensitivity and adaptive capacity to climate change-related shocks and stresses. The key demographic characteristics of the assessed households are discussed below.

2.1.1 Household Size

On average, household size for the Assessment was found to be 7 members. Localities in the Northern region appeared to have larger households sizes (8) compared with those surveyed in the other regions– Brong Ahafo (6), Upper East (7), Upper West (7).

2.1.2 Gender of Household head

Overall, 65.7% of sampled households were male-headed with the remaining 34.3% being female-headed. The regional variations are shown (**Figure 2.1**)

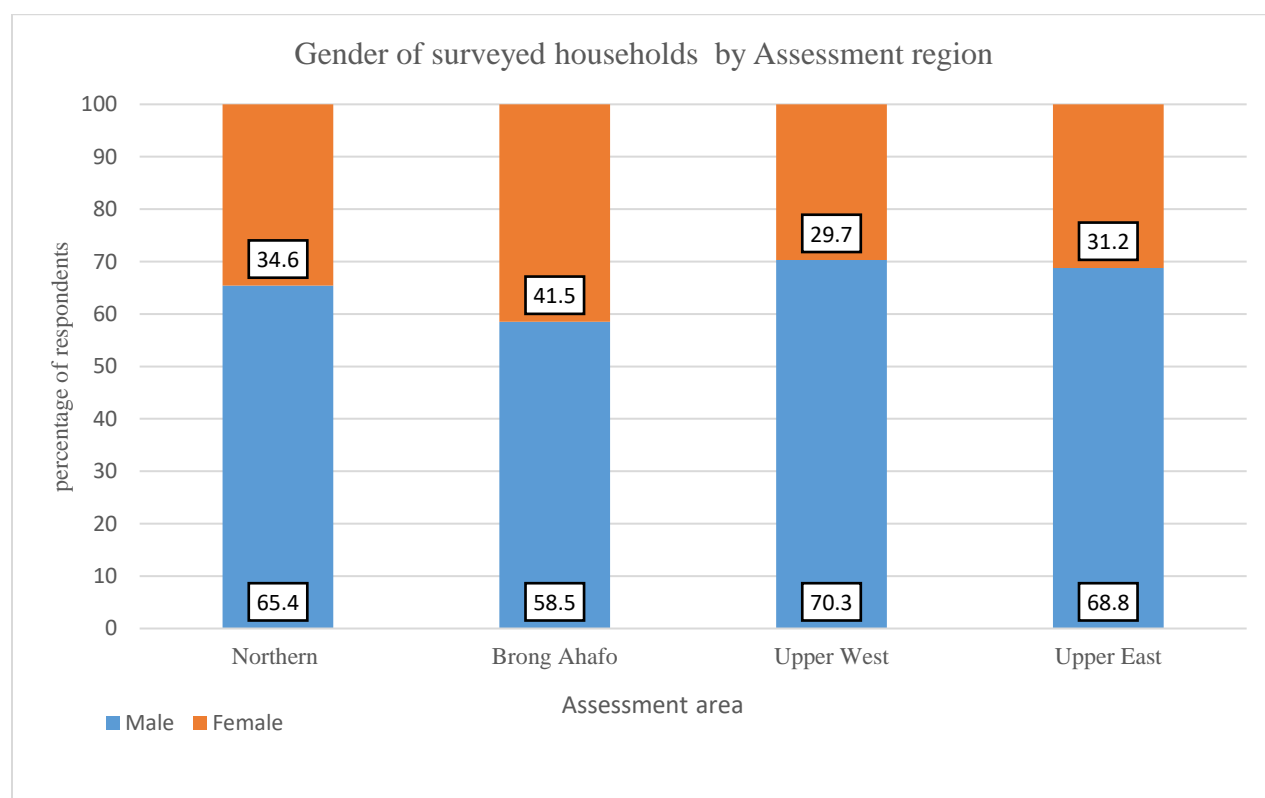


Figure 2. 1 Gender of surveyed respondents in the Assessment locations

2.2.3 Educational background

The educational attainment of the households are presented and discussed (**Figure 2.2**)

Brong Ahafo region: Non-formal education (36.75%) and a few households that have completed college/pre-university/university (4.56%).

Northern region: No formal Schooling (71.92%) and Completed primary schooling (3.78%) were recorded in the Northern Region in terms of the level of education attained by households surveyed.

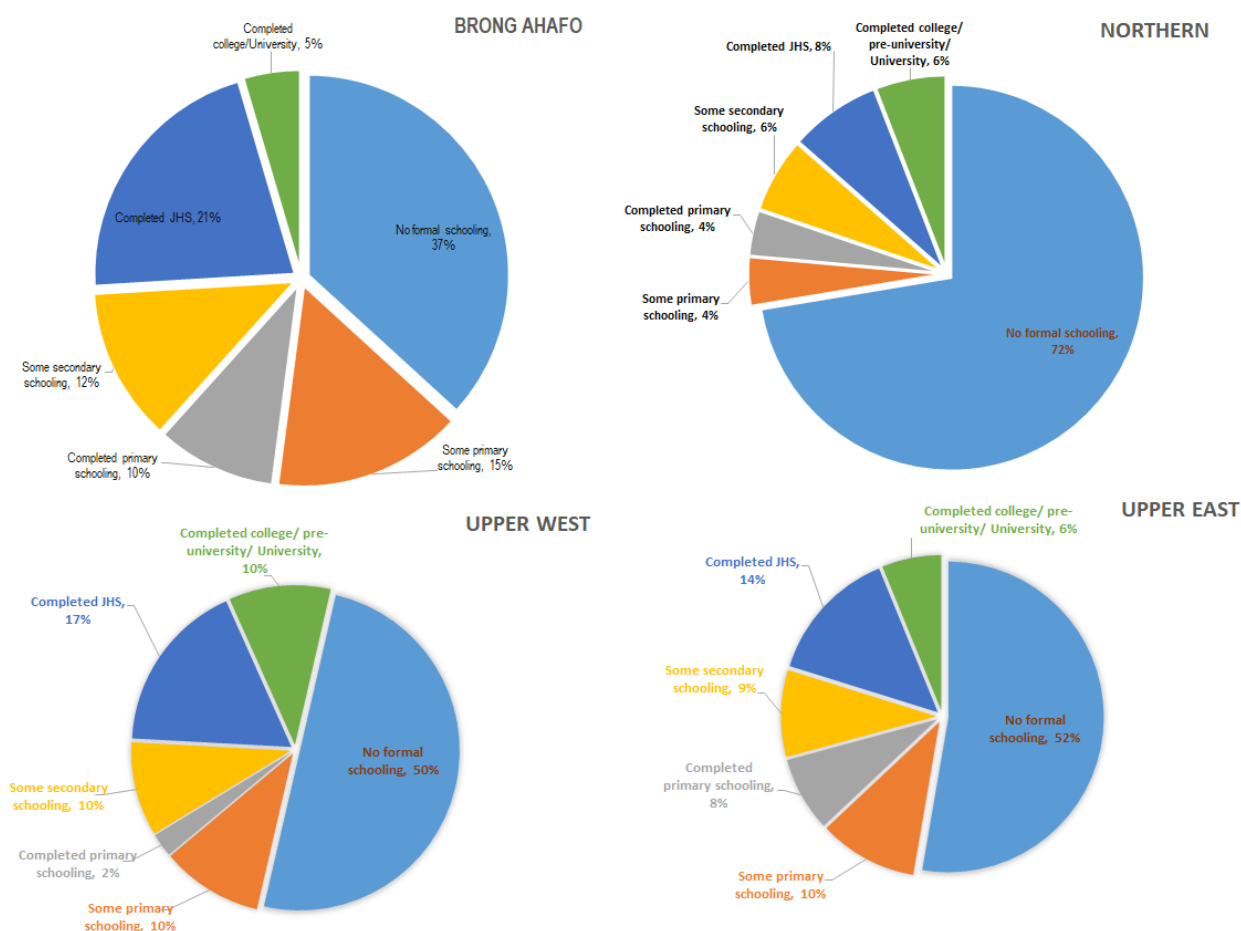


Figure 2. 2 Educational attainments of surveyed households by Assessment region

Upper West Region had the least completion of primary education (2.38%), no formal schooling (50.02%).

Upper East region: Non-formal schooling (52.33%) and completed college/pre-university/university (6.1%) were recorded in terms of education.

2.1.4 Major economic activities

In terms of primary economic activities engaged in by respondents in the household survey, farming was found to be the dominant activity across the regions as shown in **Figure 2.3**.

Brong Ahafo region: Farmers are the majority (68%) of respondents, followed by self-employed (9%). Labourers make up the smallest group (2%) in terms of economic activities.

Northern region: The overwhelming majority (76%) mentioned farming as their primary livelihood activity followed by labourers (5%) and retirees (5%).

Upper West region: Farmers constituted 79% of the total respondents in the Upper West region with artisans (1%) and retirees (1%) making up the lowest.

Upper East region: Here, the majority of respondents (80%) are farmers. Retired, artisan and others respondents were all 1%.

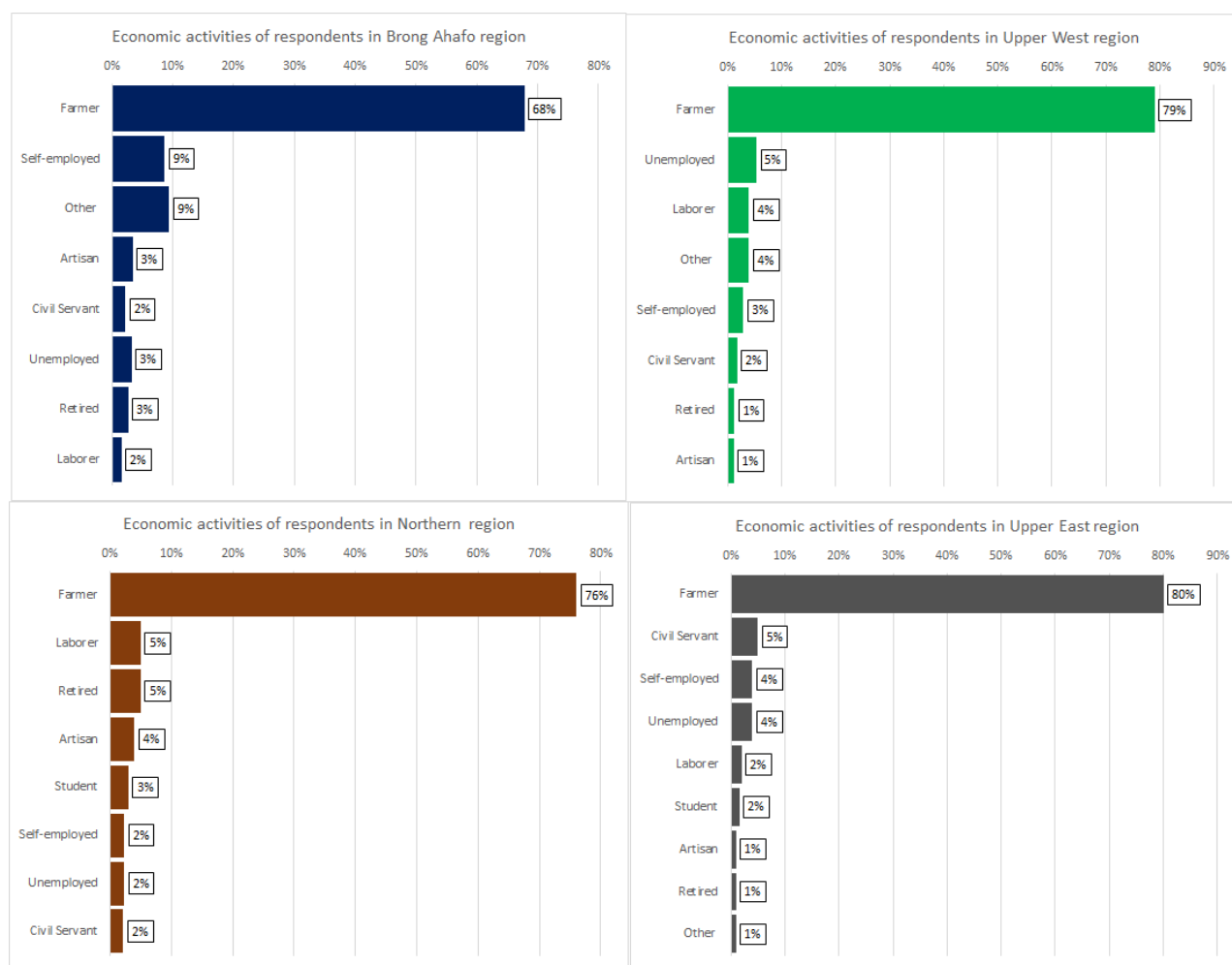


Figure 2. 3 Major economic activities of surveyed households by region

2.1.5 Monthly Income

Figure 2.4 shows the monthly income of respondents across the four regions. The Brong Ahafo Region shows a slightly higher average monthly income (GHS 392) as compared to the Northern

(GHS 342), Upper East (GHS 337) and Upper West (GHS 279) Regions; a trend similar to findings of the GLSS6, (GSS, 2015). There is also an observably wide gender gap concerning average monthly income (as explained below).

Brong Ahafo Region: Figure 2.4 shows that the male average monthly salary (GHS 485) is higher than the female average monthly income (GHS 299).

Northern Region: Male average monthly income (GHS 393) is high compared with female average monthly income (GHS 292).

Upper East Region: Male average monthly income (GHS 414) is higher than female average monthly income (GHS 261).

Upper West Region: There is an extremely wide gap between male average monthly income (GHS 403) and female average monthly salary (GHS 155). This region has the widest salary gap in terms of ‘gender’ earnings.

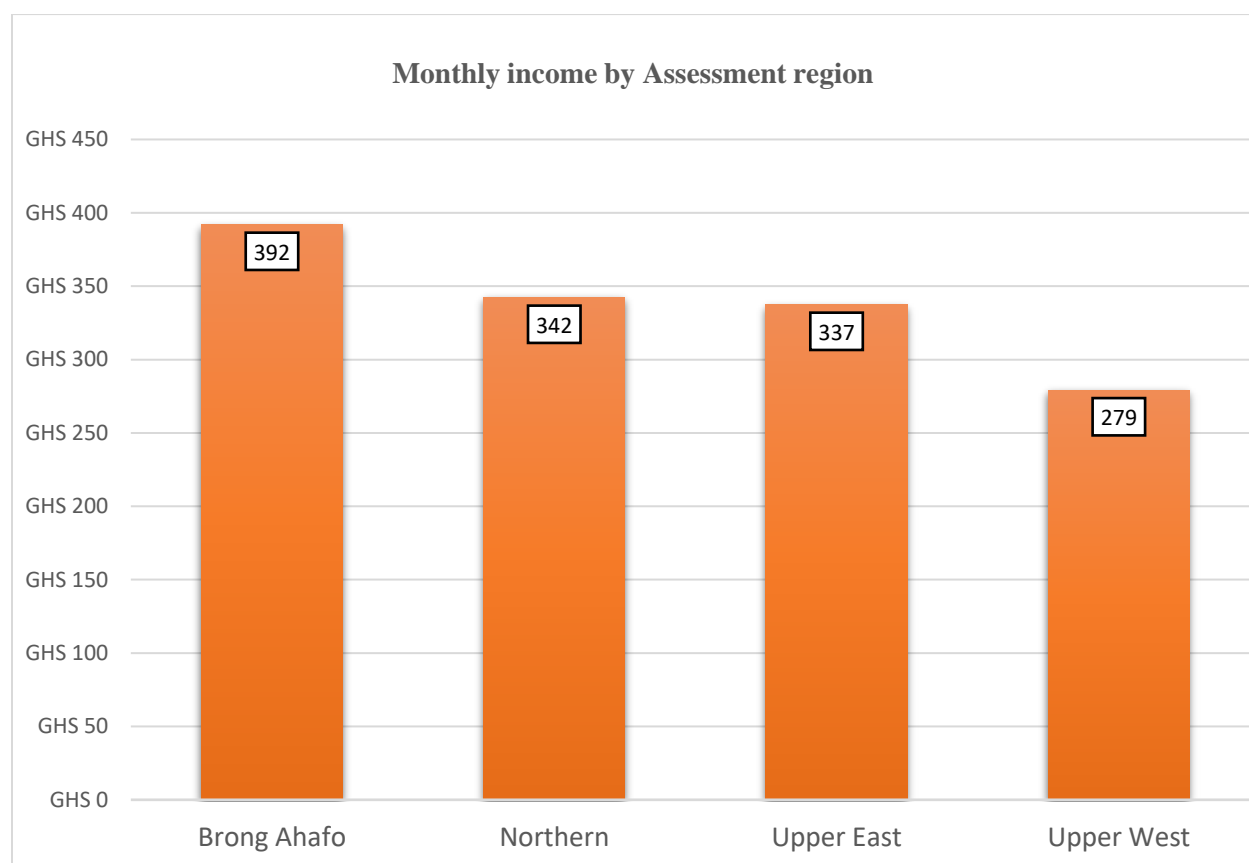


Figure 2. 4 Monthly income of respondents in the household survey across regions

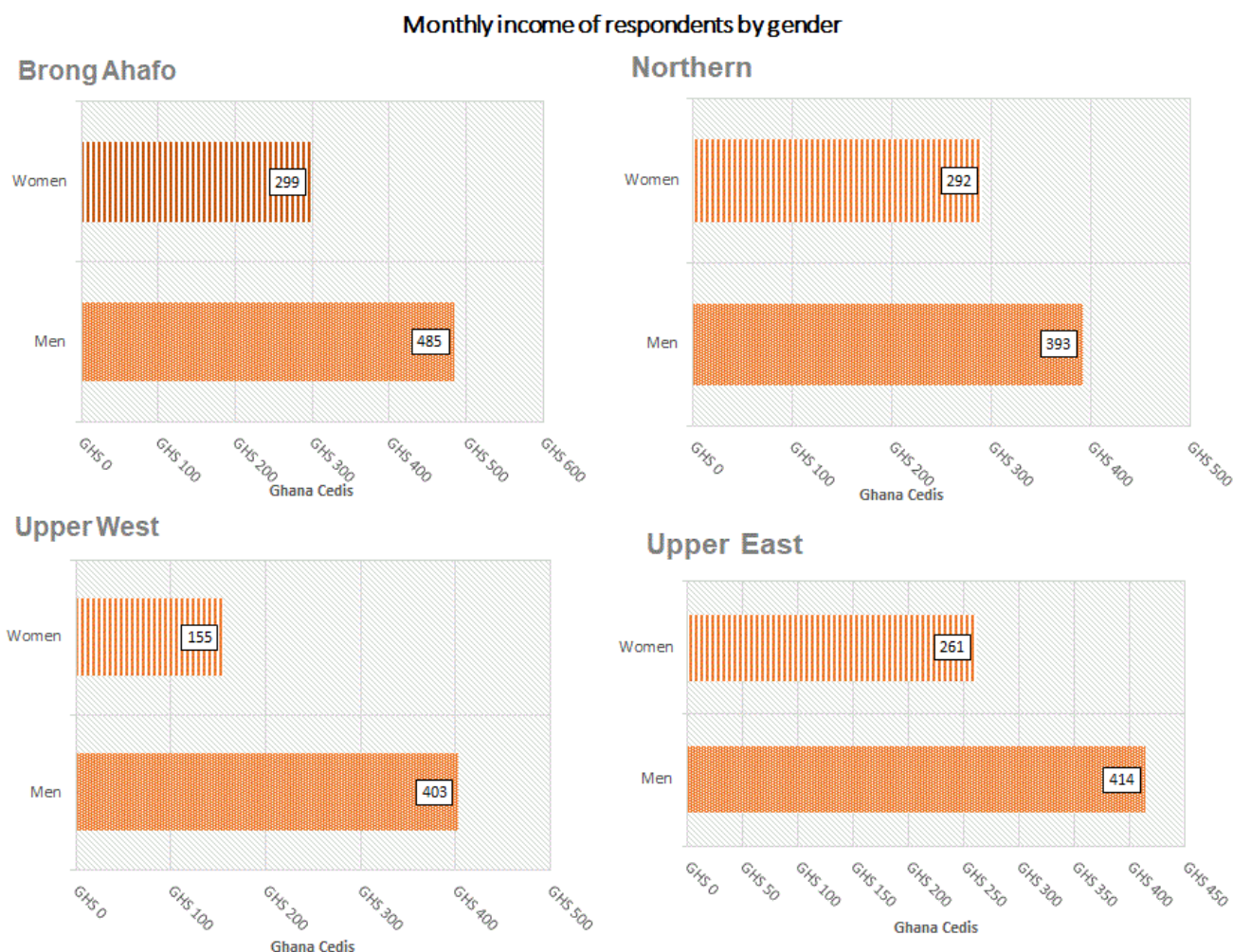


Figure 2. 5 Monthly income of respondents in the household survey across regions

2.1.6 Out-migration pattern and trends

Several studies indicate that population growth, climate change, environmental degradation, and urbanization have become the major drivers of migration in Ghana. Our survey aimed to investigate the pattern and trend of migration based on the perception of people interviewed in the studied locations. The analyses at regional and district levels are shown in **Figures 2.6-2.9**

Brong Ahafo Region: As shown in **Figure 2.6**, Banda district (81.5%) reported the highest migration incidence followed by Tain (78.5%) with Pru (29.7%) reporting the lowest incidence of migration. Atebubu Amantin (97.6%) had the highest percentage of permanent migrated household whiles Kintampo South has more seasonal migrants (33%).

Northern Region: The West Gonja district (4.8%) reported the lowest incidence of migration in the Northern Region, whereas East Gonja (61.9%) reporting the largest rate. In terms of permanent migrated households in the Northern Region, Nanumba North (100%) and Zabzugu (100%) recorded the highest. Conversely, Kumbungu has the highest percentage of seasonal migrants (100%) (**Figure 2.7**).

Upper West Region: Out of the eleven (11) districts surveyed in the Upper West Region, Sissala East (76.2%) reported the highest migration incidence. The lowest migrating district in the region is Daffiema-Bussie-Issa (4.8%). Daffiema-Busie-Issa (100%) and Wa East (100%) reported the highest percentage of permanent migrants with Wa West district reporting the highest percentage for seasonal migrant (67.7%) (**Figure 2.8**).

Upper East Region: Builsa North (85.7%) is the district with the largest migration incidence in the Upper East Region, the lowest migration incidence in the region was recorded in the Nabdam District (28.6%). In terms of migration patterns, permanent migration is high in Bongo (75%) and Builsa south (64%) districts (**Figure 2.9**).

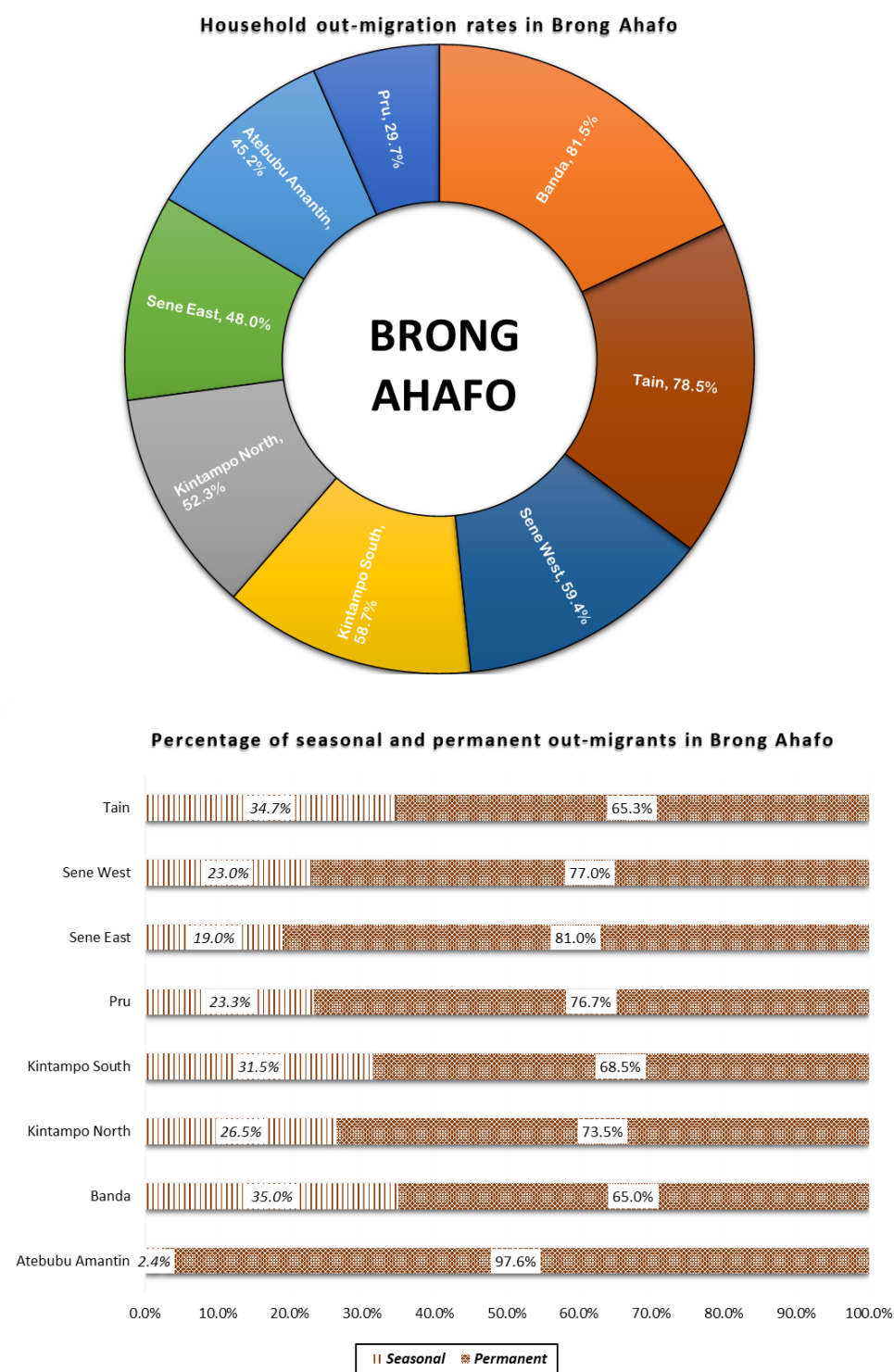


Figure 2. 6. Percentage of seasonal and permanent migrants by districts in Brong-Ahafo Region

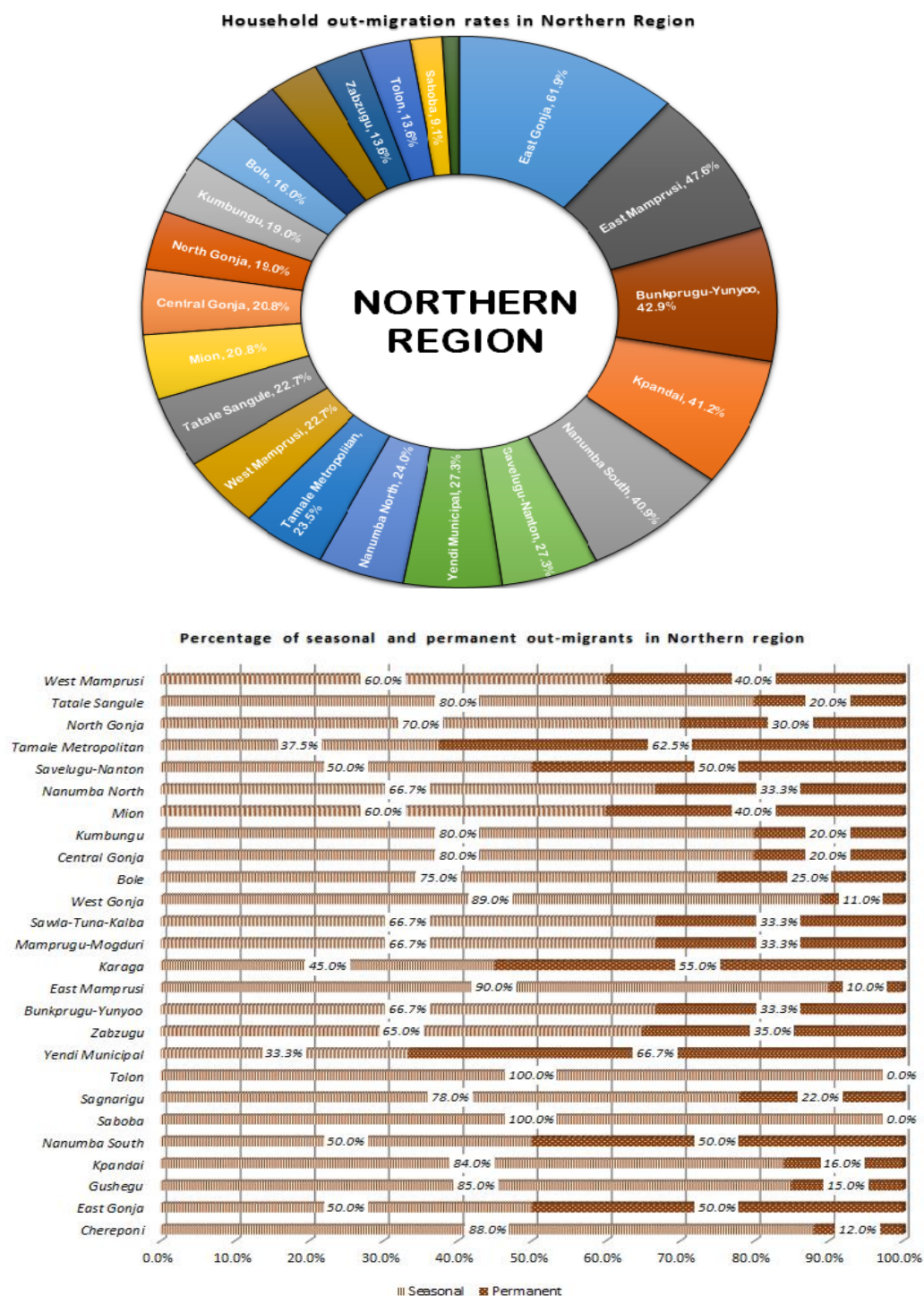


Figure 2. 7 Percentage of seasonal and permanent migrants by districts in Northern Region

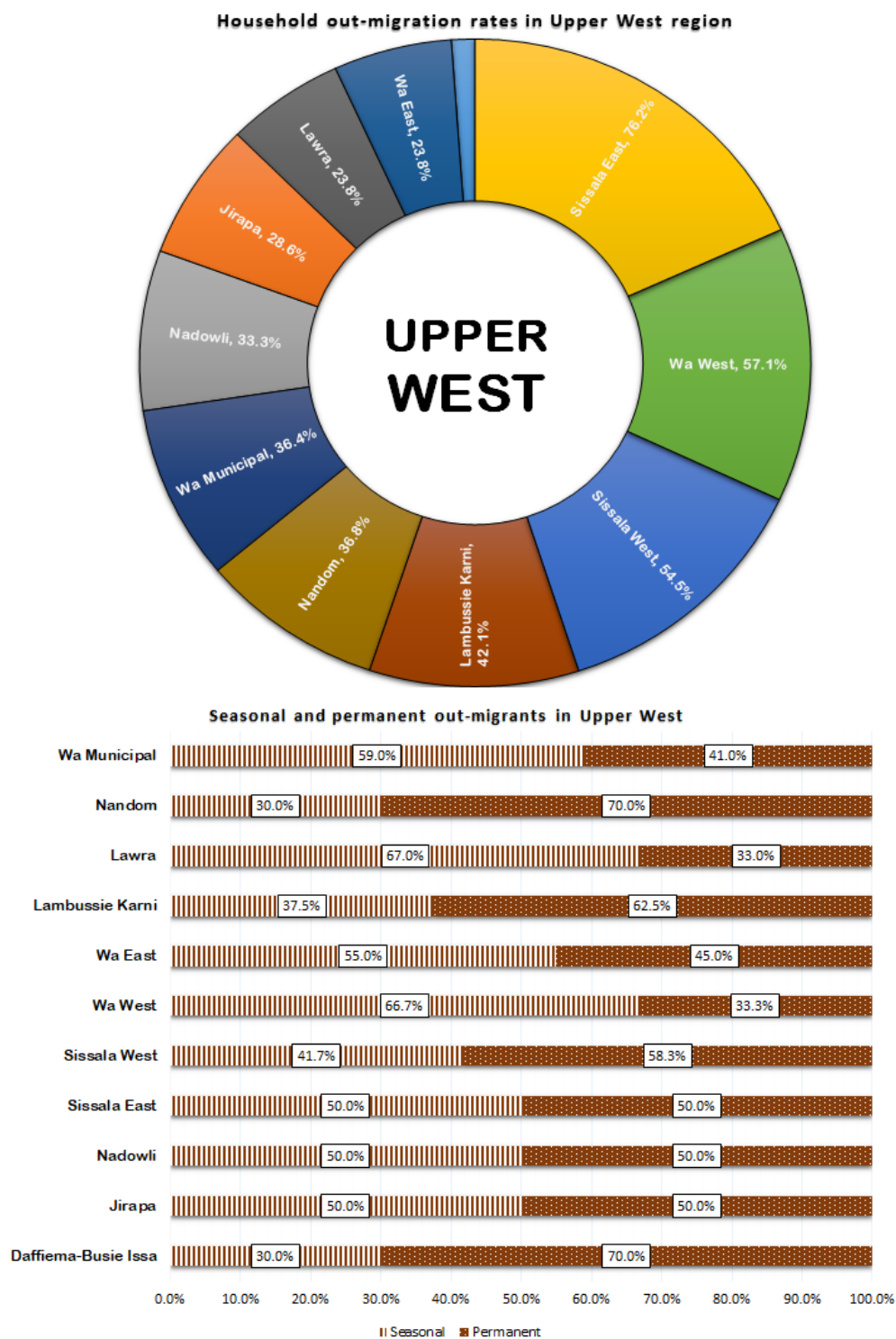


Figure 2. 8 Percentage of seasonal and permanent out-migrants by districts in the Upper West Region

Household out-migration rates in Upper East

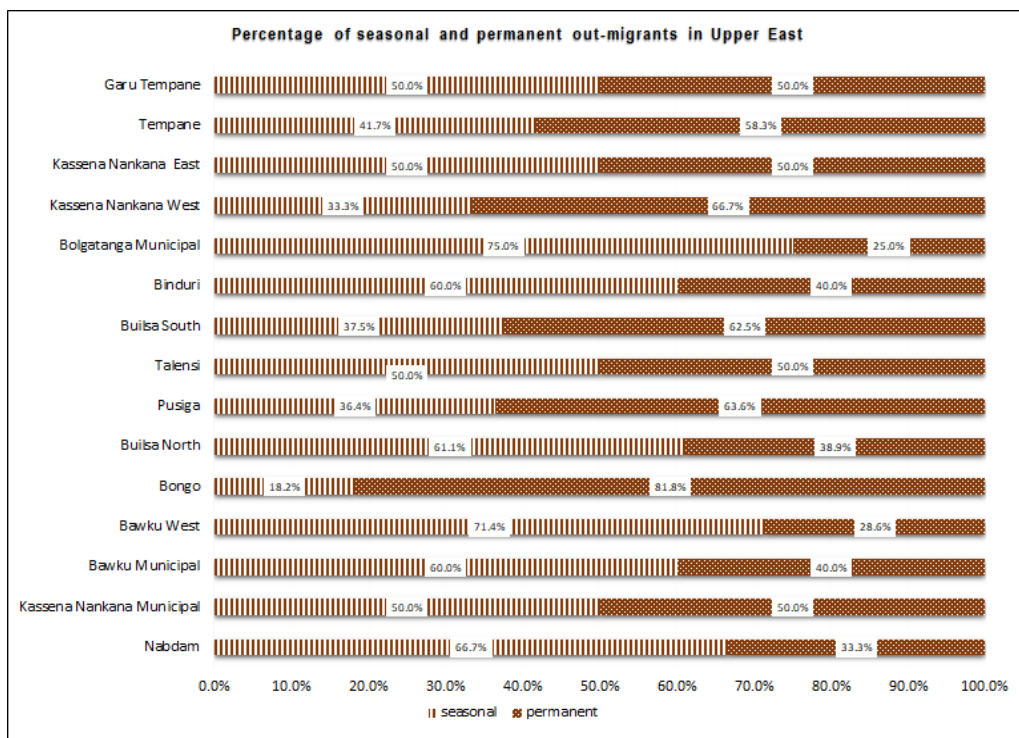
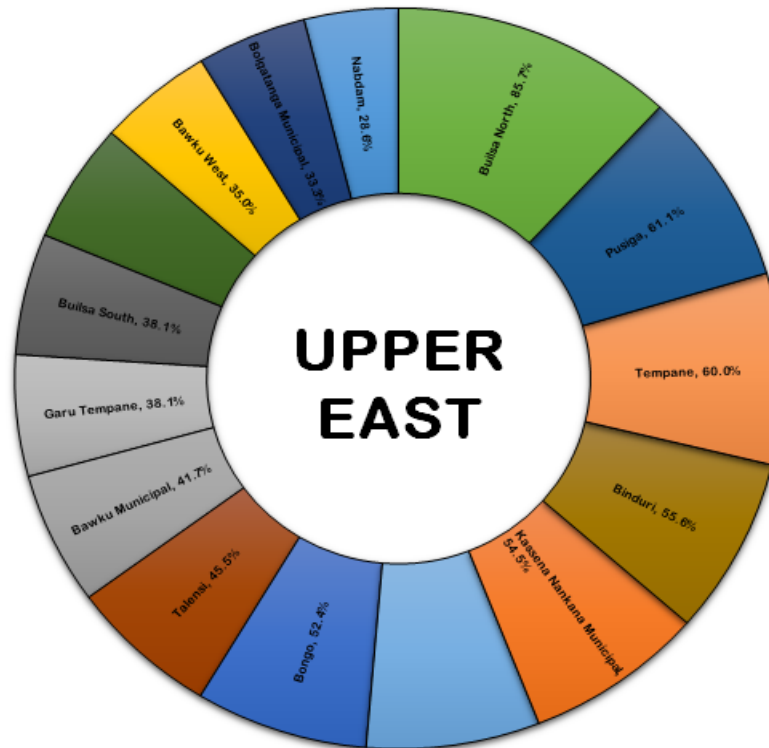


Figure 2. 9 Percentage of seasonal and permanent migrants by districts in the Upper East Region

2.1.7 Household asset ownership

Brong-Ahafo Region: The chart (**Figure 2.10**) shows that a majority of households make use of a mobile telephone (85%). A little over 78% of households have electricity with 61% making use of radios. Approximately 60% of respondents indicated they own bicycles while 51% own television sets. 27% of households have a motorbike/scooter, and tricycle. Refrigerators are owned by 22% of respondents. Approximately 2% of households have trucks.

Northern Region: Almost 85% of households in the Northern region own mobile telephone. Again approximately 50% have a motorbike while 85% of respondents have bicycles. Radio owners constitute almost 68% with motorbike/scooter/tricycle owners making up 50%. Approximately 41% of households own television sets. 12% of households have trucks and almost 7% have refrigerators (**Figure 2.10**).

Upper West Region: 76% of respondents have a bicycle. Additionally, electricity is being used by 74% of households. Mobile telephone owners constitute almost 85% of households and radio owners make up 68% of respondents. 45% of households have motorbike/scooter/tricycle and television sets are owned by 45% of households. 8% of respondents have refrigerators. Truck and car owners constitute 8% and approximately 3%, respectively (**Figure 2.10**).

Upper East Region: The majority of households own mobile telephone (88%). 80% of respondents have bicycle and radio owners make up 80% of respondents. 64% of households use electricity and 44% have television sets. 34% of households have motorbike/scooter/ tricycle and 11% of respondents own refrigerators. 1% of households have cars and a little below 1% of households have trucks (**Figure 2.10**).

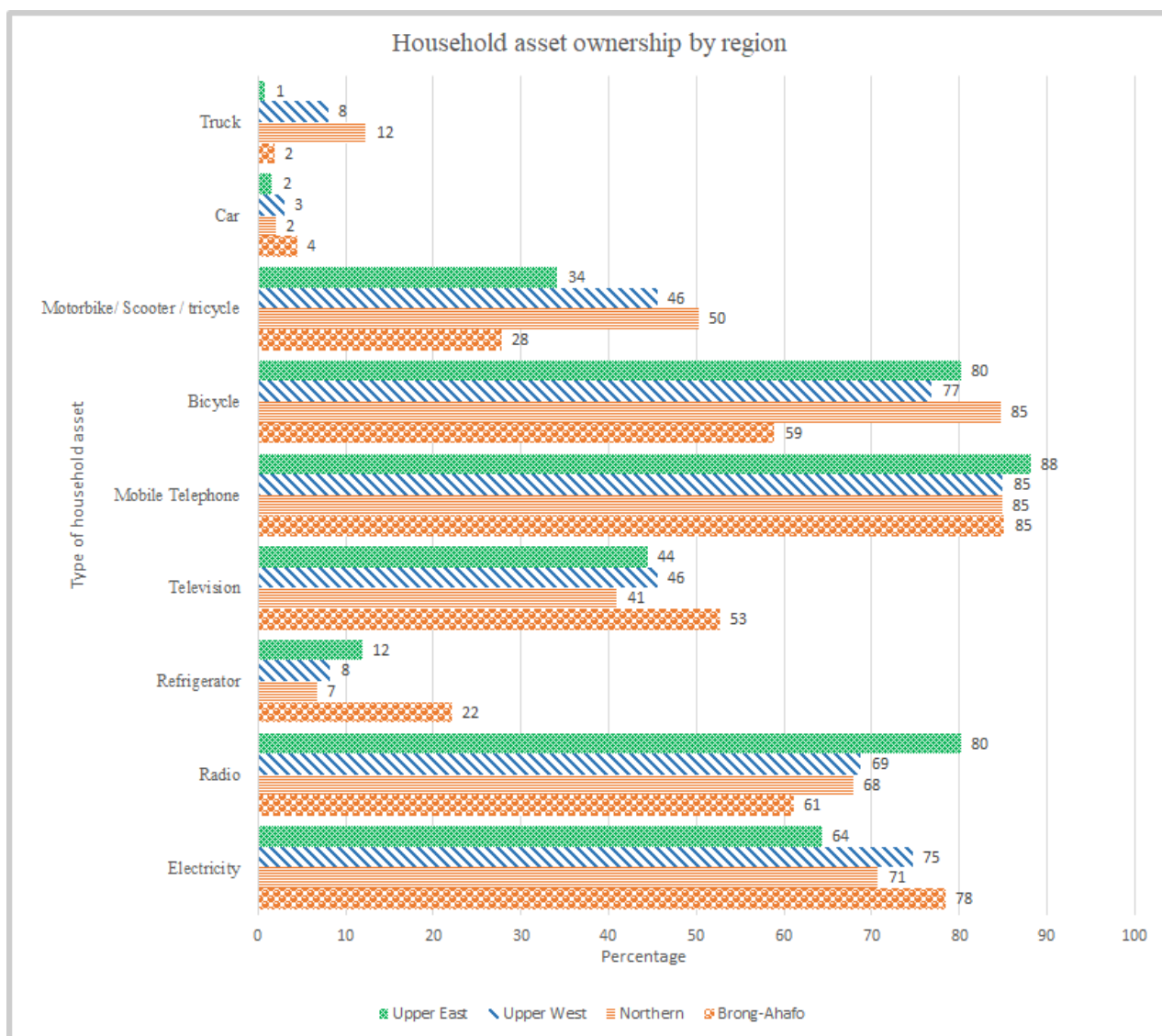


Figure 2. 10 Household asset ownership across the Assessment regions.

2.2 BIOPHYSICAL RISKS, HAZARDS AND POTENTIAL IMPACT ON VULNERABILITY OF THE ASSESSMENT AREAS.

2.2.1 Baseline Climatic Conditions

Mean Minimum Temperature

The mean minimum temperature for all the stations are observed to be significantly increasing but Bolga and Wenchi observed a statistically non-significant increase (**Figures 2.11 and 2.12**).

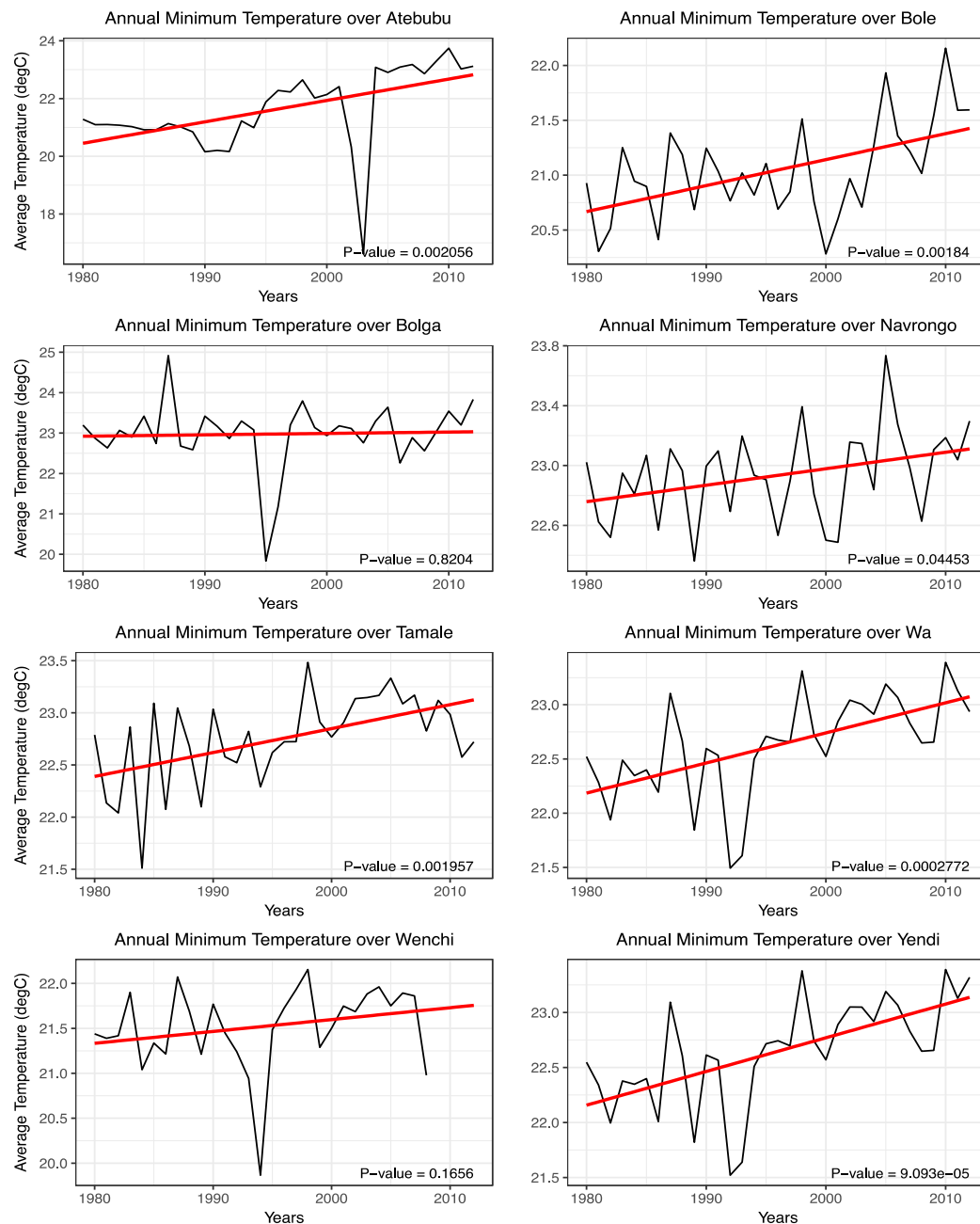


Figure 2. 11 Mean minimum temperature with trend line and p-values showing statistical significance at 95% confidence level.

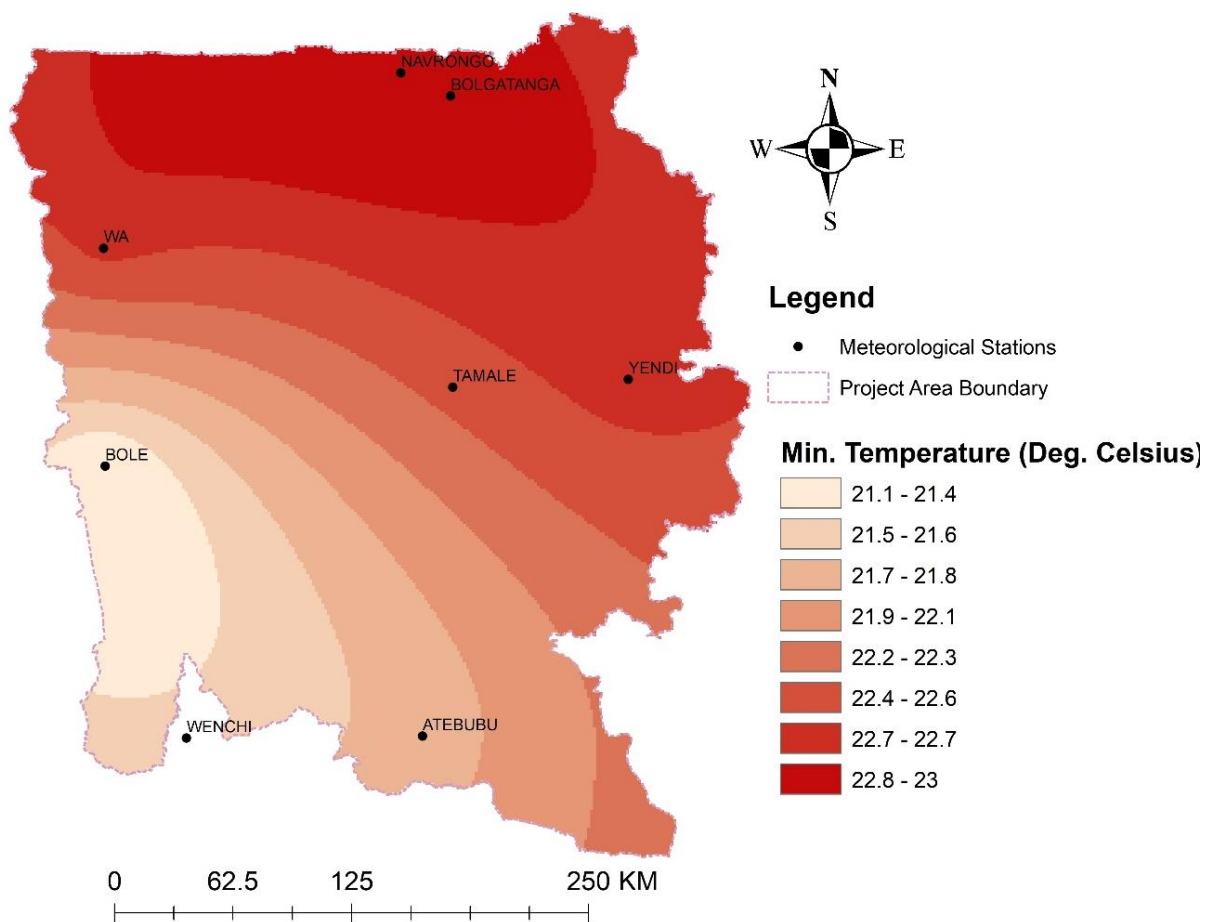


Figure 2. 12 Mean minimum temperature baseline map

Mean Maximum Temperature

Mean maximum temperature is observed to have increased significantly over all stations but over Navrongo, the observed mean maximum temperature is a non-significant increase (**Figures 2.13 and 2.14**).

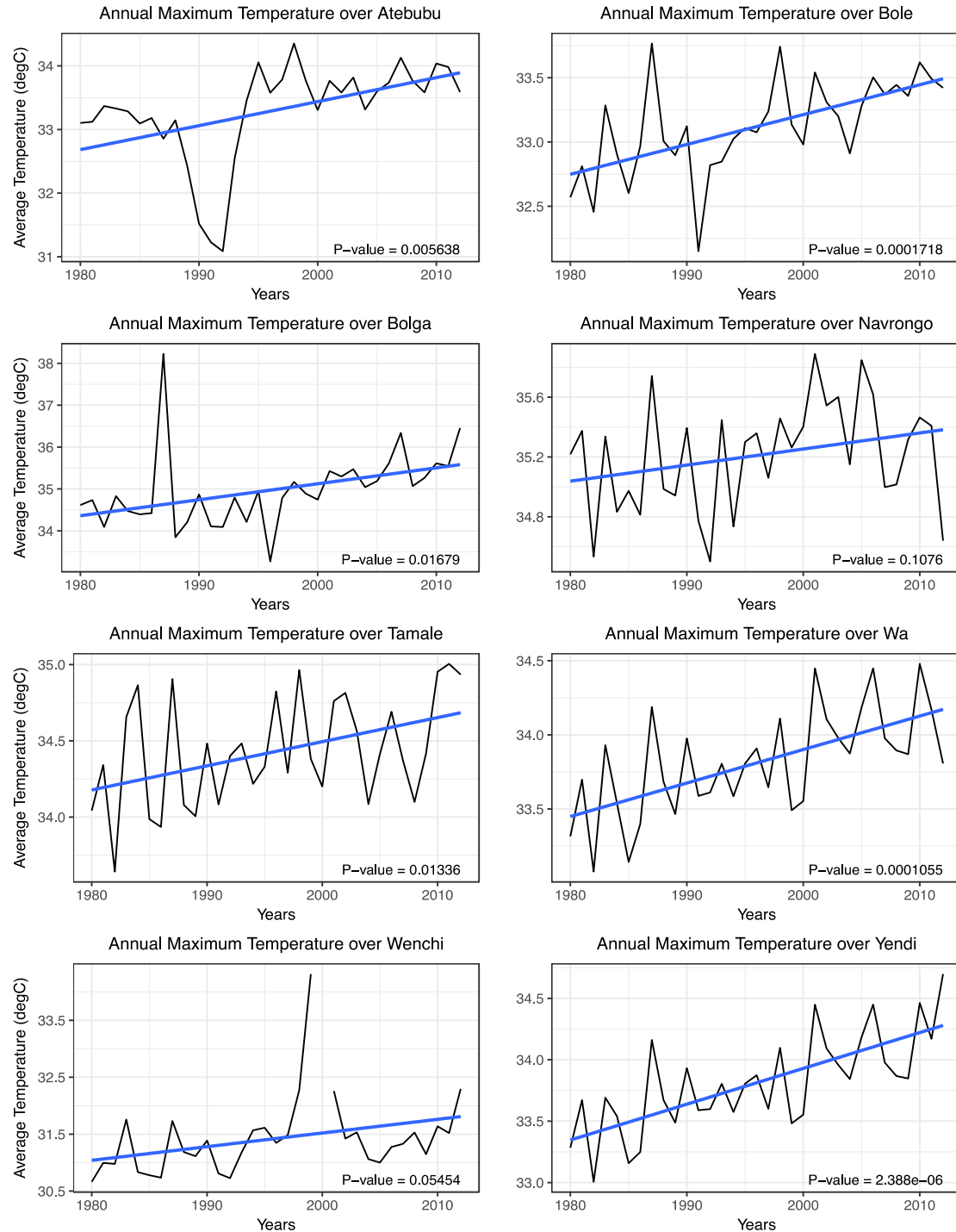


Figure 2. 13 Mean maximum temperature with trend line and p-values showing statistical significance at 95% confidence level

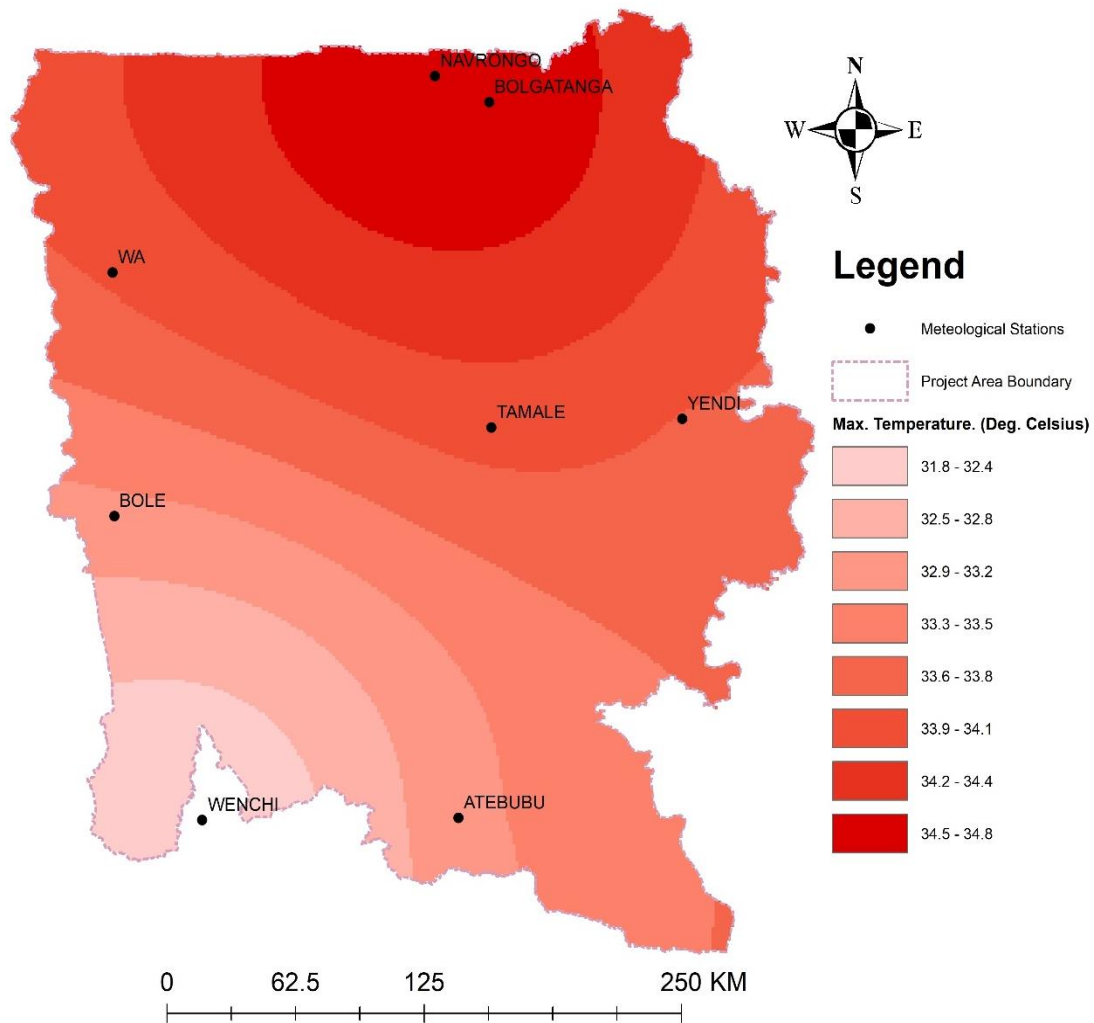


Figure 2. 14 Mean Maximum Temperature Baseline Map

Annual Precipitation

All the stations observed a non-significant increase in annual rainfall except for Atebubu, Wa and Yendi which observed a significant increase (**Figures 2.15 and 2.16**).

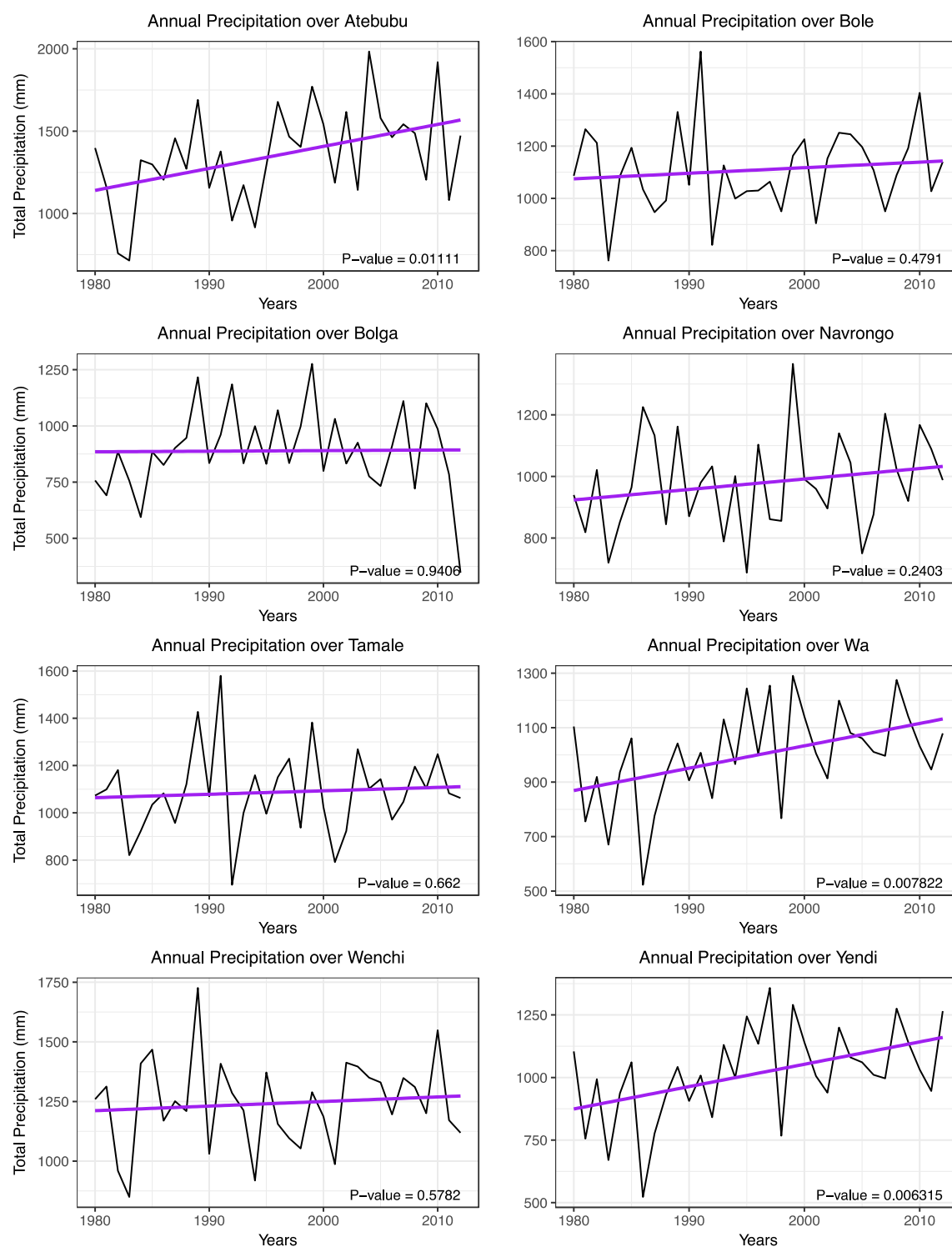


Figure 2. 15 Mean annual rainfall with trend line and p-values showing statistical significance at 95% confidence level

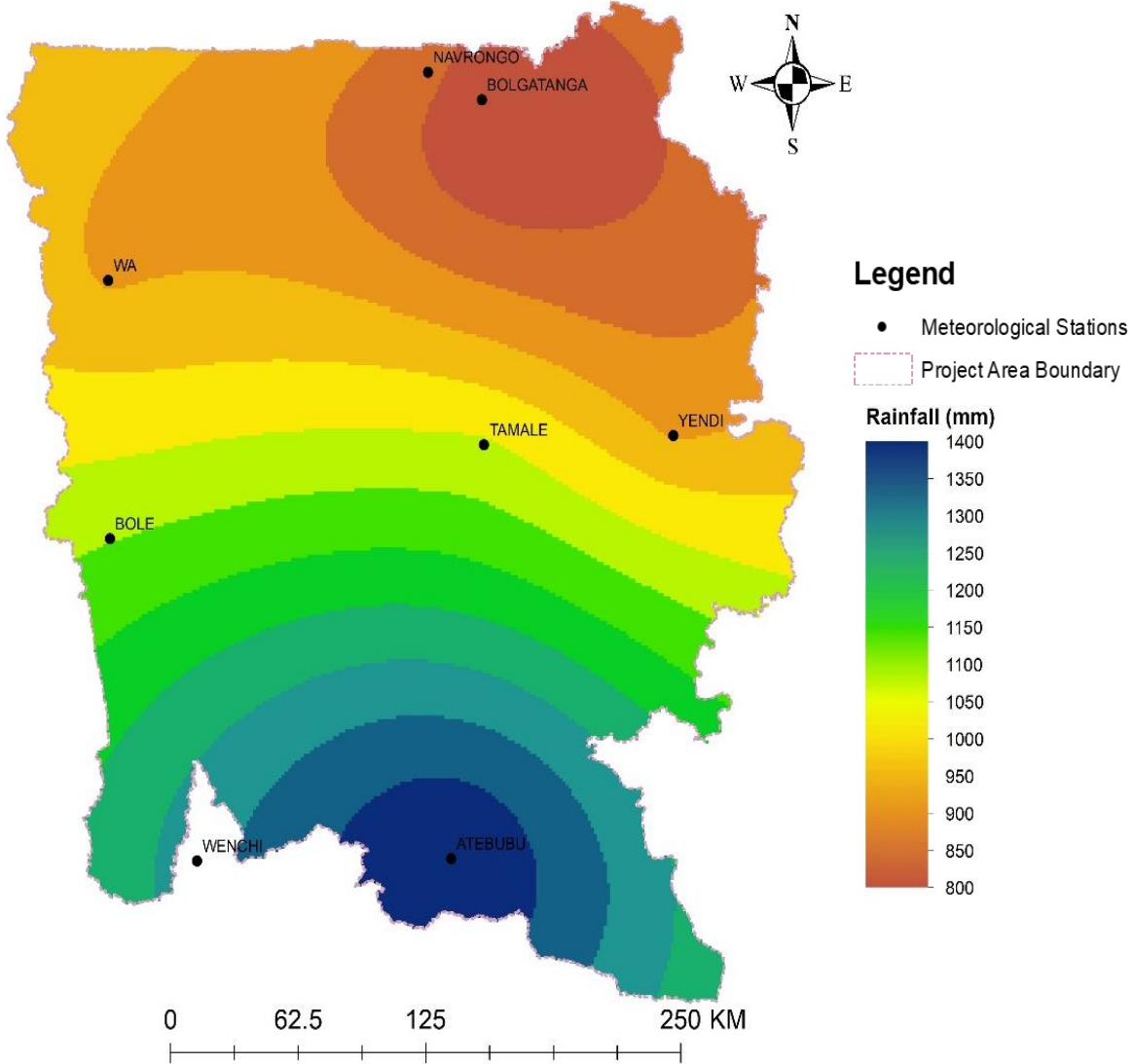


Figure 2. 16 Annual Precipitation Baseline Map

Wet Spells (Number of Rainy Days)

The number of days of rainfall is observed to have increased over all the stations but only Atebubu recorded a significant increase (**Figure 2.17**).

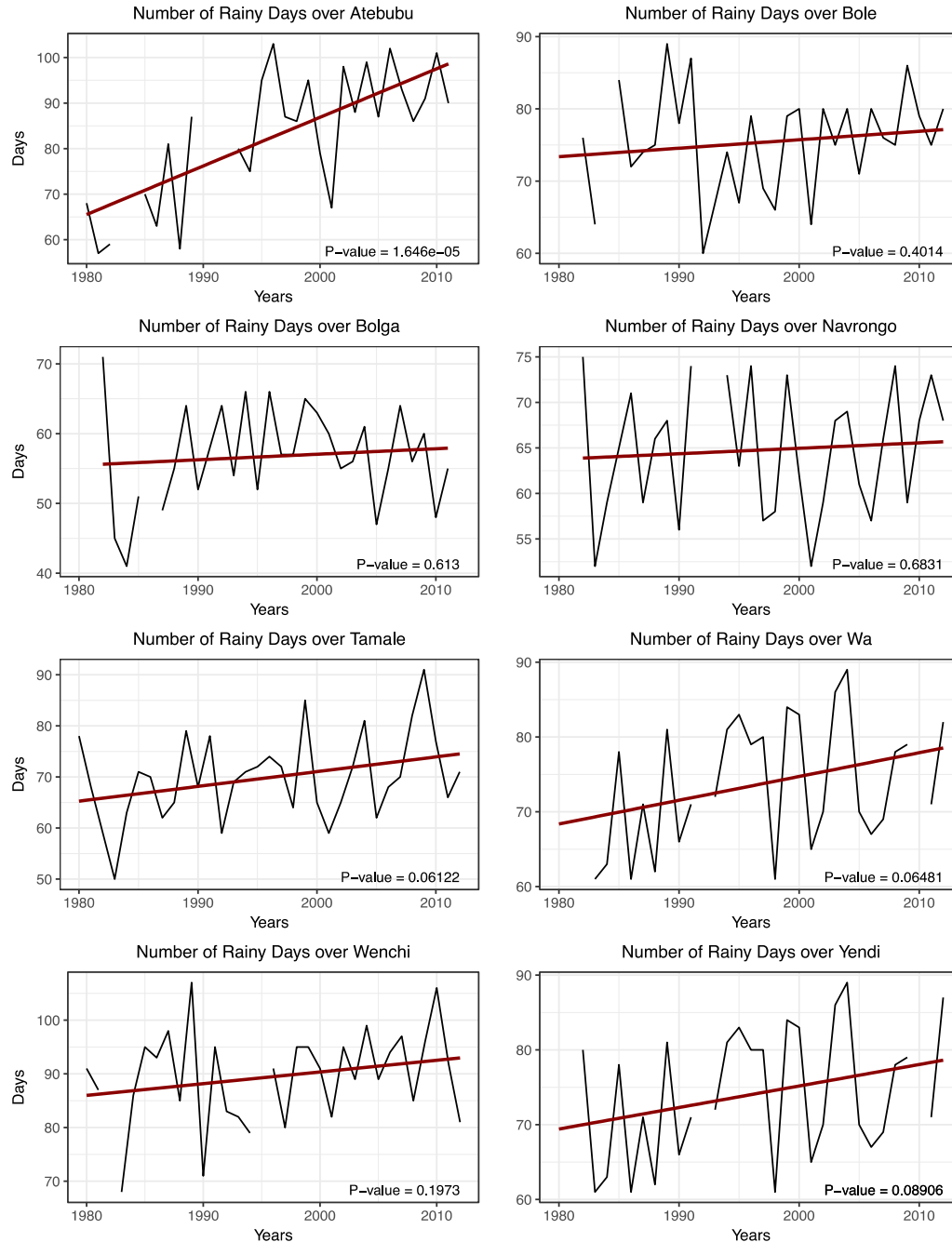


Figure 2. 17 Number of rainy days with trend line and p-values showing statistical significance at 95% confidence level

Number of Rainy Days above 10mm

The number of days with rainfall above the threshold of 10mm is observed to have increased over all the stations with the exception of Bolga. In either case, the trends are not significant (Figure 2.18).

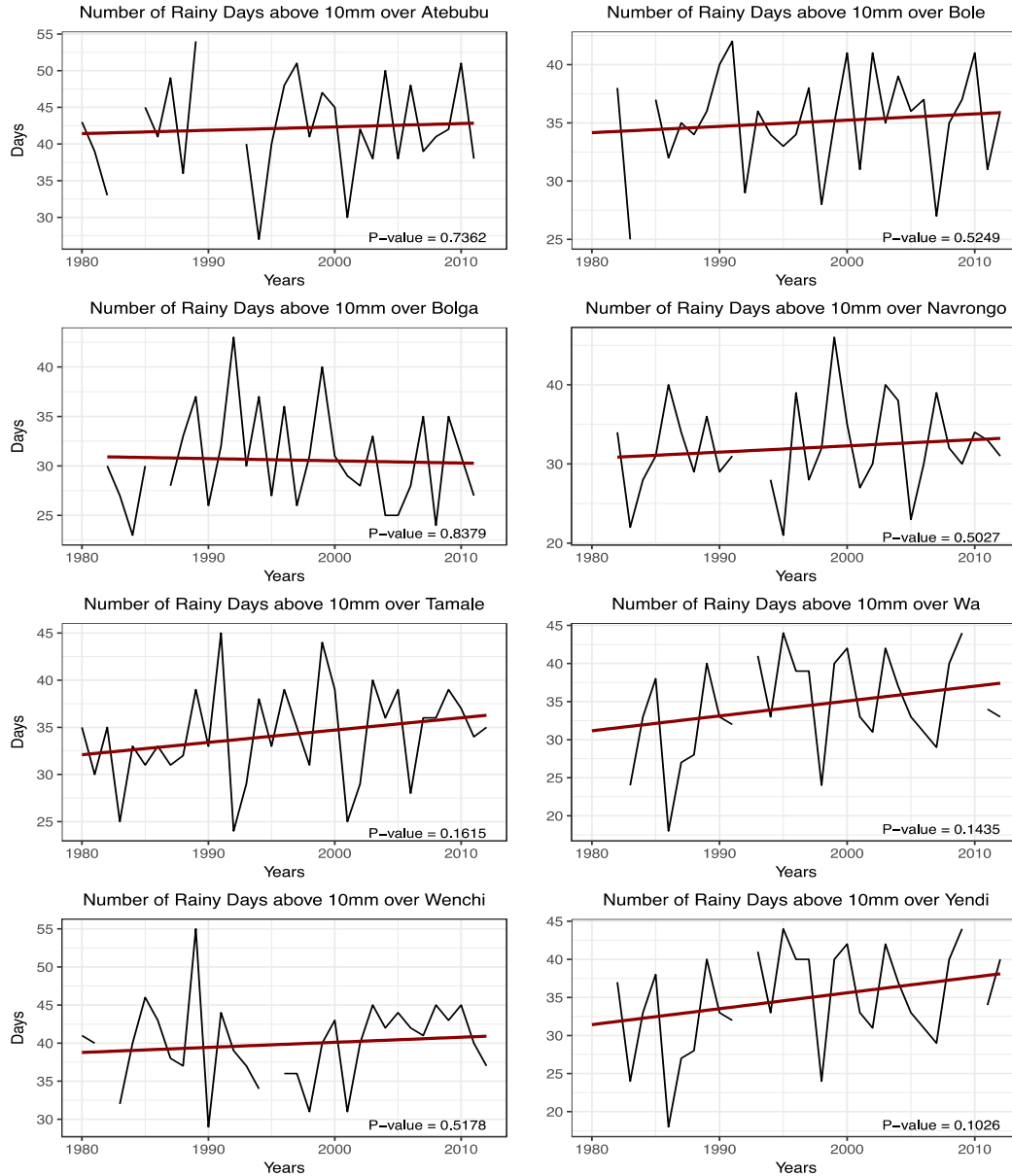


Figure 2. 18 Number of days with rainfall exceeding 10m with trend line and p-values showing statistical significance at 95% confidence level

Dry Spell (Duration of Dry spell over JJAS)

Dry spell duration is defined here as three or more consecutive days without rainfall within the rainfall season (JJAS). All the stations are observed decreasing trends in Dry spell duration but statistically non-significant except for Atebubu. On the contrary, Wenchi observed an increasing trend in Dry spell duration though not significant (**Figure 2.19**).

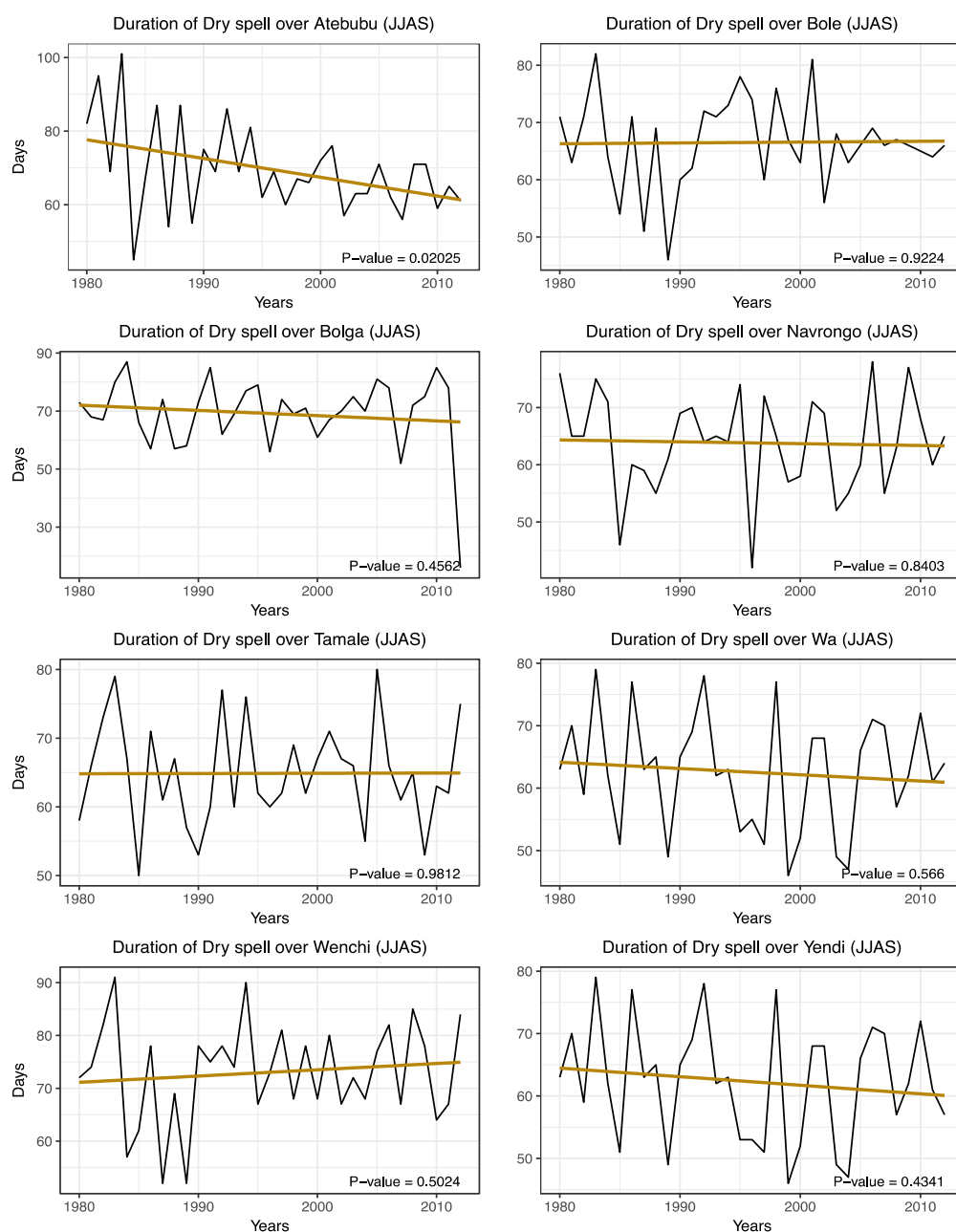


Figure 2. 19. Dry spell duration within the rainfall season JJAS with trend line and p-values showing statistical significance at 95% confidence level

2.2.2 Climate-related Risks and Hazard Mapping

2.2.2.1 Flood Risk

The flood map for the Assessment area highlights different levels of susceptibility to flooding. Districts surrounding the Black and White Volta River, its tributaries and other waterbodies have

very high flood risks. Increasing incidence of flood is expected to create important changes in various aspects of livelihoods and social life of communities and households, especially those within the high and very high-risk areas (**Figure 2.20**).

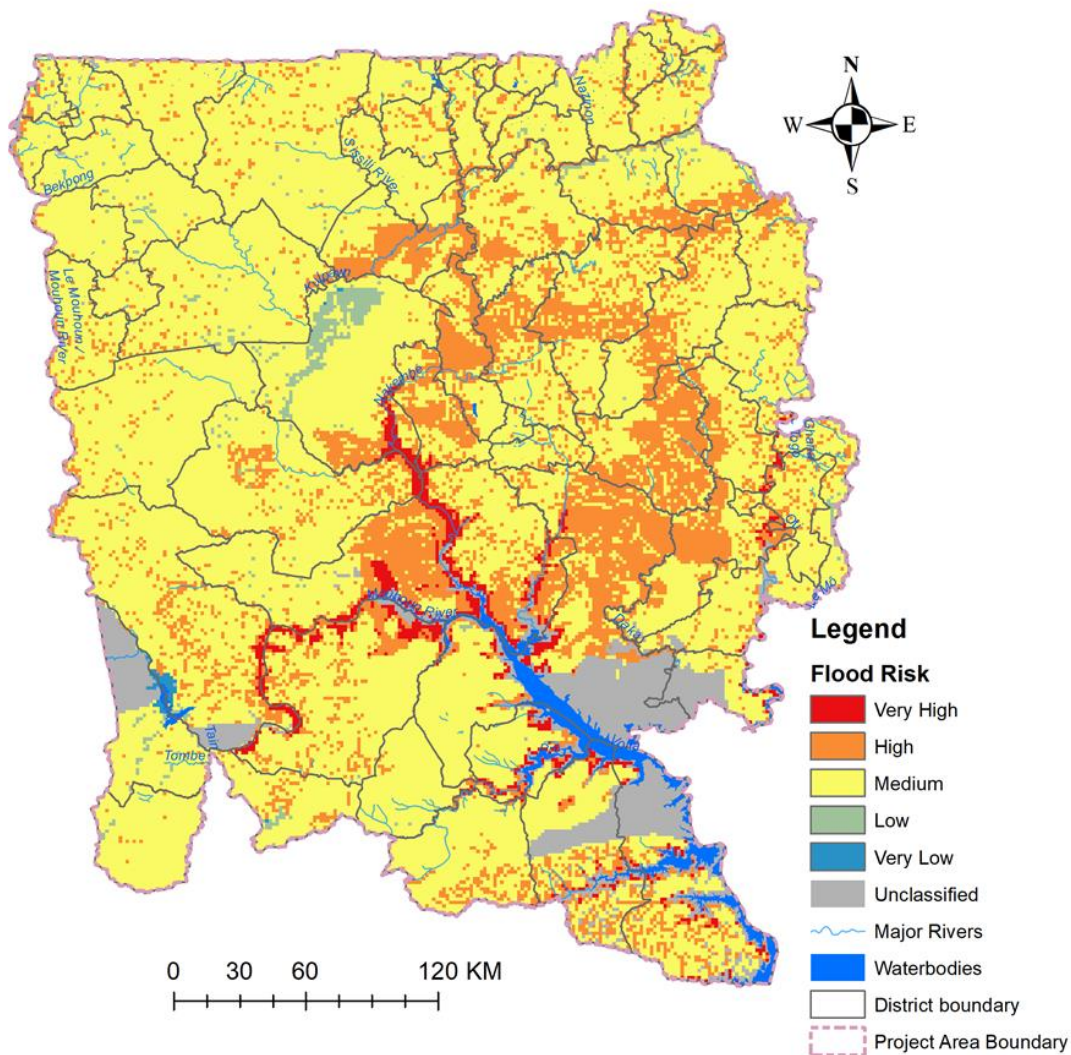


Figure 2. 20 Map indicating flood risk locationons in the Assessment area

2.2.5 Bushfires

The bushfire map (**Figure 2.21**) indicates areas in the three Northern regions to be more prone to bushfires compared with the areas in the Brong Ahafo region.

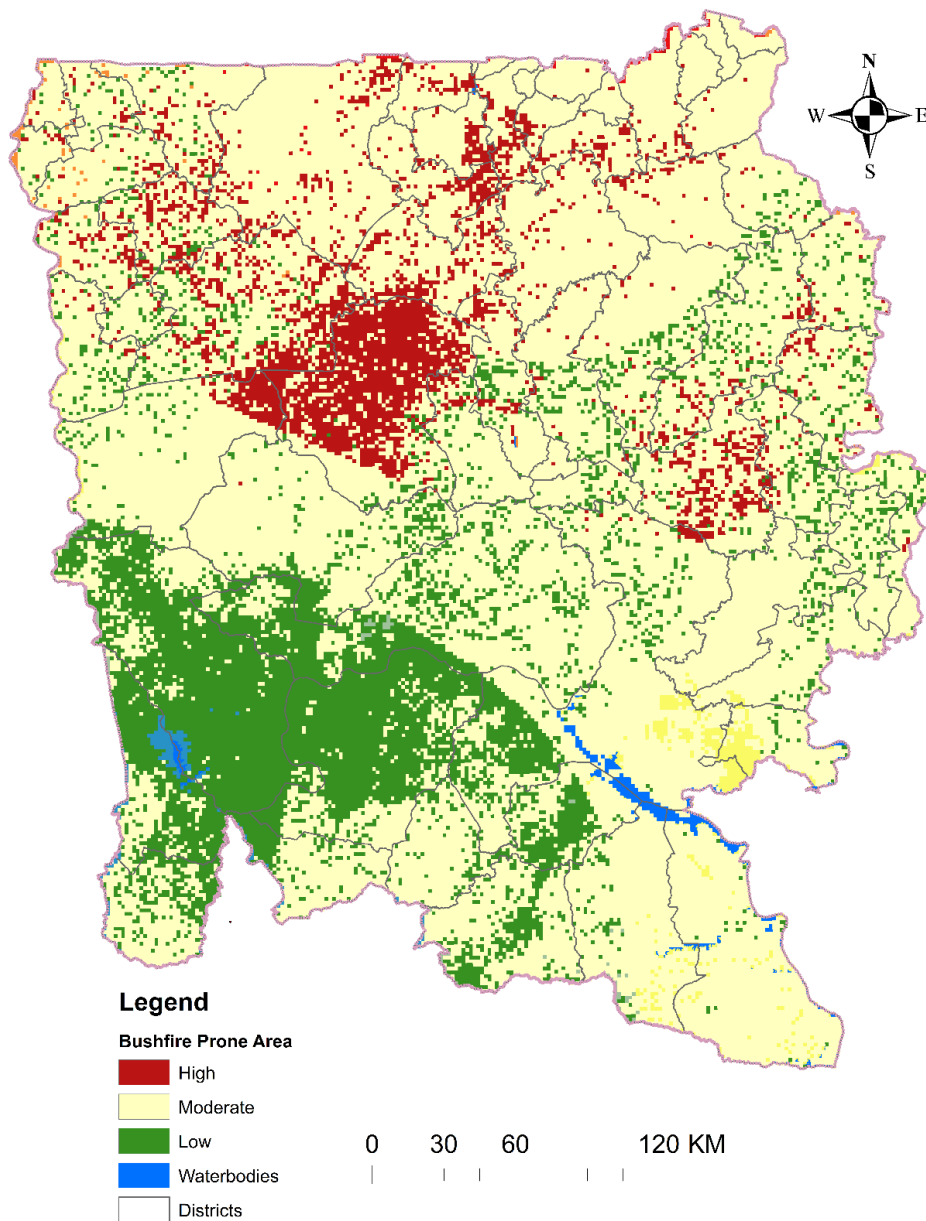


Figure 2. 21 Map indicating bushfire prone locations in the Assessment area

2.2.6 Climate-Induced Soil Erosion

The climate-induced soil erosion map indicates that areas in Upper West and parts of Northern regions have high risks to erosion than areas in Upper East and Brong Ahafo regions (**Figure 2.22**).

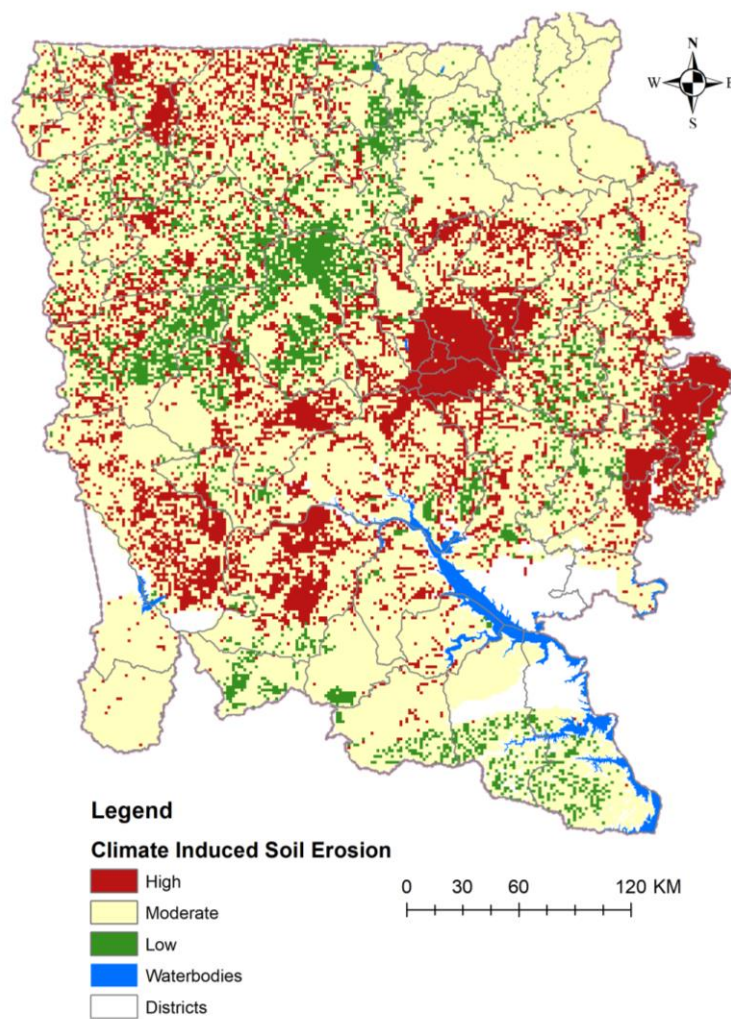


Figure 2. 22 Map indicating climate-induced soil erosion locations in the Assessment area

2.2.7 Drought

District in the Upper East and Upper West and the North part of the Northern region are more prone to extreme drought conditions than areas in Brong Ahafo region and southern and western parts of the Northern region (**Figure 2.23**).

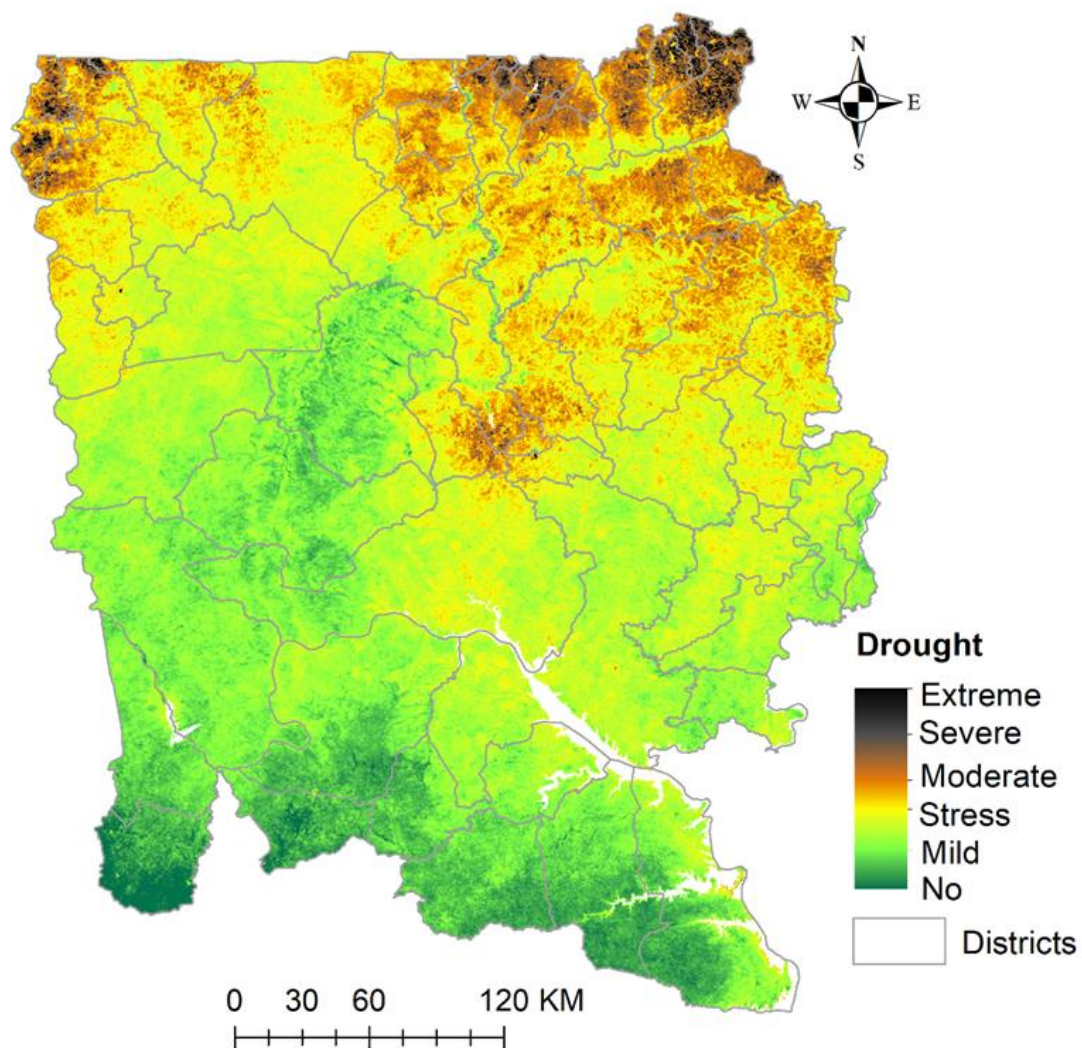


Figure 2. 23 Map indicating drought-prone locations in the Assessment area

2.3 HOUSEHOLDS VULNERABILITY TO CLIMATE RELATED HAZARDS

2.3.1 Exposure Analysis

(a). Flood

Several studies and reports indicate the northern regions of Ghana to be highly susceptible to flood ([Acheampong et al. 2014](#)). Results from the flood exposure survey stratified across districts in the Assessment area show a high household views of flood exposure (**Figure 2.24**).

Brong Ahafo Region: Households in the Kintampo north and Sene East districts reported a high exposure to flood whilst those in the Tain and Atebubu Amantin districts reported a considerably low exposure to flood hazards.

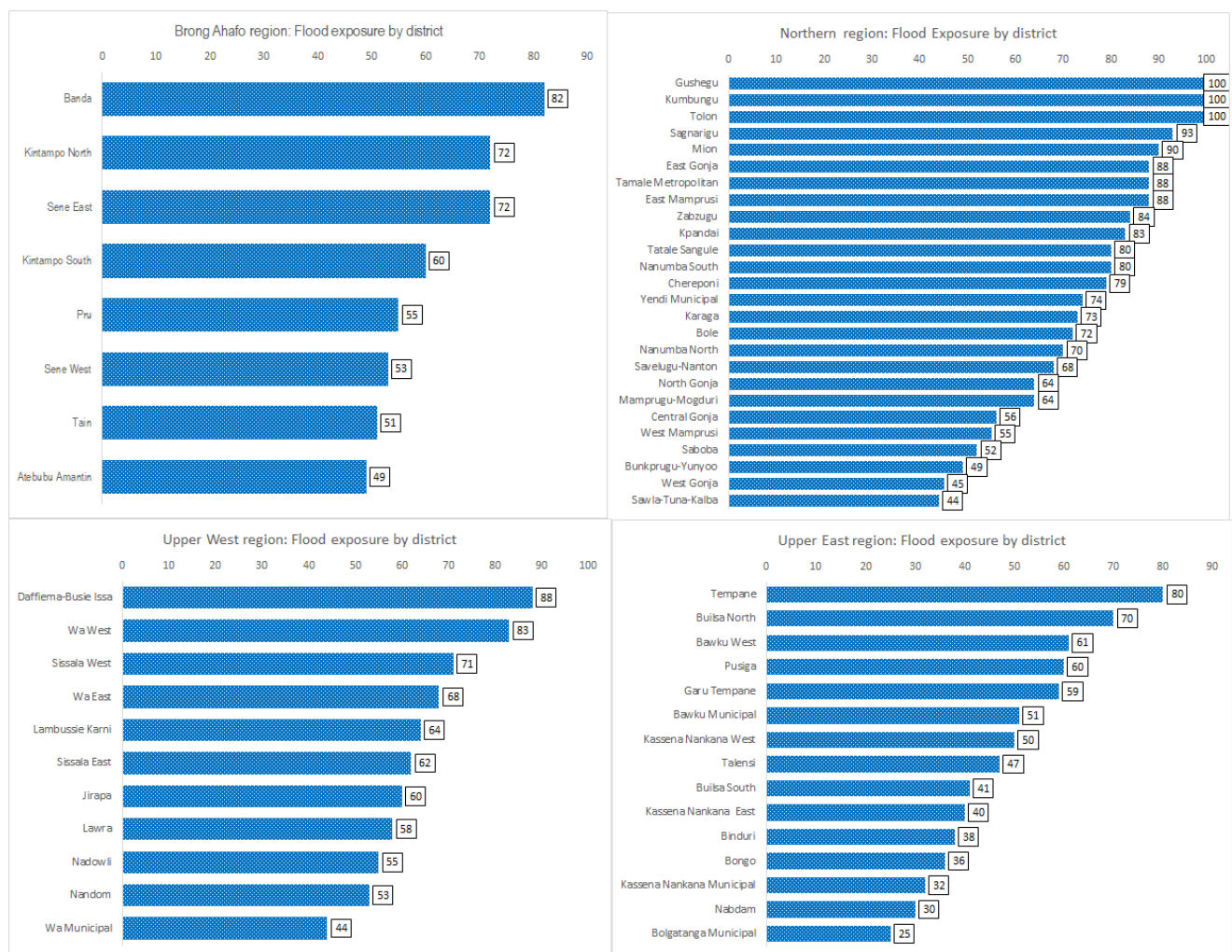


Figure 2. 24 Flood: percentage of household exposure by districts

Northern Region: Flood exposure for households was reported to be very high across all the districts. Gushegu, Kumbungu and Tolon districts households had the highest response rate with 100% whilst West Gonja (45%) and Sawla-Tuna-Kalba (44%) districts have the lowest response rate.

Upper West Region: The overwhelming majority of interviewees in the Wa East and Daffiama-Bussie-Issa districts had the highest perception scores for flood exposure with approximately 90%.

Upper East Region: Bolgatanga Municipal and Bawku West districts in the Upper East region reported high exposure to flood with over 80% response rate.

(b). Drought

The Assessment results showed that the reported exposure to drought is high in all the surveyed districts with 80% of interviewees reporting it as a climate-related hazard (**Figure 2.25**).

Brong Ahafo Region: In the surveyed districts of the Brong Ahafo region, Banda, Kintampo north, and Kintampo south households perceived high exposure to drought, while those in Tain and Pru districts perceived moderate exposure.

Northern Region: Central Gonja, Kumbungu and Tatale Sangule households in the northern region reported themselves to have the highest exposure to drought.

Upper West Region: Households in the Sissala West and Lawra districts reported that they are highly exposed to drought with Nadowli district households' responses indicating moderate exposure to drought.

Upper East Region: Bolgatanga district households' reported their exposure to drought to be very high while Talensi district interviewees reported low exposure to drought.



Figure 2. 25 Percentage of households exposed to drought by districts

(c). Dry spells

Studies in the northern regions of Ghana show that a significant decrease in the number of rain days and the probability of dry spells up to 11 days in the first four weeks of the planting season is common. In the Assessment region, the communities visited were found to be highly exposed to dry spells (**Figure 2.26**). The most exposed districts in the Brong Ahafo Region from the household surveys are Atebubu Amantin and Banda with Tain households perceiving low exposure.

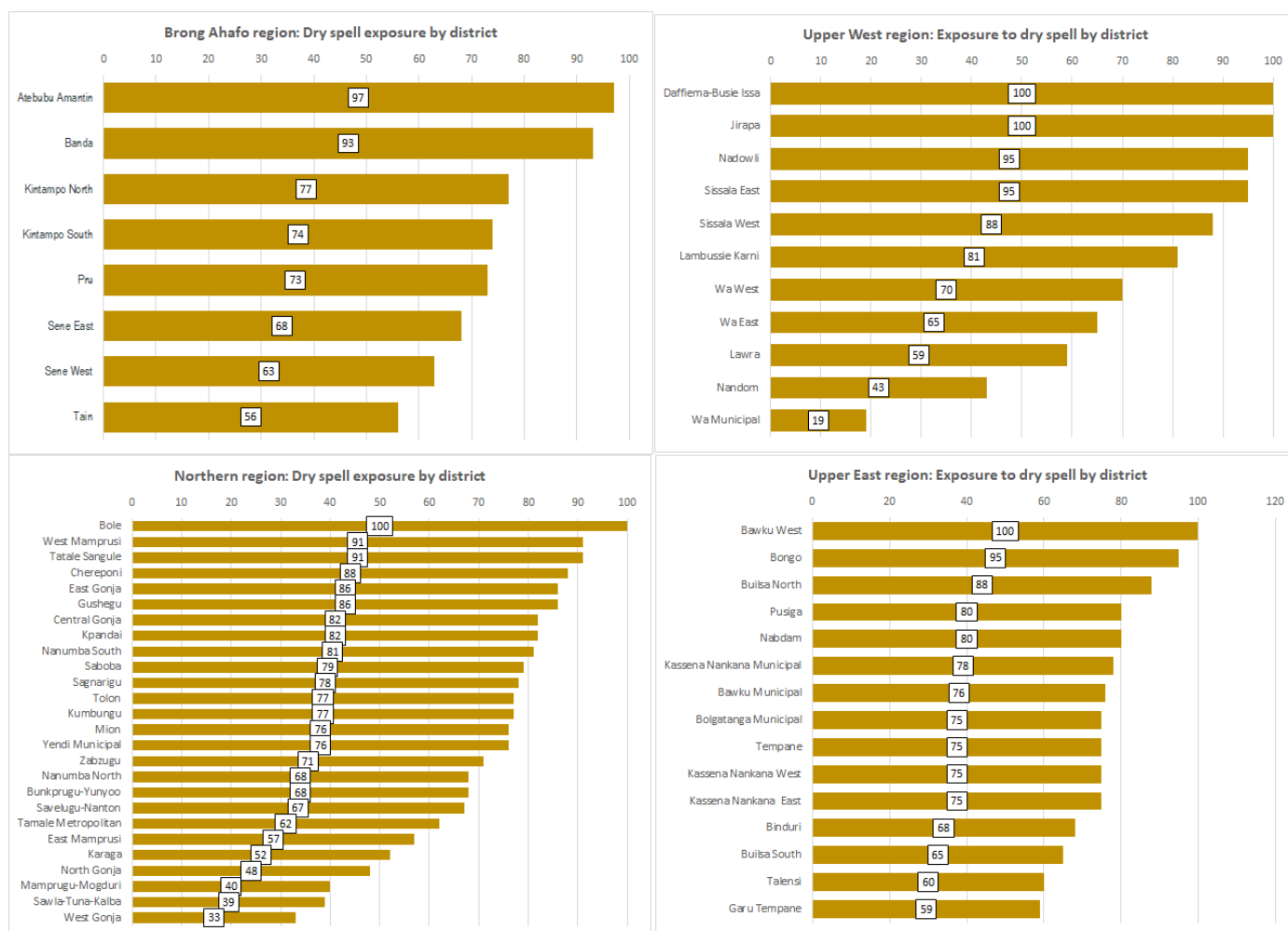


Figure 2. 26 Dry spells: percentage of household exposure by districts

In the Northern Region, households in the Bole (100%), West Mamprusi (90%) and Tatale Sangule (90%) reported the highest scores for exposure to dry spells. In the Upper West region, the Daffiema-Bussie-Issa and Jirapa districts reported the highest levels of exposure. In the Upper east region, households in the Bawku West (100%) and Bongo (92%) perceived high exposure to dry spells.

(d). Pests and Diseases

Pests and diseases are often triggered by climate variability and change, agricultural intensification and trade liberalization. In recent years, for instance, armyworm (*Spodoptere exempta*) outbreak has become a major constraint to crop production in Ghana. Occurrences in 2002 and 2006 left large expanses of farmlands destroyed. In the 2002 outbreak, the Upper East Region was impacted the most. In 2006, the outbreak occurred in five regions namely Brong Ahafo, Ashanti, Volta, Northern and Eastern Regions.

More recently in 2017, farmers in the Assessment area lost were severely affected. In addition, invasive alien species including larger grain borer (*Prostephenus truncatus*), Siam weed (*Chromolaena odorata*), Mango mealybug, (*Rastracoccus invadens*) and invasive fruit fly (*Aleurodicus*) have had a great adverse effect on the production of major staple food crops such as maize, plantain and cassava in the study areas (MOFA, 2015). Table 5 shows the major pests and diseases and the crops they affect in the Assessment area.

Table 5. Major pests and diseases affecting crops, poultry, livestock and humans

No.	Major pests and diseases	Crops and animals affected
<i>Crops and plants</i>		
1	Armyworms (<i>Spodoptera exempta</i>)	Maize, Rice, Millet, Sorghum
2	Larger grain borers (<i>Prostephanus truncatus</i>)	Maize
3	Greater grain weevil (<i>Sitophilus spp.</i>)	Maize, Sorghum
4	Stem borers (<i>Busseola fusca</i> , <i>Sesamia calamistis</i> , <i>Eldana saccharina</i> , <i>Chilo spp</i> , <i>Maliarpha separatella</i> ,)	Maize, Rice, Millet, Sorghum
5	Maize streak virus (virus transmitted by insects known as leaf hoppers)	Maize
6	Striga (witchweed) (<i>Striga hermonthica</i> , <i>S. asiatica</i> , <i>Striga gesnerioides</i>)	Maize, Millet, Sorghum, Cowpea
7	African gall midges (<i>Orseolina oryzivora</i>)	Rice,
8	Stalked-eye shoot flies (<i>Diopsis spp</i>)	Rice,
9	Rice blast (<i>Pyricularia oryzae</i>)	Rice
10	Rice brown leaf spot (<i>Helminthosporium oryzae</i>)	Rice
11	Rice yellow mottle virus (RYMV)	Rice
12	Downy mildew (<i>Sclerospora graminicola</i> , <i>Sclerospora sorghi</i> , <i>Peronospora destructor</i>)	Millet, Sorghum, Onion
13	Ergot (<i>Claviceps sp.</i> / <i>Sphacelia sp.</i>)	Millet
14	Sorghum shoot flies (<i>Atherigona soccata</i>)	Sorghum
15	Sorghum midges (<i>Contarinia sorghicola</i>)	Sorghum
16	Aphids (<i>Aphis craccivora</i> , <i>Aphis gossypii</i> and other species)	Cowpea, Groundnut, Soya bean, Tomatoes, Pepper
17	Cowpea storage weevils (<i>Callosobruchus maculatus</i>)	Cowpea
18	Flower thrips (<i>Megalurothrips sjoestedtii</i>)	Cowpea
19	Pod borers (<i>Maruca vitrata</i> , <i>Euchrysops sp.</i>)	Cowpea
20	Sucking bugs (<i>Anoplocnemis spp.</i> , <i>Clavigralla spp.</i> And other species)	Cowpea
21	Anthrachnose disease (<i>Colletotrichum lindemuthianum</i>)	Cowpea
22	Cowpea mosaic virus diseases	Cowpea
23	Cowpea wilt disease (<i>Fusarium oxysporum</i>)	Cowpea
24	Brown groundnut hopper (<i>Hilda patruelis</i>)	Groundnut

25	Pod-sucking bugs (<i>Elasmolomus sordidus</i> , <i>Leptoglossus sp.</i>)	Groundnut
26	Storage beetles (<i>Tribolium castaneum</i>) and storage caterpillars (<i>Trogoderma grenarium</i> and other species)	Groundnut
27	Groundnut rosette virus disease	Groundnut
28	Leaf spot (<i>Cercospora spp</i>)	Groundnut
29	Storage moths (<i>Ephestia cantella</i> , <i>Corcyra cephabonica</i>)	Soya bean
30	Storage weevils (<i>Callosobruchus maculatus</i>)	Soya bean
31	Sucking bugs (<i>Anoplocnemis spp.</i> , <i>Clavigralla spp.</i> and other species)	Soya bean
32	Anthraxnose disease (<i>Colletotrichum truncatum</i>)	Soya bean
33	Onion flies (<i>Delia antiqua</i>)	Onion
34	Onion thrips (<i>Thrips tabaci</i>)	Onion
35	Bacterial soft rot (<i>Erwinia carotovora</i>)	Onion
36	Pepper wilt disease (<i>Fusarium oxysporum</i>)	Pepper
37	Root-knot nematodes (<i>Meloidogyne spp</i>)	Pepper, Tomatoes
38	White flies (<i>Bemisia tabaci</i>)	Pepper
39	Tomato mirid bugs (<i>Cyrtopeltis teriuis</i>)	Tomatoes
Poultry and livestock and humans		
40	Swine flu	Livestock, humans,
41	Avian flu	Mainly poultry, humans
42	Anthrax	Livestock, poultry, humans
43	Cerebro Spinal Meningitis (CSM)	Humans
44	Cholera	Humans
45	Yellow Fever	Humans

Source: *Literature review*, key informant interviews

Exposure to pest and diseases appears to be a pervasive hazard in all the districts in the Assessment area (**Figure 2.27**). Household exposure to pest and diseases was found to be highest in the Northern Region followed by Upper East, Brong-Ahafo and Upper West. In the Northern region, Chereponi, Gushegu, East Gonja and Nanumba South reported the highest perception response on pest and disease exposure. Pusiga (Upper East), Banda (Brong-Ahafo), and Nadowli, Sissala East and Wa West (Upper West) are the districts where the household perception of exposure to pest and diseases were highest. Post-harvest losses of many crops were mentioned by households and agriculture extension officers interviewed as a negative effect of pests and diseases

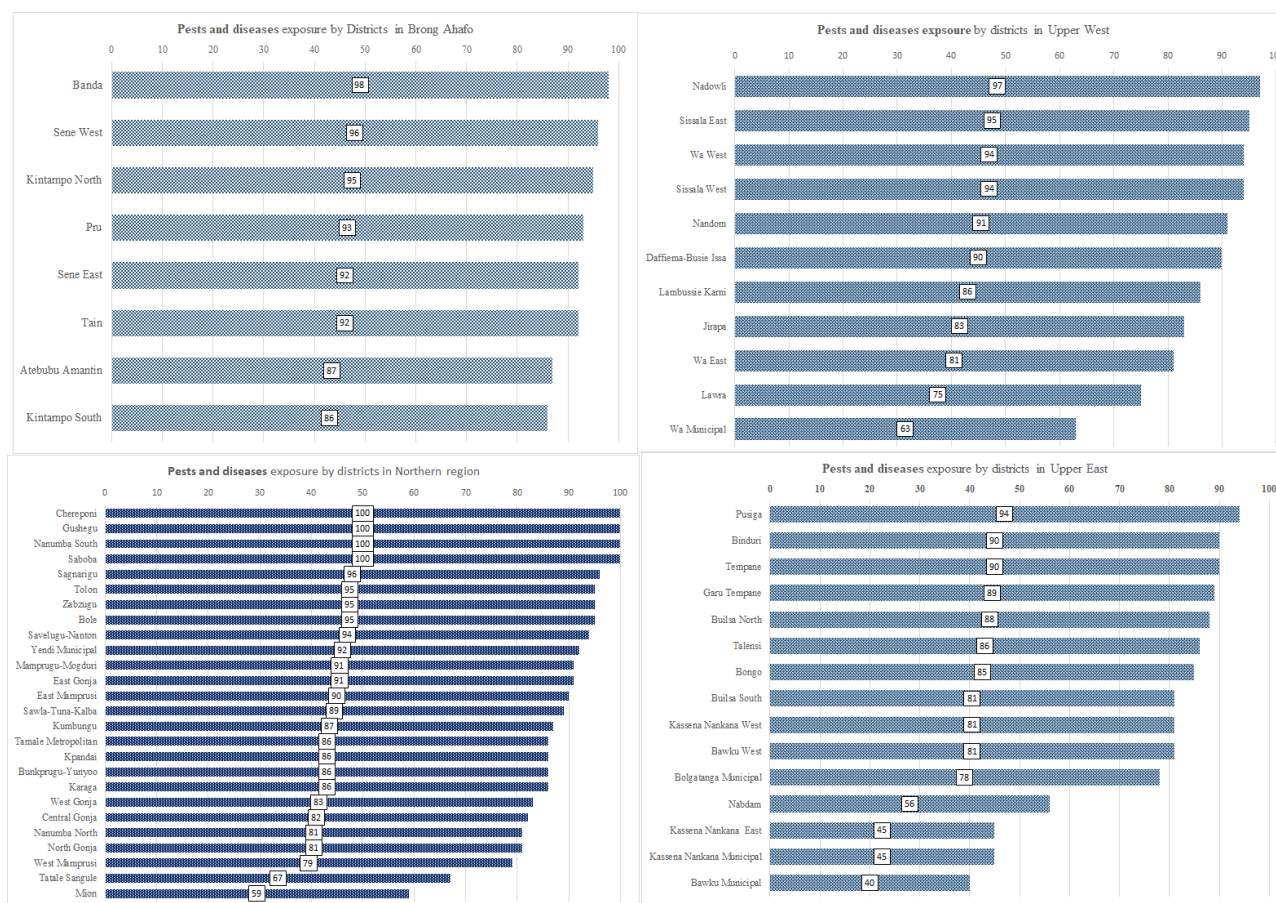


Figure 2. 27 Pests and diseases: percentage of household exposure by district

A participants in the FGD in Chietanga in the Wa West district of the Upper West region remarked:

“Yes in the past, there were no pests attacking our corn, yam and other crops but now, you do not even get to see the pests. You will harvest and by the time you cut the crop open, alas, it would be spoilt or what might be left will be very small”.

(e). Bushfires

Bushfires are perennial occurrences in most districts of Ghana as studies have shown (Appiah-Damnyag et al. 2010). The survey results indicate that majority of households perceived themselves and their livelihood systems to be exposed to bushfires (**Figure 2.28**). The Banda and Sene east districts in the Brong Ahafo Region have 100% response rate for exposure to bushfires.

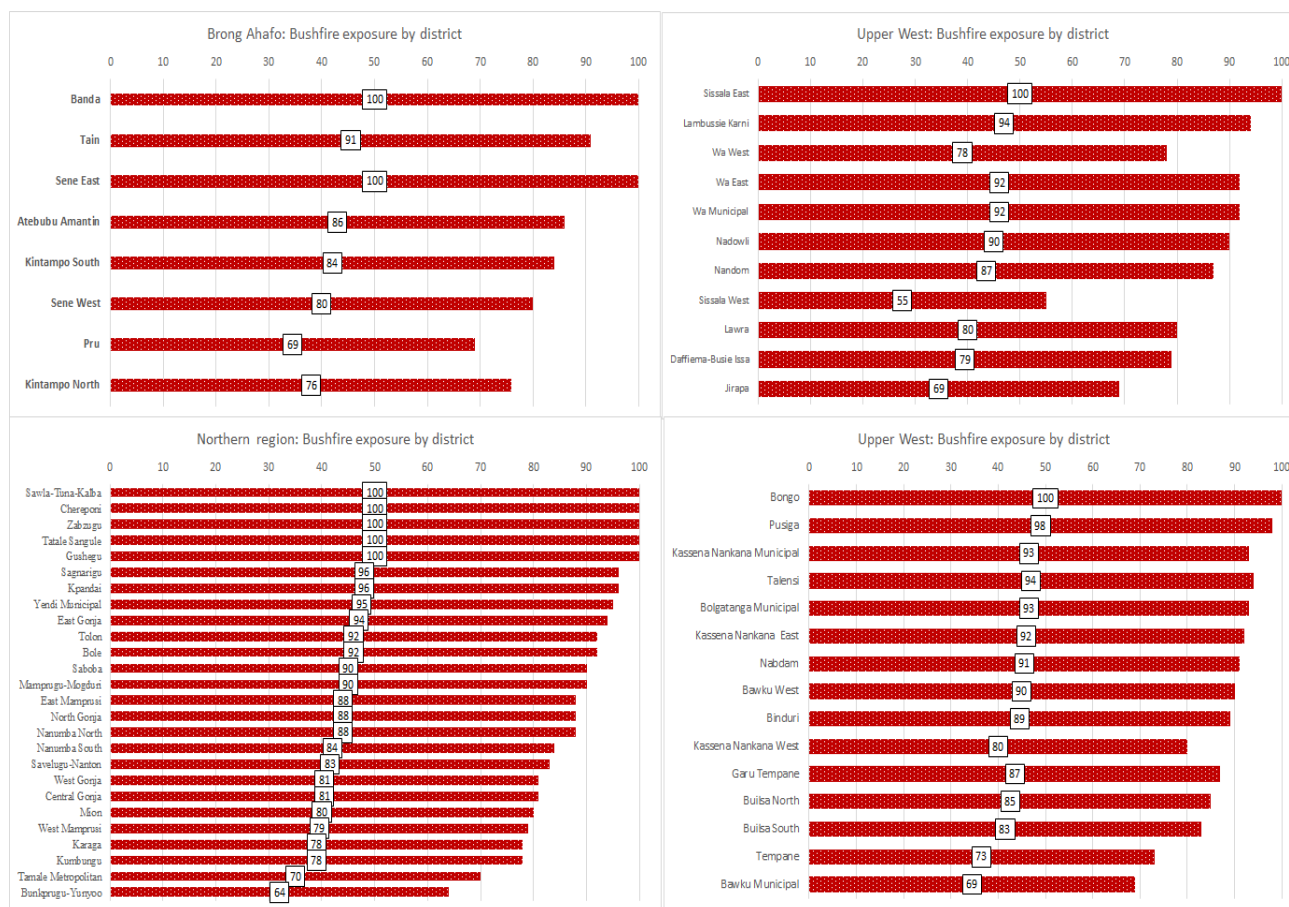


Figure 2. 28 Bushfires: percentage of household exposure by districts

In the Northern Region, Sawla/Tuna/Kalba, Chereponi, Zabzugu and Tatale Sangule all have high exposure to bushfires according to household heads interviewed. In the Upper West region, Sissala East and Lambussie-Karni districts perceived their exposure to bushfires to be very high. Households in the Bongo and Pusiga districts of the Upper east region have a high perception of exposure to bushfires.

(f). Windstorms

Windstorms exposure perception scores did not vary significantly across the Assessment area (Figure 2.29). From the household survey, exposure to windstorms reporting was highest for Gushegu (Northern Region), Jirapa (Upper West), Kassena Nankana Municipal (Upper East) and Sene West (Brong-Ahafo). Districts, where lower reporting for windstorms exposure were recorded, are Savelugu-Nanton (Northern Region), Nandom (Upper West), Kintampo North (Brong-Ahafo), and Bawku Municipality (Upper East).

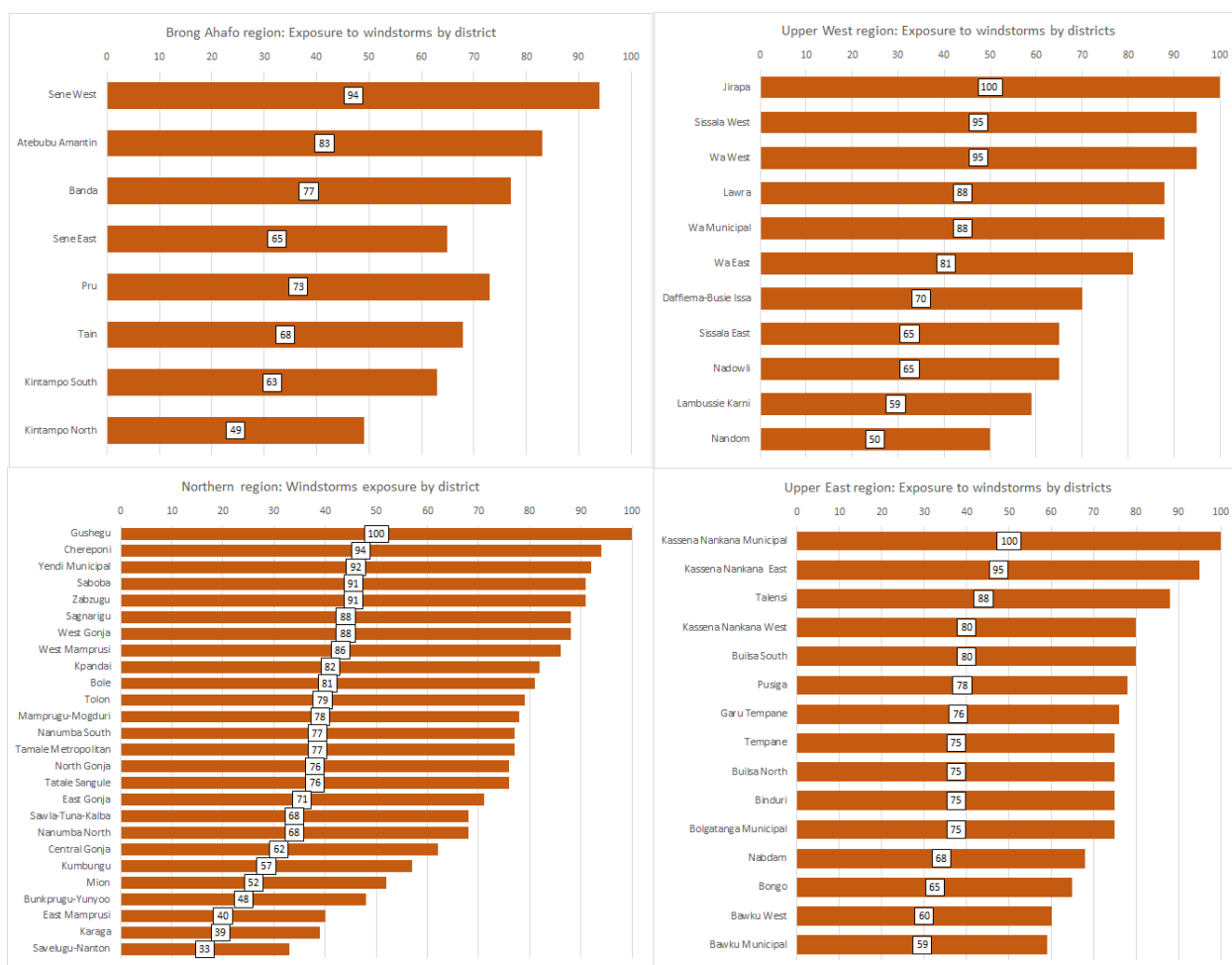


Figure 2. 29 Windstorms: percentage of households' exposure by districts

(g). Climate-induced erosion

Climate-induced erosion is perceived by households across the Assessment area to affect livelihood strategies (**Figure 2.30; Photo 5**). Households' reporting of exposure to climate-induced erosion was highest among most districts in Northern Region, followed by Upper East, Upper West and Brong-Ahafo Region. Households in Bunkprugu-Yunyoo, Nanumba South, Zabzugu, Mamprugu-Mogduri, Chereponi districts reported the highest perception levels for exposure to climate-induced erosion in the Northern Region.



Figure 2. 30 Climate-induced erosion: percentage of household exposure by districts.

Households in the Bulsa South and Talensi districts of the Upper East reported the highest perception scores for exposure to climate-induced erosion. Daffiema-Bussie-Issa district households within the Upper West region reported high scores for exposure to climate-induced erosion. In the Brong Ahafo Assessment districts, Sene West district households reported high exposure to climate-induced erosion.



Photo 5 Eroded landscapes in the Sene West district

(h). Changes in rainfall pattern

The perceived exposure of households to changes in rainfall pattern varied across districts in the Assessment area (**Figure 2.31**). The reporting on exposure to changes in rainfall pattern was highest for households in West Mamprusi, Central Gonja, Saboba, Sagnari, Tolon, Mion and West Gonja districts of the Northern Region. In the Upper East Region, Binduri and Talensi district households had the highest perception of exposure to changes in rainfall pattern. Daffiema-Bussie-Issa in the Upper West Region households reported the highest exposure compared with the other districts in the region. Kintampo North district households reported their exposure to changes in rainfall pattern to be high, out of the eight selected districts of the Brong Ahafo Region.

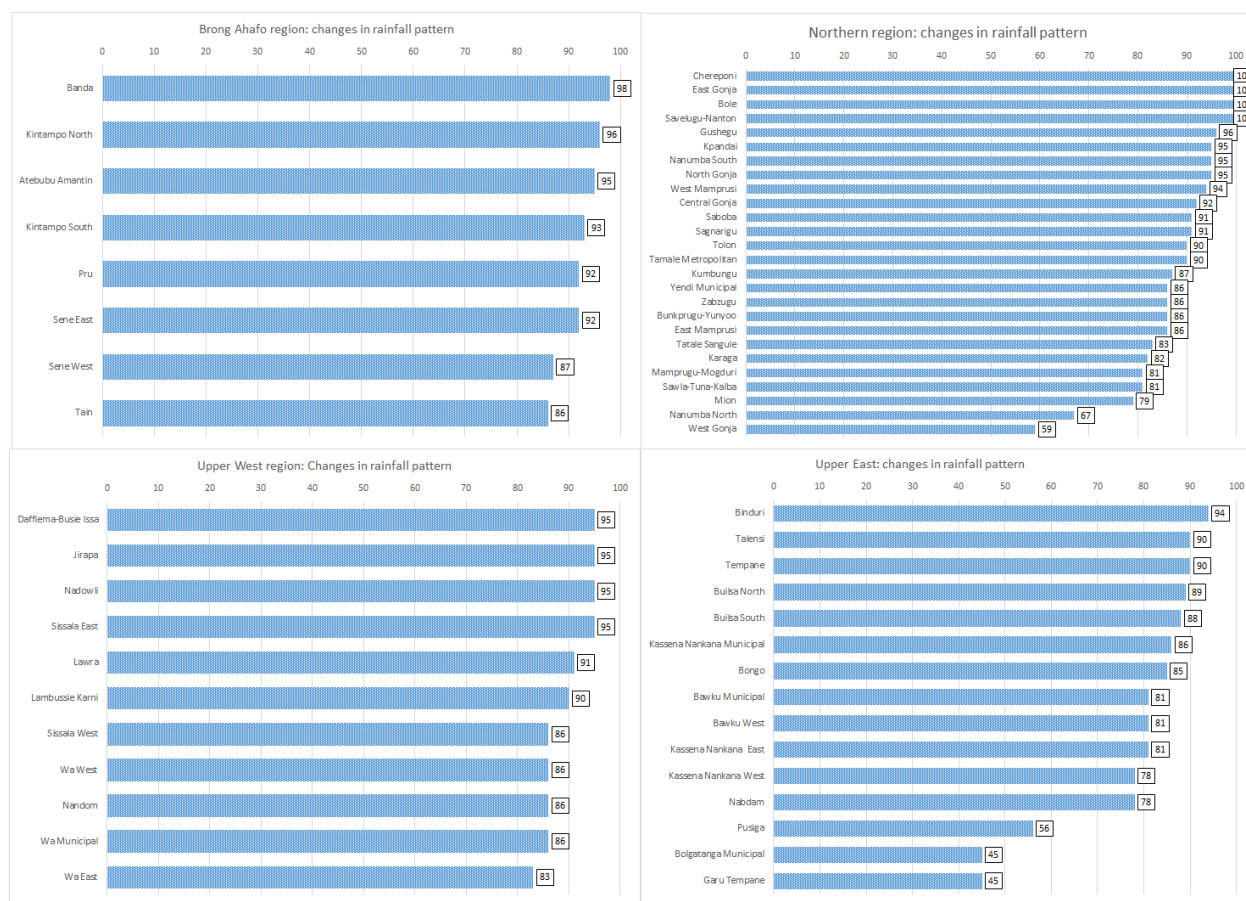


Figure 2.31 Changes in rainfall pattern: percentage of household exposure by districts

The chief of Mirigu elaborated on the patterns of rainfall and its impact on their livelihood systems:

“The rain do not start on time. At first, we could get our first rains by February or March but now, we get the rains in June or July. Additionally, the rains stop very early. We no longer have the two seasons we used to have in the past- when it stops then that is it! This has caused the crops of most farmers to be destroyed, especially maize”

(i). Seasonal temperature change

Perception on exposure to seasonal temperature change was very high across all districts in the Assessment area (**Figure 2.32**). The East Gonja, Nanumba North, Gushegu, Chereponi, West Mamprusi districts households’ in the Northern Region reported extremely high perception of their exposure to seasonal temperature changes. Households within the Kassena Nankana Municipal and Pusiga districts of the Upper East Region reported the highest perception scores for exposure.

In the Upper West Region, Jirapa district households' reported the highest exposure scores. In the Brong Ahafo Assessment area, Atebubu Amantin district households' have high exposure to seasonal temperature changes.

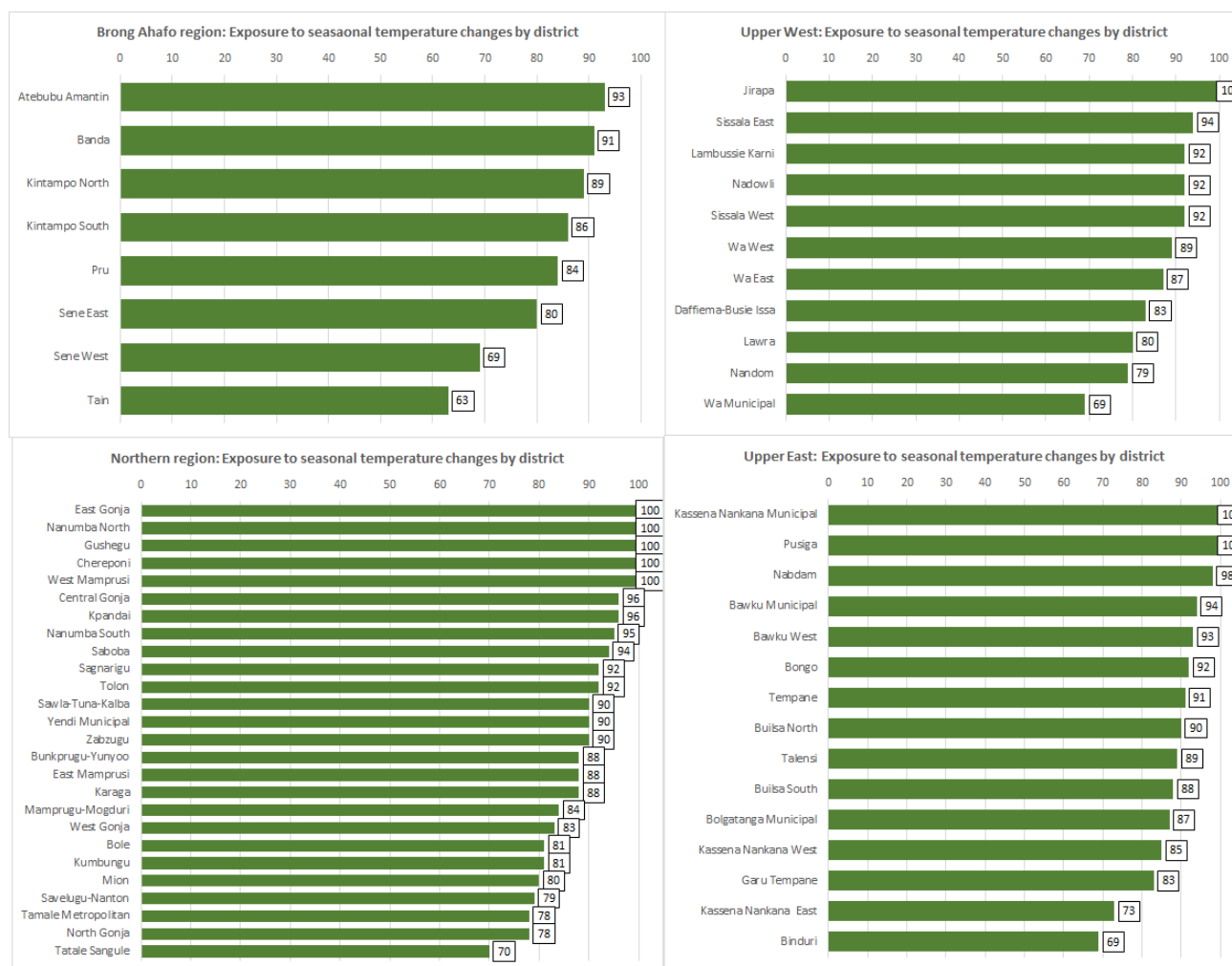


Figure 2. 32 Seasonal temperature change: percentage of household exposure by districts

(j). Climate-induced soil infertility

Climate-induced soil infertility from the Assessment findings affects livelihood systems. **Figure 2.33** shows household heads perception of their exposure to this hazard. In the Brong Ahafo Region, households in the Kintampo South and Tain districts reported the highest exposure perception scores. In the Northern Region, Chereponi, Karaga, Kumbungu and Tolon districts reported 100% response rate for exposure to climate-induced soil infertility. The Nabdam and Kassena Nankana Municipal in the Upper East Region reported 100% response rate for exposure

to climate-induced soil infertility. Households from the Wa East district of the Upper West Region reported the highest exposures scores.

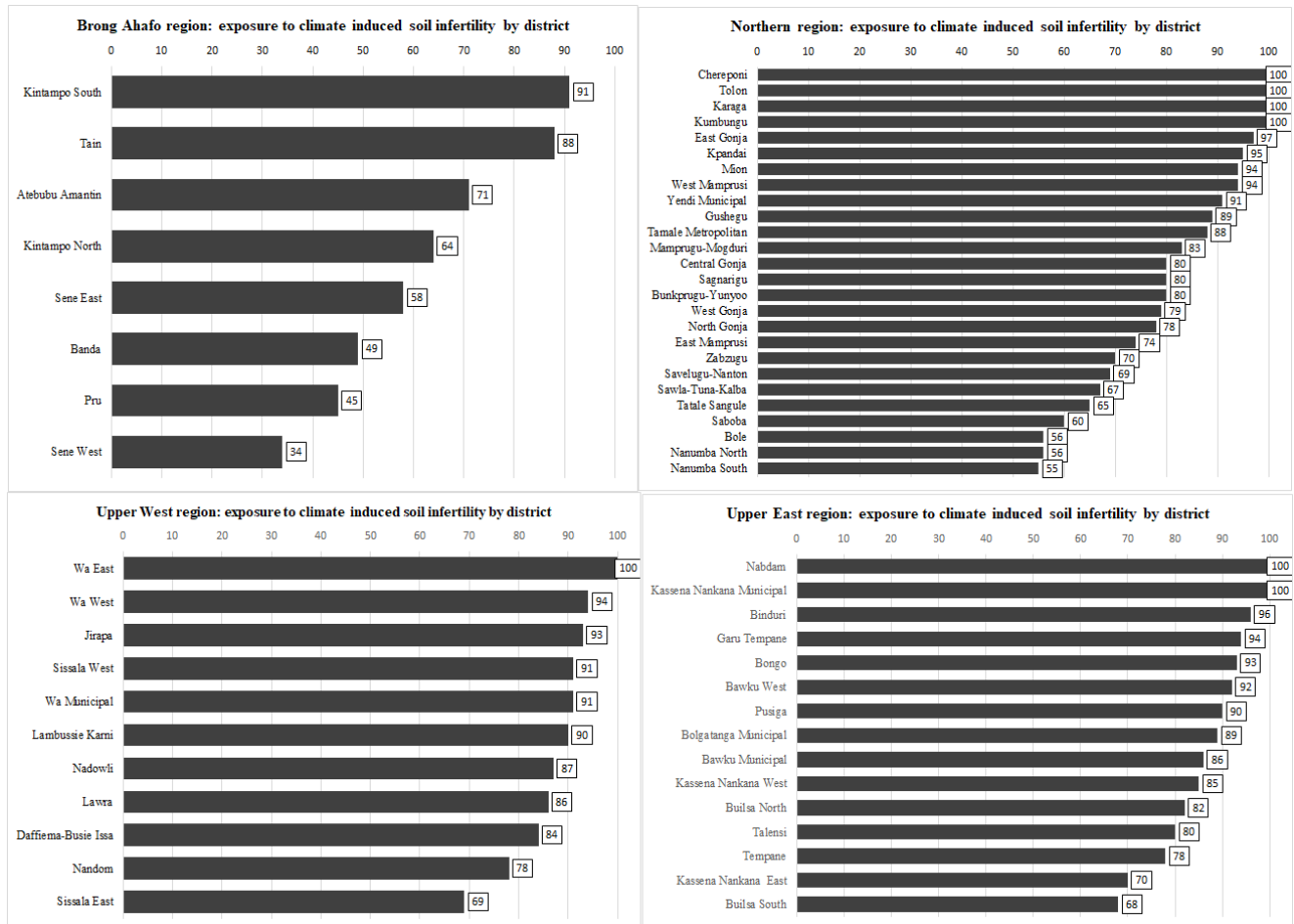


Figure 2. 33 Climate-induced soil infertility: percentage of household exposure by districts

(k). Increase in temperature

Increase in temperature presents major problems to households in the Assessment area as illustrated by the perception scores (**Figure 2.34**). From the household surveys, households in Chereponi, Saboba, and Central Gonja reported the highest perception levels of exposure to temperature increase in the Northern Region. Daffiema-Bussie-Issa and Wa Municipal (Upper West Region), Nabdam and Binduri (Upper East Region), and Sene West and Kintampo North (Brong-Ahafo Region) are the districts with the highest household perception of exposure to temperature increases.

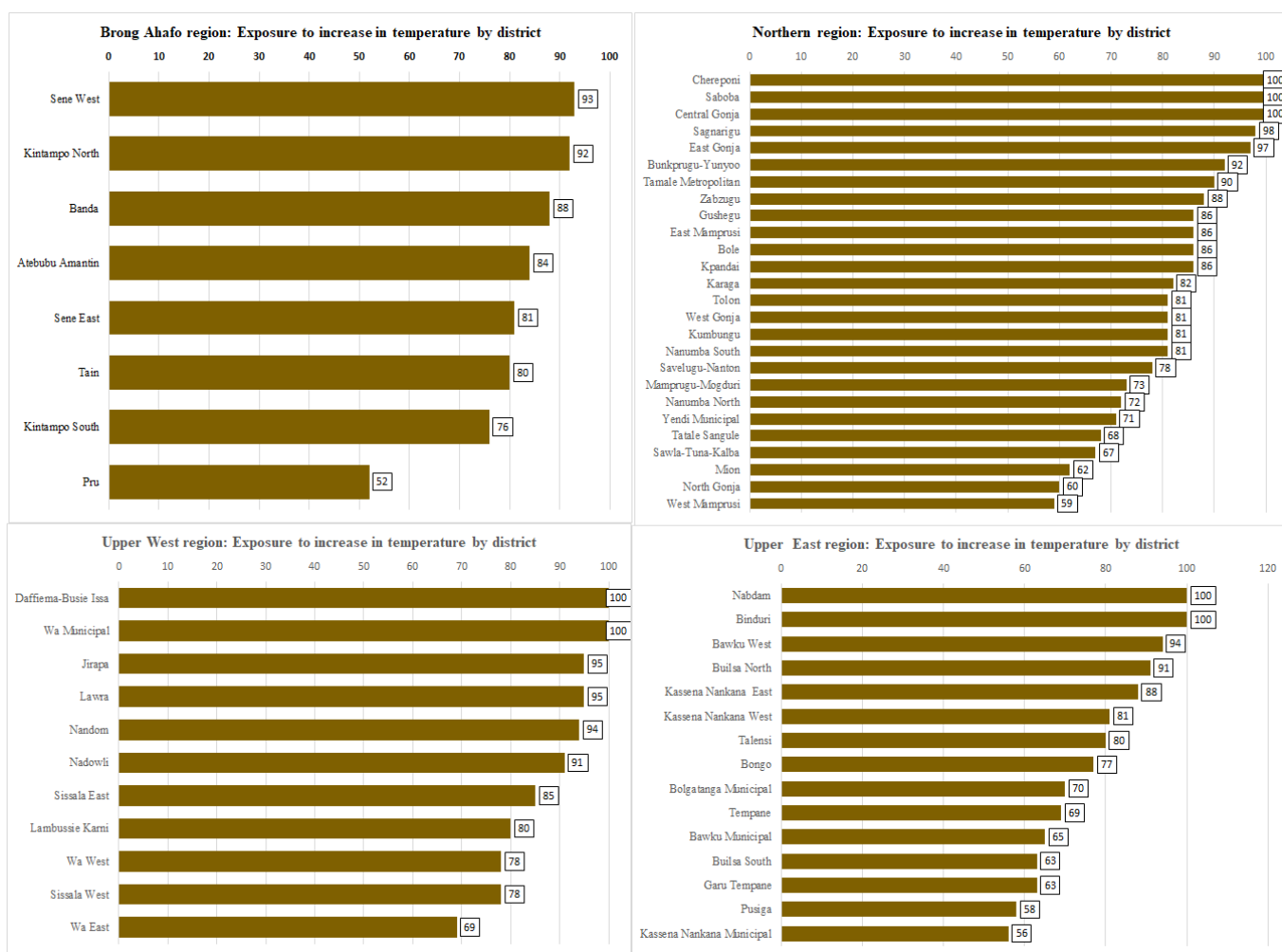


Figure 2. 34 Increases in temperature: percentage of household exposure by districts

2.3.2 Gender-Based Exposure

This section presents the exposure levels to the different climate-related hazards stratified across gender (women and men). The results are compiled according to the districts in each region.

(a). Flood

Brong Ahafo Region: More women were reported to be exposed to flooding than men in Banda (56%), Kintampo South (60%), Sene West (55%) and Atebubu Amantin (68%) while more men were reported to be exposed in Kintampo North (71%), Pru (52%) and Tain (59%) (**Figure 2.35**).

Northern Region: Fifteen (15) of the twenty-six (26) districts in the Northern region showed high women exposure to flood with Gushegu and Bole districts having the highest exposure levels (60%). Comparatively, men have a fairly lower exposure to flood than women as thirteen (13) of the districts surveyed showed high male exposure to flood (**Figure 2.35**).

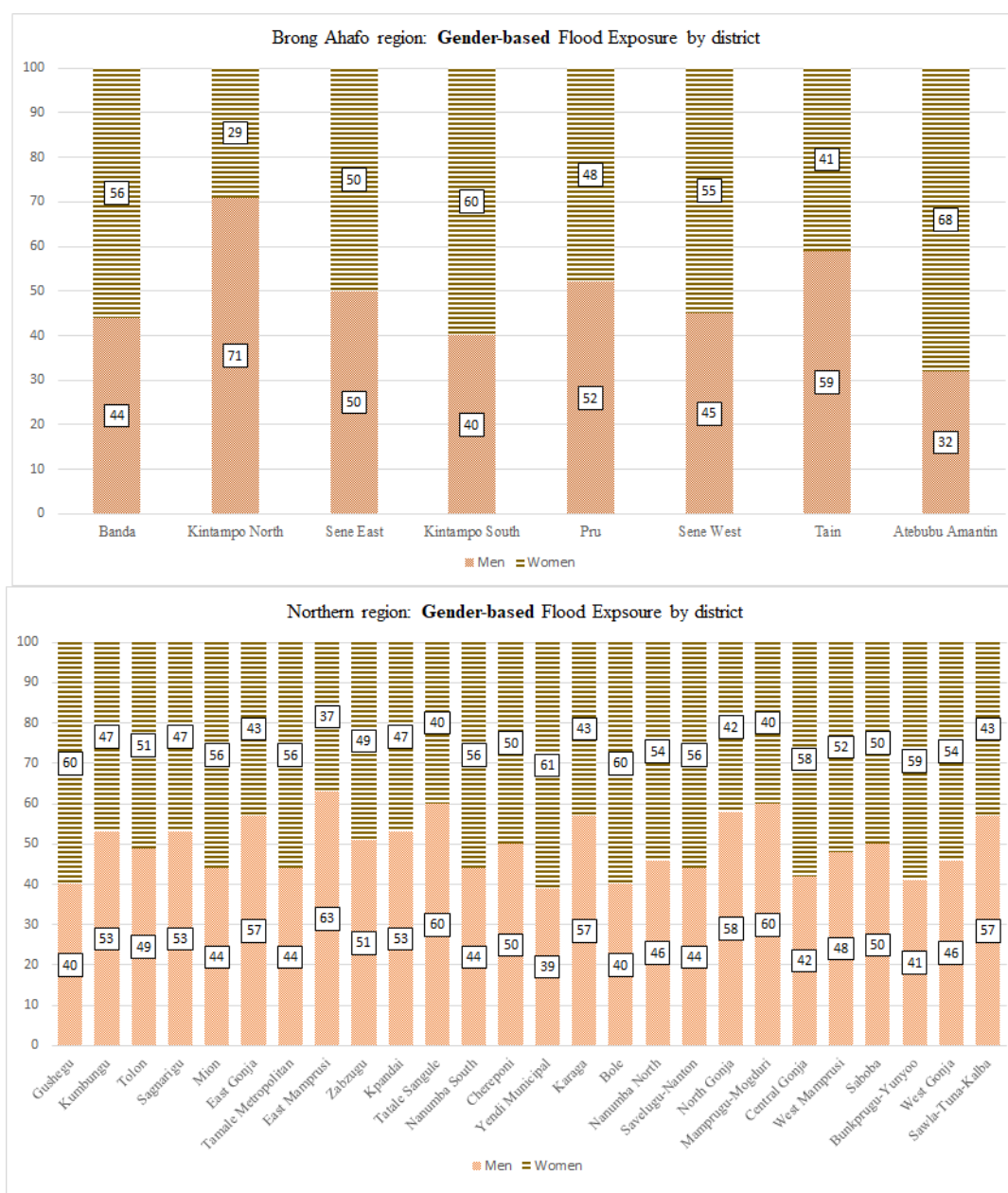


Figure 2. 35 Percentage of exposure to flood by gender in Brong Ahafo and Northern districts

Upper West Region: Women were reported to be more exposed to flood in most districts; Wa West (60%), Nadowli (62%), Sissala West (51%), Jirapa (54%), Lawra (50%), Nandom (52%),

Wa Municipal(55%) for exposure to flood while men were reported to be more exposed in Daffiema-Busie-Issa (65%), Wa East (64%), Sissala East (61)% (**Figure 2.36**)

Upper East Region: Men exposure to flood was very high for Talensi (70%), Kasena Nankana East (61%), Kassena Nankana Municipal (64%) while women were very high in Tempene (60%), Bawku West (61%), Bawku Municipal (60%), Binduri (57%) (**Figure 2.36**).

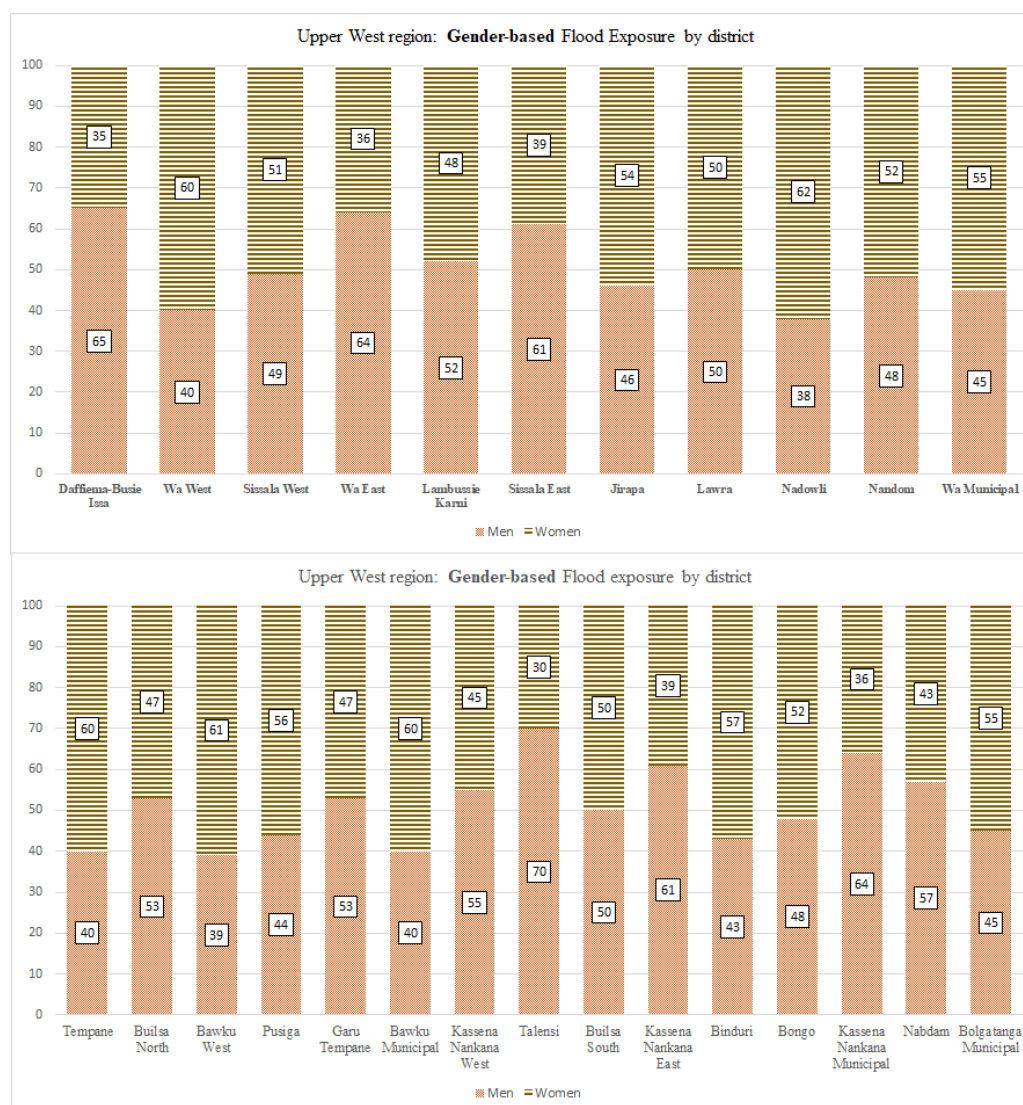


Figure 2. 36 Percentage of exposure to flood by gender in Upper West and Upper East districts

(b). Drought

Brong Ahafo Region: Drought exposure was reported to be highest for women in Tain (60%), Sene West (58%), Kintampo North (56%) and Pru (52%), with similar exposure levels for men in Atebubu Amantin (61%), Sene East (55%), Banda (53%) and Kintampo South (51%) (**Figure 2.37**).

Northern Region: Comparatively, men were reported to be more exposed to drought in the Northern region as fourteen districts (14) show exposure responses above average as opposed to women in eight (8) districts (**Figure 2.37**).

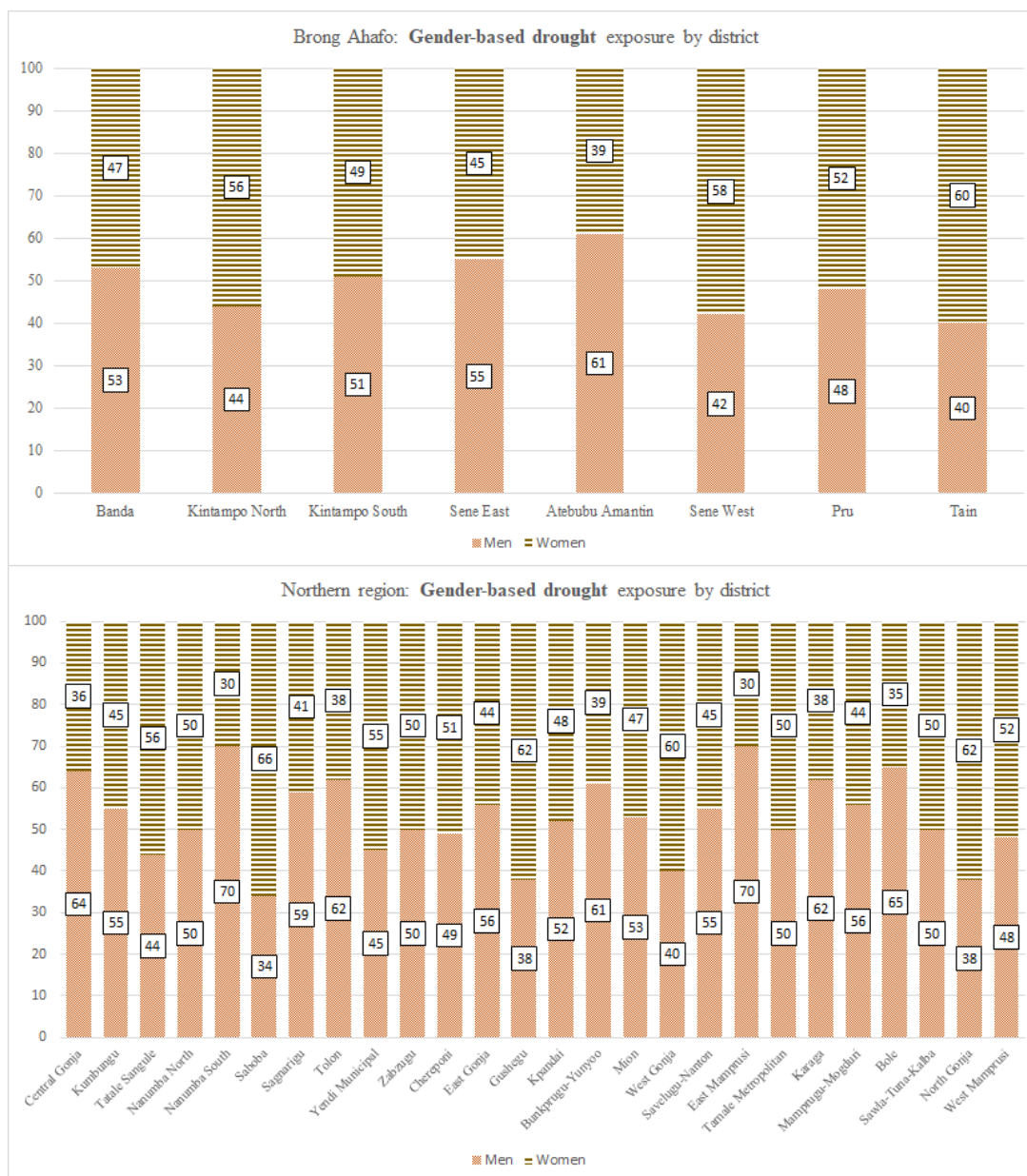


Figure 2. 37 Percentage of exposure to drought by gender in Brong Ahafo and Northern districts

Upper West Region: Women were reported to be more exposed to drought in Sissala West (60%), Sissala East (62%), Jirapa (60%) and Nadowli (67%) while men were more exposed in Wa West (62%) and Wa Municipal (65%) (**Figure 2.38**).

Upper East Region: Six (6) of the fifteen (15) districts in the Upper East region showed high women exposure to drought with Talensi (62%) and Nabdam (61%) having the highest exposure levels. Comparatively, men have higher exposure to drought than women in eight (8) of the districts surveyed (**Figure 2.38**).

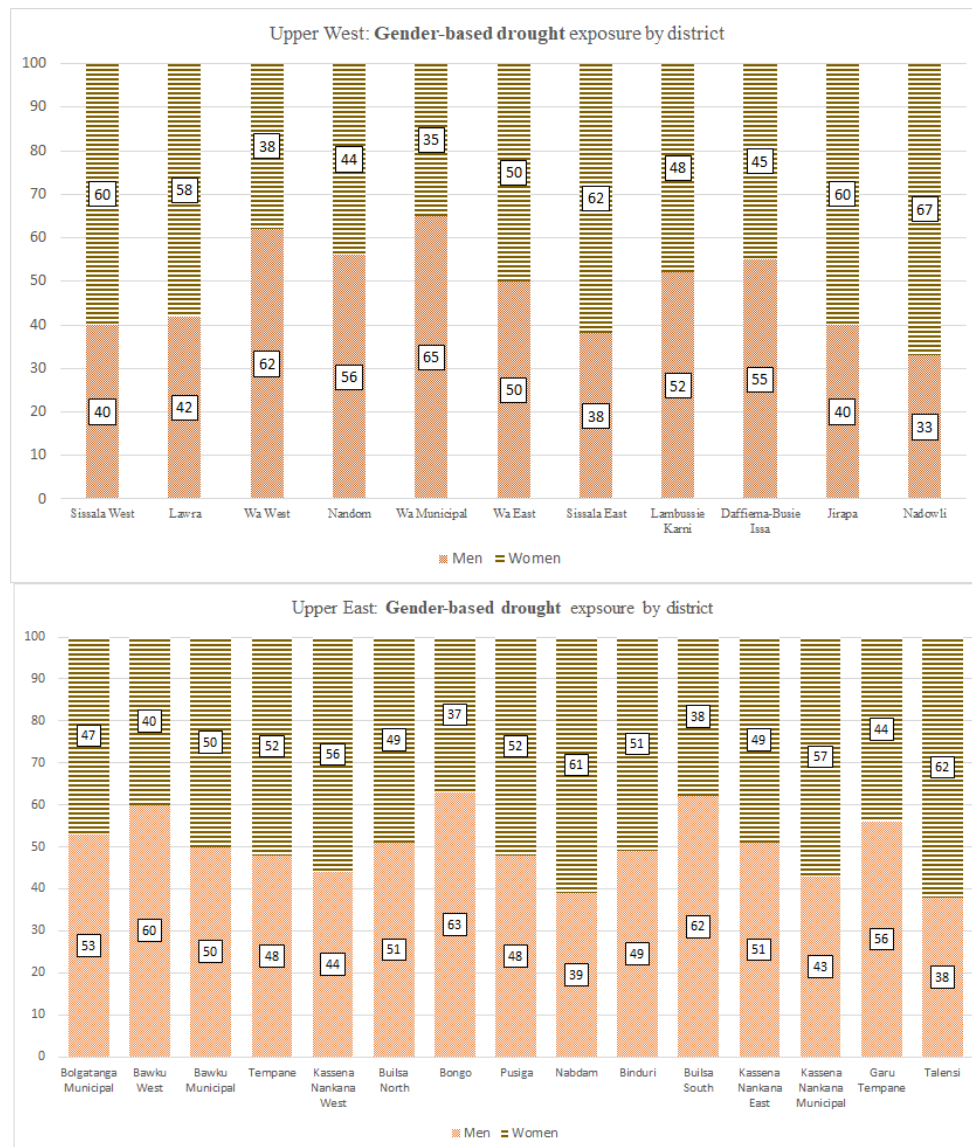


Figure 2. 38 Percentage of exposure to drought by gender in Upper West and Upper East districts

(c). Dry Spells

Brong Ahafo Region: Men have a slightly higher exposure level to dry spells compared to women. Out of the eight districts surveyed men were reported to be the majority exposed in four: Sene East (60%), Tain (57%), Kintampo North (53%), and Banda (51%). Women were the majority in Sene West (61%), Atebubu Amantin (60%) and Kintampo South (56%) (**Figure 2.39**).

Northern Region: Women were the majority in sixteen (16) out of the twenty six (26) districts in terms of sensitivity to dry spells with men reporting majority in the eight. **Figure 2.39** provides more details on the sensitivity to dry spells.

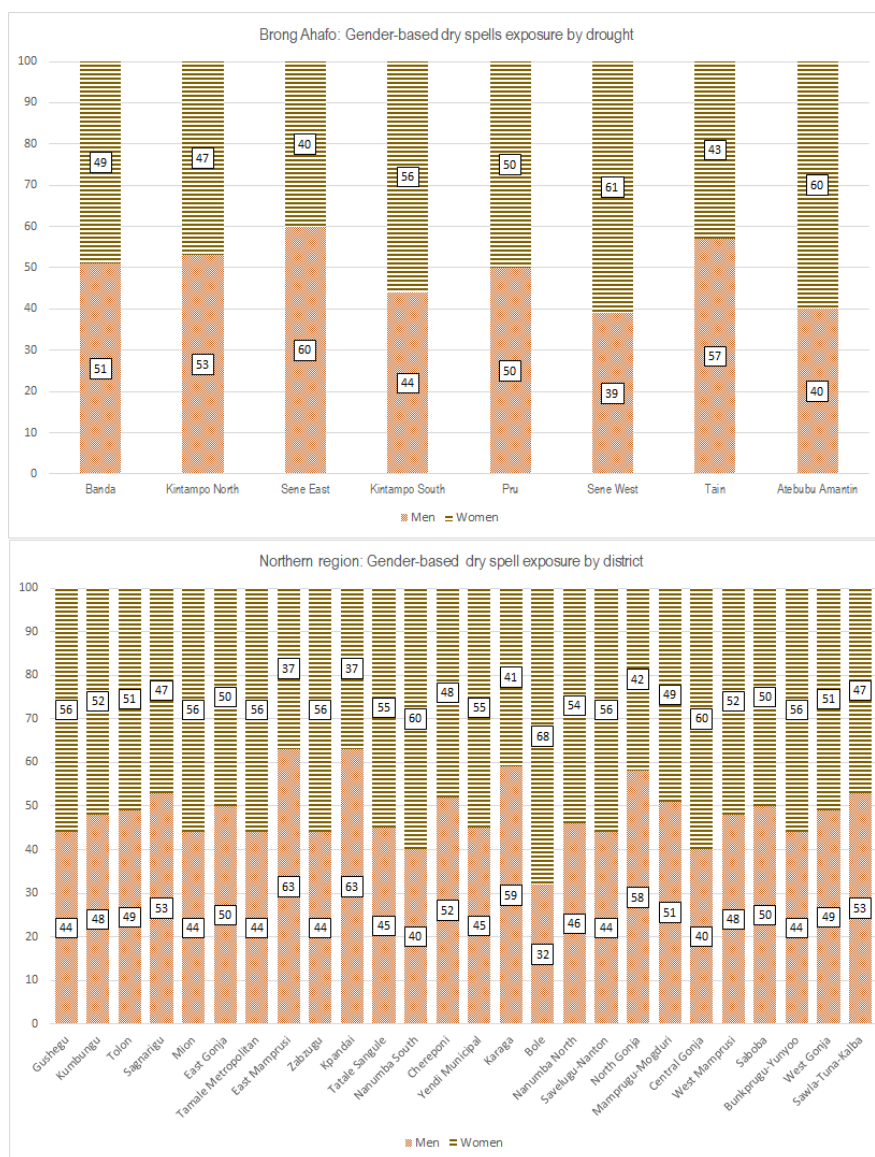


Figure 2. 39 Percentage of exposure to dry spells by gender in Brong Ahafo and Northern districts

Upper West Region: Women reported higher exposure to dry spells with the majority in the Wa West (60%), Jirapa (54%), Wa Municipal (54%) and Nadowli (56%). Men were the majority in terms of reported exposure in the Daffiema-Busie-Issa (65%), Wa East (64%) and Sissala East (57%) districts (**Figure 2.40**).

Upper East Region: Men's exposure to drought spells was the majority in nine (9) of the fifteen (15) districts. The districts with men majority included Bolgatanga Municipal (52%), Kassena Nankana West (55%), Talensi (63%), Builsa South (60%), Kassena Nankana Municipal (60%).

Women's majority were reported Bawku West (57%), Bawku Municipal (56%), Binduri (61%), Bongo (55%), and Nabdam (55%) (Figure 2.40).

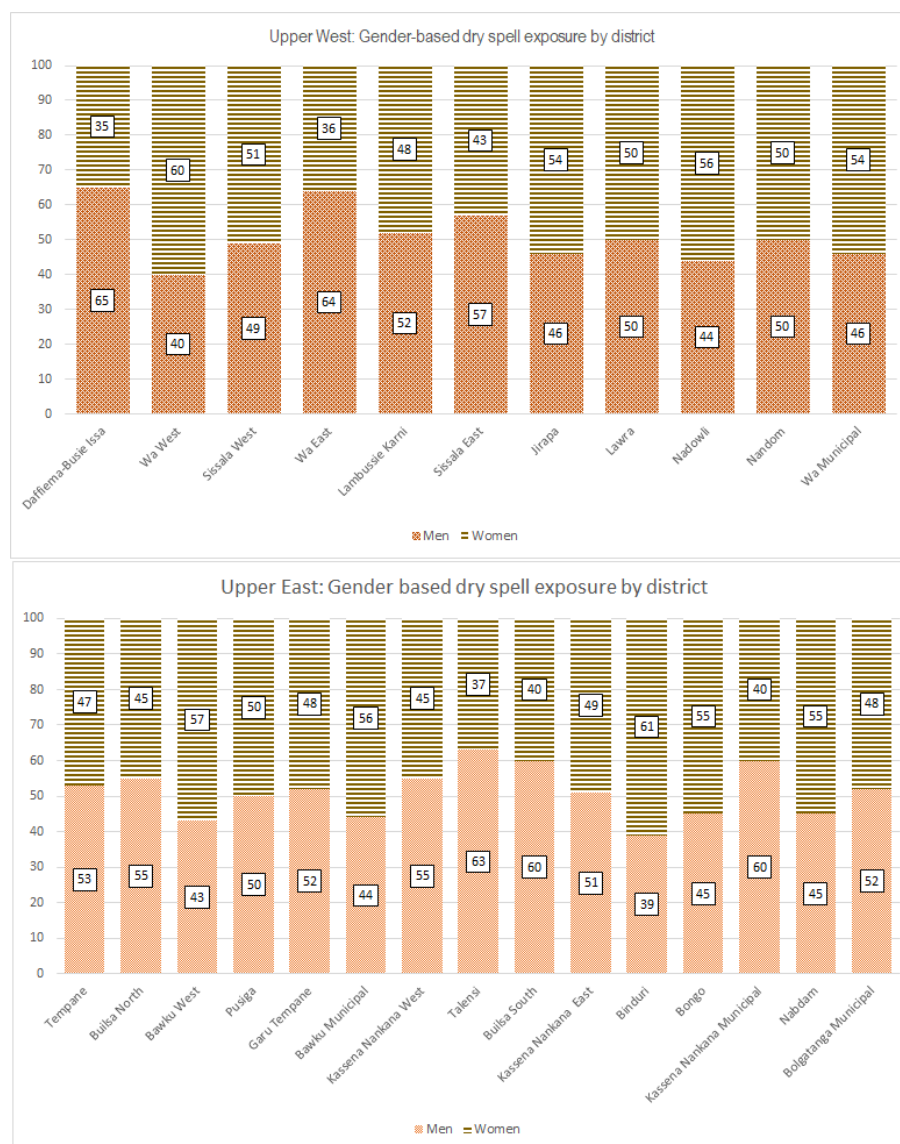


Figure 2. 40 Percentage of exposure to dry spells by gender in Upper West and Upper East districts

(d). Pests and Diseases

Brong Ahafo Region: Women were reported to be more exposed to pests and diseases in Banda (59%), Kintampo South (60%), Pru (56%), and Tain (55%). Men were the majority in Sene West (64%), Kintampo North (55%), Atebubu Amantin (60%) districts (**Figure 2.41**).

Northern Region: Men reported high exposure to pests and diseases in thirteen (13) districts compared to ten (10) for women. Districts with men majority include Chereponi (62%), Gushegu (56%), Nanumba South (65%), East Mamprusi (62%) and Mion (64%). Districts with women

majority include North Gonja (62%), Mamprugu-Mogduri (66%), Yendi Municipal (55%) and Saboba (60%) (**Figure 2.41**).

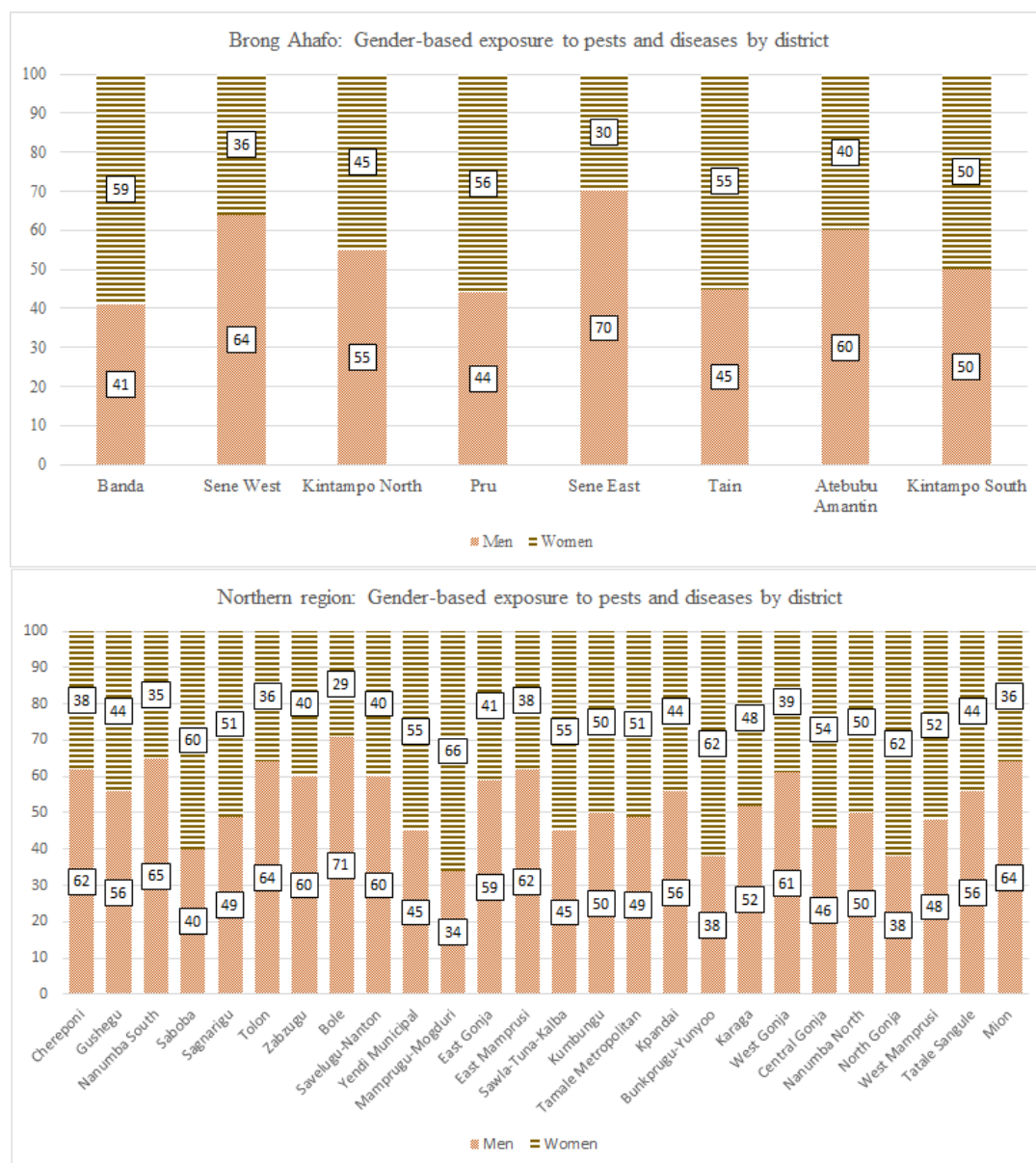


Figure 2. 41 Percentage of exposure to pests and diseases by gender in Brong Ahafo and Northern districts

Upper West Region: Districts with majority female exposure included Nadowli (56%), Wa West (55%), Lambussie Karni (56%), Wa East (56%) whilst men reported the highest exposure to pests and diseases Sissala West (63%), Jirapa (67%), Lawra (73%), Wa Municipal (55%) and Daffiema-Busie-Issa (53%) (**Figure 2.42**).

Upper East Region: Men were the majority in the Talensi (65%), Bongo (72%), Kassena Nankana West (60%), Bawku West (80%), and Bolgatanga Municipal (63%) districts in terms of exposure

to pests and diseases. Women were the majority in Binduri (60%), Garu Tempene (70%), Kassena Nankana East (60%) and Bawku Municipal (67%) districts (**Figure 2.42**).

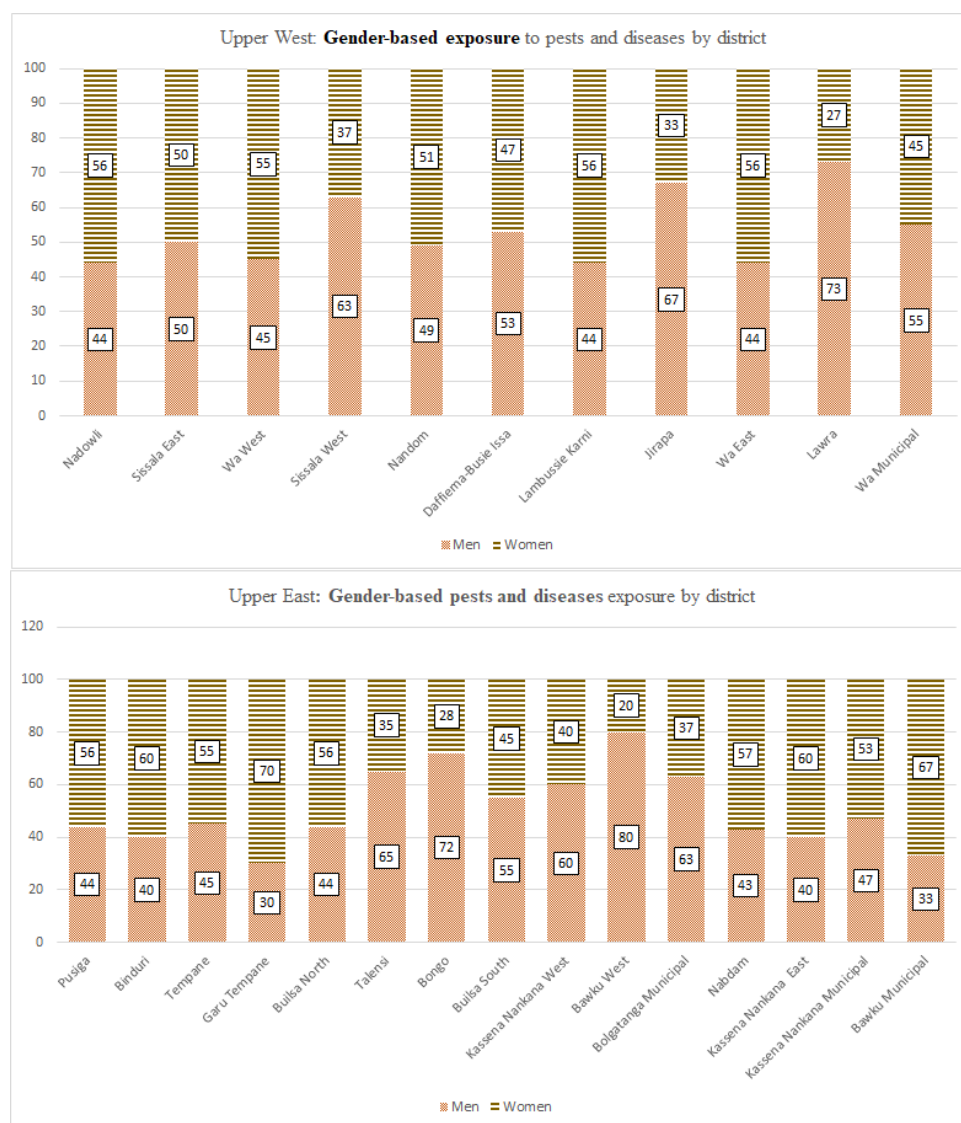


Figure 2. 42 Percentage of exposure to pests and diseases by gender in Upper West and Upper East districts

(e). Bushfires

Brong Ahafo Region: Women reported high exposure to bushfires than men in the Banda (66%), Kintampo South (60%), Kintampo South (60%) and Atebubu Amantin (57%) districts. Men were the majority in the Kintampo North (60%), Pru (58%) and Tain (59%) districts (**Figure 2.43**).

Northern Region: Women were the majority in terms of exposure to bushfires in thirteen (13) districts and these include Tatale Sangule (60%), Yendi Municipal (61%), and Bole (60%). Men were the majority

in eleven (11) districts, including Nanumba South (60%), North Gonja (58%) and Karaga (57%) (**Figure 2.43**).

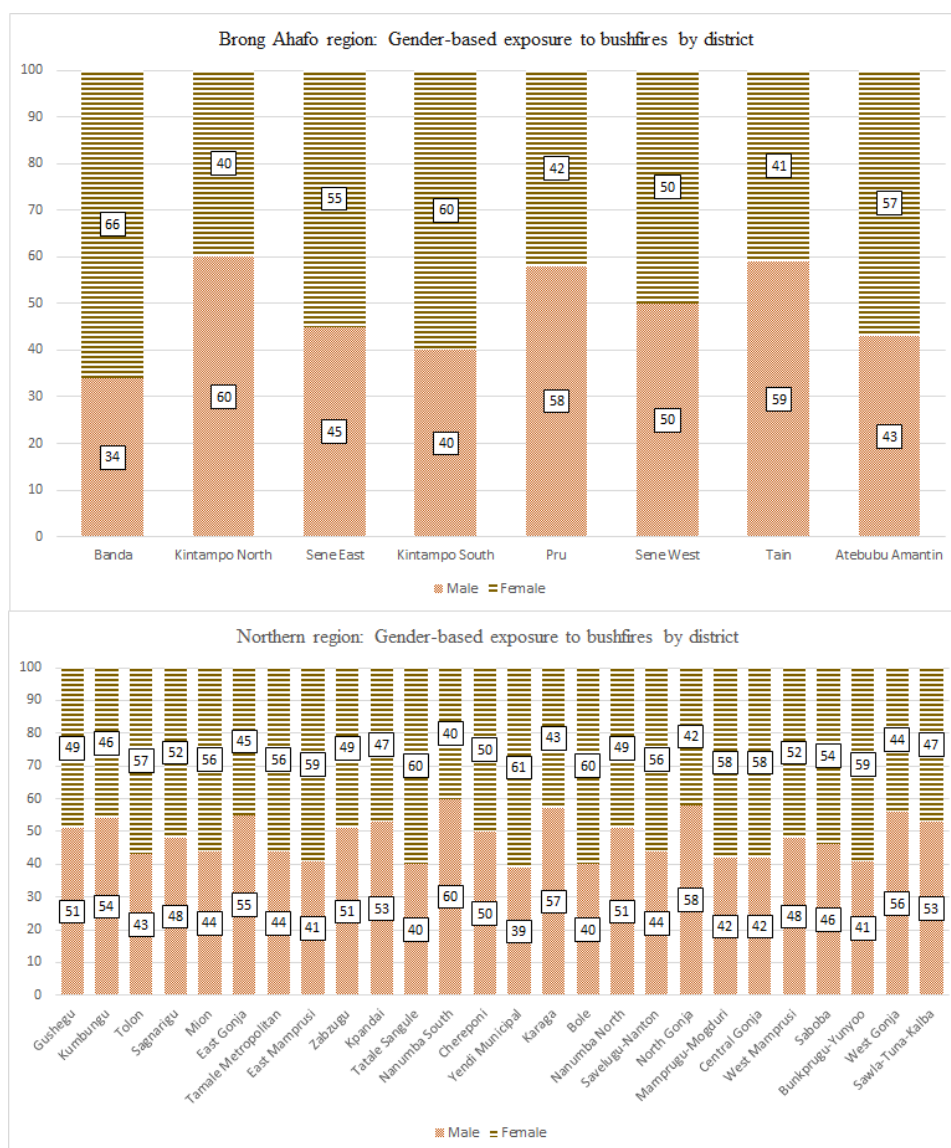


Figure 2. 43 Percentage of exposure to bushfires by gender in Brong Ahafo and Northern districts

Upper West Region: Women were the majority in seven (7) of the eleven (11) districts surveyed. Men were the majority in only three (3) districts including Sissala West (51%), Sissala East (59%) and Nandom (60%) (**Figure 2.44**).

Upper East Region: Men were the majority in most of the districts surveyed including the Tempane (63%), Talensi (60%), Kassena Nankana East (64%), and Kassena Nankana Municipal (61%). Women majority were reported in the Bawku West (60%), Bawku Municipal (60%) and Nabdam (57%) (**Figure 2.44**).

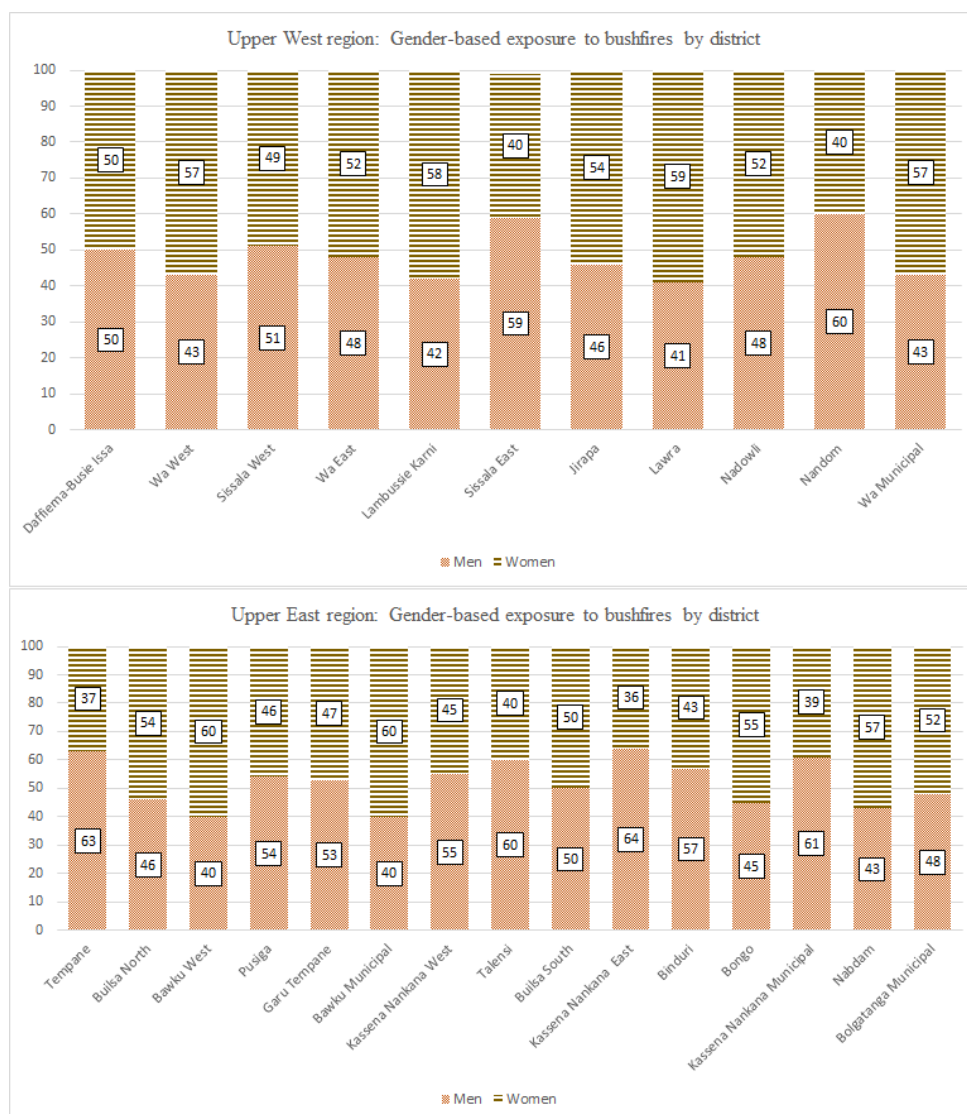


Figure 2. 44 Percentage of exposure to bushfires by gender in Upper West and Upper East districts.

(f). Windstorms

Brong Ahafo Region: Women were reported the majority exposed to windstorms in five (5) out of the eight (8) districts. They include Kintampo North (59%), Sene East (54%), Sene West (56%), Tain (54%) and Atebubu Amantin (55%) (**Figure 2.45**)

Northern Region: Women were majority exposed to windstorms in thirteen (13) districts compared to eight (8) for men. Women dominated districts include Tolon (51%), Tamale Metropolitan (56%) and Nanumba South (56%) whilst men dominated districts include Sagnarigu (53%), East Gonja (57%) and Kpandai (60%) (**Figure 2.45**).

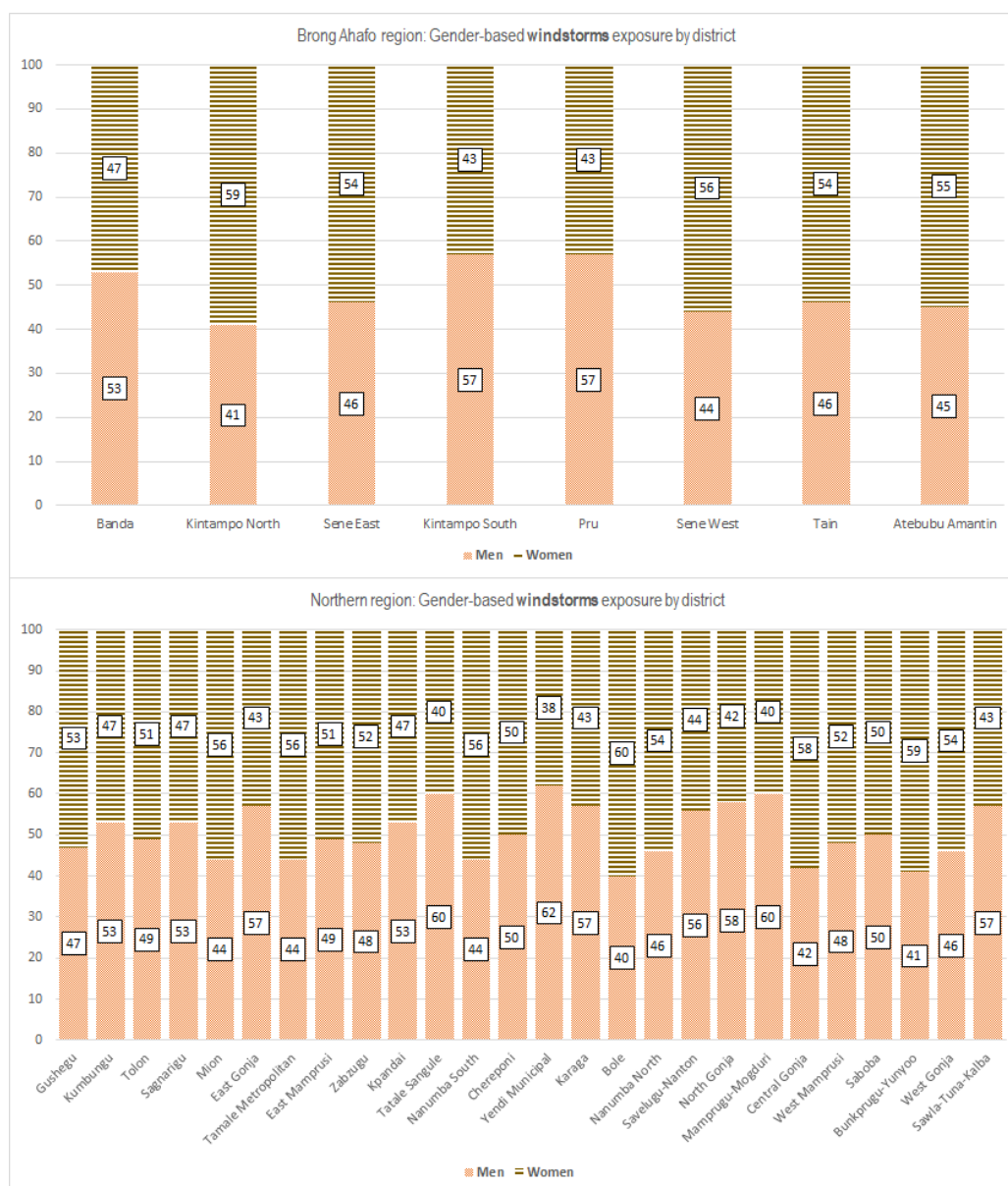


Figure 2. 45 Percentage of exposure to windstorms by gender in Brong Ahafo and Northern districts

Upper West Region: Female majority for exposure to windstorms was reported for six (6) districts whilst male majority was reported in four (4) districts (**Figure 2.46**).

Upper East Region: Men were highly exposed in the region with the majority being reported in eight (8) out of the fifteen (15) districts. Women were the majority in six (6) districts in this region (**Figure 2.46**).

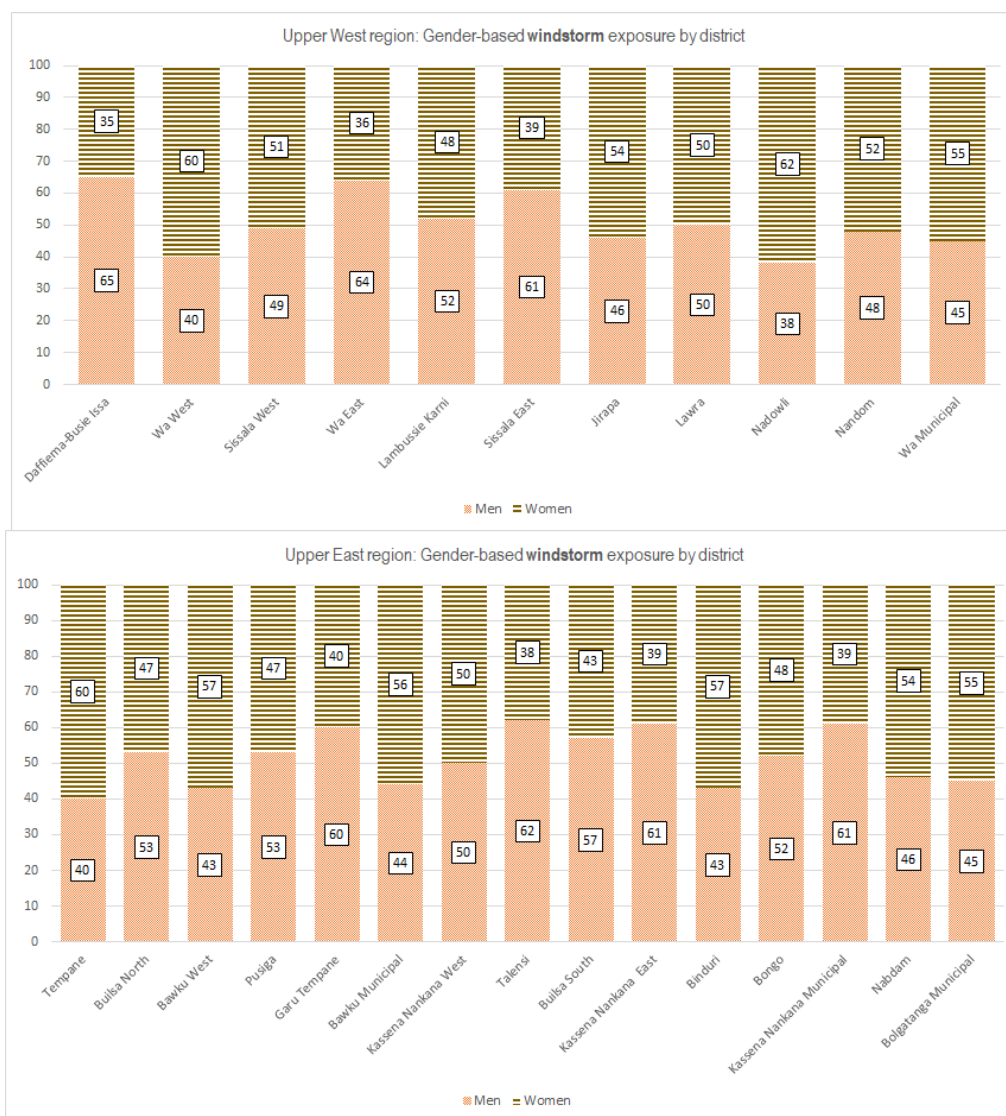


Figure 2. 46 Percentage of exposure to windstorms by gender in Upper West and Upper East districts

(g). Climate-induced erosion

Brong Ahafo Region: Women were majority in four (4) districts: Kintampo North (54%), Kintampo South (60%) and Atebubu Amantin (57%). The remaining districts reported majority for men: Banda (58%), Sene East (57%), Pru (52%), and Sene West (57%) (**Figure 2.47**).

Northern Region: Men were the majority in terms of exposure to climate-induced erosion in fifteen (15) out of the twenty-six (26) districts (**Figure 2.47**).

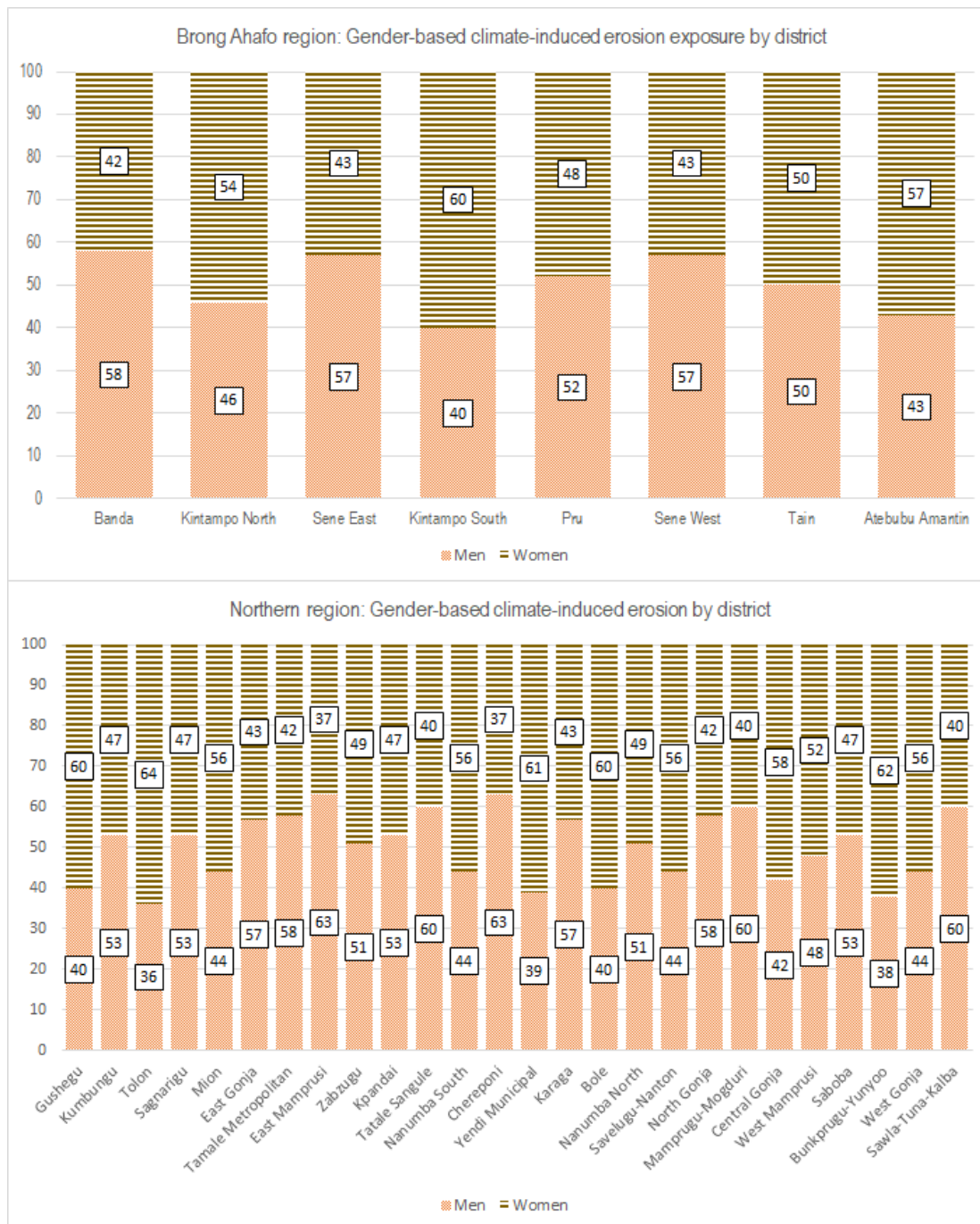


Figure 2. 47. Percentage of exposure to climate-induced erosion by gender in Brong Ahafo and Northern districts

Upper West Region: Men were the majority exposed to climate-induced erosion in five (5) districts. Four districts reported majority scores for women in terms of exposure to climate-induced erosion (**Figure 2.48**).

Upper East Region: Men were the majority exposed to climate-induced erosion in Tempene (63%), Kassena Nankana East (61%) and Kassena Nankana Municipal (64%). Women were the majority in Pusiga (60%) and Nabdam (62%) (**Figure 2.48**).

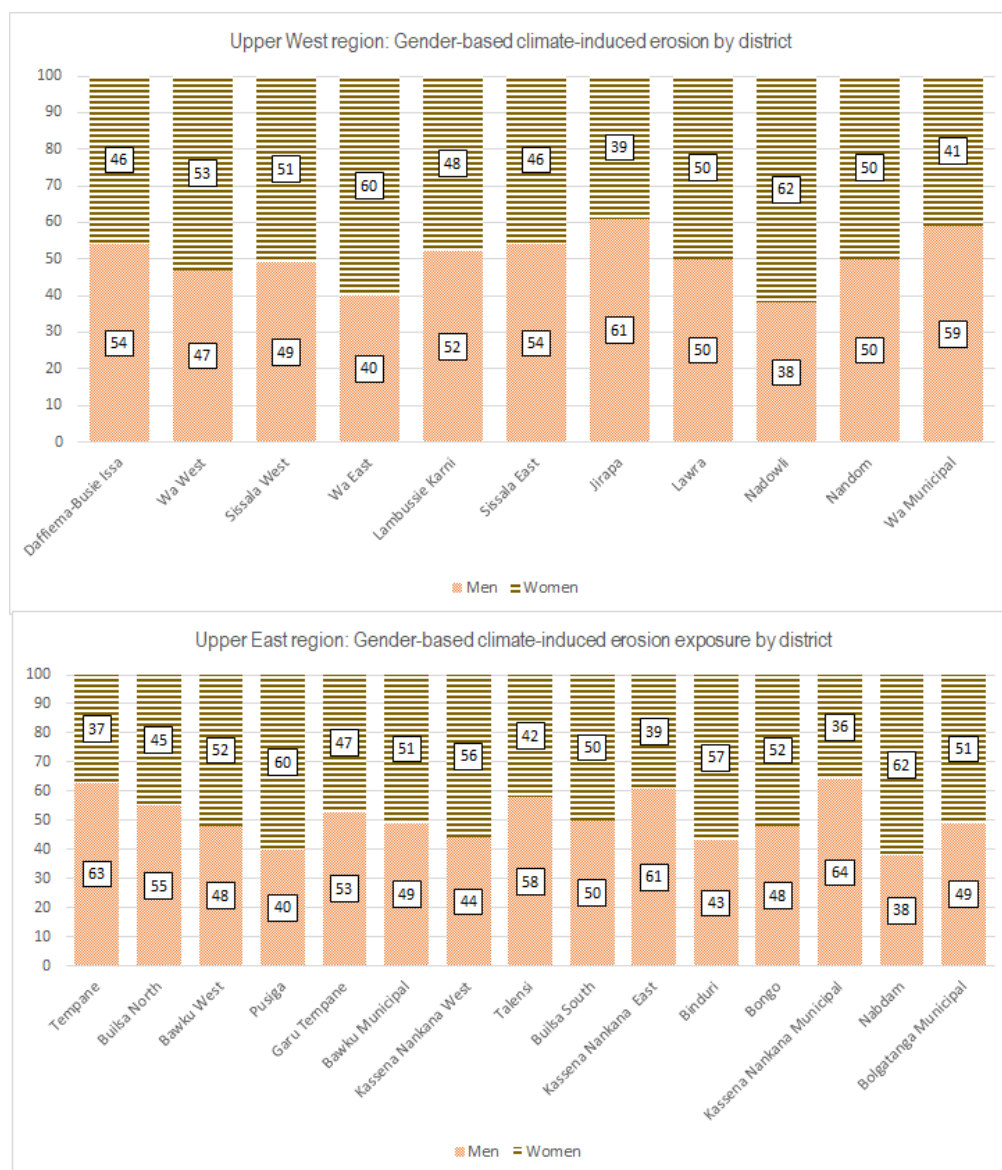


Figure 2. 48 Percentage of exposure to climate-induced erosion by gender in Upper West and Upper East districts

(h). Changes in rainfall pattern

Brong Ahafo Region: Overall, men were the majority in five (5) of the eight (8) districts in the Brong Ahafo assessment area. Districts with high men exposure to changes in rainfall pattern included Kintampo North (59%), Sene East (62%), and Sene West (65%). Women were reported to be more exposed changes in rainfall patterns the Banda (66%) and Kintampo South (55%) districts (**Figure 2.49**).

Northern Region: Women were reported to be the majority of people exposed to changes in rainfall pattern in the Tolon (60%), Yendi Municipal (61%) and Bole (60%) districts. Men who are exposed are the majority in districts such as Gushegu (63%), Mamprugu-Mogduri (60%), Central Gonja (63%), West Gonja (62%) and Sawla-Tuna-Kalba (63%) (**Figure 2.49**).

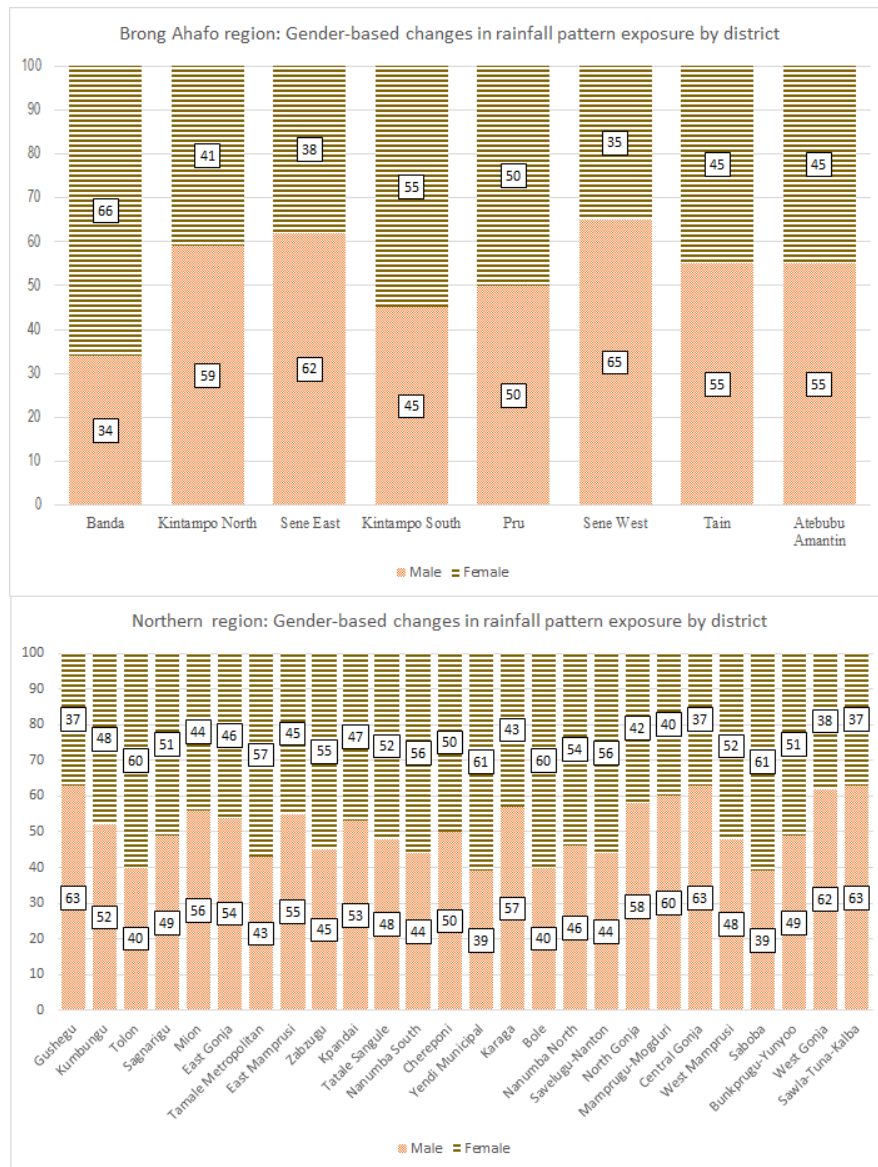


Figure 2. 49 Percentage of exposure to changes in rainfall pattern by gender in Brong Ahafo and Northern districts

Upper West Region: Women were reported to be more exposed to changes in rainfall pattern in five (5) districts namely Wa West (56%), Wa East (61%), Sissala East (60%), Jirapa (54%) and Nadowli (62%). Men were also the majority exposed to changes in rainfall pattern in five (5) districts including Daffiema-Busie-Issa (60%), Lambussie Karni (57%), Lawra (60%), Nandom (55%) and Wa Municipal (60%) (**Figure 2.50**).

Upper East Region: Women were reported to be the majority of people exposed to changes in rainfall pattern in eight (8) districts. Men were the majority in six (6) districts in this region (**Figure 2.50**).

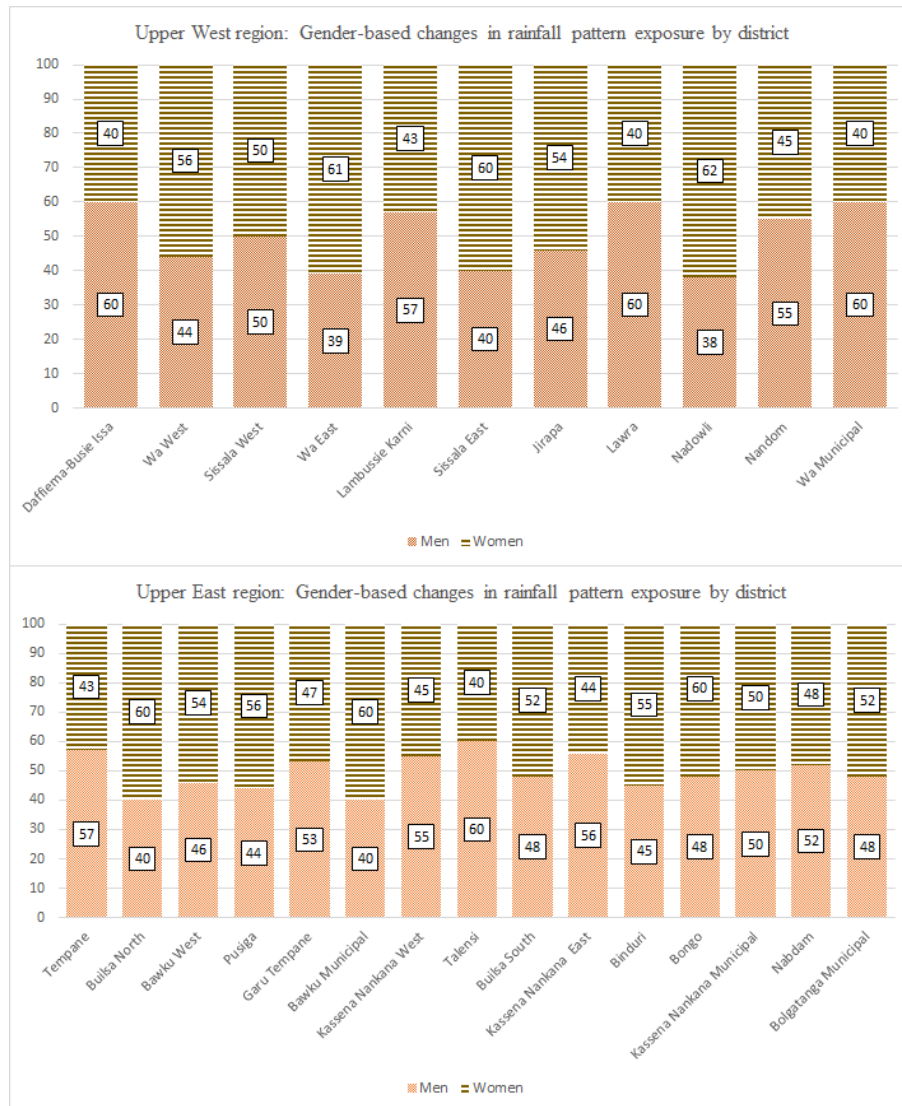


Figure 2. 50. Percentage of exposure to changes in rainfall pattern by gender in Upper West and Upper East districts

(i). Seasonal temperature changes

Brong Ahafo Region: Majority of people exposed to seasonal temperature changes in Banda (56%), Kintampo South (60%), Pru% (61%), Sene West (55%) and Atebubu Amantin (68%) were women. The remaining districts had men reported majority for exposure to seasonal temperature temperatures (**Figure 2.51**).

Northern Region: Men were reported as the most exposed to seasonal temperature changes in thirteen (13) out of the twenty six (26) districts in the Northern region. Women were the majority in eleven (11) districts (**Figure 2.51**).

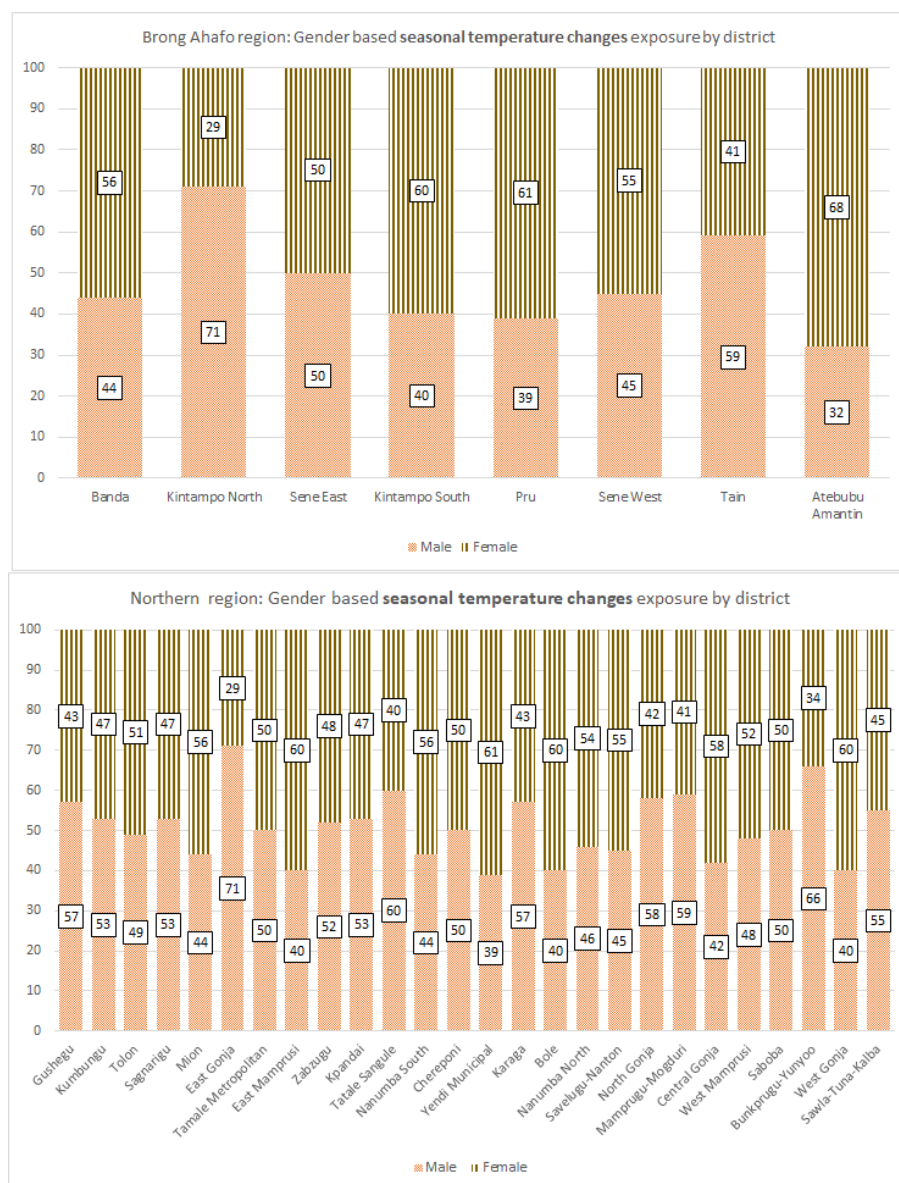


Figure 2. 51 Percentage of exposure to seasonal temperature changes by gender in Brong Ahafo and Northern districts

Upper West Region: Women were reported to be more exposed to seasonal temperature changes in five (5) of the eleven districts including Daffiema-Busie-Issa (57%), Sissala West (51%) and Jirapa (54%). Men were the majority in four districts with the remaining being even (**Figure 2.52**). **Upper East Region:** Women were reported to be the most exposed in eight (8) districts whilst men were reported to the majority exposed to seasonal temperature changes in seven (7) districts (**Figure 2.52**).

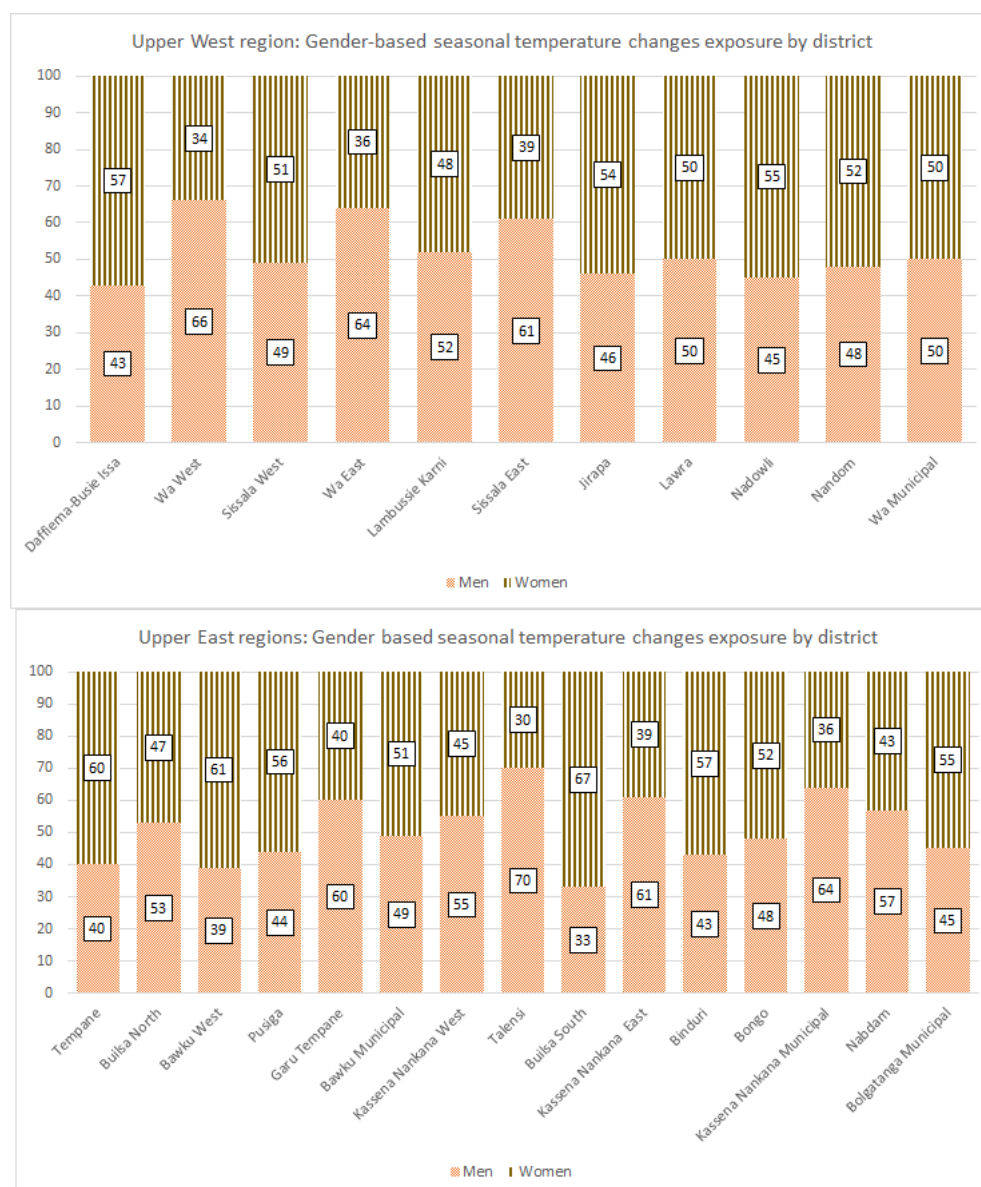


Figure 2. 52 Percentage of exposure to seasonal temperature changes by gender in Brong Ahafo and Northern districts

(j). Climate-induced soil infertility

Brong Ahafo Region: Women were reported to be the majority of people exposed to climate-induced soil infertility in five (5) districts including Kintampo North (54%), Sene East (67%) and Pru (61%). Men were the majority in three (3) districts including Banda (58%), Kintampo South 971%) and Sene West (52%) (**Figure 2.53**).

Northern Region: In fourteen (14) districts, women were reported as the majority exposed to climate-induced soil infertility. The districts include Tatale Sangule (52%), Nanumba South (56%), Bunkprugu Yunyoo (59%) and Central Gonja (58%). Men were the majority in the remaining districts as illustrated in Figure 2.53.

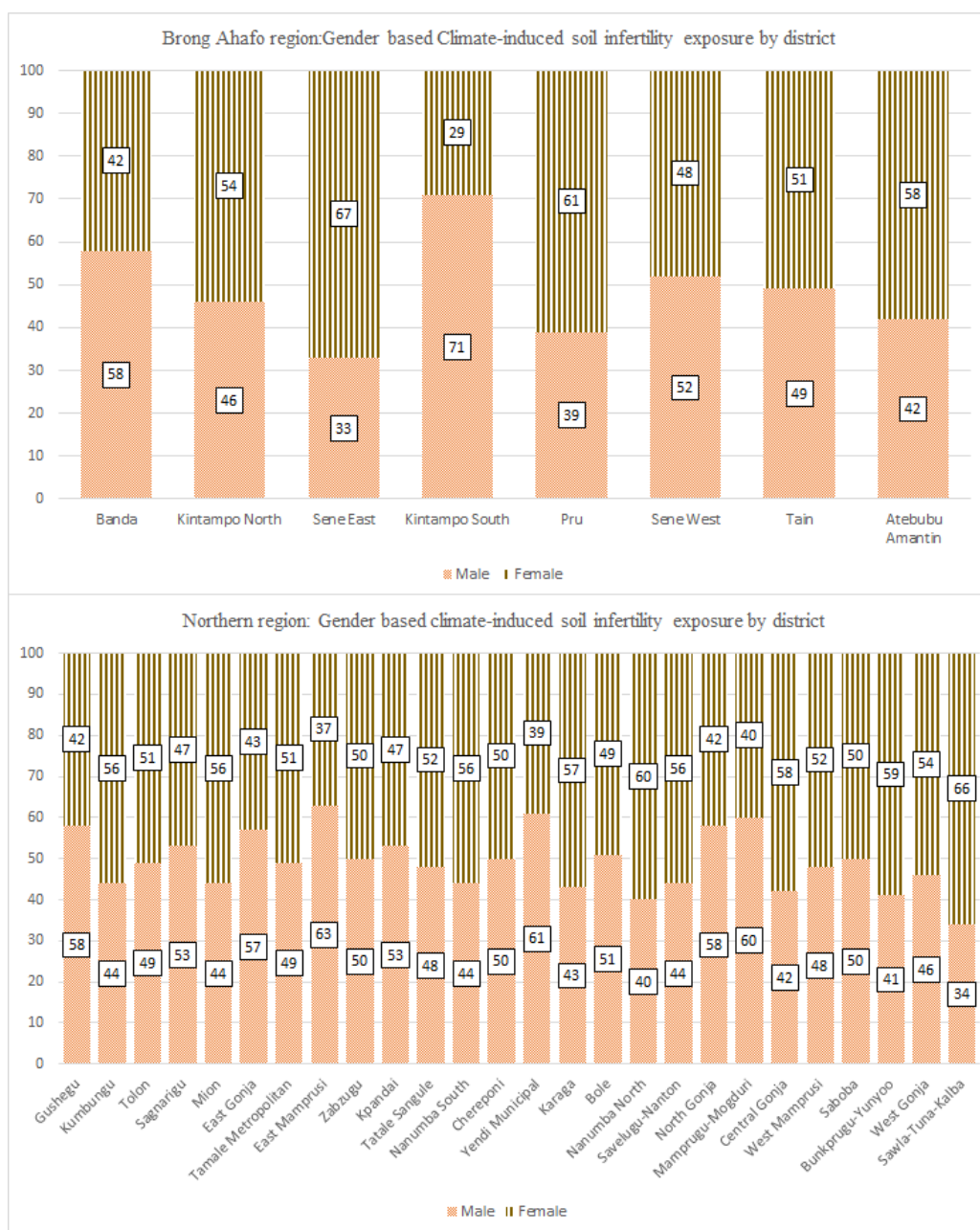


Figure 2. 53. Percentage of exposure to climate-induced soil infertility by gender in Brong Ahafo and Northern districts

Upper West Region: Men were reported as the majority exposed to climate-induced soil infertility in seven districts. In comparison, women were reported to be the most exposed in four (4) districts (**Figure 2.54**).

Upper East Region: Nine (9) districts reported high exposure for women as the most exposed to climate-induced soil infertility. The districts included Builsa North (67%) and Binduri (64%). Men were also reported to be the majority exposed to climate-induced soil infertility being the majority in five (5) districts (**Figure 2.54**).

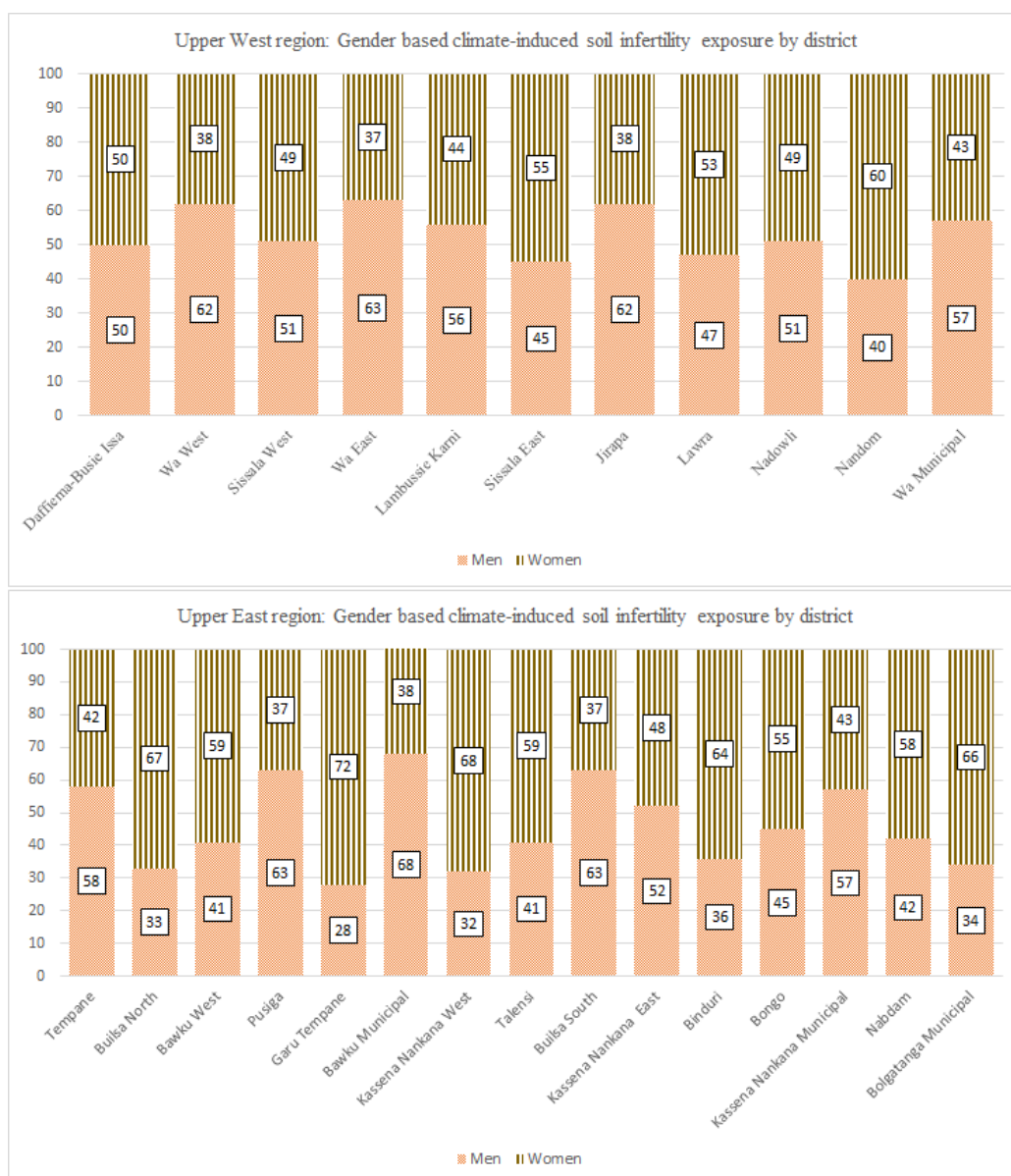


Figure 2. 54. Percentage of exposure to climate-induced soil infertility by gender in Upper West and Upper East districts

(k). Increase in temperature

Brong Ahafo Region: Women were reported to be the majority exposed to increase in temperature in six (6) out of the eight (8) districts with men being the majority in the remaining two (2) districts of Pru (52%) and Atebubu Amantin (51%) (**Figure 2.55**).

Northern Region: Men were reported to be the majority in fourteen (14) districts of the Northern region. Women were the majority exposed to increase in temperature within ten (10) districts with the remaining districts being evenly represented by women and men (**Figure 2.55**).

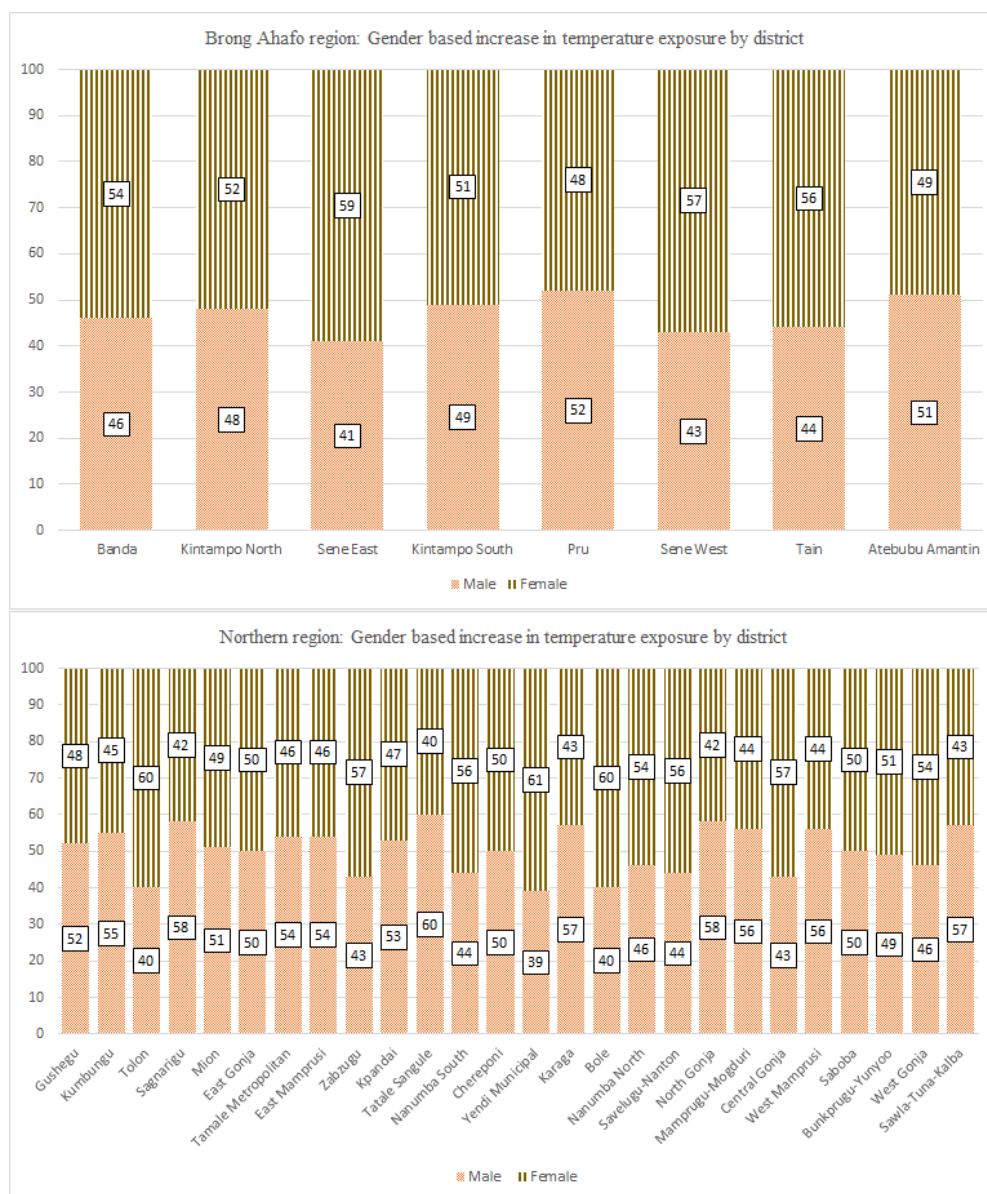


Figure 2. 55 Percentage of exposure to increase in temperature by gender in Brong Ahafo and in Northern districts

Upper West Region: More women were reported to be highly exposed to increase in temperature in six (6) districts including Sissala West (51%), Sissala East (53%), Lawra (59%) and Nandom (55%). Men's majority were reported in Wa West (58%), Wa East (64%) and Jirapa (56%) (**Figure 2.56**).

Upper East Region: Women were reported to be more exposed with their majority in nine (9) districts including Bawku West (60%), Binduri (57%) and Nabdam (52%). Men's majority were reported in six (6) districts including Garu Tempene (60%) and Builsa South (67%) (**Figure 2.56**).

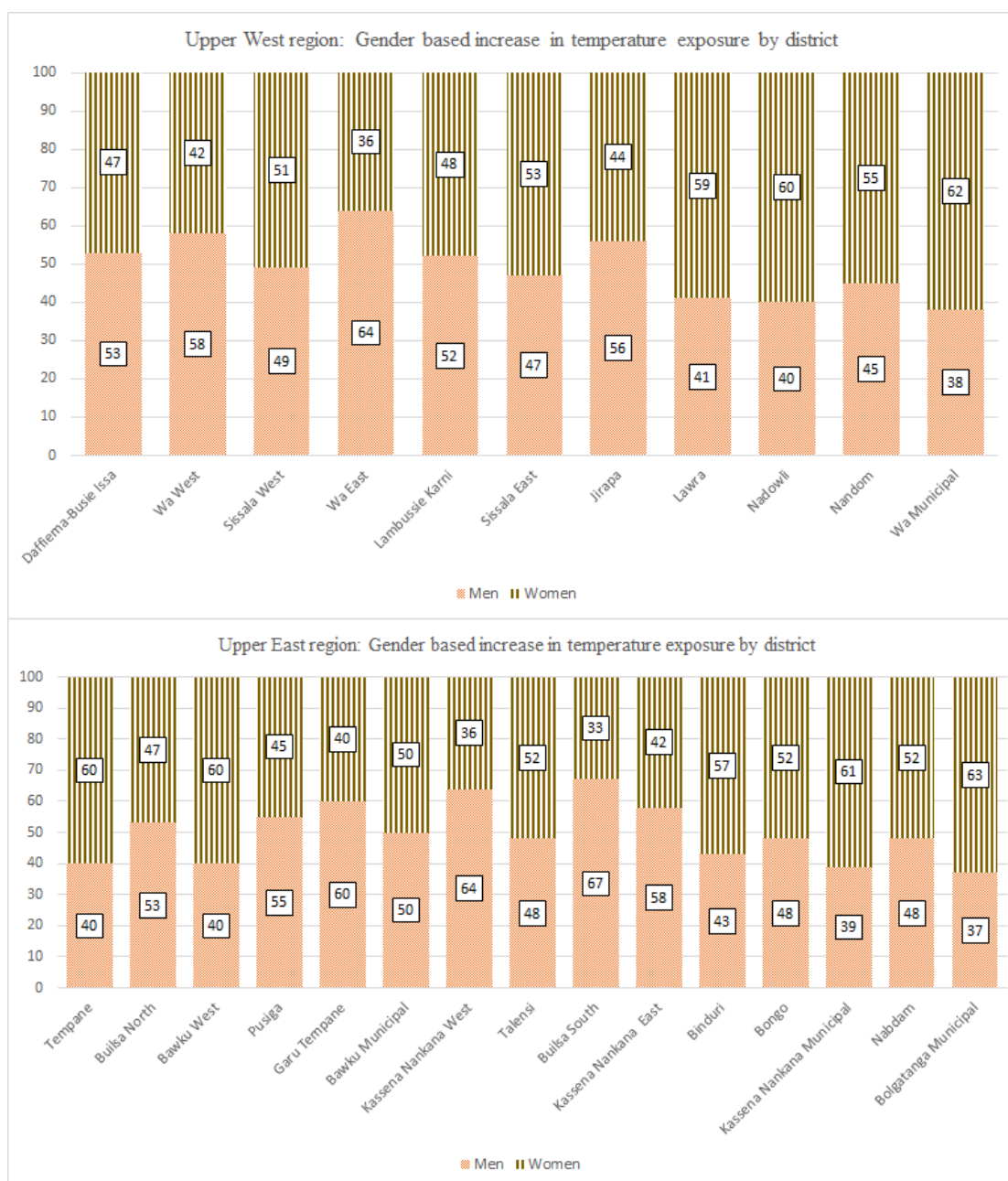


Figure 2. 56 Percentage of exposure to increase in temperature by gender in Upper West and Upper East districts

2.3.2 Sensitivity Analysis

2.3.2.1 District-based sensitivity

This section integrates the findings from households questionnaire survey, with key socioeconomic and biophysical indicators of the Assessment areas to generate district-based hazard sensitivity maps. Based on the household survey, interviewees were asked to evaluate the

extent to which their various livelihood systems were sensitive to the various climate-related hazards. Data generated was aggregated with and used to map sensitivity based on the following scale: 0-20%, (very low), 21-40% (Low), 41-60% (Moderate), 61-80% (high) and 81-100% (very high).

(a). Flood

Overall, sensitivity to flood ranged from very low to moderate across the Assessment area.

Figure 2.57 indicates that only households in the Mion, Gushegu and Kpandai districts in the Northern Region perceived their sensitivity to flood to be very high.

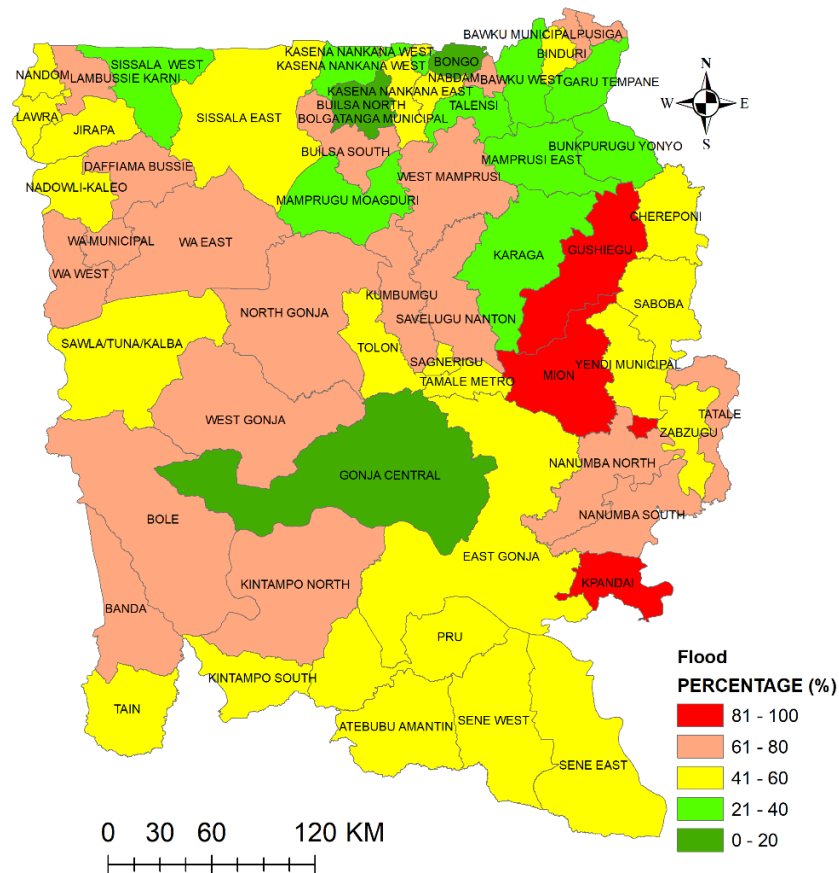


Figure 2. 57 Flood Sensitivity across district

In the Brong Ahafo Region, Banda and Kintampo North households perceived their sensitivity to flood to be high compared with interviewees in the remaining selected districts who perceived their livelihood systems to be moderately sensitivity. In the Northern region, districts with high sensitivity according to the survey results include North Gonja, Kumbungu, West Gonja and Bole. Central Gonja households perceived their sensitivity to flood to be low. In the Upper East region, Pusiga district households' indicated that their sensitivity to flood is high with Bongo district

households' perceiving low flood sensitivity. Sissala West district households' in the Upper West perceived low sensitivity to flood.

(b). Drought

Generally, drought sensitivity as perceived by households across the Assessment area can be categorized as high (**Figure 2.58**). In the Brong Ahafo Region, Atebubu Amantin district households' indicated that their sensitivity to drought is very high whilst Tain district households' perceived their sensitivity to be moderate.

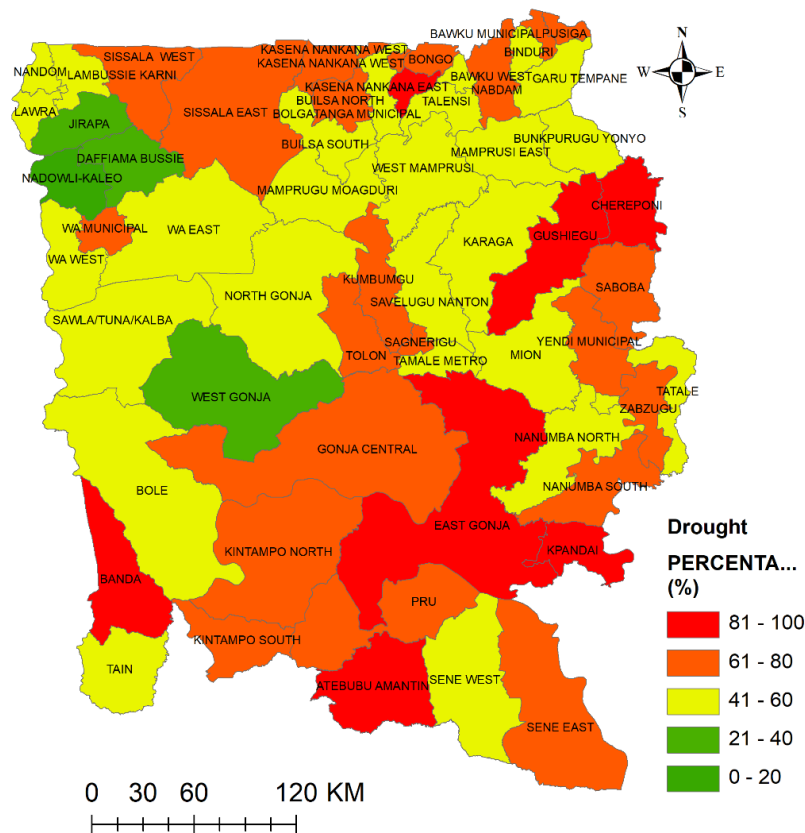


Figure 2. 58 Drought sensitivity across districts

In the Northern Region, the districts with very high sensitivity perception include Gushegu, Chereponi, East Gonja and Kpandai. West Gonja district households perceived their drought sensitivity to be low. In the Upper West Region, Sissala East, Sissala West and Wa Municipal households ranked their sensitivity to drought to be high. In the Upper East, Kasena-Nankana district households ranked their drought sensitivity to be high.

(c). Dry spells

Majority of households in the Assessment area reported high sensitivity to dry spells as shown on the map (**Figure 2.59**). In the Brong Ahafo, Tain district is the only area with moderate sensitivity perception. Sene East and Sene West both ranked their sensitivity to be high. The remaining districts reported very high sensitivity to dry spells.

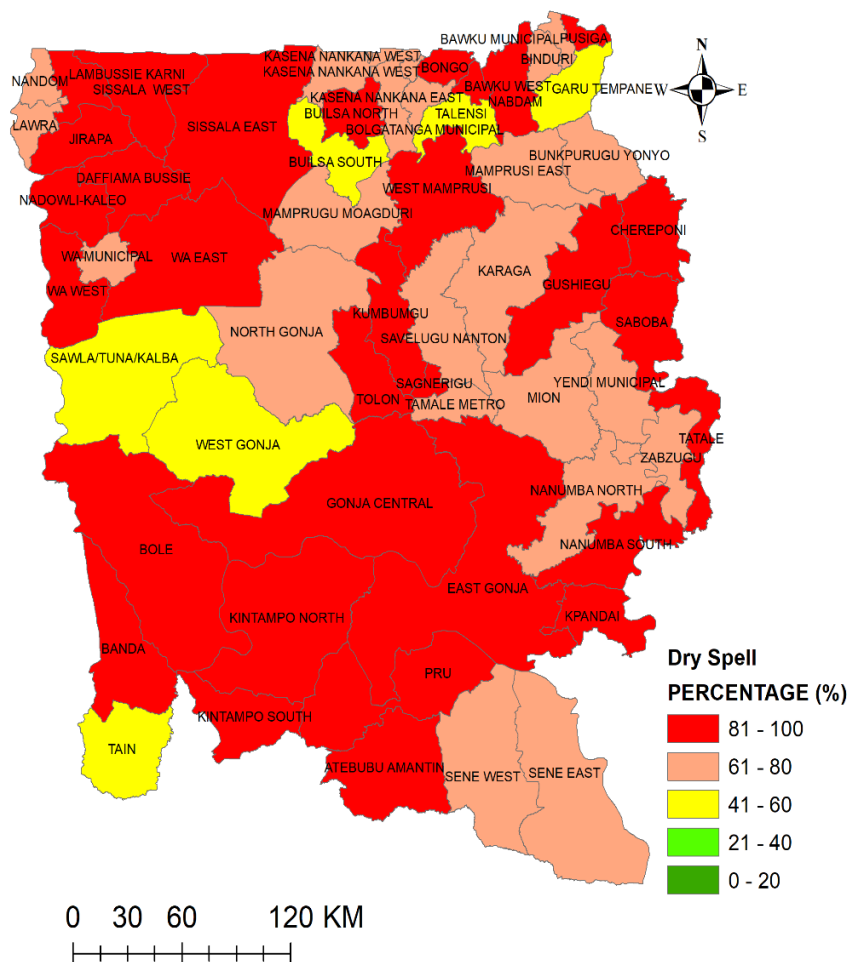


Figure 2. 59 Dry spells sensitivity across districts

In the Northern Region, Sawla/Tuna/Kalba and West Gonja are the only districts reporting moderate sensitivity. The rest of the districts in this region either ranked their sensitivity to be high or very high. Similarly, Builsa South, Talensi and Garu Tempene districts in the Upper East region perceived their dry spells sensitivity to be moderate. In the Upper West region, all the districts perceived their sensitivity to dry spells to be very high, except Wa Municipal, Lawra and Nandom.

(d). Pests and Diseases

Pest and diseases sensitivity is very high in the Northern, Upper West and Upper East Regions. Apart from constraining crop production and livestock, many households indicated pests and diseases to have negative human health effects. All the districts in the Upper West Region reported their sensitivity to pests and disease to be very high (**Figure 2.60**).

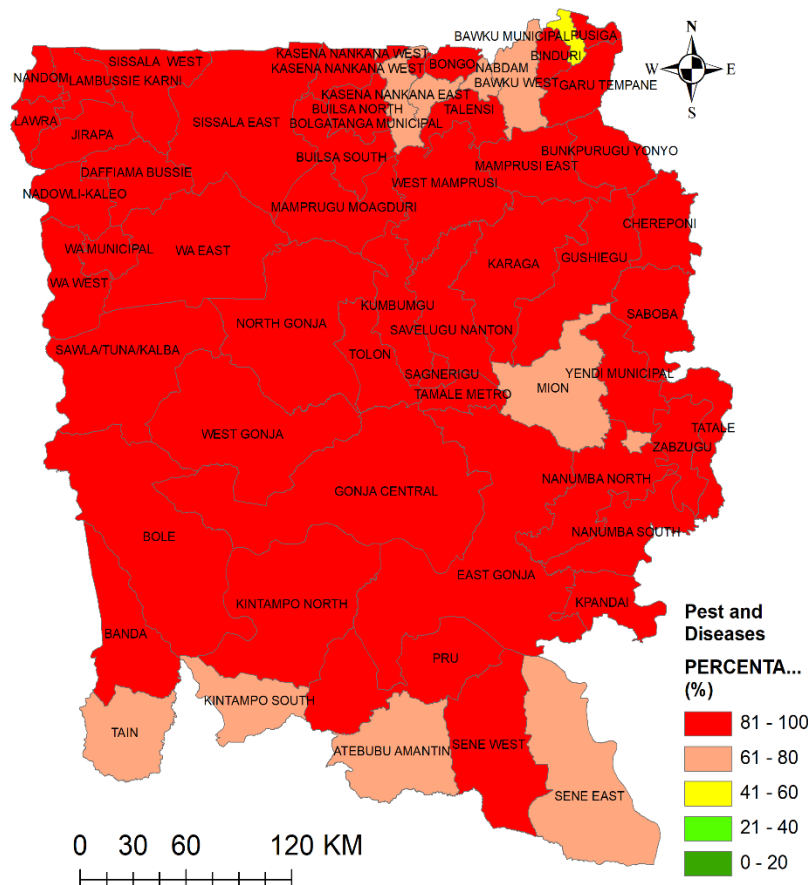


Figure 2. 60 Pests and diseases sensitivity across districts

In the Upper East Region, Bawku municipality households reported their sensitivity to be moderate unlike the rest of the districts who reported either high or very high sensitivity. The Mion district in the Northern Region reported their sensitivity to pests and diseases to be high.

(e). Bushfires

Most districts in the Assessment area reported their sensitivity to bushfires to be very high (**Figure 2.61**). Jirapa district in the Upper West perceived their sensitivity to bushfires to be very low.

Karaga, Kumbungu and Bunkpurugu-Yunyoo all in the Northern Region perceived their sensitivity to bushfire to be moderate.

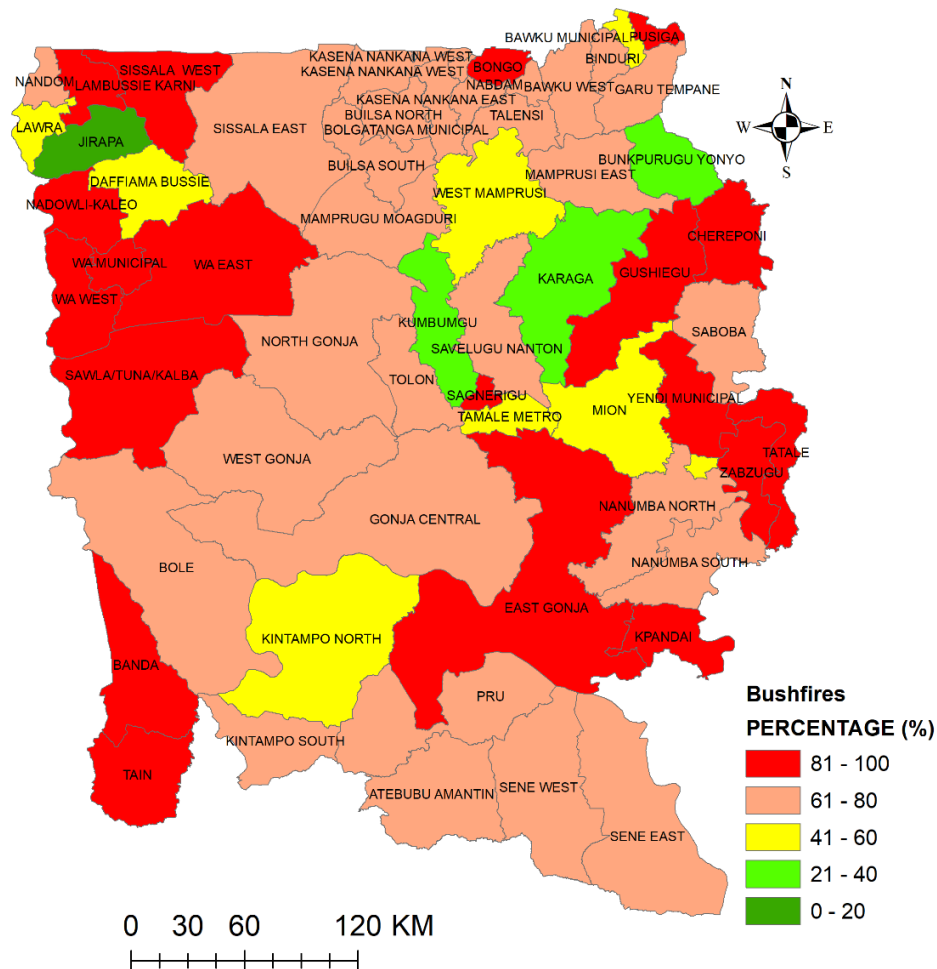


Figure 2. 61 Bushfires sensitivity across districts

(f). Windstorms

As natural hazards, windstorms are noted for causing damage to properties and agriculture assets. **Figure 2.62** maps the sensitivity hotspots from the Assessment area. The response rate indicated that very high sensitivity areas dominate are evenly spread across the Assessment area. However, the Northern Region has more moderately sensitive districts. Similarly, all the low sensitivity districts including Mion, Karaga, Mamprusi East and Kumbungu are found in the Northern Region.

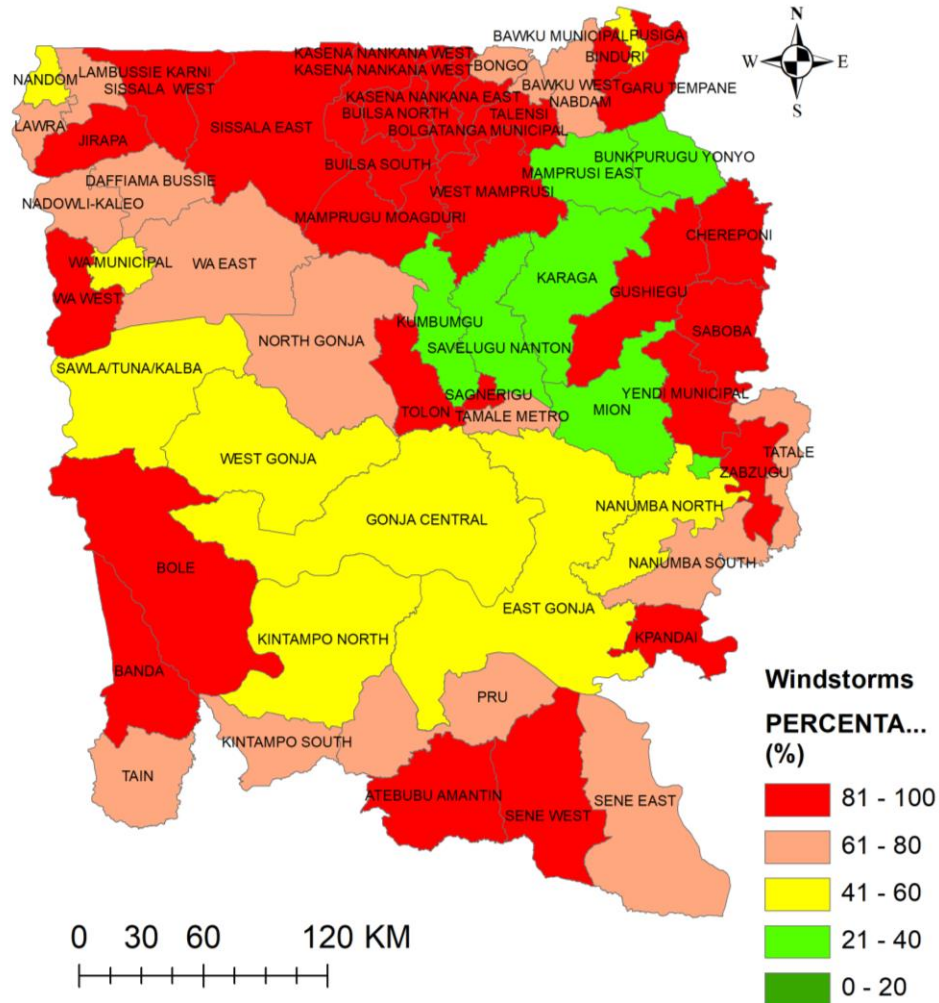


Figure 2. 62 Windstorm sensitivity across districts

(g). Climate-induced erosion

From the present Assessment, climate-induced erosion appears to be an environmental degradation concern in the Assessment area (**Figure 2.63**). The Upper East Region as shown on the map reported the highest sensitivity with the Builsa North, Bawku West and Pusiga districts households' perceiving very high sensitivity.

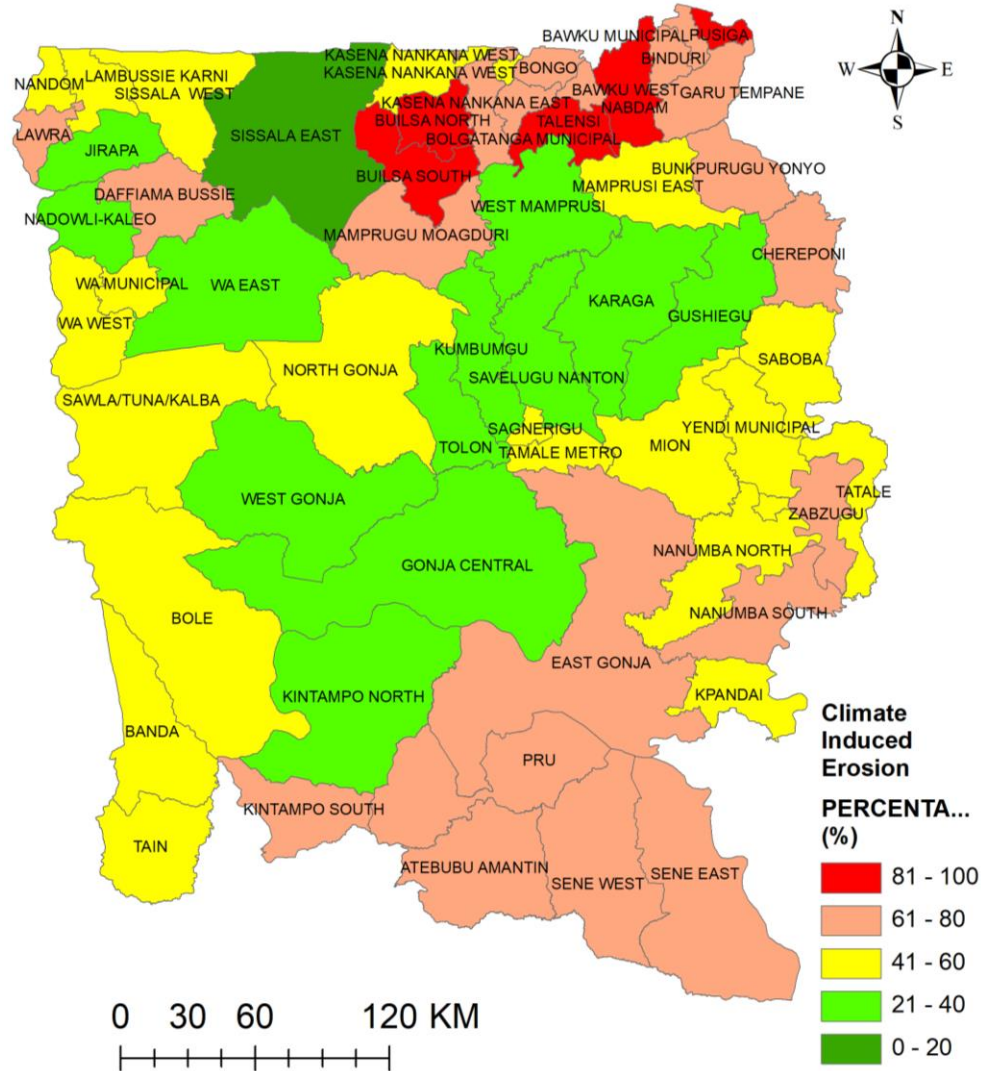


Figure 2. 63 Climate-induced erosion sensitivity across districts

For the Upper West Region, Daffiema-Bussie-Issa and Lawra districts reported high sensitivity. In the Northern Region, Bunkprugu-Yunyoo, East Gonja. West Mamprusi and Zabzugu also reported their sensitivity to be high. In Brong Ahafo Region, Kintampo North, Sene West, Sene East, Atebubu Amantin reported high sensitivity with Tain and Banda households reporting moderate sensitivity.

(h). Changes in rainfall pattern

Households' perception of their sensitivity to changes in rainfall pattern was very high across the Assessment area (**Figure 2.64**). This may be indicative of the importance of rainfall to the people in the Assessment area where livelihood systems revolve around rainfed agriculture and reliance on ecosystem services.

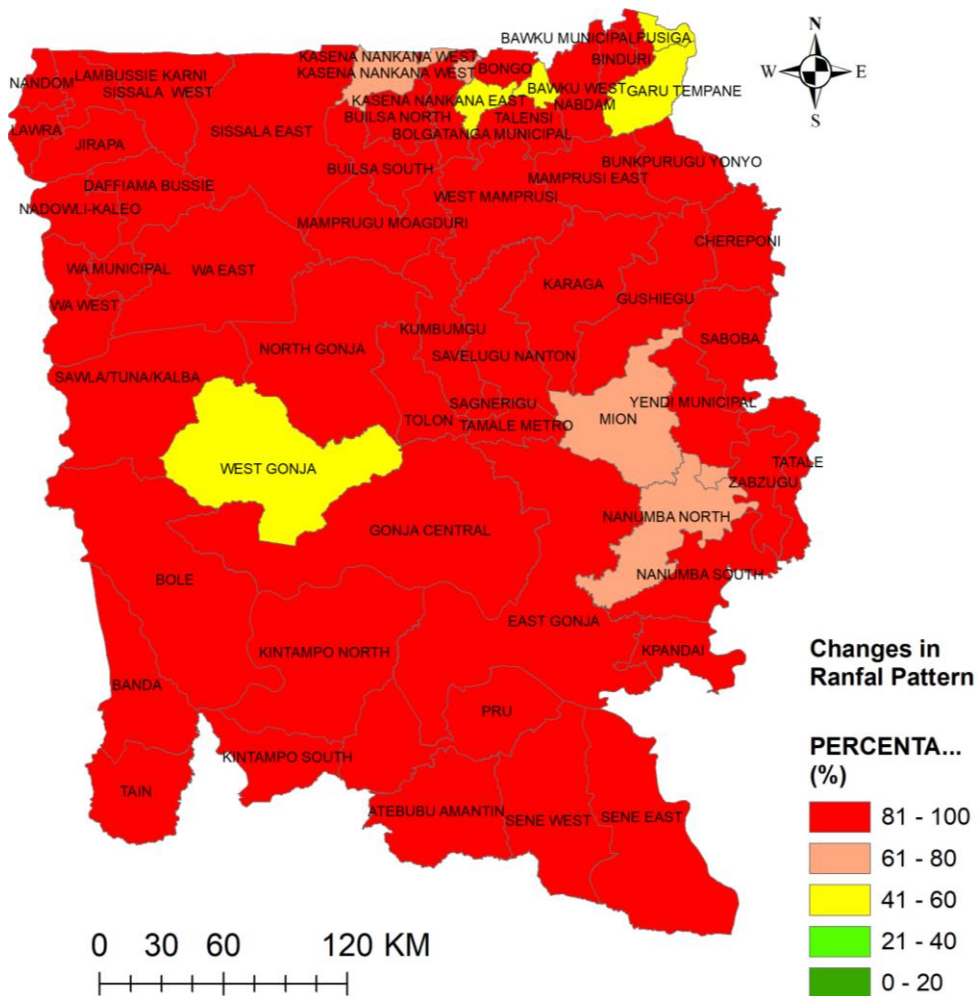


Figure 2. 64 Changes in rainfall patterns sensitivity across districts

The West Gonja, Mion, and Nanumba North districts in the Northern Region reported their sensitivity to changes in rainfall patterns to be moderate. In the Garu Tempene and Nankana East districts of the Upper East Region households reported moderate sensitivity to changes in rainfall patterns.

(i). Seasonal temperature changes

Sensitivity to seasonal temperature changes was reported to be very high by many households in the Northern, Upper East and Upper West Regions. **Figure 2.65** below shows the sensitivity hotspots as perceived by households.

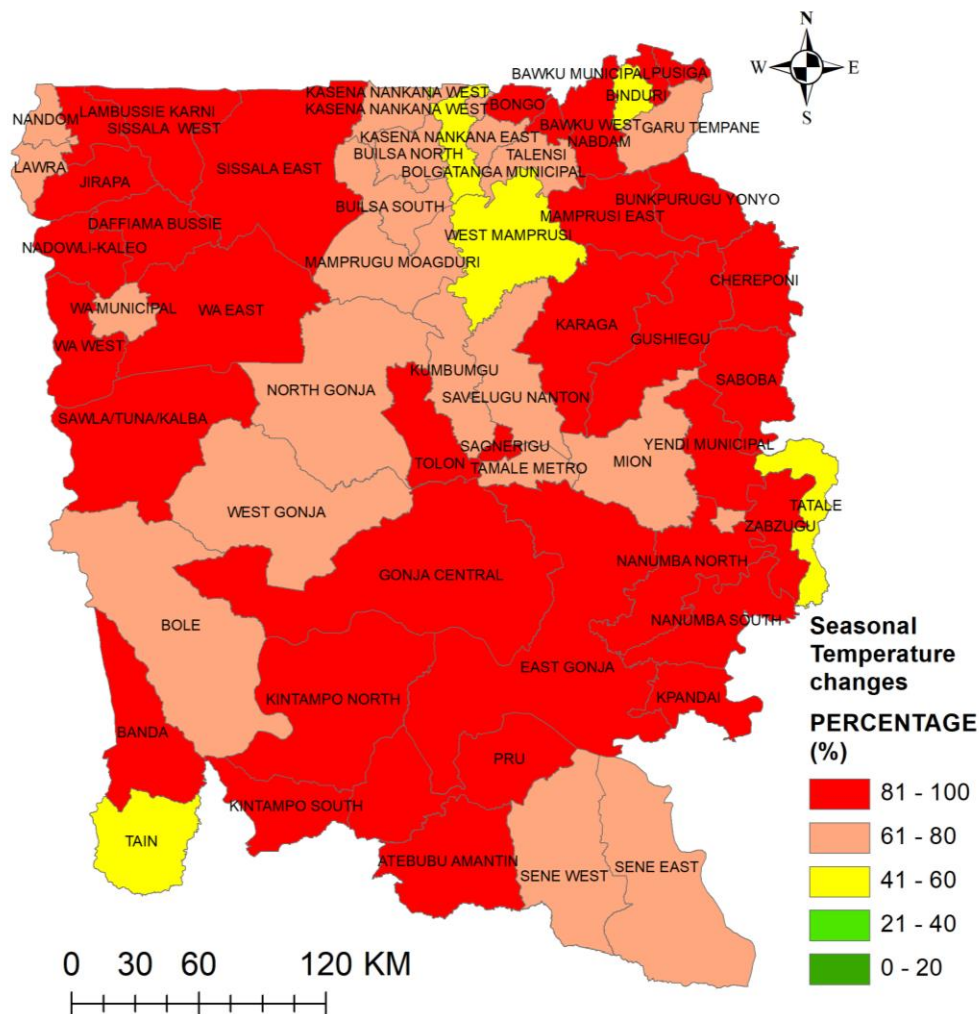


Figure 2. 65 Seasonal temperature changes sensitivity across districts

Overall, very high sensitivity districts to seasonal temperature changes is reported in the Jirapa, Sissala East, Wa East, Nadowli-Kaleo (Upper West), Pusiga, Bongo, Bawku West (Upper East), East Gonja, Tolon, Nanumba South and North (Northern Region) and Kintampo North, Banda and Atebubu Amantin (Brong Ahafo). The Tain (Brong Ahafo), Tatale (Northern) and Binduri (Upper East) reported moderate sensitivity to seasonal temperature changes.

(j). Climate-induced soil infertility

Climate-induced soil infertility appears to be a major environmental concern for households across the Assessment area. **Figure 2.66** illustrates many areas of very high sensitivity to the phenomena.

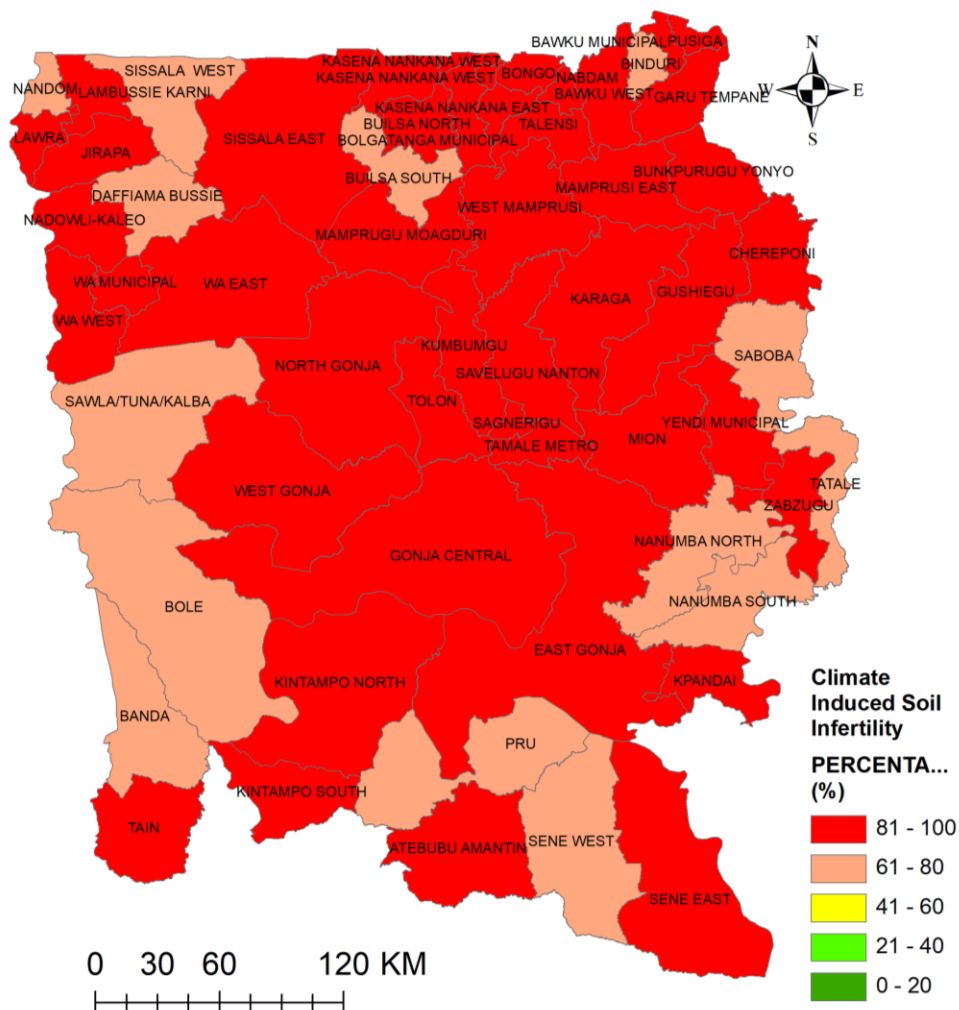


Figure 2. 66 Climate-induced soil infertility sensitivity across districts

In the Northern Region, Bole, Sawla/Tuna/Kalba, Saboba, Nanumba South are among the districts perceiving their sensitivity to be high. The remaining districts in the Region reported very high sensitivity. Households in the Binduri and Builsa South districts of the Upper East Region reported high sensitivity whilst the rest reported very high sensitivity. In the Brong Ahafo, Sene West and Pru are the only districts reporting high sensitivity.

(k). Increase in temperature

Perception of sensitivity to increase in temperature is reported between very high, high, moderate and low in the Assessment area as indicated on the map (Figure 2.67)

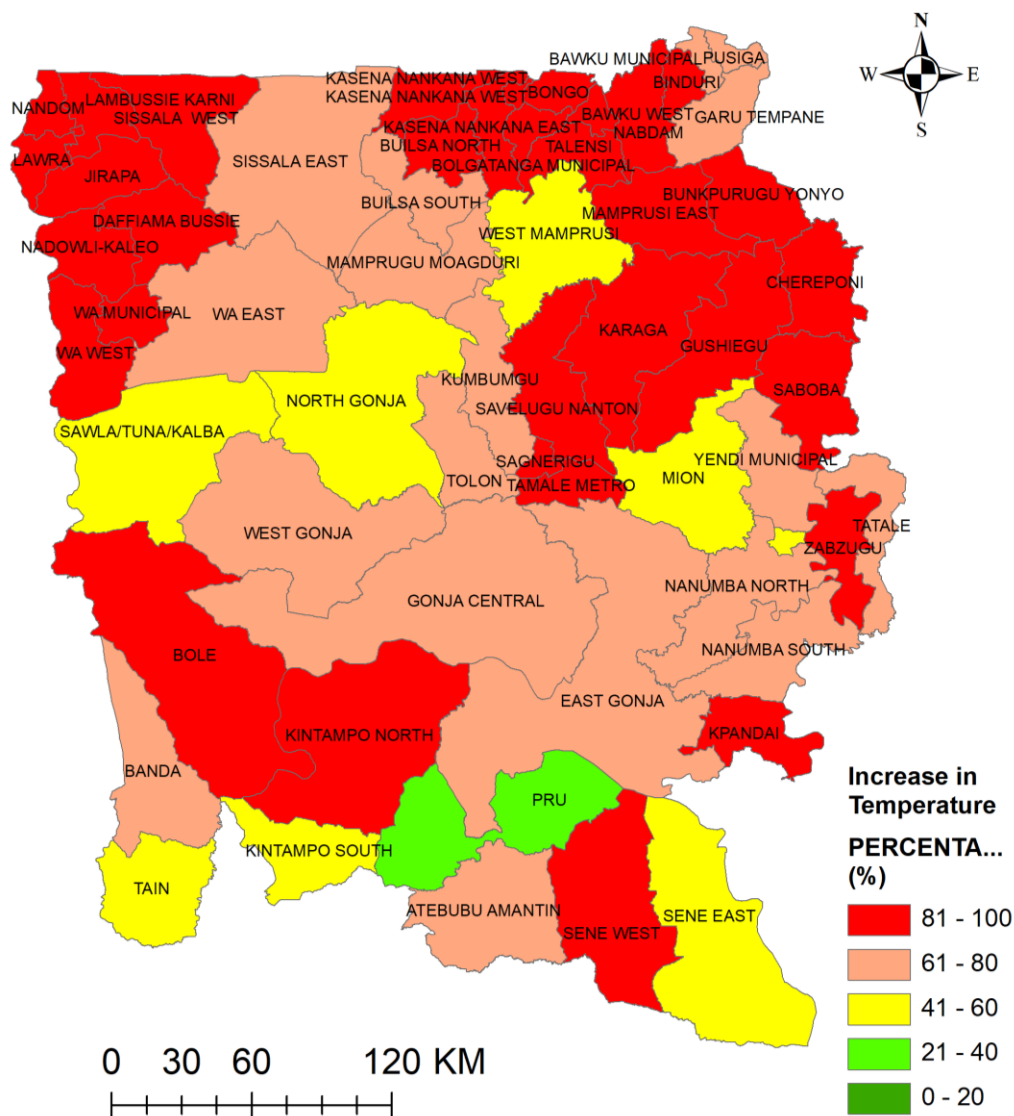


Figure 2. 67 Increase in temperature sensitivity across districts

Sene West and Kintampo North are the two districts in the Brong Ahafo with very high sensitivity to increase in temperature reporting. In the same Region, Kintampo South, Atebubu Amantin and Tain districts reported moderate sensitivity while households in the Pru district perceived their sensitivity to increase in temperature to be low. In the northern Region, Sawla/Tuna/Kalba, Mion, North Gonja and West Mamprusi reported moderate sensitivity. The Wa East and Sissala East districts households' of the Upper West Region perceived moderate sensitivity to increase in temperature. In the Upper East Region, Pusiga and Garu Tempene districts ranked their sensitivity to be moderate.

2.3.2.2 Gender-based Sensitivity

Despite the critical role played by different men and women in improving human livelihood systems, huge disparities exist in terms of decision-making, access to economic opportunities and assets. The Assessment, therefore, found it necessary to examine gendered variations in sensitivity to climate-related risks and hazards.

Concerning flood, the majority of female interviewed reported their sensitivity to be high while majority of male respondents perceived their sensitivity to flood to be medium (**Figure 2.68**). Both male (59%) and female (58%) respondents' rated their sensitivity to drought to be high. Male (54%) and female (50%) perception of their sensitivity to dry spells were high, followed by medium sensitivity ranking (male: 40%, female: 44%). In terms of sensitivity to pests and diseases, both male and female reported high sensitivity with males (63%) being slightly higher than female (60%). It must be emphasized that the fieldwork for this Assessment was undertaken at the period when armyworm (*spodoptera exempta*) infestation in many parts of Ghana including the Assessment area was being reported in 2017.

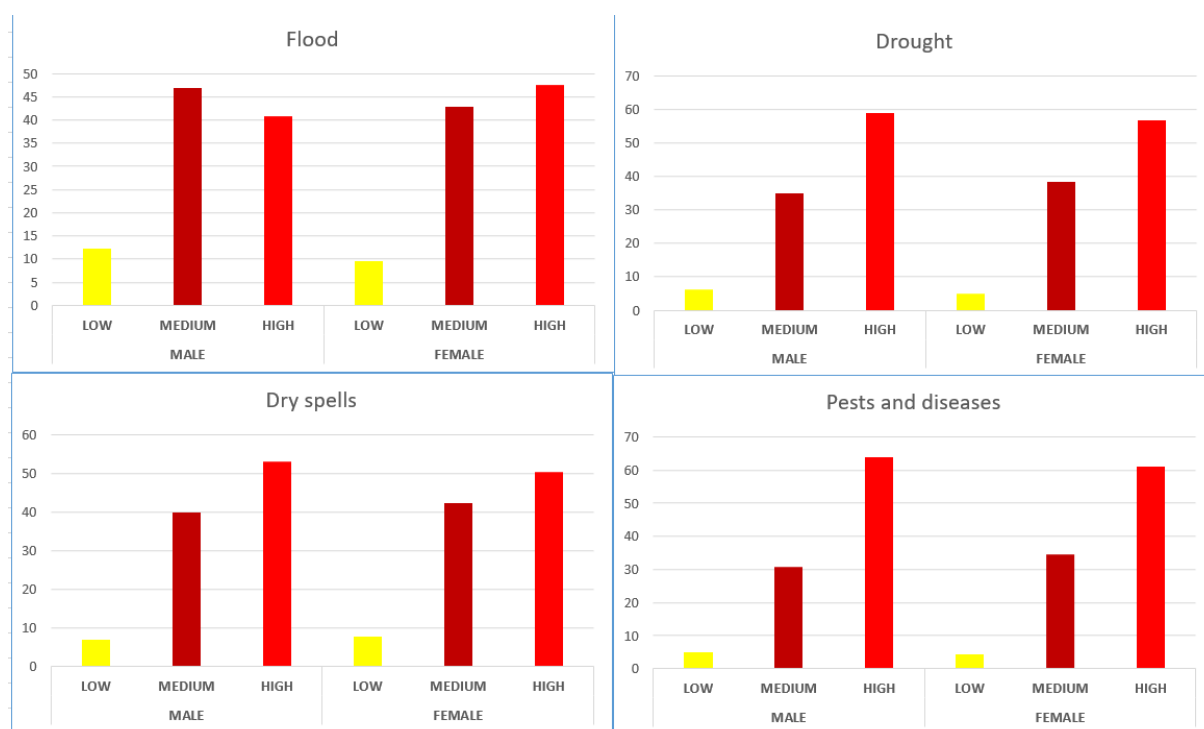


Figure 2. 68. Perception of sensitivity to flood, drought, dry spells, pests and diseases by gender

From the Assessment, both male and female ranked their sensitivity to bushfire to be high although females (55%) compared with male (52%) were slightly higher. Majority of female

(50%) and male (44%) interviewees rank windstorms sensitivity as medium. Similarly, both groups ranked sensitivity to climate-induced erosion as medium (female: 54%, male: 43%). Male and female interviewees perceived their sensitivity to changes in rainfall pattern to be high with over 50% response across both groups. **Figure 2.69** provides more detail.

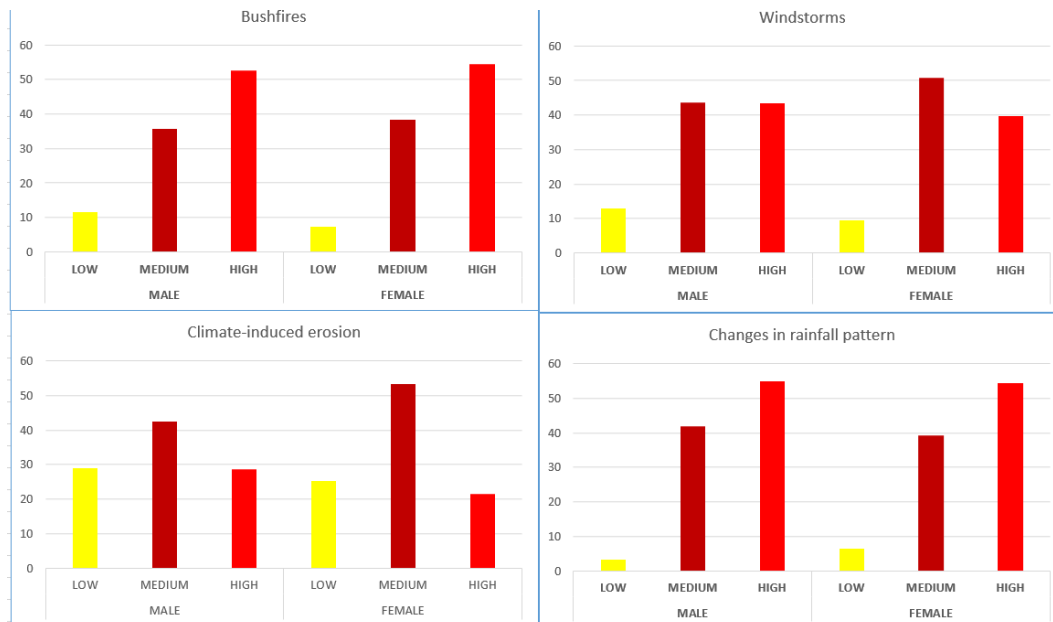


Figure 2. 69 Sensitivity to bushfires, windstorms, climate-induced erosion and changes in rainfall pattern by gender

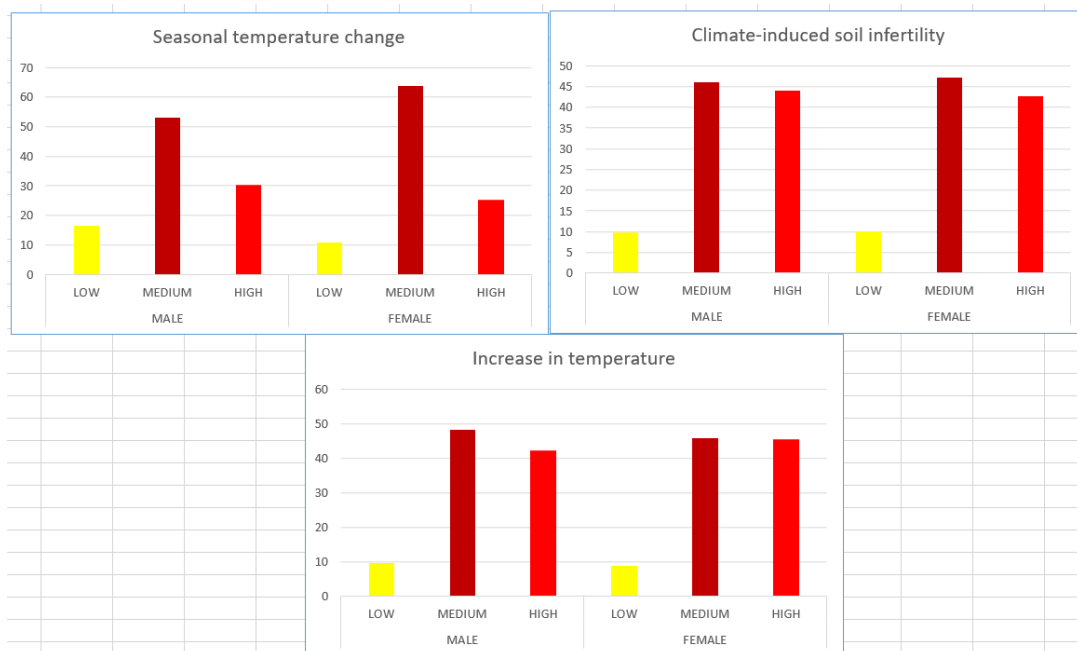


Figure 2. 70 Magnitude of effect of seasonal temperature change, climate-induced soil infertility and increase temperature by gender

According to the majority of female (65%) and male (54%) respondents, their sensitivity to the effect of seasonal temperature change is high. The significantly higher perception by females (**Figure 2.70**) may be corroborating existing evidence on limited opportunities and resources needed to adapt to climate-related risks for most women ([Wrigley-Asante et al. 2017](#))

2.3.2.3 Social Group (Youth and Young Adults) Sensitivity

Based on the request of the TOR for this assignment, this section explored the sensitivity of youths (15-24) and young adults to the various climate-related hazards. In the context of this assessment, youth fall into the 15-24 age group whilst young adults consists of 25-35 age groups.

(a). Youth groups

The effects of the various climate-related hazards on youths in the studied areas, though negative was not too significant in terms of numbers. Results from the districts in the Brong Ahafo, Northern, Upper West and Upper East Regions are displayed in **Figures 2.71, 2.72, 2.73 and 2.74**

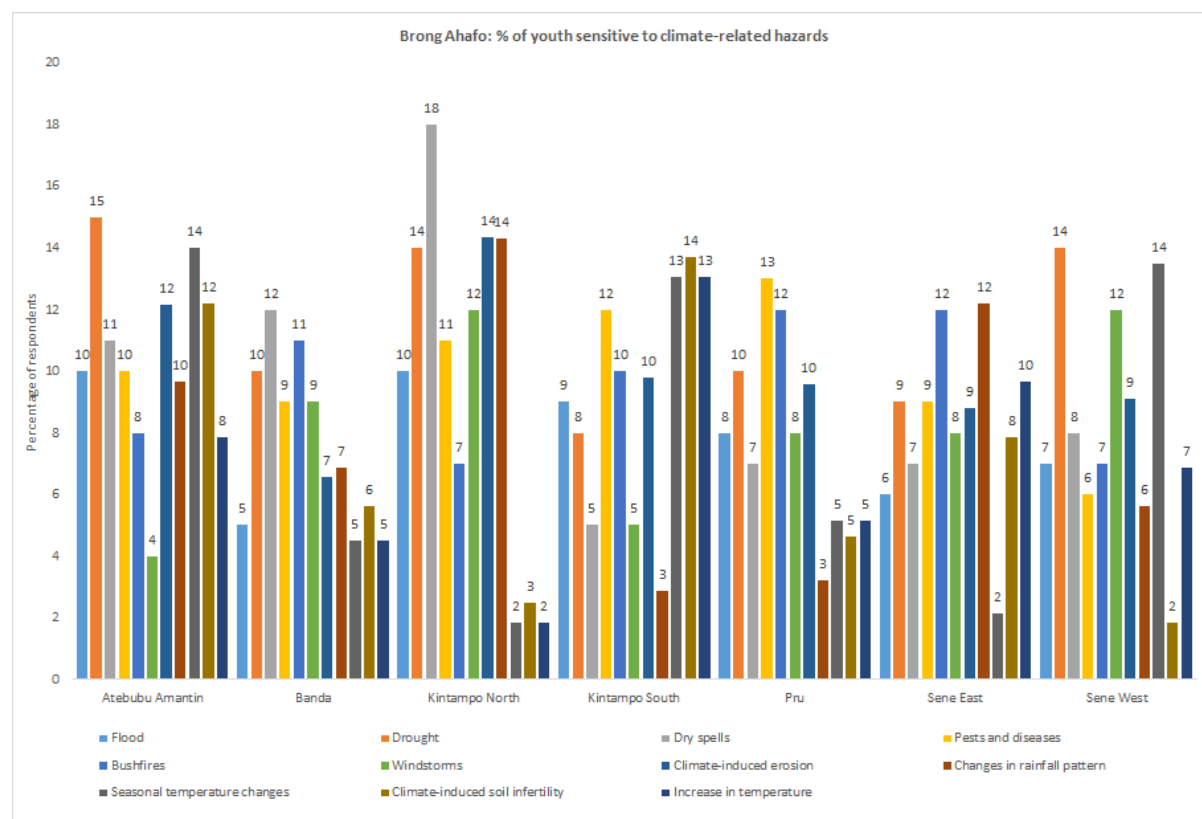


Figure 2. 71: Percentage of Brong Ahafo districts youth sensitivity to climate-related hazards

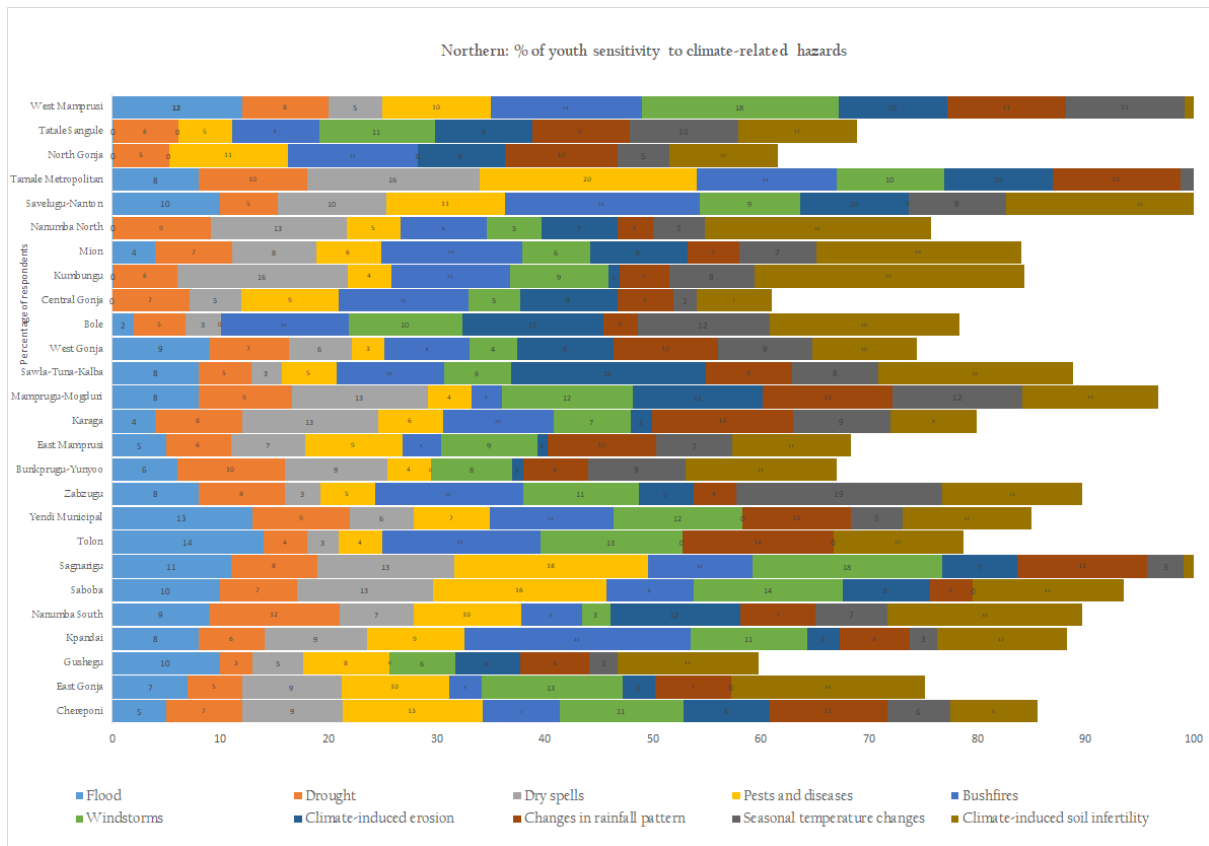


Figure 2. 72. Percentage of Northern Region districts youth sensitivity to climate-related hazards

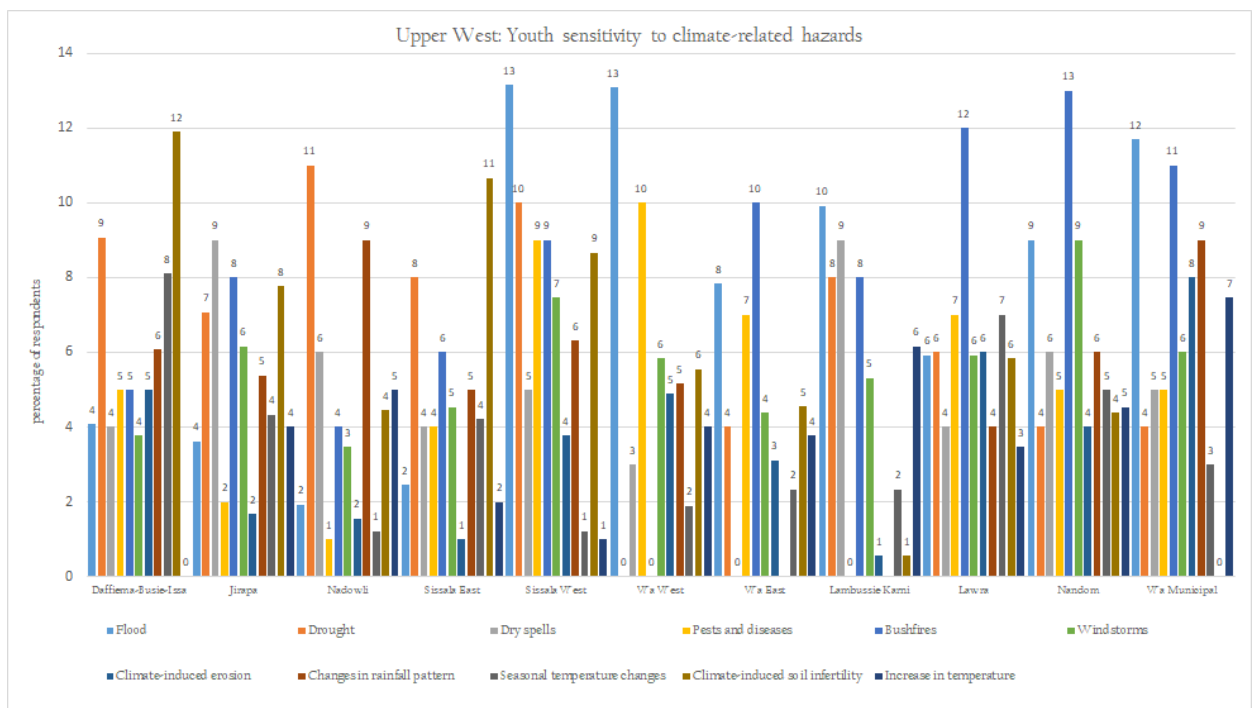


Figure 2. 73 Percentage of Upper West Region districts' youth sensitivity to climate-related hazards

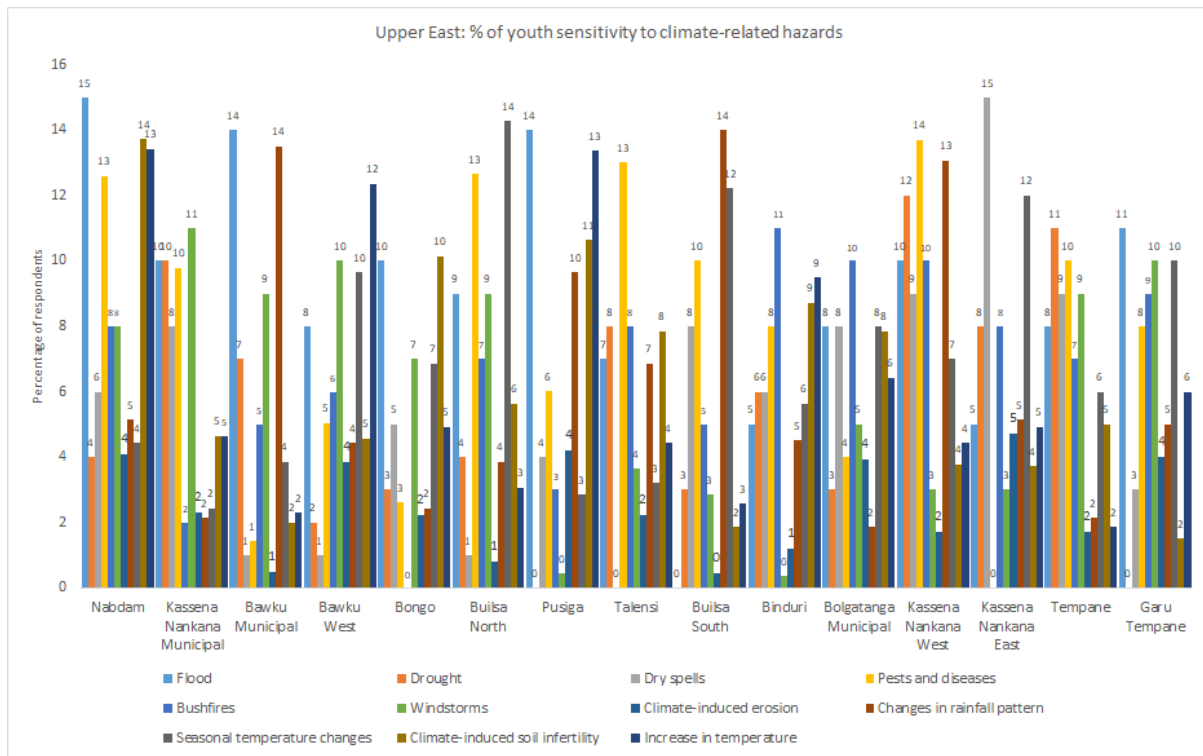


Figure 2. 74 Percentage of Upper East Region districts' youth sensitivity to climate-related hazards

(b). Young Adults

Young adults (aged 25-35) sensitivity to the different climate-related hazards based on the results from the household surveys are illustrated graphically in **Figures 2.75, 2.76, 2.77 and 2.78.**

Brong Ahafo

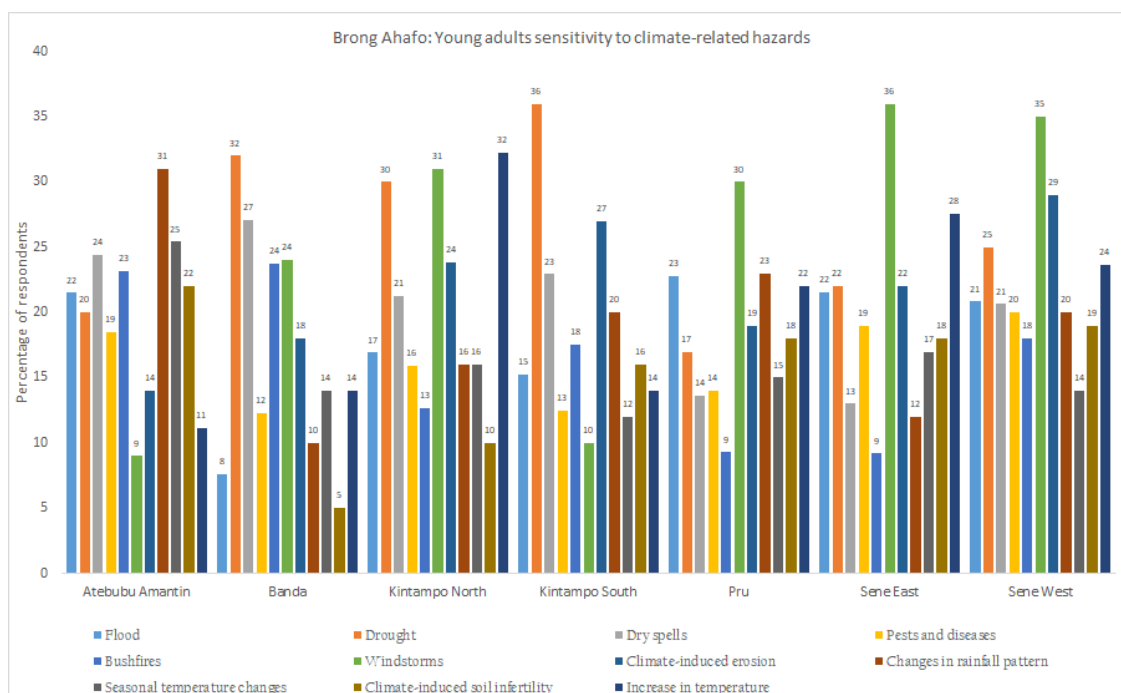


Figure 2. 75. Percentage of Brong Ahafo Region districts' young adults' sensitivity to climate-related hazards

Northern

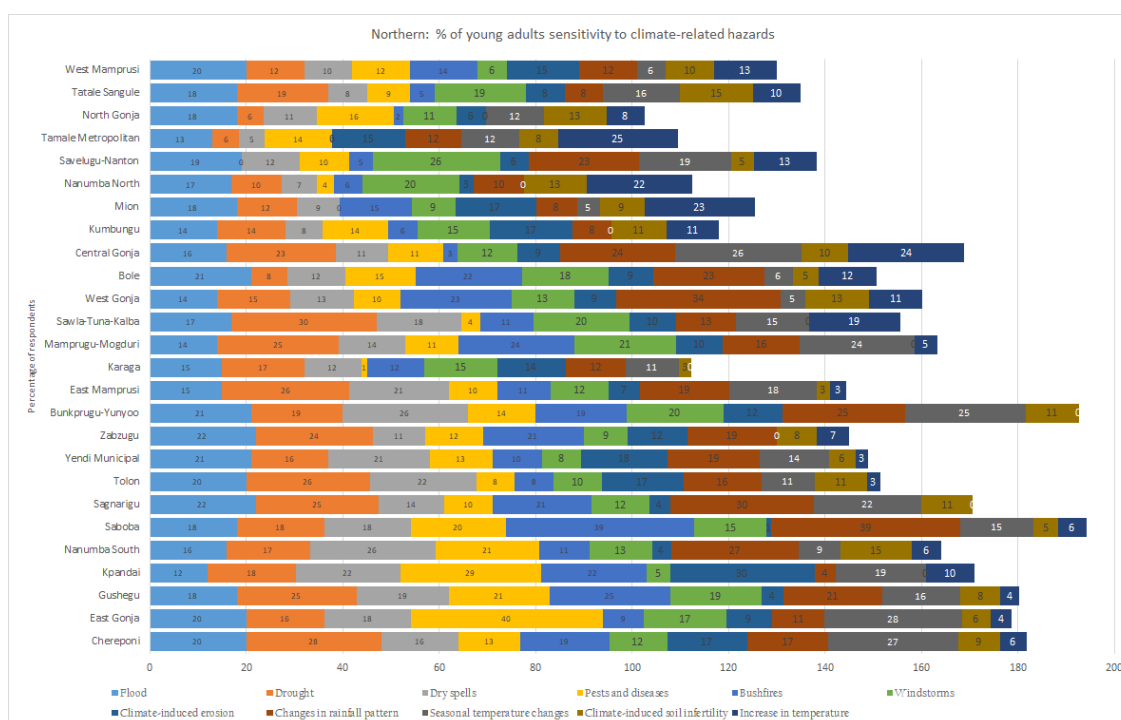


Figure 2. 76. Percentage of Northern Region districts young adults' sensitivity to climate-related hazards

Upper West

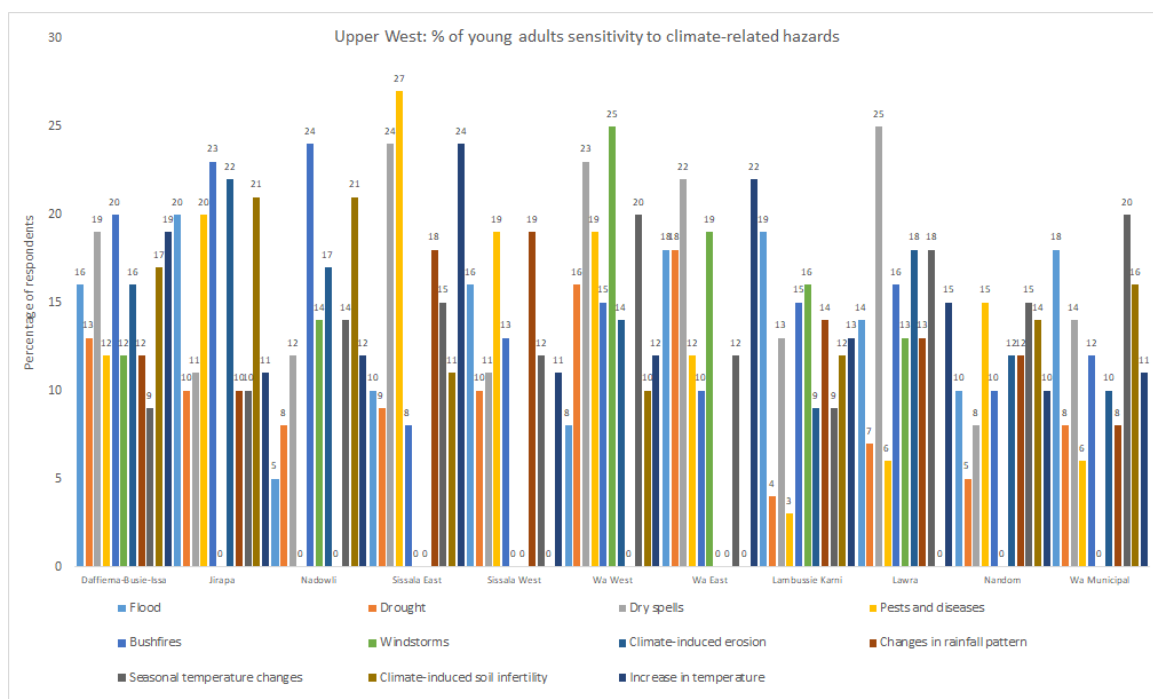


Figure 2. 77. Percentage of Upper West Region districts young adults' sensitivity to climate-related hazards

Upper East

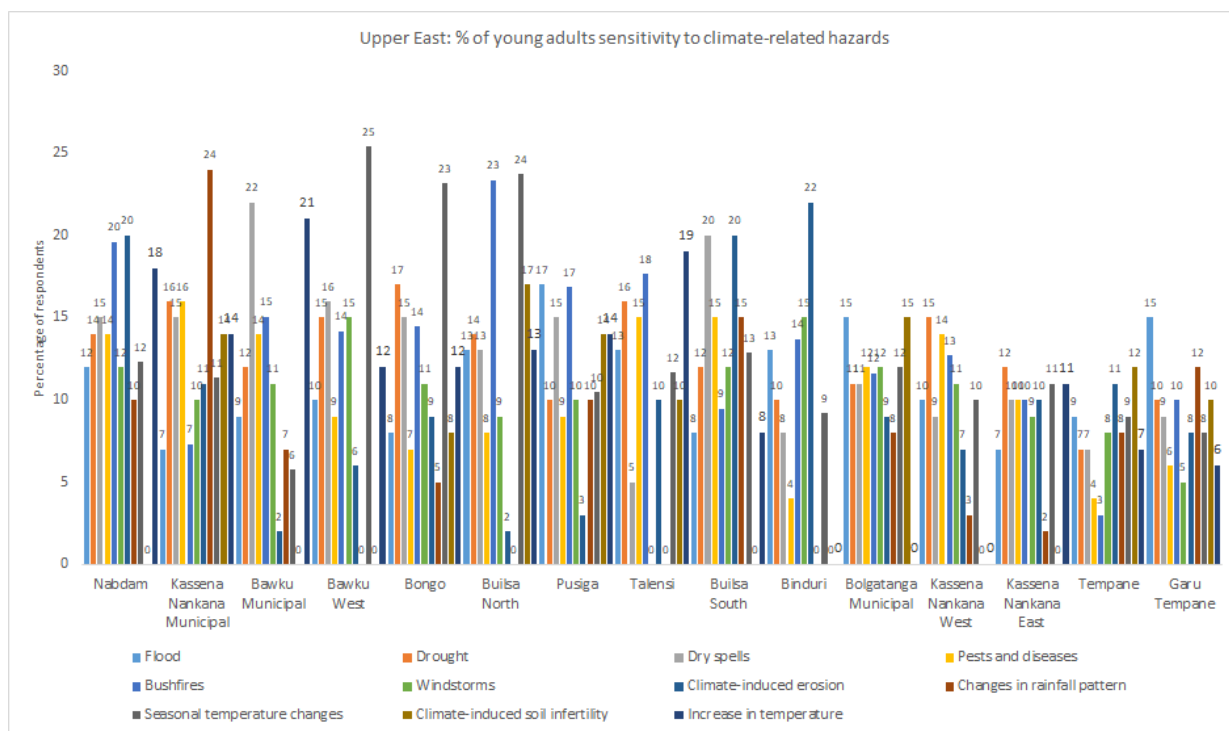


Figure 2. 78. Percentage of Upper East Region districts young adults' sensitivity to climate-related hazards

2.3.2.4 Sensitivity of Crops to climate-related hazards

The vulnerability of the agriculture sector to climate change is obvious in developing economies like Ghana, where the majority of the sector is dominated by rainfed and smallholder systems. Studies have been undertaken to explore the current and potential effect of climate change on crop yields (Challinor, Wheeler et al. 2007). Low yield of staple crops during drought periods are observed in parts of the Guinea and Sudan savanna Regions of Ghana. According to farmers surveyed for this Assessment, major staple crops including maize, sorghum, rice, millet, groundnut, okra, cassava and yam are sensitive to climate-related risks and hazards. Tables **6 (Overall)**, **7 (Brong Ahafo)**, **8 (Northern)**, **9 (Upper West)**, and **10 (Upper East)** illustrates farmers views on the sensitivity of major staple crops sensitivity to different climate-related hazards.

Table 6. Summary of Sensitivity of Crops to Climate-related Hazards in the Assessment Area

Climate-related risks and hazard	Major crops surveyed												
	Maize	Sorghum	Rice	Tomatoes	Millet	Groundnut	Okra	Cowpea	Cassava	Cotton	Cashew	Mango	Yam
Flood	High	Low	Low	Medium	Low	Medium	High	Medium	High	High	Medium	Low	High
Drought	High	Medium	High		High	High	High	High	High	Medium	Medium	High	High
Dry spells	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low		High	High	High	High
Pests and diseases	High	Medium	Medium	Medium	Medium	High	Medium	High	High	High	Medium	Low	High
Bushfires	High	Low	High	High	High	High	High	High	High	Medium	Medium	Medium	High
Windstorms		Low	Low	Low	Low	Low	Low	Medium	High	low	High	High	Medium
Climate-induced erosion	Low	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	Low	Low	Low	Medium
Changes in rainfall pattern	High	High	High	High	High	High	High	High	High	Medium	Low	Low	High
Seasonal temperature changes	Medium	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Medium	Medium	Medium
Climate-induced soil infertility	High	High	High	High	High	High	Medium	Medium	High	Medium	Medium	High	High
Increase in temperature	Medium	Low	High	High	High	High	High	High	Medium	Medium	Medium	Medium	Medium

Source: Field Survey, 2017

	80-100%
	41-79%
	0-40%

Table 7 Sensitivity of Major Crops to Climate-related Hazards in the Brong Ahafo Region

Climate-related hazard	Major crops surveyed									
	Maize	Rice	Tomatoes	Groundnut	Okra	Cowpea	Cassava	Cashew	Mango	Yam
Flood	High	Medium	Medium	Low	Low	High	High	Medium	Low	High
Drought	High	High	Low	Low	Low	Medium	High	Medium	High	High
Dry spells	High	High	Medium	High	High	High	High	High	High	Medium
Pests and diseases	High	Medium	Low	Medium	Medium	Medium	Medium	Low	High	High
Bushfires	High	High	Medium	Medium	Medium	High	Medium	High	High	High
Windstorms	Medium	High	Low	High	High	High	High	High	High	Medium
Climate-induced erosion	Low	Low	Low	Low	Low	Low	Low	Medium	High	low
Changes in rainfall pattern	High	Low	Medium	Medium	Medium	Medium	Medium	Low	Low	Low
Seasonal temperature changes	High	High	High	High	High	High	High	High	High	Medium
Climate-induced soil infertility	High	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium
Increase in temperature	Medium	High	High	High	High	High	Medium	Medium	High	Medium

	80-100%
	41-79%
	0-40%

Table 8 Sensitivity of Crops to Climate-related Hazards in the Northern Region

Climate-related hazard	Major crops surveyed									
	Maize	Sorghum	Rice	Millet	Groundnut	Okra	Cowpea	Cassava	Mango	Yam
Flood	High	High	Low	Low	Low	Medium	High	High	High	High
Drought	High	High	Medium	High	High	High	High	High	Low	Low
Dry spells	High	Medium	Low	Medium	Medium	Medium	Medium	Low	Low	Low
Pests and diseases		High	Medium	Medium	Medium	High	Medium	Low	Medium	High
Bushfires	High	High	Low	High	High	High	High	High	High	High
Windstorms	High		Low	Low	Low	Low	Low	Medium	Medium	Medium
Climate-induced erosion	High	Low	Medium	Medium	Medium	Medium	Medium	Medium	High	Medium
Changes in rainfall pattern	Medium	High	High	High	High	High	High	High	High	High
Seasonal temperature changes	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	Low	Low
Climate-induced soil infertility	High	High	High	High	High	High	Medium	Medium	Medium	Medium
Increase in temperature	High	Medium	Medium	Medium	Medium	High	High	High	High	Medium
	80-100%									
	41-79%									
	0-40%									

Table 9 Sensitivity of Crops to Climate-related Hazards in the Upper East Region.

Climate-related hazard	Major crops surveyed									
	Maize	Sorghum	Rice	Millet	Groundnut	Okra	Cowpea	Cashew	Mango	Yam
Flood	High	Low	Medium	Low	Medium	Medium	Medium	Medium	High	High
Drought	Medium	Medium	Medium	Medium	High	High	High	High	High	Medium
Dry spells	High	High	High	High	Medium	Medium	High	High	Medium	High
Pests and diseases	High	Medium	Medium	Medium	High	High	High	High	Medium	High
Bushfires	Medium	Medium	High	High	Medium	Medium	Medium	Medium	High	
Windstorms	Medium	Medium	Low	Low	High	High	High	High	High	Low
Climate-induced erosion	Medium	Medium	Medium	Medium	High	Medium	High	High	Medium	High
Changes in rainfall pattern	Medium	High	High	High	High	Low	High	Low	High	High
Seasonal temperature changes	High	High	High	Medium	Medium	Medium	High	High	Medium	Medium
Climate-induced soil infertility	High	Low	High	Medium	Medium	Medium	Medium	Medium	High	High
Increase in temperature	Medium	Medium	Medium	Medium	High	High	High	High	Medium	High
	80-100%									
	41-79%									
	0-40%									

Table 10 Sensitivity of Crops to Climate-related Hazards in the Upper East Region

Climate-related hazard	Major crops surveyed										
	Maize	Sorghum	Rice	Millet	Groundnut	Okra	Cowpea	Tomato	Cashew	Mango	Yam
Flood	High	High	Low	Low	Low	Medium	Medium	Medium	High	High	High
Drought	Medium	Medium	Medium	Medium	Medium	High	High	Medium	High	Medium	Medium
Dry spells	High	High	High	High	High	High	High	Medium	Medium	High	High
Pests and diseases			Medium	Medium	Medium	High	High	Medium	Medium	High	
Bushfires	Medium	Medium	Medium	High	High	Medium	Medium	Medium	High		Medium
Windstorms	Medium	Medium	Medium	Low	Low	High	High	High	High	Low	Medium
Climate-induced erosion	Medium	Medium	Medium	Medium	Medium	High	Medium	High	Medium	High	Medium
Changes in rainfall pattern	Medium	Medium	High	High	High	High	Low	Low	High	High	Medium
Seasonal temperature changes	High	High	Low	High	Medium	Medium	Medium	High	Medium	Medium	High
Climate-induced soil infertility	High	High	Low	High	Medium	Medium	Medium	Medium	High	High	High
Increase in temperature	Medium	Medium	Medium	Medium	Medium	High	High	High	Medium	High	Medium
		80-100%									
		41-79%									
		0-40%									

2.3.3 Adaptive Strategies

The adaptive capacity of a household (or a livelihood system) enables it to recover from a shock or stress and to return to a pre-shock level of security. Adaptive capacity may be equated with household or community resilience (e.g., the assets and institutions that allow households to absorb shock and to build local defences against subsequent stressors). The findings of this Assessment categories adaptation strategy into on-farm and off-farm options.

2.3.3.1 On-farm adaptive strategy

The major on-farm adaptation strategies reported included the use of extension services, dry season farming, multiple cropping on farmlands, irrigation, soil and water conservation and use of improved crop variety (**Figure 2.79**). Majority of households in the Upper East Region (75%) uses improved crop variety as an adaptation strategy on their farms. In Northern Region, dry season farming is mentioned by 64% of households. Multiple cropping is the most important on-farm adaptation strategy for households in the Brong Ahafo (60%) and Upper West (64%) Regions. Use of improved crop variety is common in all the Assessment areas but highest in Upper East (75%) and Northern Regions (68%).

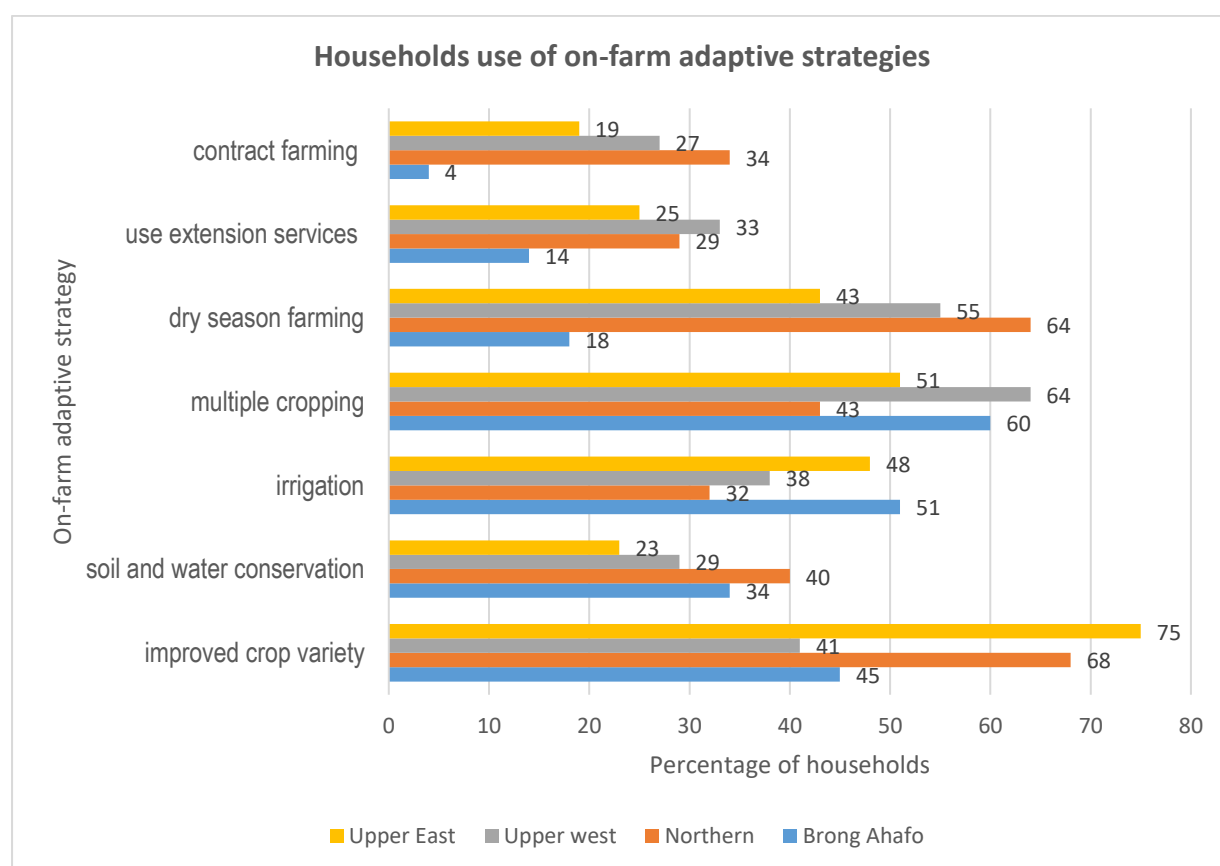


Figure 2. 79 Households use of on-farm adaptive strategies

Brong Ahafo Region: Banda (35%) and Sene East (33%) districts' households' reported the highest scores for use of contract farming whereas Pru (10%) and Kintampo North (15%) districts households' reported the lowest scores. Extension service use is highest in Kintampo South (52%) even though dry season farming is carried out more in Pru (56%). Kintampo South (81%) and Atebubu Amantin (75%) top the scores for use of multiple cropping techniques with Banda scoring lowest (55%), despite all scores being above average. Banda again scores highest for irrigation strategies/adoption across the Region (55%). Soil and water conservation practices are lowest in Kintampo South (23%) and highest in Sene East (52%). Use of improved crop varieties is laudable in Banda (71%) as opposed to Kintampo North (48%) (**Figure 2.80**).

Northern Region: The analysis indicated Kumbungu makes high use of contract farming options (63%), while Saboba and Nanumba South undertake a great deal of dry season farming (73% for both). Regarding the use of extension services, West Mamprusi scores the highest (59%) with Saboba also scoring highest for the adoption of multiple cropping techniques (65%). Irrigation option is highly considered by households Kumbungu (62%), while Karaga scores highest (61%) for soil and water conservation strategies. It is observed that Zabzugu households reported the the highest scores adoption of improved crop variety usage (76%) followed by West Gonja (69%) (**Figure 2.81**).

Upper West Region: Contract farming is highly used in Daffiema-Busie-Issa (55%) compared to Wa Municipal where its lowest (20%). 68% of respondents in Lawra agree to making high use of extension services available to them even though Nadowli and Lambussie Karni record highest dry season farming levels (55% for both). Multiple cropping is lowest in Wa Municipal and Sissala East (16% and 20% respectively), with Nadom recording the highest score for use of irrigation (71%) followed by Sissala East (59%). Soil and water conservation techniques are highly considered by Sissala West (59%) and improved crop variety technology is well used in Nandom (50%) (**Figure 2.82**).

Upper East Region: Comparatively, Bawku West (63%) and Builsa South (63%) make use of more contract farming options than Bolgatanga Municipal (26%). Tempene records highest use of extension services while Kassena Nankana Municipal records the lowest (55% and 23% respectively). Dry season farming is common for all districts but lowest in Pusiga and Kassena Nankana Municipal (29%) and highest for Garu Tempene (81%). Multiple cropping is largely carried out in Pusiga and Kassena Nankana Municipal (55% for both). Bolgatanga Municipal

records highest irrigation option usage (61%) while Binduri records the lowest (8%). Soil and water conservation techniques remain well practised in Tempane (60%), Builsa South (56%) and Garu Tempane (55%) as opposed to Pusiga (18%). Results from Talensi shows good use of improved crop variety (81%) while that of Bawku municipal shows a rather lower outcome (41%) indicating a high disparity regarding adoption of this on-farm adaptation strategy (**Figure 2.83**).

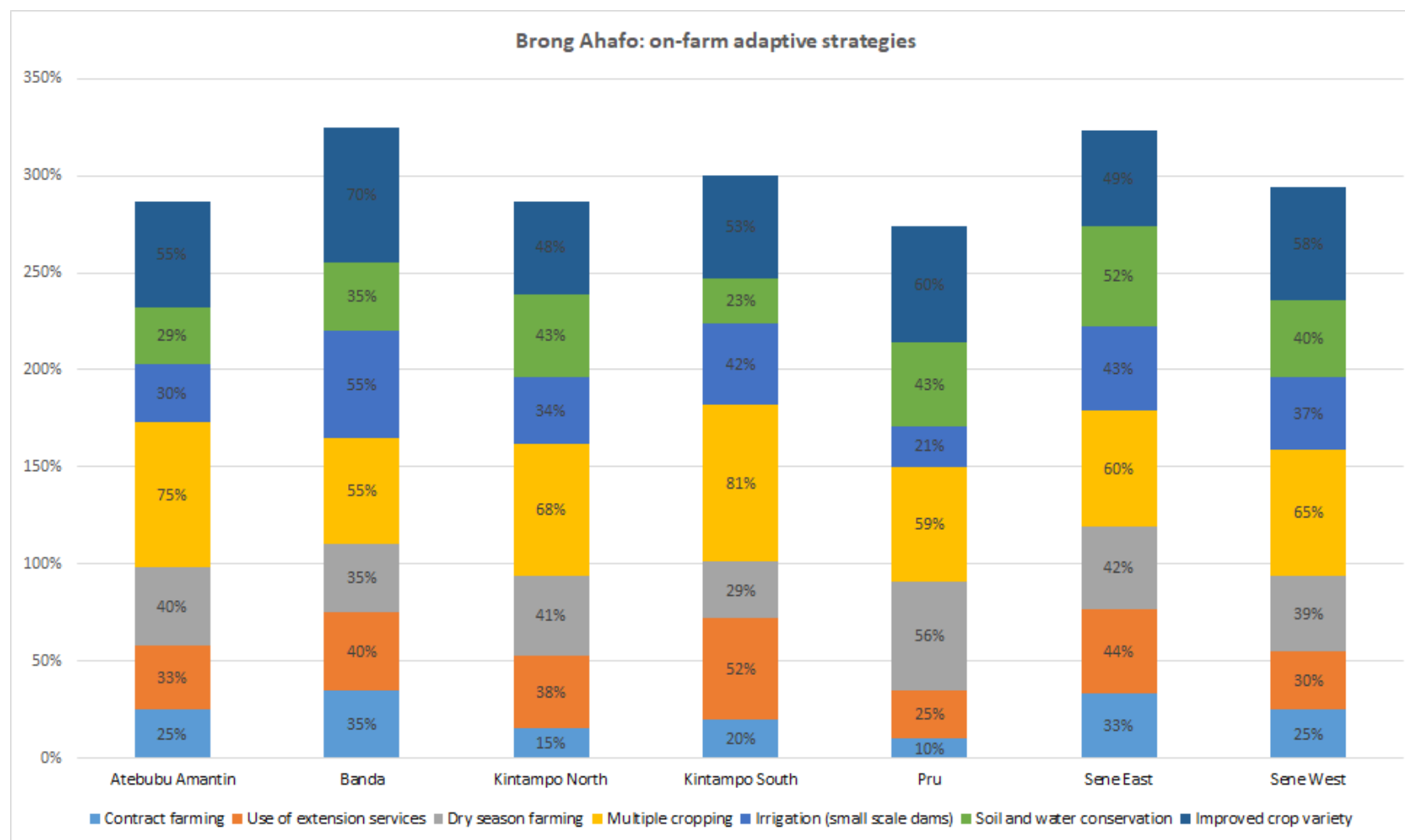


Figure 2. 80 Households' use of on-farm adaptive strategies in Brong Ahafo Region by districts

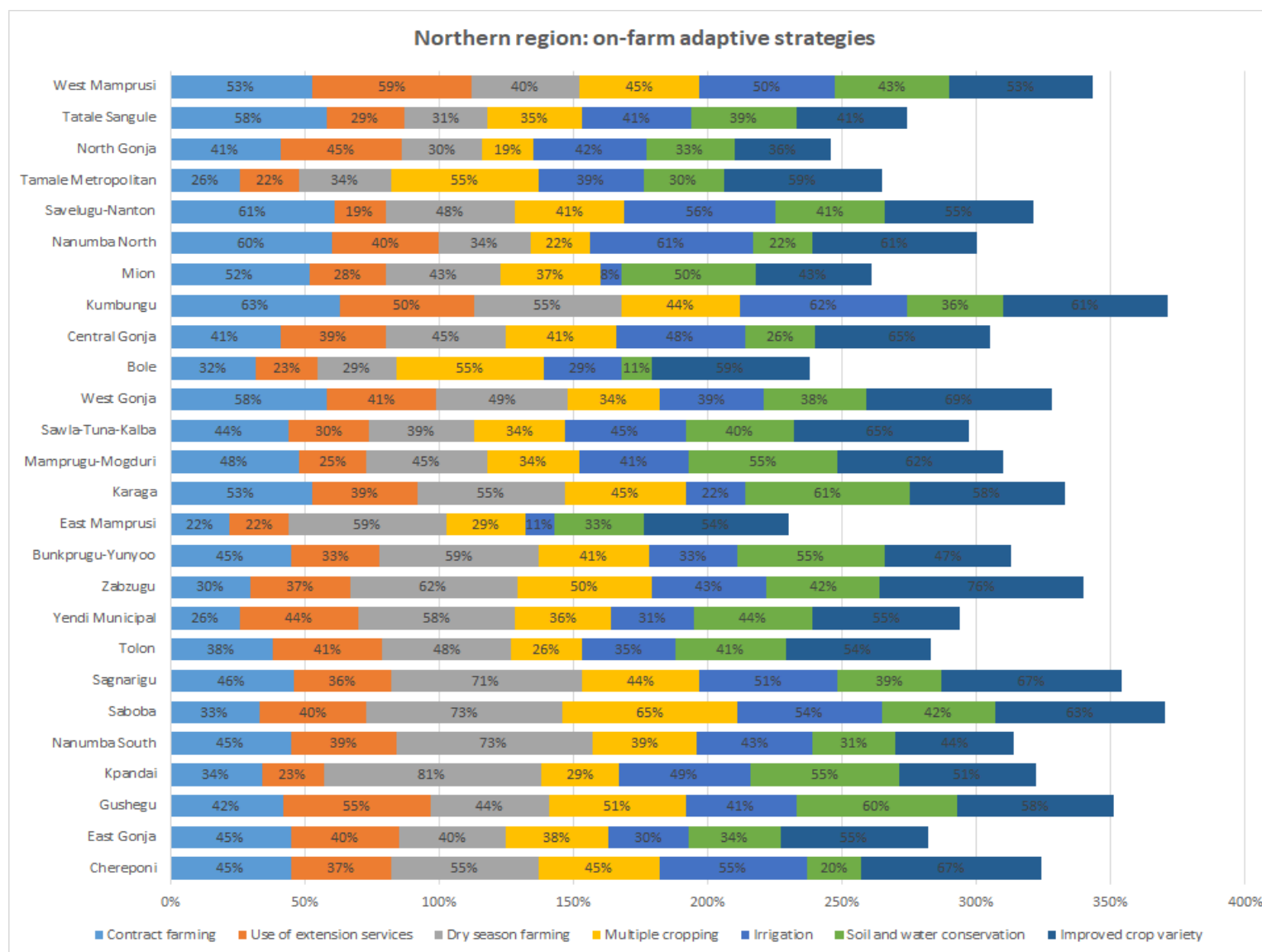


Figure 2. 81 Farmers' use of on-farm adaptive strategies in Northern Region by districts

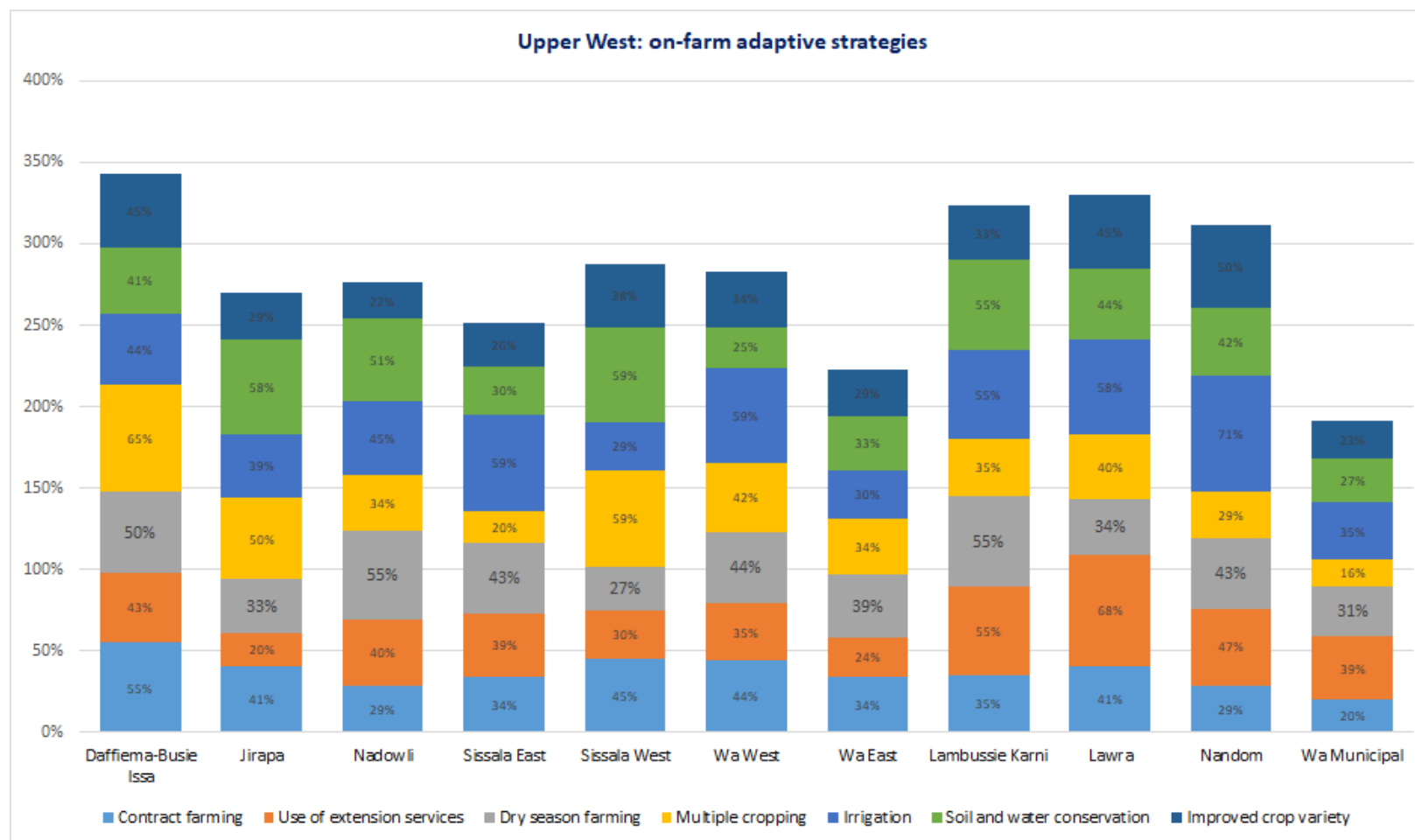


Figure 2. 82 Farmers' use of on-farm adaptive strategies in Upper West Region by districts

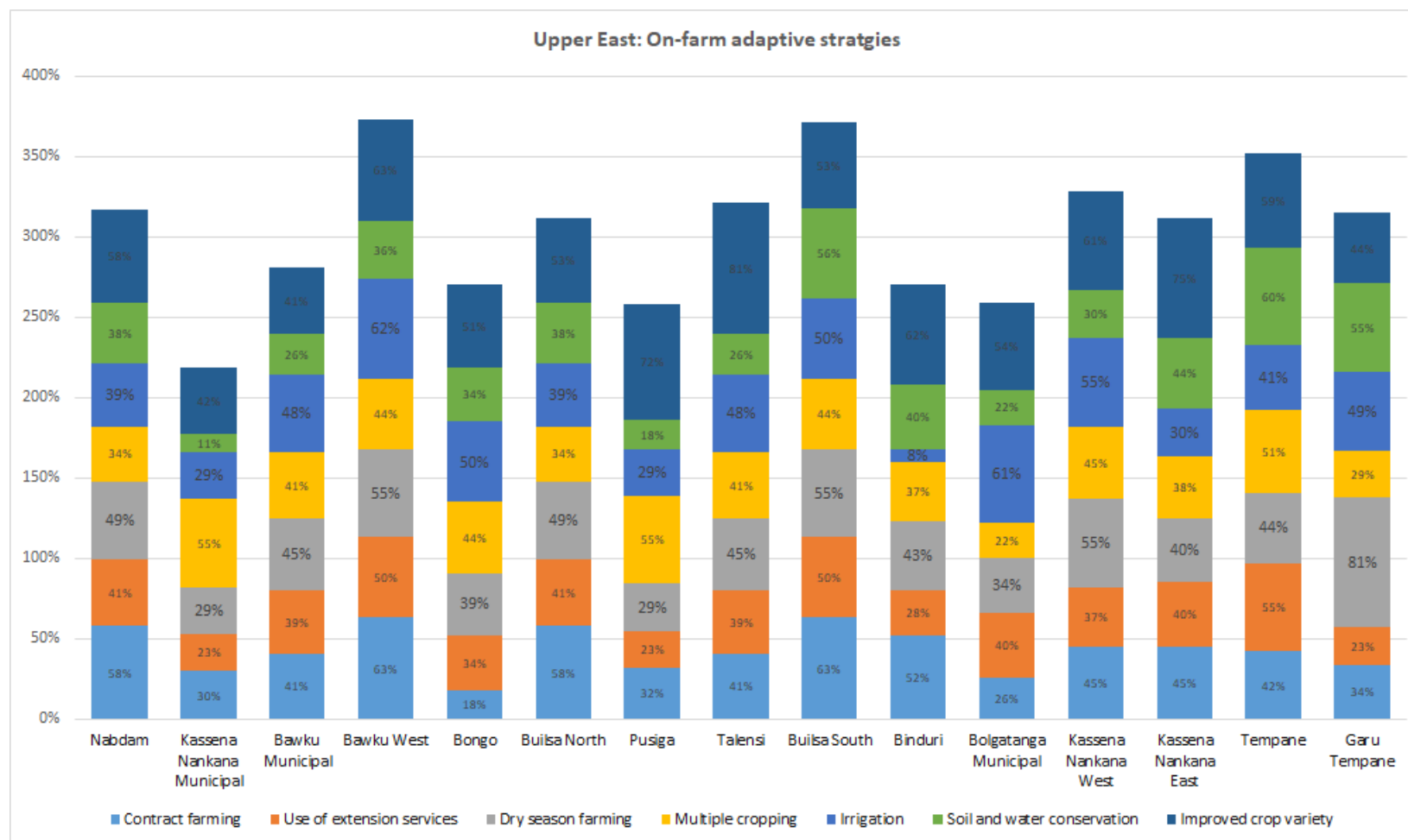


Figure 2. 83. Farmers' use of on-farm adaptive strategies in Upper East Region by districts

2.3.3.2 Off-farm adaptive strategies

Off-farm activities for adaptation to climate-related risks and hazards from this Assessment finding include the use of ecosystem services, market options, social capital, institutional support, petty trading and migration. Ecosystem services use is high among respondents in all three Regions: Upper West (76%), Northern (65%), Upper East (59%) and Brong Ahafo (56%). Due to the prevailing poverty condition in the northern Regions, the majority of people rely on different forms of institutional support (**Figure 2.84**).

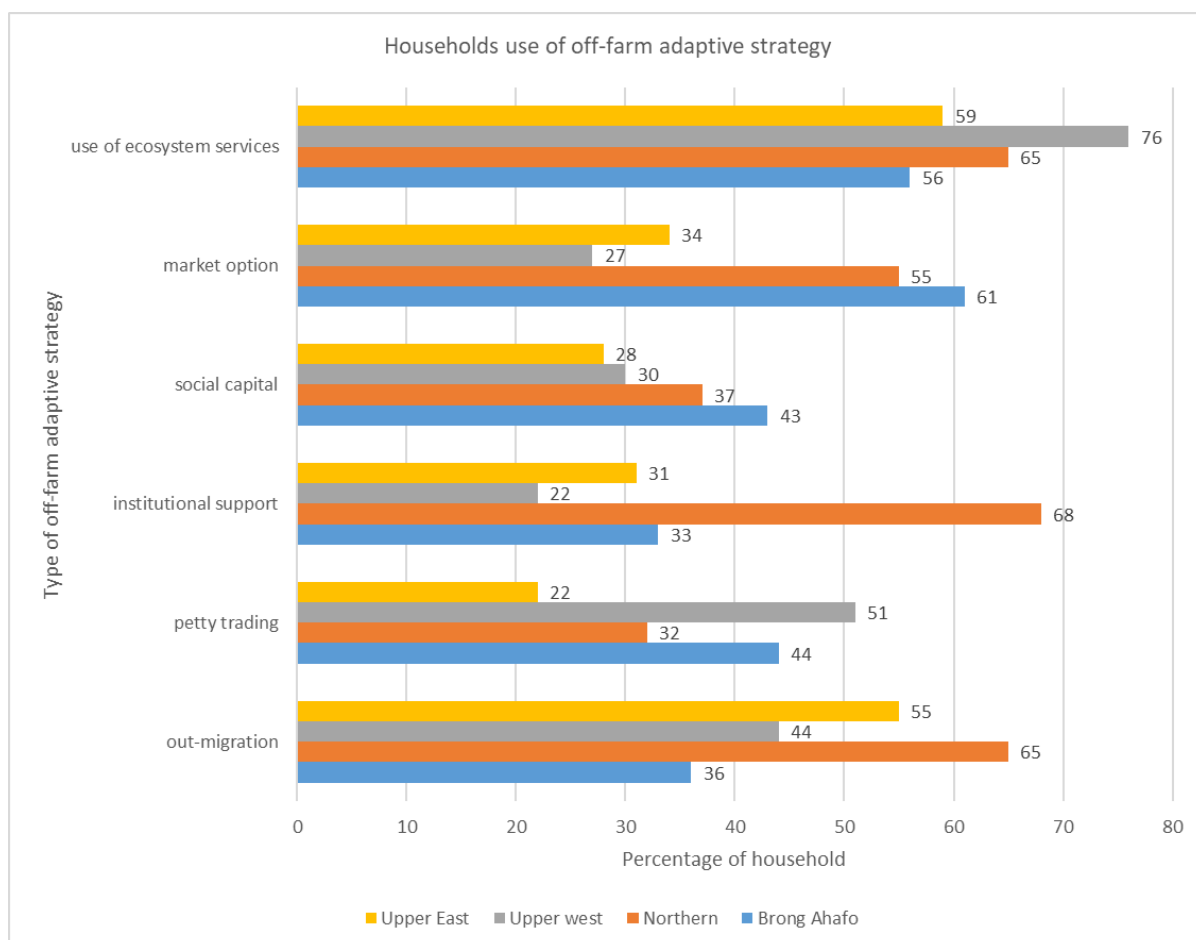


Figure 2. 84 Farmers' use of off-farm adaptive strategy

Migration is also a widely used off-farm adaptation strategy according to respondents. Respondents in all the Regions cited migration as a reliable source of remittances including money, food and clothes among others. On the other hand, community members mentioned the weakening of active labour force and unsustainable agriculture production as some of the costs of migration. Comments from focus group participants in Kwame Danso in the Sene East district of the Brong-Ahafo Region clarifies these issues much better:

“In our community, all the young and able-bodied population have moved to Accra and Kumasi. Old men now dominate our community and we cannot cultivate the land. Our yam farms are not yielding much like in the past because we do not have young men to make mounds and clear the weeds”

Brong Ahafo Region: Atebubu Amantin heavily relies on ecosystem services (55%) compared to Banda, where such off-farm adaptation strategy is minimal (34%). Generally, there is good Market access across all districts in the Region with the least response being a little below average (49% - Sene East). Reliance on social capital is relatively high in Atebubu Amantin (61%) and Kintampo North (61%) and low in Pru (41%). Pru scored highest responses for institutional support (51%) while Sene East scored the lowest (25%). Petty trading is very high in Sene East (62%) and low for Kintampo North and Sene West (39% for both). Banda (85%) scored highest for out-migration strategy and Pru scored lowest (33%) (**Figure 2.85**).

Northern Region: Overall, reliance on ecosystem services across districts is commendable, despite the wide gap between highest and lowest scores (Gushegu - 81% and Tamale Metropolitan - 33%). Market options are lowest for West Gonja (19%) as compared to Tolon (80%) which scored the highest. Reliance on social capital is high for Bole and Saboba (71% for both) and low in Kpandai (35%) and Yendi Municipal (38%). Kumbungu (81%) scored highest for responses regarding institutional support while Sawla-Tuna-Kalba scored the lowest (33%). Petty trading is very evident in Mion (82%) as compared to East Mamprusi (38%). Generally, out-migration strategy across districts is very low with only four districts producing responses above average (East Gonja - 70%, Bunkprugu-Yunyoo - 63%, East Mamprusi - 68%, Savelugu-Nanton - 55%) out of twenty-six districts (**Figure 2.86**).

Upper West Region: Wa West (75%) scores highest for reliance on ecosystem services while Wa Municipal scored lowest (29%). Market options are low for Wa West (33%) and high for Wa East (71%). Reliance on social capital is generally commendable as only two districts produced below average responses (Lawra – 45%, and Nandom – 22%). Regarding institutional support, Daffiema-Busie Issa showed high scores (60%) as compared to Jirapa and Lawra (38% for both). Petty trading is a more common off-farm option for Sissala East (70%) compared to Lambussie Karni (22%). Overall, Out-migration within the Region can be said to be considerably high across all districts (**Figure 2.87**).

Upper East Region: Garu Tempane (81%) scored highest for reliance on ecosystem services while Nabdam (33%) scored lowest. Market options are more available in Kassena Nankana West (85%) and quite low in Pusiga (29%). Tempane (76%) and Talensi (62%) show high scores for Reliance on social capital while Bolgatnaga Municipal (39%) and Builsa North (41%) score lowest. Institutional support is high for Tempane (65%) and low for Builsa South (33%). In Bawku Municipal (78%), petty trading is largely an off-farm adaptation strategy while not so largely adopted in Binduri (33%). Out-migration is a highly used adaptation strategy in Talensi (85%) as opposed to Builsa North (22%) where it is not largely adopted (**Figure 2.88**).

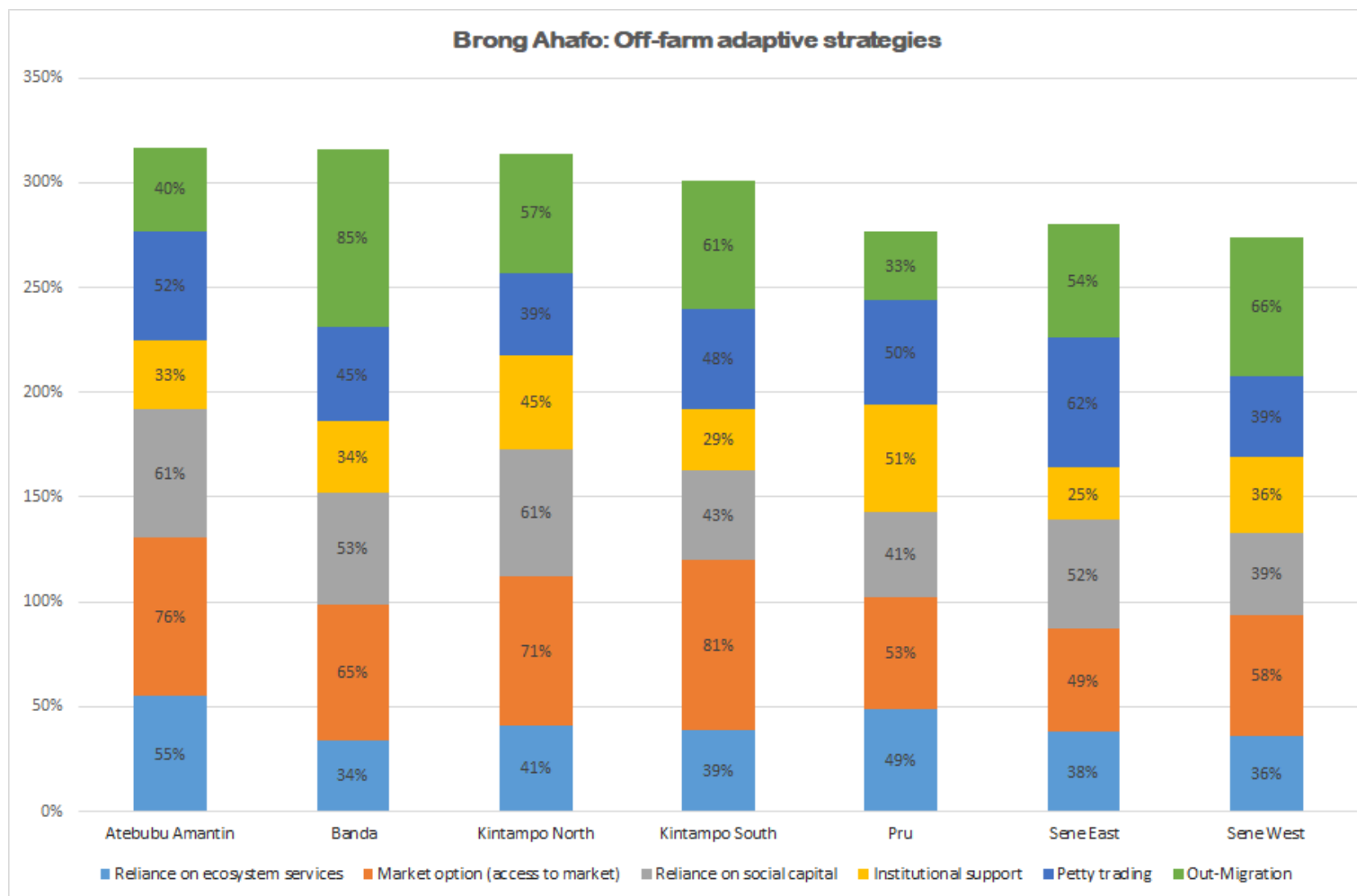


Figure 2. 85. Households in Brong Ahafo Region use of off-farm adaptive strategy by districts

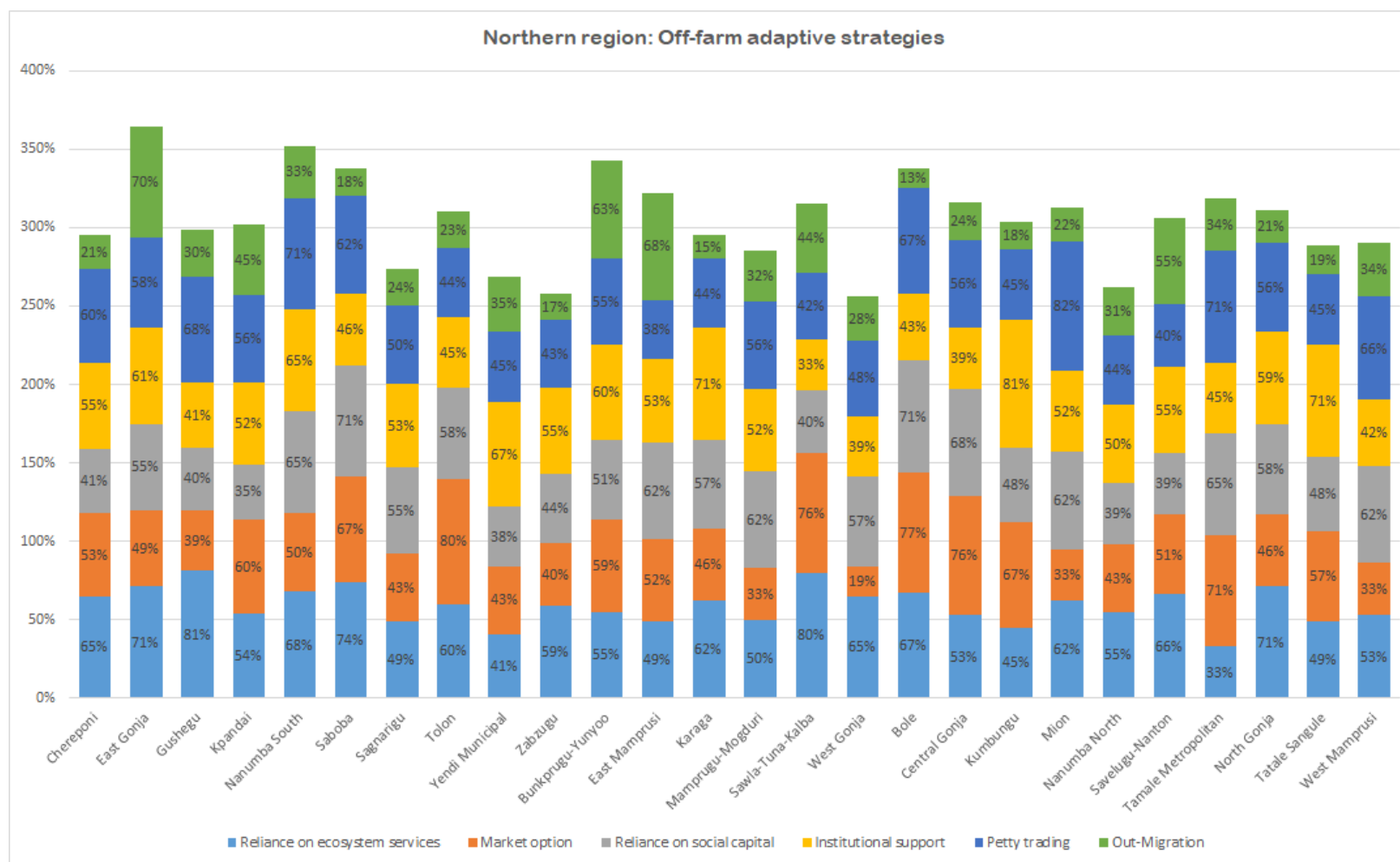


Figure 2. 86 Households' in Northern Region use of off-farm adaptive strategy by districts

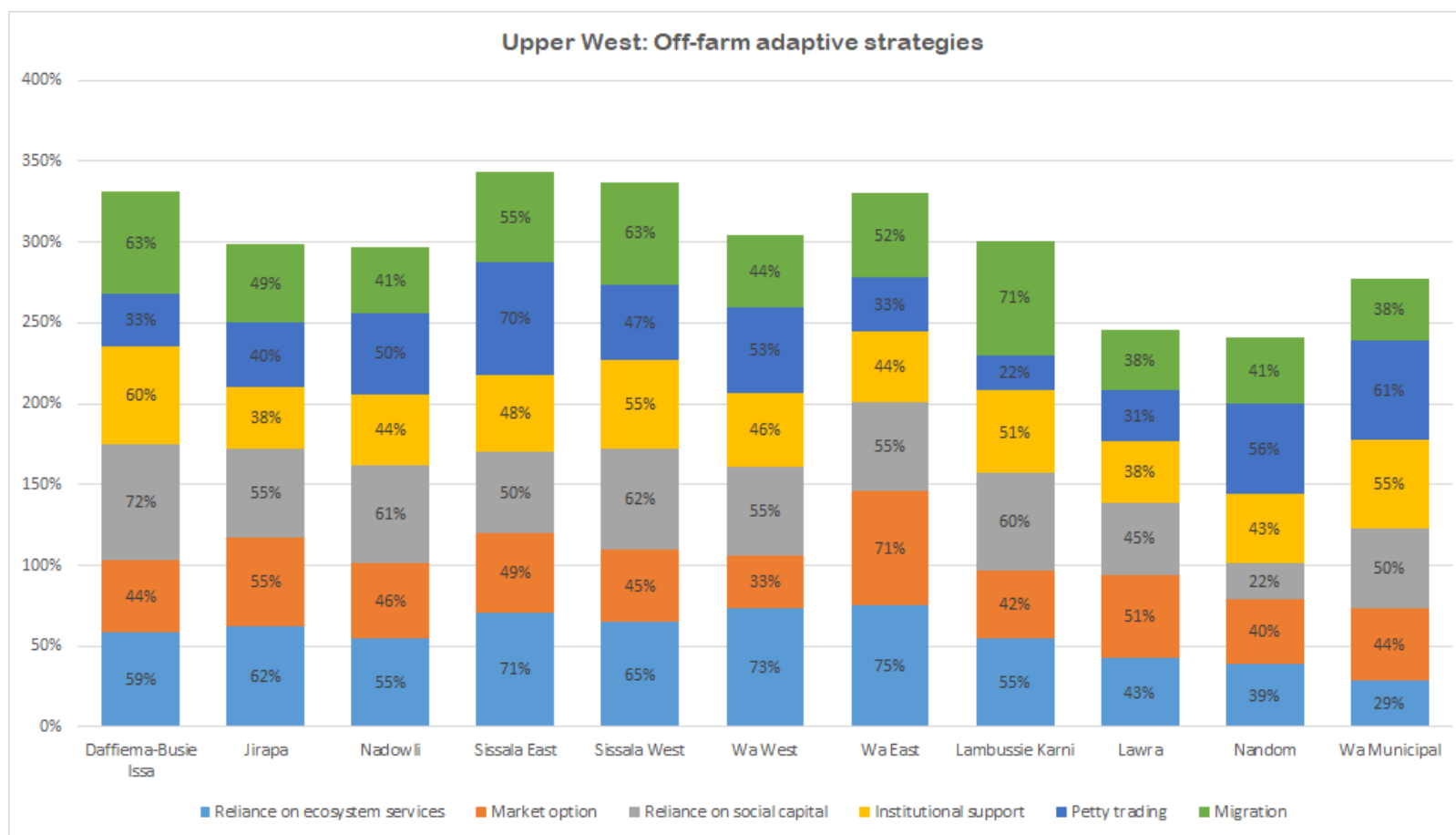


Figure 2. 87. Households in Upper West Region use of off-farm adaptive strategy by districts

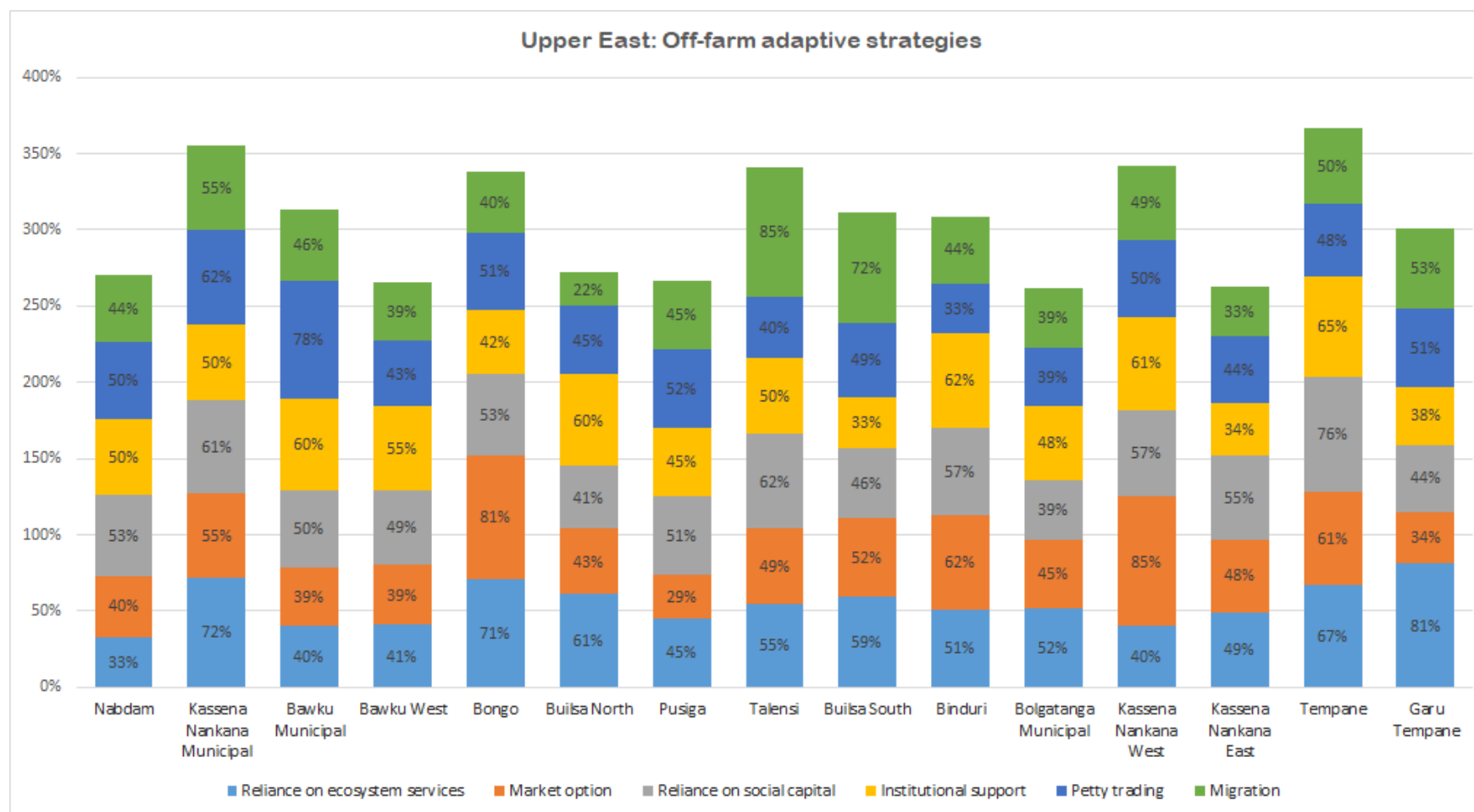


Figure 2. 88. Households in Upper West Region use of off-farm adaptive strategy by districts

CHAPTER 3: CLIMATE CHANGE SCENARIOS AND FUTURE VULNERABILITY



3.1 Projected Climatic Scenarios

3.1.1 Minimum Temperature

For minimum temperatures, almost an increase of 2.5 °C above that of the present day is projected under RCP8.5 for all stations but under RCP2.6, a projected increase of about 0.5°C is expected by the year 2080.

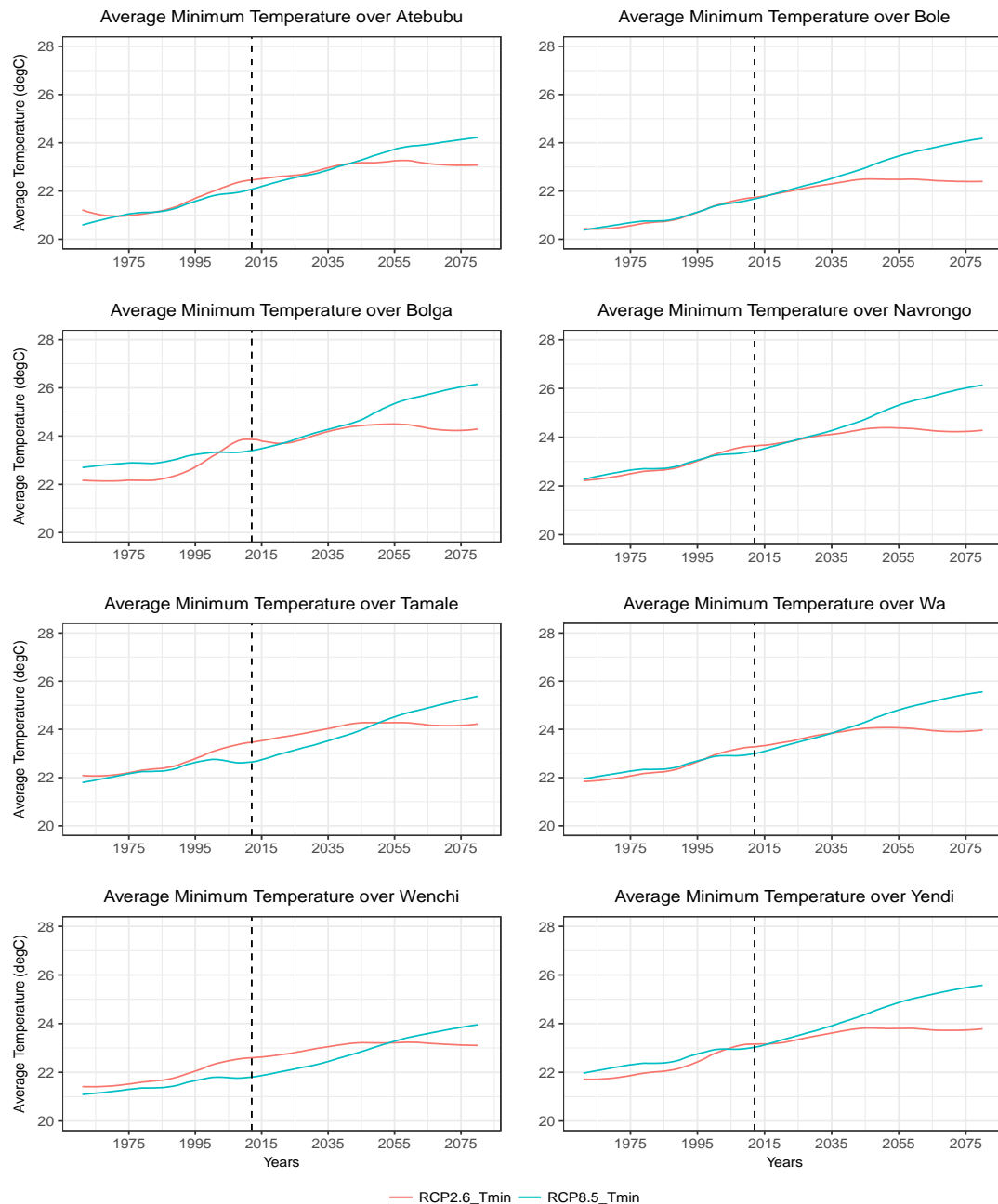
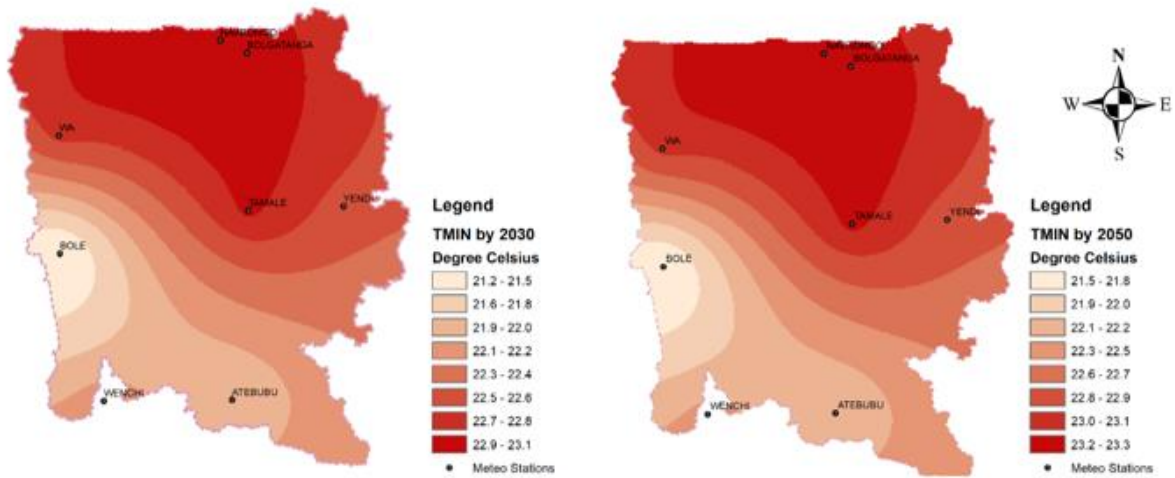


Figure 3.1 Time series of averaged minimum temperature between 1961 and 2080 over stations in the Assessment area for the RCP2.6 (orange) and RCP8.5 (purple). Dashed lines represent the boundary between present day and future trends.

RCP2.6



RCP8.5

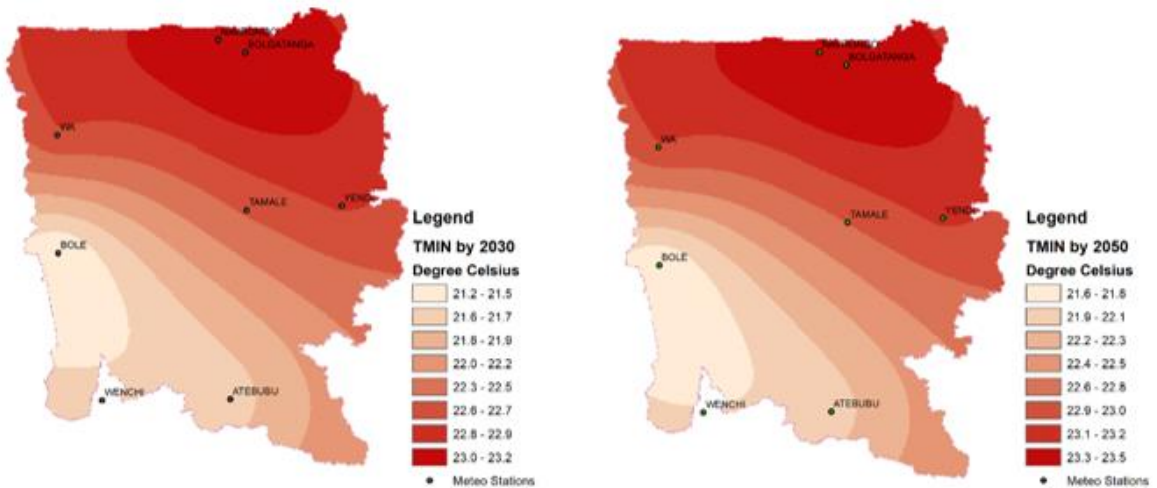


Figure 3. 2 Averaged minimum temperature for 2030 and 2050 in the Assessment area for the RCP2.6 and RCP8.5 scenarios.

For Tamale and Wenchi, warmer temperatures are projected under RCP2.6 than RCP8.5 in present day and the future until 2050 where temperature from RCP8.5 is warmer (Figures 3.2; 3.3).

3.1.2 Maximum Temperature

For maximum temperature, projected increases of about 2 °C above present day is under RCP8.5 by 2080 in all stations but are constrained to less than 1 °C under RCP2.6. For Tamale and Wenchi, warmer temperature is projected under RCP2.6 than RCP8.5 until 2050. However, towards 2080, maximum temperature is projected to be warmer in RCP8.5 than RCP2.6.

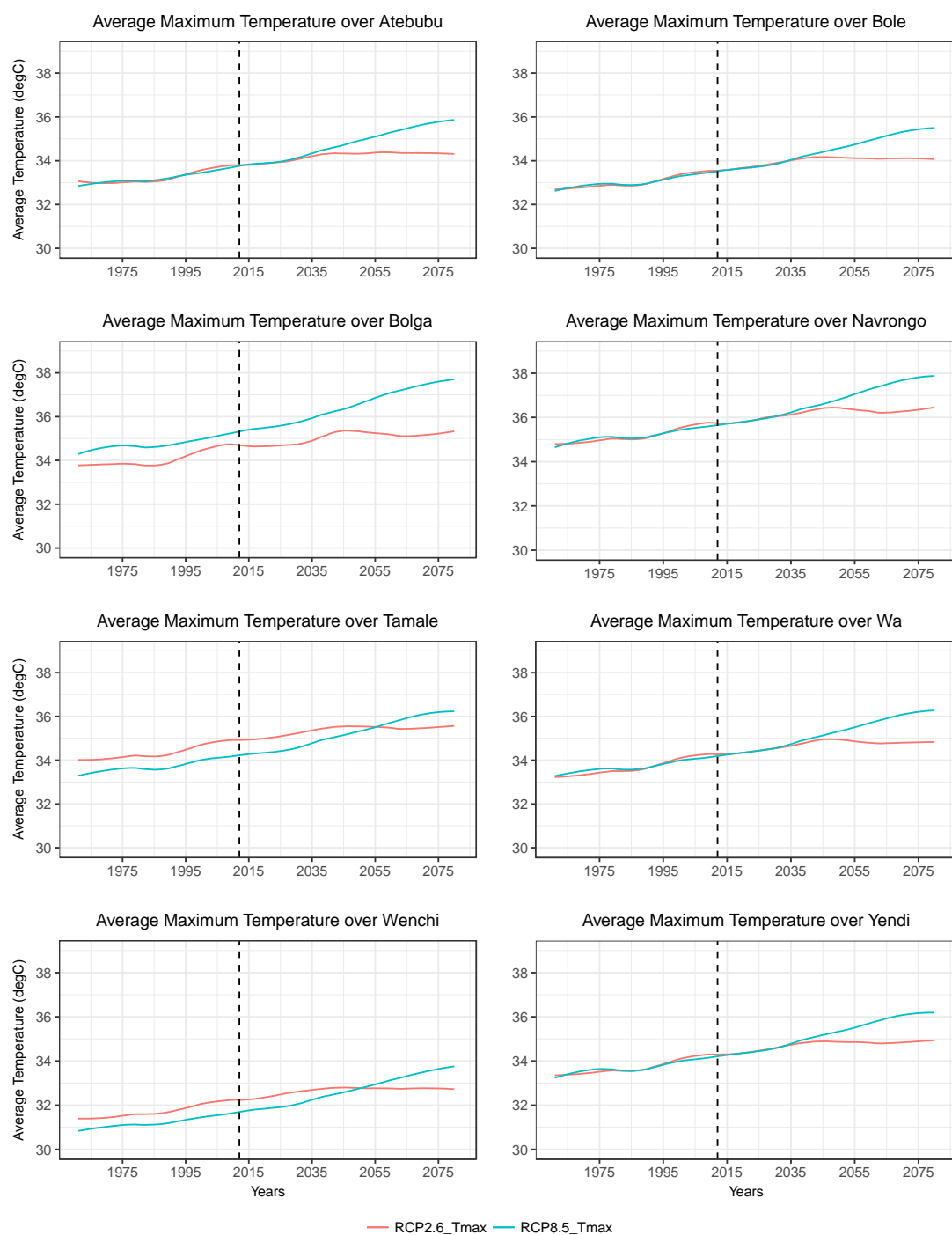
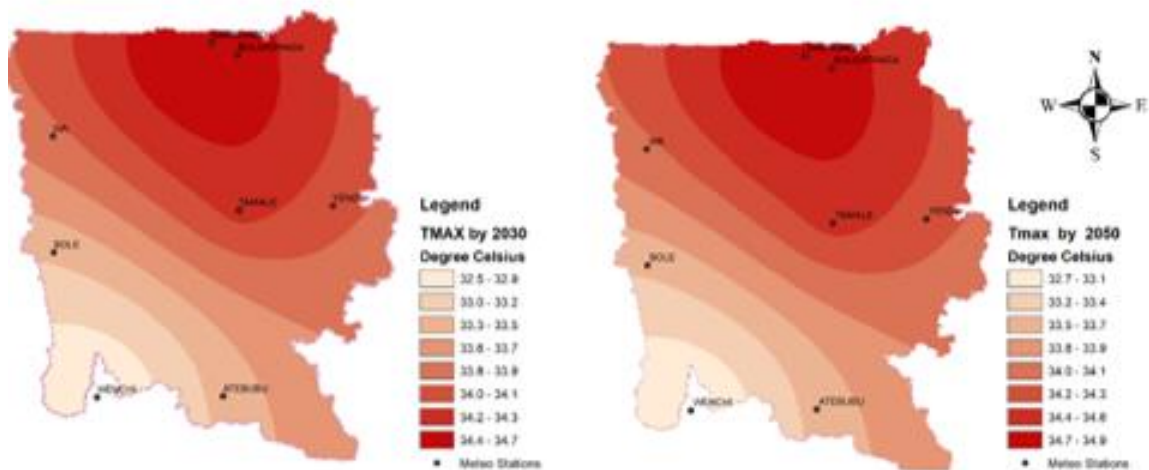


Figure 3. 3 Time series of averaged maximum temperature between 1961 and 2080 over stations in the Assessment area for the RCP2.6 (orange) and RCP8.5 (purple). Dashed lines represent the boundary between present day and future trends.

RCP2.6



RCP 8.5

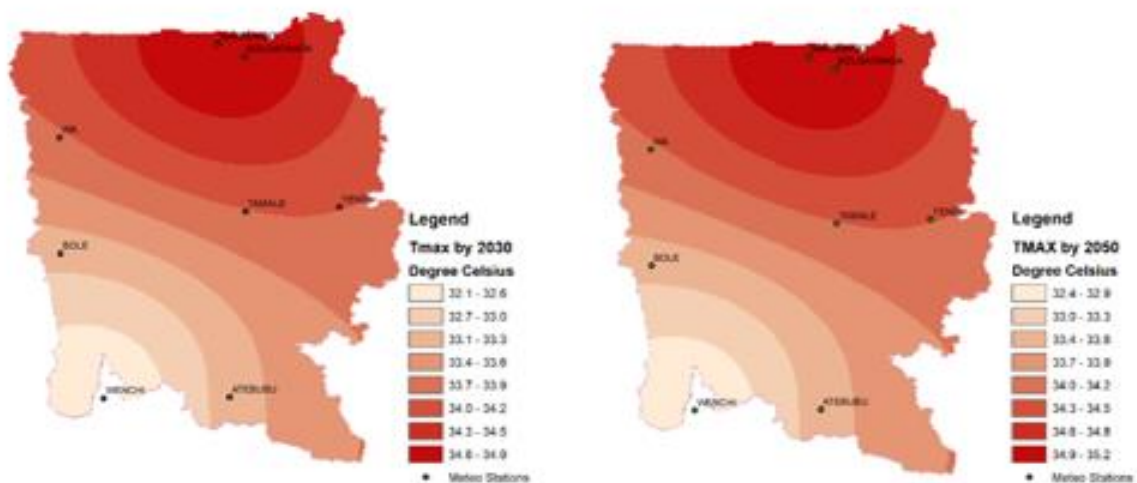


Figure 3. 4 Averaged maximum temperature for 2030 and 2050 in the Assessment area on of Ghana for the RCP2.6 and RCP8.5 scenarios.

3.1.3 Annual Precipitation

The projected annual total rainfall generally shows an inter-annual variability than an established trend under both RCP2.6 and RCP8.5. Tamale, Yendi, Wa and Navrongo will experience a slight increase in total rainfall amounts under RCP8.5.



Figure 3. 5 Time series of total precipitation between 1961 and 2080 over stations in the Assessment area for the RCP2.6 (orange) and RCP8.5 (purple). Dashed lines represent the boundary between present day and future trends.

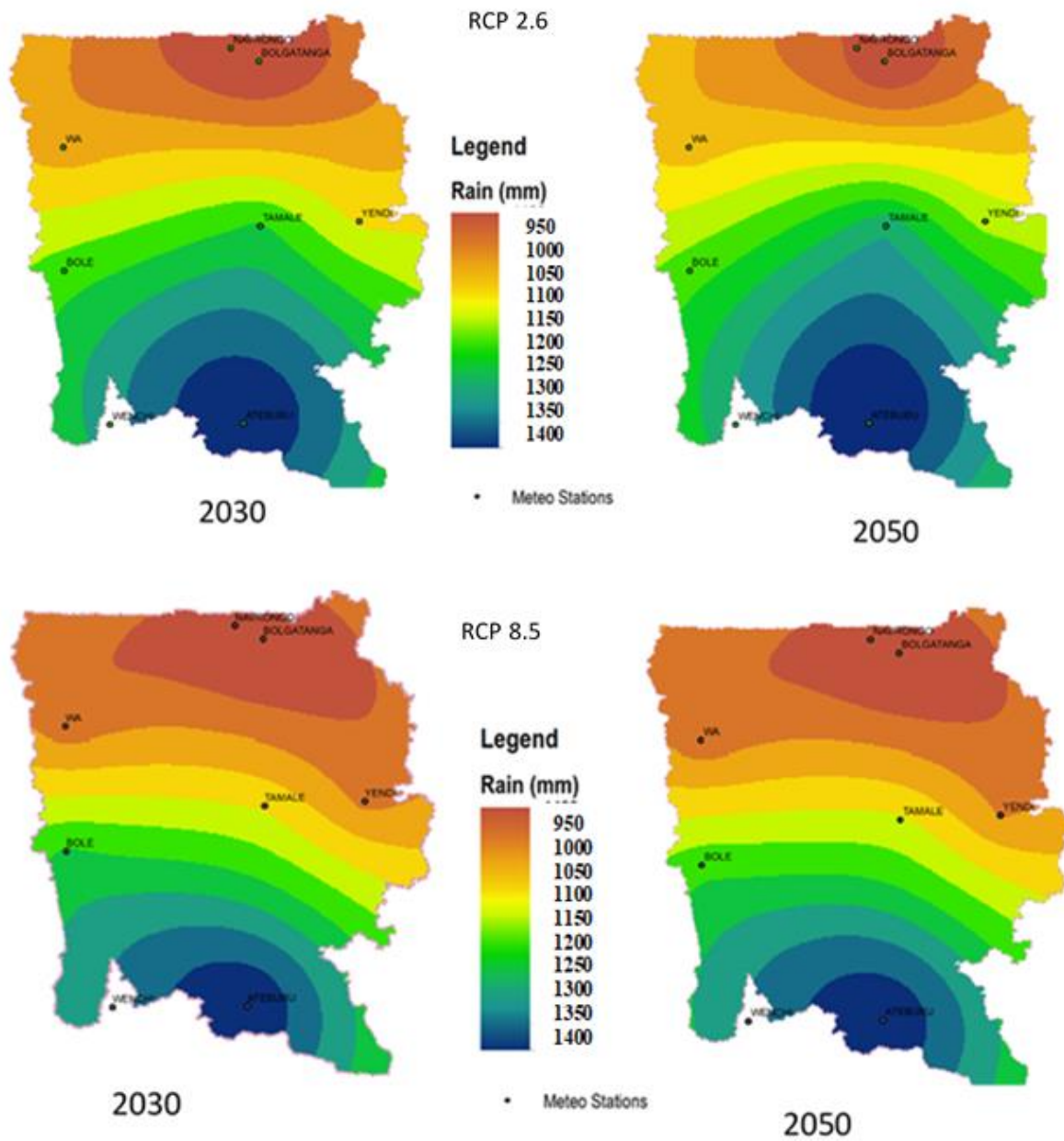


Figure 3. 6 Total Annual Precipitation for 2030 and 2050 in the Assessment area for the RCP2.6 and RCP8.5 scenarios.

3.1.4 Number of rainy days (Wet spells)

The number of rainy days is projected to decrease under RCP2.6 and a marginal increase under RCP8.5. Over Wenchi, the projected number of rainy days is similar both RCP2.6 and RCP8.5 emission scenarios.



Figure 3. 7 Time series of the number of rainy days between 1961 and 2080 over stations in the Assessment area for the RCP2.6 (orange) and RCP8.5 (purple). Dashed lines represent the boundary between present day and future trends.

3.1.5 Number of Rainy Days above 10mm

The number of heavy precipitation days (R10mm) is projected to have a clear increase in Navrongo, Tamale, Wa and Yendi up to 2080. This signifies an increase in days of heavy precipitation. The difference in projection in heavy rainfall is minimal under both RCPs over Atebubu, Bole, Bolga and Wenchi.



Figure 3. 8 Time series of number days with precipitation exceeding 10mm between 1961 and 2080 over stations in the Assessment area for the RCP2.6 (orange) and RCP8.5 (purple). Dashed lines represent the boundary between present day and future trends.

3.1.6 Dry spells

The projected duration of dry spells during the rainfall season (JJAS) will be similar to the present day under both scenarios over Atebubu and Bolga, with more dry spells under RCP2.6 and less dry spells under RCP8.5

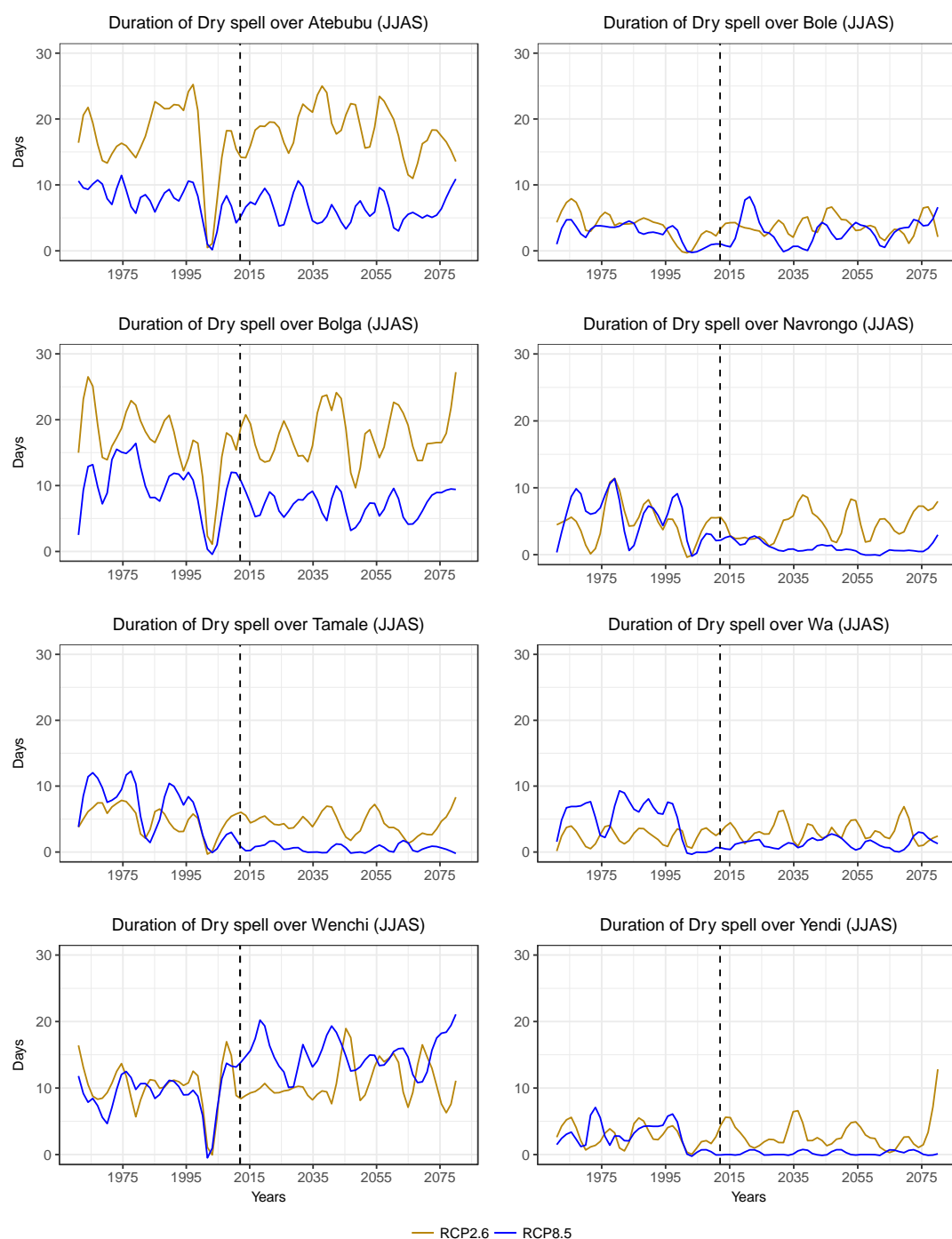


Figure 3. 9 Time series of dry spell duration in the rainfall season JJAS between 1961 and 2080 over stations in the Assessment area for the RCP2.6 (orange) and RCP8.5 (purple). Dashed lines represent the boundary between present day and future trends.

Dry spell duration is projected to decrease over Navrongo, Tamale, Wa and Yendi under RCP8.5. Wenchi, on the other hand, will experience an increase in dry spell duration of about 10 days maximum under RCP8.5.

3.2 Practical Implications

Present rainfall and temperature levels are suitable for agriculture throughout the Brong Ahafo Region districts. **In the Northern, Upper West and Upper East Regions, current rainfall and temperature levels is detrimental to agriculture.** In the long term, local rainfall seasonality and temperature variation is expected to negatively affect crop cultivation and livestock rearing.

Rainfall is projected to increase slightly over the Assessment area with a high variability. However, the number of rainy will decrease whereas heavy rainfall events over the area will increase. Dry spell duration within the rainfall season will not have much change until 2080 but a marginal decrease will be experienced at some stations. For temperatures, a generally increasing trend is projected for both minimum and maximum temperatures.

3.3 Effects of Projected Climate Change on Gender and Age Groups under Different Scenarios

The effects climate change impact on women, men, youth and young adults under this climate change scenario from our analysis is expected to be highly disproportional in the Assessment area. **Table 11** presents the likely effect of climate on women, men, youth and young adults under two scenarios: (1) Scenario 1: 1.5°C temperature increase with slightly higher rainfall than present by the year 2030 and (2) Scenario 2: 2.0°C temperature increase with frequent rainfall extremes by the year 2050.

Considering that majority of the population in the Assessment area work in the agriculture sector, known for its high susceptibility to risks of drought, flood and uncertain precipitation; this means that climate change endangers food security as well as families' well-being and capacity to survive climate change is expected to aggravate the vulnerabilities of all groups. The gap between men, women in terms of access to resources, opportunity, safety, and wellbeing. Women are more likely to live in fragile housing in disaster-prone areas. They also receive much less government and community support for recovery. Studies based on IPCC data indicate that the impacts of 1.5°C temperature increase with slightly higher rainfall than present by the year 2030 are likely detrimental. Generally, concerns have been raised about effects such as species extinction, regional and local food security and loss of provisioning ecosystem services.

With more men and young adults migrating out of the Assessment areas, increasingly households are headed by women and need youth to help out with family work. This prevents youth from attending school. With a 2.0° C temperature increase with frequent rainfall extremes as projected to occur by the year 2050, there will be a loss of critical ecosystem services. Even though men and women are both likely to be affected by ecosystem services loss soil infertility and bushfires women's disadvantages may increase. Erosion and flooding will reduce the land available for sowing crops and causing young men and women to migrate to the cities.

Table 11. Likely effect on gender and age group of projected climate change impacts under two scenarios

Indicators	Likely effect on gender and age group of projected climate change impacts under two scenarios							
	1.5°C temperature increase with slightly higher rainfall than present by the year 2030				2.0 °C temperature increase with frequent rainfall extremes by the year 2050			
	Women	Men	Youth (15-24)	Young adults (25-35)	Women	Men	Youth (15-24)	Young adults (25-35)
Drought	High	High	Medium	Medium	High	High	Medium	Medium
Bushfire	Low	High	Low	Medium	Medium	High	Medium	High
Water Stress	High	Low	High	Medium	Medium	Medium	Medium	Medium
Crop Failure	High	High	High	Medium	Medium	High	Medium	Medium
Health	High	Low	Medium	Low	High	Medium	High	Medium
Pest and diseases	Low	High	Low	High	Medium	High	Medium	High
Dry Spells	Medium	High	Low	High	Medium	High	Medium	High
Flood	Medium	Medium	Medium	High	High	High	Medium	High

Women are also more likely to go without food in the event of food shortages because of crop failure and drought. Water stress means that women and youth have to travel huge distances for to collect water. Women and youth in the Assessment area are responsible for fetching water and firewood for the family, which can place them under increasing stress. Walking long

distances for water and fuel also affects the academic performance of youth especially girls as they are usually the ones kept at home to help with household duties.

Climate change is also likely to cause an increase in health problems in the Assessment area. Diseases such as cholera, cerebro spinal meningitis and malaria may aggravate health conditions of all especially women, youth as well as young adults. Disruptions in food and water supplies could increase malnutrition among youth. Due to patriarchal societal structures, women are often placed in the traditional role of caring for the sick and elderly. It is likely that women's caring workloads will increase further as climate change impacts worsen.

CHAPTER 4: RECOMMENDATIONS AND ADAPTATION OPTIONS



4.0 RECOMMENDATIONS AND ADAPTATION OPTIONS

The findings from this Assessment highlight the well-established fact that climate change impact is experienced differently across and within locations, social groups and gender. Based on the climate-related hazards evaluated, risks and future vulnerabilities revealed across the Regions and districts, a number of specific adaptation options that would increase the resilience of the target areas have been recommended for implementation by GASIP. The subsequent sections provide details of the adaptation options. The chapter also presents the national context for adaptive agriculture, costs and benefits associated with the proposed adaptation options, the institutional collaborations for effective adaptation actions, livelihood strengthening and diversification and gender-based vulnerability reduction strategies.

The Assessment found smallholder farmers in the three northern regions and selected districts in the Brong-Ahafo Region to be particularly vulnerable to the effects of climate change and related extreme events. This can be attributed to their over-reliance on rainfed agriculture which is highly exposed and sensitive to climate variability and change. In addition, the generally high incidence of poverty and low adaptive capacity means farmers will not be able to adapt effectively to projected climate-related risks and hazards. Smallholder farmers already face risks, including pest and disease outbreaks, extreme weather events and market shocks to their agricultural production value chain. These work together to undermine their household food and income security. Extreme weather events and climate-induced vulnerabilities such as dry spells, floods, bushfires, pests and diseases were identified to have significant negative impacts on livelihoods systems.

Addressing the challenges identified in the Assessment area will require an integrated and participatory approach. Adaptation measures that have the desired result in terms of minimizing the climate-related risks and hazards or exploiting potential opportunities with social, environmental and economic co-benefits have been discussed in the proceeding sections.

4.1 ADAPTATION OPTIONS

Across the study areas, most smallholder farmers live in precarious conditions and are intrinsically vulnerable to shocks that affect their agricultural systems. Climate change-related risks and hazards are likely to have significant negative livelihood impacts on the farming and related livelihood systems.

The future climate scenarios and projections suggest that the four regions will experience an increase in mean temperature of up to 2 °C, above present levels by 2050, as well as decrease/or increase in rainy days is projected under RCP2.6 and a marginal increase under RCP8.5 across the regions. Smallholder farmers face multiple, recurring and substantial risks to their agricultural production and livelihoods including risks related to extreme weather events. Based on our findings, a number of on-farm and off-farm adaptation options and strategies, which should be implemented to respond to minimize household and communities' sensitivity to changes in climatic risks and hazards and boost agriculture productivity in the studied areas are proposed below.

4.1.1 ON-FARM ADAPTATION OPTIONS

The on-farm adaptation options that could be adopted across the focal area for the CCVA include conservation agriculture, provision of irrigation schemes, agroforestry, implementation of adaptive trials and establishment of demonstration plots and crop insurance schemes.

(a). Conservation agriculture

The promotion of conservation agricultural practices in the four regions will improve soil quality and agricultural output. Conservation agriculture practices will improve the utilization of arable lands for farming by improving soil fertility, composition and natural biodiversity. These practices will improve food security, livelihoods and increase profit margins of farmers in the four regions. Key conservation agriculture management practices that could be implemented include but not limited to:

- Improving soil management through the application of organic and mineral fertilizers/manures
- Efficient application of fertilizers/manures
- Improving, maintaining and managing permanent soil cover through the planting of cover crops and practising crop rotation
- Application of conservation tillage such as no-till, ridge- till and mulch-till
- Reducing the burning of crop residues and weeds

(b). Application of integrated disease and pest management

Damage to crops and the environment as a whole in the four regions of this CCVA can be minimized if farmers observe and follow some of the recommendations proposed in **Table 12**.

Table 12. Measures for pests and diseases control and management

Category of pests and disease	Proposed Action
Rodents	<ul style="list-style-type: none"> • Regular surveillance. The earlier the presence of rodents is observed, the cheaper and simpler any subsequent action will be and losses will remain negligible • Sanitation. It is much easier to notice the presence of rodents if the environment is clean and tidy • Proofing i.e. making the store rat-proof in order to discourage rodents from entering • Use recommended rodenticide. For instance, bait poisons should be used only if rats are present. In stores or buildings, use single-dose anticoagulant poisons, preferably as ready-made baits. •
Migratory and outbreak pests (birds, red locusts etc)	<ul style="list-style-type: none"> • Regulated insecticides use • Scarecrows • Regular inspection of farms/fields for signs of infestation • Farmer-to-farmer dissemination of information on farm infestations • Setting and regular monitoring of insect traps • Use resistant crop varieties • Destroy (burning or burying) crop debris after harvesting. • Practice plant rotation with non-host (e.g. cereals, cassava, pulses etc.) • Avoid infected soils, grown with host crops before (e.g. tomato, garden eggs, okra, carrots, etc) • Intercropping with pulses • Use approved short-term persistence pesticides to spray young caterpillars • Plant recommended early maturing varieties of crops • Proper fertilization • Apply wood ash in case of a heavy attack of aphids

(c) Sustainable, affordable and innovative water resource use

In collaboration with Ghana Irrigation Development Authority, existing but non-functional irrigation schemes could be rehabilitated to provide sustainable, innovative and affordable water for smallholder farmers and also for domestic use. Provision and maintenance of small-scale irrigation dams (already in the three northern regions) in communities with poor access to water for agriculture purposes will improve on-farm activities during the drying seasons and when dry spells occur. A number of irrigation methods such as irrigation booms, irrigation pivots, irrigation guns, sprinklers, pump set packages, power units, soft hose and other fittings and accessories are available locally to support irrigation schemes. Farmers would need capacity building in managing irrigation schemes and ensuring sustainable and efficient utilization of water for farming activities.

For instance, drip irrigation is known to save water and fertilizer by allowing water to drip slowly to the roots of plants, either onto the soil surface or directly into the root zone, through a network of valves, pipes, tubing, and emitters. Drip irrigation and the use of wetting front detectors for scheduling water application can enhance water use efficiency during dry season irrigation from groundwater. Availability of adequate water for irrigation is vital for improved and sustainable farming. The establishment and management of small-scale irrigation schemes is therefore important to increase agricultural productivity. Studies by Blench and Dendo (2007) have provided a number of water development options (**Table 13**) for the Assessment regions.

Table 13. Water development options in the Assessment areas

Water options	Current status
Small-scale dams	Extensively promoted by the government, donor projects, and NGOs throughout the North. Generally successful, but the cost is high and maintenance pathways (for larger repairs) not well established. Poor mitigation of health and environmental impacts.
Dugouts	Generally successful, but poor mitigation of health and environmental impacts. Rises in numbers of migrant cattle could make these sites sources of friction.
Culverts/bridges for water retention as an add-on for feeder roads	This technology works well with high maintenance and extensive supervision. However, post-project community maintenance is extremely poor and this technology will not work unless much greater training investments are made.
Pumping from rivers	This is being tried informally on some river systems in Northern Ghana and undoubtedly produces the best return (in terms of land cultivated per dollar) of any of these technologies. Although collective pumps theoretically have economic advantages, in practice households prefer small individual pumps because (a) they control refuelling and maintenance, and (b) they can easily be moved by bicycle. One of the objections to pumps is that they introduce inequity.
Natural flood-plain irrigation	This technology is not well established in Ghana, although it works well in some neighbouring countries (Mali, Nigeria) and has potential along the White Volta. Advantages are that it makes

	<p>maximum use of natural fish production and is environmentally beneficial (limited standing water and river-bank protection).</p> <p>The disadvantage is that it requires significant initial investment in earthworks, community training, and cooperation (does not work for an individual household).</p>
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Source: Blench and Dendo 2007

(d). Community-based agroforestry and woodlot schemes

Agroforestry practices should be promoted to strengthen the resilience of farmers and communities to boost agricultural production in the four regions. Promoting agroforestry will improve soil fertility, promote food security and increase incomes of the people. Climate-resilient tree species that are drought tolerant, are highly recommended because they are able to withstand extreme climate events. Agroforestry practices would also help to support farmers during crop failure by selling of fuelwood and timber or processing of shea butter. Agroforestry also protects water bodies from excessive evaporation. Different agroforestry system such as agrisilviculture, agrosylvopastoral and silvopastoral systems could be implemented to boost food production and income generation. To promote and sustain agroforestry, it is necessary to encourage farmers to actively participate in the planting of short rotation trees and crops in a manner that ensures there is minimal conflict with land use systems. The knowledge of the farmers and other community members on agroforestry must be improved to reduce land degradation, reduce erosion, improve soil fertility and boost agricultural productivity. It is recommended that GASIP initiates collaboration with existing institutions such as the **Forestry Commission, Savannah Agricultural Research Institute at Nyankpala and other local NGOs for the provision of tree seedlings and species** that can grow well in each of the Assessment areas. These tree species selected must be income-generating trees, easy to maintain, drought and climate tolerance, acceptable to the local people and fast-growing trees.

(e). Adaptive trials

Commercially viable adaptive trials can also be implemented with climate resilient crop varieties that can withstand the effects of climate change such as droughts, dry spells, climate-induced erosion, pest and diseases, among others. These adaptive trials could include technical approaches that are designed with in-built climate change adaptation strategies that promote improved agricultural production technologies for households and communities in the

Assessment area. Different types of adaptive trials could be implemented at selected sites within the GASIP project area. The successful results from the adaptive trials could then be used in demonstration sites as evidence to support smallholder farmers' adoption of improved varieties of crops and planting materials as well as good agronomic practices.

(f). Demonstration sites

It will be relevant to establish pilot plots within the project sites to provide practical and technical training to farmers and other community members. Demonstration sites would help to create awareness of farmers on climate change adaptation activities. These demonstration sites could be developed to enable farmers — women, men and youth to effectively implement climate change adaptation research findings and recommendations from Ghana and other countries.

(g). Crop Insurance schemes

Whilst agricultural insurance is still not fully functional in Ghana, there is the potential for implementing it in the studied areas. Crop insurance will enable poor households to better deal with the effects of climate-related events when they occur. It is also expected to help them improve their welfare in the short run and their opportunities for income growth in the long run.

Crop insurance schemes have the potential to support smallholder farmers' adaptation to climate change impacts. Currently, there is an innovative model of financing agriculture called the Ghana Incentive-Based Risk-Sharing System for Agricultural Lending (GIRSAL).

It supports smallholder farmers through six major pillars:

- Risk sharing: Bank of Ghana provides 75% risk guarantee to commercial banks to motivate them to lend to Ghanaian smallholder farmers
- Digital finance: Support farmers in communities with no banking service
- Insurance: Farmers are required to subscribe to agricultural insurance to minimize investment risk.
- Technical assistance: Technical support for banks and other stakeholders
- Bank incentive mechanisms: Make agricultural financing affordable and accessible to farmers

In addition, the Ghana Agricultural Insurance Programme (GAIP) also supports farmers with insurance schemes. The GAIP was established to benefit:

1. Farmers by protecting them from crop losses due to extreme and adverse weather conditions; enabling farmers to have access to bank credit and input support; and helping them to commercialize their farming operations.
2. Financial institutions by protecting their agriculture loans portfolio; and expanding agricultural lending
3. Agricultural-input suppliers by protecting their investment in agricultural-input supplied to farmers; and increasing their access to finance.

Governments (national, regional, district level) and other public institutions can play an important role in ensuring insurance markets are developed in a way that provides high-quality products to poor farming households.

4.1.2 PRIORITIZED ON-FARM ADAPTATION OPTIONS

Beyond the general adaptation options recommended and discussed above for evaluation and implementation at the national and regional level, specific actionable adaptation options at the district level are prioritized below based on gender and age (**Tables 14-17**). These farm-level adaptation options can go a long way in moderating the negative effect of climate-related risks and vulnerabilities. In drawing up these specific adaptation options, we acknowledge that different gender and age groups are affected differently and will require attention at different scales. **The adaptation options will also require substantial investment by GASIP.** For this reason, we have carefully prioritized which gender and age group should be given the needed attention using the following priority rankings: highest (topmost priority), high (second priority) and medium (third priority).

Other specific on-farm adaptation options which from our Assessment findings should be evaluated further for implementation by GASIP are listed in **Appendix 5**.

Table 14. Prioritized on-farm adaptation options for districts and social groups in Brong Ahafo Region

District	Priority target group	Priority adaptation options											
		Drip irrigation in smallholder farms	Provision of vegetable crops for dry seasoning farming	Training farmers in conservation agriculture (agroforestry, woodlots, afforestation)	Rain Water harvesting (channel rainwater from gutters to farms)	Planting drought-resistant crops	Crop insurance	Crop and livestock diversification	Setting up Community-based grain banks	Planting in upland areas and mounds	Creation of fire belts	Planting (maintaining) shade trees	Stone bunding
Atebubu	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High
Amantin	<i>Men</i>	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Medium	Medium	Medium	High
	<i>Youth</i>		High	Highest	Highest	Highest	Highest	Highest	Highest				High
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium	Medium	Medium	High
Banda	<i>Women</i>	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Medium	Highest	Highest	High
	<i>Men</i>	Highest	Highest	Highest	Highest	High	High	High	High	High	Highest	Highest	High
	<i>Youth</i>	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Medium	Highest	Highest	High
	<i>Young adults</i>	Highest	Highest	Highest	Highest	High	High	High	High	High	Highest	Highest	High
Kintampo North	<i>Women</i>	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Medium	Highest	Highest	High
	<i>Men</i>	Highest	Medium	Highest	Highest	High	High	High	High	High	Highest	Highest	High
	<i>Youth</i>	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Medium	Highest	Highest	High
	<i>Young adults</i>	Highest	Highest	Highest	Highest	High	High	High	High	High	Highest	Highest	High
Kintampo South	<i>Women</i>	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Medium	Highest	Highest	High
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High
	<i>Youth</i>			Medium	Medium	Medium	Medium	Medium	Medium		Highest	Highest	High

	Young adults	Highest	Highest	High	High	High	High	High	High	Highest	Highest	Highest	High
Pru	Women	Highest	Highest	Medium	Medium	Medium	Medium	High	Medium	Highest	Highest	Highest	High
	Men	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High
	Youth	Medium			Medium	Medium	Medium	Medium	Medium	Medium			High
	Young adults	High	High	High	High	High	Highest	Highest	Medium	Medium	Highest	Highest	High
Sene East	Women	Medium	Medium	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	High
	Men	High	High	Highest	Highest	High	Highest	Highest	Highest	Highest	Medium	Medium	High
	Youth			Highest	Highest	Medium	Highest	Highest	Highest	Highest			High
	Young adults	High	High	Highest	Highest	High	Highest	Highest	Highest	Highest	Medium	Medium	High
Sene West	Women	Medium	Medium	Highest	Highest	Medium	Highest	Highest	Medium	Medium	Highest	Highest	High
	Men	High	High	High	High	High	Highest	Highest	Highest	Highest	Highest	Highest	High
	Youth	Medium	Medium	Medium	Medium	Medium	Highest	Highest	Highest	Highest	Highest	Highest	High
	Young adults	Highest	Highest	Highest	High	High	Highest	Highest	Highest	Highest	Highest	Highest	High

Priority for action (social/gender group should be top priority for application of this adaptation strategy due to their high vulnerability based on results from our survey)

	Highest
	High
	Medium

Table 15 *Prioritized on-farm adaptation options for districts and social groups in Northern Region*

District	Priority target group	Priority adaptation options											
		Drip irrigation in smallholder farms	Provision of agricultural inputs for vulnerable households for dry season farming	Training farmers in conservation agriculture (agroforestry, woodlots, afforestation)	Rain Water harvesting (channel rainwater from gutters to farms)	Planting drought - resistant crops	Crop insurance	Crop and livestock diversification	Setting up Community -based grain banks	Planting in upland areas and mounds	Creation of fire belts	Planting (maintaining) shade trees	Stone bunding
Chereponi	Women	Highest	Highest	Highest	Highest		Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest		Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	High	High	High	High	High	High	Highest	Medium	Highest	Highest	Highest
	Young adults	Highest	Medium	Medium	High	High	Medium	High	Highest	Medium	Highest	Highest	Highest
East Gonja	Women	Highest	High	High	High	High	Medium	High	Highest	Medium	Highest	Highest	Highest
	Men	Highest	High	High	High	High	High	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	High		Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	High	Medium	High	Highest	Highest	Highest	Highest
Gushegu	Women	Highest	Highest	Highest	Highest	Highest	High	Highest	High	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	High	Highest	High	Highest	Medium	Medium	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest	Medium	Medium	Highest
	Young adults	Highest	Highest	Medium	Medium	Medium	Highest	Highest	High	Highest	Medium	Medium	Highest
Kpandai	Women	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Medium	Highest	Highest	Highest	Highest	High	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
Nanumba	Women	Highest	Highest		Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
Saboba	Women	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest

[illegible]

	<i>Young adults</i>	Highest	Highest	Highest	High	High	Medium	High	Highest	Highest	Highest	Highest	Highest
Tamale Metropolitan	<i>Women</i>	Medium	Medium	Highest	High	High	Medium	High	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Medium	Medium	Highest	High	High	Medium	High	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Medium	Medium	Highest	High	High	Medium	High	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Medium	Medium	Highest	High	High	Medium	High	Medium	Highest	Highest	Highest	Highest
North Gonja	<i>Women</i>	Medium	Medium	Highest	High	High	Highest	Highest	Medium	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	High	High	Highest	Highest	High	Medium	High	High	High	Highest
Tatale Sangule	<i>Women</i>	Highest	Highest	High	High	Highest	Highest	High	Medium	Highest	Highest	Highest	Highest
	<i>Men</i>	High	Highest	High	High	Highest	Highest	High	Medium	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest	High	Medium	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest	Highest	Highest	Highest	Highest
West Mamprusi	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	High	Highest	Highest	Medium	Medium	Medium	Highest	Highest	Highest	Highest	High	Highest
	<i>Youth</i>	Highest	Highest	Highest	Medium	Medium	Medium	Highest	Highest	Highest	Highest	High	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Medium	Medium	Medium	Highest	Highest	Highest	Highest	High	Highest

PRIORITY FOR ACTION (social/gender group should be top priority for application of this adaptation strategy due to their high vulnerability based on results from our survey)

	Highest
	High
	Medium

Table 16 Prioritized on-farm adaptation options for districts and social groups in the Upper West Region

District	Priority target group	Priority adaptation options											
		Drip irrigation in smallholder farms	Provision of agricultural inputs for vulnerable households for dry season farming	Training farmers in conservation agriculture (agroforestry, woodlots, afforestation)	Rain Water harvesting (channel rainwater from gutters to farms)	Planting drought resistant crops	Crop insurance	Crop and livestock diversification	Setting up Community-based grain banks	Planting in upland areas and mounds	Creation of fire belts	Planting (maintaining) shade trees	Stone bunding
Daffiema-Busie-Issa	Women	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Medium	Medium	Medium	Highest	Medium	High	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Medium	Medium	Medium	Highest	Highest	High		Highest	Highest	Highest	Highest	Highest
	Young adults	Medium	Medium	Highest	Highest	Medium	High	Highest	Highest	Highest	Medium	Medium	Medium
Jirapa	Women	Highest	Highest	Highest	Highest	Highest	High		Highest	Highest	Highest	Highest	Highest
	Men	Medium	Medium	Highest	Highest	Medium	High	Medium	Highest	Highest	Highest	Highest	Highest
	Youth	Medium	Medium	Highest	Highest	Highest	High	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Medium	High	Medium	Highest	Highest	Highest	Highest	Highest
Nadowli	Women	Highest	Highest	Highest	Highest	Highest	High	Highest	Highest	Highest	High	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Medium	High	Medium			High	Medium	Medium
	Youth	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest		High	Medium	Medium
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest		High	Medium	Medium
Sissala East	Women	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Medium	Medium	Medium		Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
Sissala West	Women	Medium	Medium	Medium		Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Medium	Medium	Medium	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Youth				High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults		Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Highest	Medium
Wa West	Women				High		Medium	Medium	Medium	Medium	Medium	Highest	Medium
	Men				High		Medium	Medium	Medium	Medium	Medium	Highest	Medium
	Youth	Highest	Highest	Highest	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium

	<i>Young adults</i>	Highest	Highest	Highest	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
Wa East	<i>Women</i>	Highest	Highest	Highest	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
	<i>Men</i>	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
Lambussie Karni	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Medium	Medium	Medium	Medium	High	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
Lawra	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	
	<i>Young adults</i>	Highest	Highest	Medium	Medium	Medium	Highest	Highest	Highest	Highest	Highest	High	
Nandom	<i>Women</i>	Highest	Medium	Medium	Medium	Medium	Highest	Highest	High	High	High	High	Highest
	<i>Men</i>	High	Medium				Highest	Highest	High	High	High	High	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Medium	Highest	High	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Medium	Highest	High	Highest
Wa Municipal	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest
	<i>Men</i>	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest

PRIORITY FOR ACTION (social/gender group should be top priority for application of this adaptation strategy due to their high vulnerability based on results from our survey)

	Highest
	High
	Medium

Table 17 Prioritized on-farm adaptation options for districts and social groups in the Upper East Region

District	Priority target group	Priority adaptation options											
		Drip irrigation in smallholder farms	Provision of agricultural inputs for vulnerable households for dry season farming	Training farmers in conservation agriculture (agroforestry, woodlots, afforestation)	Rain Water harvesting (channel rainwater from gutters to farms)	Planting drought-resistant crops	Crop insurance schemes	Crop and livestock diversification	Setting up Community-based grain banks	Planting in upland areas and mounds	Creation of fire belts	Planting and maintaining shade trees	Stone bunding
Nabdam	Women	Highest	Medium	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Medium	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Medium	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Medium	Medium	Highest	Highest	High	High	High	High	Highest	High	Highest
Kassena Nankana Municipal	Women	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest
	Youth	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest
	Young adults	High	Highest	Highest	Highest	Highest	Highest	Medium	Medium	Highest	Highest	High	Highest
Bawku Municipal	Women	High	Highest	Highest	Highest	Highest	Highest	Medium	Medium	Highest	Highest	High	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest	Medium	Medium	Highest	Highest	High	Highest
	Youth	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest
	Young adults	Highest	Medium	Highest	Medium	Medium	Medium	Highest	Highest	Highest	Highest	High	Highest
Bawku West	Women	Highest	Medium	Highest	Medium	Medium	Medium	Highest	Highest	Highest	Highest	High	Highest
	Men	Highest	Medium	Highest	Highest	Highest	Highest	High	High	Highest	Highest	High	Highest
	Youth	Highest	Medium	Highest	Highest	Highest	Highest	High	High	Highest	Highest	High	Highest
	Young adults	Highest	Medium	High	High	Highest	Highest	High	High	Highest	Highest	High	Highest
Bongo	Women	Highest	Highest	High	High	Highest	Highest	High	High	Highest	Highest		Highest
	Men	Highest	Highest	High	High	Highest	Highest	Highest	Highest	Highest	Highest		Highest
	Youth	Highest	Highest	High	High	Highest	Medium	Highest	Highest	Highest	Medium	Medium	Highest
	Young adults	Highest	Highest	High	High	Highest	Medium	Highest	Highest	Highest	Medium	Medium	Highest
Builsa North	Women	High	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	Men	High	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest

	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	
Pusiga	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	High	High	High	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest	High	High	High	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	High	High	High	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Medium		High	High	High	Highest	Highest	Highest	Highest
Talensi	<i>Women</i>	High	High	High	Medium	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	High	High	High	Medium	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	High	High	Medium	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	High	High	High	Medium	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest
Bulsa South	<i>Women</i>	Highest	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
	<i>Men</i>	Highest	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	High	Highest	Medium
	<i>Youth</i>	Highest	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
	<i>Young adults</i>	Highest	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
Binduri	<i>Women</i>	Highest	Highest	Highest		Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
	<i>Men</i>	High	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Highest	Highest	Highest	Medium
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Highest	Highest	Highest	Medium
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Highest	Highest	Highest	Medium
Bolgatanga Municipal	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
	<i>Men</i>	High	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	High	Highest	Medium
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
	<i>Young adults</i>	High	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium
Kassena Nankana West	<i>Women</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
Kassena Nankana East	<i>Women</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Highest
	<i>Young adults</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Highest
Tempane	<i>Women</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Highest
	<i>Men</i>	Highest	Highest	Medium	Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Highest
	<i>Youth</i>	Highest	Highest		Highest	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Highest

	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium	Highest
Garu Tempane	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Medium	Highest
	<i>Youth</i>	Highest	Highest	Highest	High	High	High	High	Highest	Highest	Highest	Medium	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Medium	Medium	Medium	Medium	Highest	Highest	Highest	Medium	Highest

PRIORITY FOR ACTION (social/gender group should be top priority for application of this adaptation strategy due to their high vulnerability based on results from our survey)

	<i>Highest</i>
	<i>High</i>
	<i>Medium</i>



Table 18. Farm-level scenarios for adaptation options, constraints and knowledge gaps

Climate change related scenario	Climate change impact and adaptation options	Selected climate change adaptation technologies	Production techniques to improve yields	Constraints in implementing climate change adaptation	Knowledge and technology gaps
<p><i>Scenario 1:</i> Extreme drought</p> <p><i>Scenario 2:</i> Increased temperature</p> <p><i>Scenario 3:</i> Unpredicted rainfall patterns</p> <p><i>Scenario 4:</i> White Volta and Black Volta overflowing their bounds</p> <p><i>Scenario 5:</i> Excessive bush fire</p>	<ul style="list-style-type: none"> Conservation agriculture Irrigation Agroforestry Adaptive trials (demonstration plots) Financial support/agriculture insurance schemes Climate change awareness Climate change adaptation research Agricultural extension services 	<ul style="list-style-type: none"> Climate change planning (climate change monitoring, early warning system) Efficient water use and management (irrigation, rainwater harvesting, dams) Good soil management (soil conservation, erosion control, soil nutrient management) Efficient crop management (pest management, seed storage, biotechnology) Livestock management (disease and pest management, selective breeding) 	<ul style="list-style-type: none"> Access to and application of weather information Crop rotation Mixed cropping and farming Improved seedlings Good planting techniques and inputs Deployment of agricultural extension officers Irrigation Right quantity and type of pesticides, weedicides and fertilizers 	<ul style="list-style-type: none"> Socio-cultural and local knowledge barriers High illiteracy High initial costs of adaptation options (capital constraints) Inadequate experts Inadequate access to credit Inadequate information Inadequate extension services Inadequate certified pesticides and insecticides Unwillingness of farmers to adopt new technology 	<ul style="list-style-type: none"> Link between agriculture development strategies with climate change adaptation Climate change impacts farming interventions Local development strategies on agriculture Local climate change resilient and climate change disaster plans Unreliable and noncurrent climate change data for agriculture policy formulation Tools and models for agriculture and climate change decision making

4.1.3. OFF-FARM ADAPTATION OPTIONS

This section discusses the off-farm adaptation options that need to be prioritized in the Assessment regions. Some of the off-farm adaptation options include but not limited to access to financial support, awareness and knowledge on climate change and adaptation strategies, capacity development for agricultural extension officers, access to weather information and early warning systems for agriculture, among others.

(a). Access to financial support

The Assessment revealed inadequate financial and non-financial support for smallholder farmers. Financial support to smallholder farmers is highly inadequate and extremely difficult to access. Commercial and rural banks are not providing enough credit facilities to smallholder farmers due to their inability to provide a guarantee or collateral. This might affect agricultural production and food security. Financial and non-financial support to smallholder farmers could enhance their resilience to the adverse impacts of climate change. This support could be in the form of soft loans with no or low interest rates and cashless inputs as well as agriculture insurance packages for smallholder farmers offered through farmer groups.

(b). Awareness and knowledge on climate change and adaptation strategies

Awareness and knowledge creation on climate change will help to enhance adaptation among smallholder farmers. There is, therefore, the need to increase awareness on climate change in the four regions. This will involve community sensitization campaign and media engagement and communicating climate change to communities and smallholder farmers in a medium that they will understand. The community sensitization campaign can include community workshops and interactive sessions, focus group discussions, drama and choreography, development of toolkits such as booklets, fliers and posters displaying information about climate change and adaptation strategies. Community radio programs also offer a viable avenue for the dissemination of information. This will help to build the capacity of smallholder farmers.

(c). Capacity development for agricultural extension officers

The development of the capacity of extension officers has the potential of supporting farmers to adapt to the effects of climate change. The professional development and technical training will enable the agricultural extension officers to effectively provide technical and extension support to farmers and educate them on climate change adaptation strategies. The number of

extension officers posted to the assessment regions also needs to be enhanced as many communities reported the lack of officers to provide services they require to effectively adapt to climate change.

(d). Access to weather information and early warning systems for agriculture

Developing climate services and increasing access to meteorological information by farmers is one-step in creating climate-smart agriculture and enhancing farmers' resilience to climate change. Smallholder farmers require different types of climate information during each stage of the agricultural production process in order to adapt to climate variability and change. Major climate change information includes seasonal climate outlooks, early warning signals, weather forecasts that could be used for decision making regarding pest attacks, input management, cultivation practices, pest and disease management, and prices.

Better access to weather information will have a positive influence on the decision of smallholder farmers to invest in their farming activities, use drought-tolerant crop varieties, and diversify livelihood options in response to climate change. GASIP should collaborate with the GMet to establish a weather information desks at the district assemblies in the Assessment area to provide prompt weather report so that the communities can prepare for planting and mitigate any negative effect such as flood, drought and dry spells.

4.1.4 PRIORITIZED OFF-FARM ADAPTATION OPTIONS

Beyond the general off-farm adaptation options recommended and discussed above for evaluation and implementation at the national and regional level, specific actionable off-farm adaptation options at the district level are prioritized below based on gender and age (**Tables 19-22**). These off-farm adaptations can go a long way in moderating the negative effect of climate-related risks and vulnerabilities. In drawing up these specific adaptation options, we again acknowledge that different gender and age groups are affected differently and will require attention at different scales. The adaptation options will also require substantial investment by GASIP. For this reason, we have carefully prioritized which gender and age group should be given the needed attention using the following priority rankings: highest (topmost priority), high (second priority) and medium (third priority).

Table 19 Prioritized off-farm adaptation options for districts and social groups in Brong Ahafo Region

District	Targeted group	Priority adaptation options					Easy access to credit
		Income diversification systems	Relocation	Construction of erosion control structures	Livestock and poultry rearing	Creation of channels to direct water ways	
Atebubu Amantin	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Medium	Medium	Highest	Highest	Highest
Banda	Women	Highest	Highest	Medium	High	High	Highest
	Men	Highest	Highest	Highest	High	High	Highest
	Youth	Highest	Highest	Highest	High	High	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Kintampo North	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Kintampo South	Women	Highest	Highest	High	Highest	Highest	Highest
	Men	Highest	Highest	High	Highest	Highest	Highest
	Youth	High	Medium	High	Highest	Highest	Highest
	Young adults	High	Medium	High			Highest
Pru	Women	Highest	Highest	High			Highest
	Men	Highest	Highest	High	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Sene East	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Medium	Medium	Highest
	Youth			Highest	Medium	Medium	Highest
	Young adults		Highest	Highest	Highest	Highest	Highest
Sene West	Women	High	Highest	Highest	Highest	Highest	Highest
	Men		Highest	Highest	Highest	Highest	Highest
	Youth	High	Highest	Highest	Highest	Highest	Highest
	Young adults	High	Highest	Highest	Highest	Highest	Highest

PRIORITY FOR ACTION (social/gender group should be top priority for application of this adaptation strategy due to their high vulnerability based on results from our survey

	Highest
	High
	Medium

Table 20 *Prioritized off-farm adaptation options for districts and social groups in Northern Region*

District	Priority target group	Priority adaptation options					
		Income diversification systems	Relocation	Construction of erosion control structures	Livestock and poultry rearing	Creation of channels to direct waterways	Easy access to credit
Chereponi	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
East Gonja	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Gushegu	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	High	Highest	Highest	Highest	Highest
	Young adults	Highest	High	Highest	Highest	Highest	Highest
Kpandai	Women	Highest	High	Highest	Highest	Highest	Highest
	Men	High	High	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest			Highest
Nanumba	Women	Highest	Highest	Highest	High	High	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Saboba	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Sagnarigu	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Tolon	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest

	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest
Yendi Municipal	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	High	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest
Zabzugu	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Medium	Medium	Medium	Highest
	<i>Youth</i>	Highest	Highest	Medium	Medium	Medium	Highest
	<i>Young adults</i>	Highest	Highest				Highest
Bunkrugu-Yunyoo	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	High	High	Highest	Highest	Highest	Highest
	<i>Youth</i>	High	High	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Medium	Medium	Highest	Highest	Highest	Highest
East Mamprusi	<i>Women</i>	Medium	Medium	Highest	Highest	Highest	Highest
	<i>Men</i>	High	High	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest
Karaga	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Medium	Medium	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Medium	Medium	Highest
Mamprugu-Mogduri	<i>Women</i>	Medium	Medium	Highest	Medium	Medium	Highest
	<i>Men</i>	Medium	Medium	Highest	Highest	Highest	Highest
	<i>Youth</i>	Medium	Medium	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Medium	Medium	Highest	Highest	Highest	Highest
Sawla-Tuna-Kalba	<i>Women</i>	Medium	Medium	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Medium	Medium	Medium	Highest
West Gonja	<i>Women</i>	Highest	Highest	Medium	Medium	Medium	Highest
	<i>Men</i>	High	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest
Bole	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Medium	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	High	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Medium	Highest	Highest	Highest	Highest	Highest
Central Gonja	<i>Women</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest

Kumbungu	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Medium	Medium	Medium	Highest
Mion	Women	High	Highest	Medium	Medium	Medium	Highest
	Men	High	Highest	Medium	Medium	Medium	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Medium		Highest	Highest	Highest
Nanumba North	Women	Highest	Medium	Medium	Highest	Highest	Highest
	Men	Highest	Medium	Medium	Highest	Highest	Highest
	Youth	Highest	Medium	Medium	Highest	Highest	Highest
	Young adults	Highest	Medium	Medium	Highest	Highest	Highest
Savelugu-Nanton	Women	High	Medium	Medium	Highest	Highest	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	High	Highest	Highest	Highest	Highest	Highest
	Young adults	Medium	Highest	Highest	Highest	Highest	Highest
Tamale Metropolitan	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Medium	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
North Gonja	Women	Highest	Medium	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Medium	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Tatale Sangule	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
West Mamprusi	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest

PRIORITY FOR ACTION (social/gender group should be top priority for application of this adaptation strategy due to their high vulnerability based on results from our survey)

	Highest
	High
	Medium

Table 21 *Prioritized off-farm adaptation options for districts and social groups in Upper West*

District	Priority target group	Priority adaptation options					
		Income diversification systems	Relocation	Construction of erosion control structures	Livestock and poultry rearing	Creation of channels to direct waterways	Easy access to credit
Daffiema-Busie-Issa	Women	Highest	Highest	High	Highest	Highest	Highest
	Men	Highest	Highest	High	Medium	Medium	Highest
	Youth	Medium	Highest	High	Highest	Highest	Highest
	Young adults	Medium	Highest	High	Highest	Highest	Highest
Jirapa	Women	Medium	Highest		Highest	Highest	Highest
	Men	Highest	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Nadowli	Women	Highest	Highest	Highest	High	High	Highest
	Men	High	Highest	Highest	High	High	Highest
	Youth	Highest	Highest	Highest	High	High	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Sissala East	Women	Highest	Medium		Highest	Highest	Highest
	Men	High	Medium	High	Highest	Highest	Highest
	Youth	Highest	Highest	High	Highest	Highest	Highest
	Young adults	Highest	Highest	High	Highest	Highest	Highest
Sissala West	Women	Highest	Highest	High	Highest	Highest	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	High	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Wa West	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	Highest	High	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	High	Highest	Highest	High	Highest
Wa East	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	High	Highest	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest	Highest
Lambussie Karni	Women	Highest	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Medium	Medium	Highest	High	Highest
	Youth	Highest	Medium	Medium	Highest	Highest	Highest
	Young adults	Highest			Highest	Highest	Highest

Lawra	<i>Women</i>	Highest	Medium	Medium	Highest	Highest	Highest
	<i>Men</i>	High	Medium	Medium	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest	Highest
Nandom	<i>Women</i>	Highest	Highest	Highest	High		Highest
	<i>Men</i>	High	Highest	Highest	High	Medium	Highest
	<i>Youth</i>	Highest	Highest	Highest	Medium	Medium	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Medium	Medium	Highest
Wa Municipal	<i>Women</i>	High	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Medium	Medium	Medium	Highest	Highest	Highest
	<i>Youth</i>	High	Medium	Medium	Highest	Highest	Highest
	<i>Young adults</i>	High	Highest	Highest	Highest	Highest	Highest

PRIORITY FOR ACTION (social/gender group should be top priority for application of this adaptation strategy due to their high vulnerability based on results from our survey)

	Highest
	High
	Medium

Table 22 Prioritized off-farm adaptation options for districts and social groups in Upper East

District	Priority target group	Priority adaptation options				
		Income diversification systems	Relocation	Construction of erosion control structures	Livestock and poultry rearing	Easy access to credit
Nabdam	Women	Medium	Medium	Highest	Highest	Highest
	Men	Medium	Medium	Highest	Medium	Highest
	Youth	Highest	Highest	Highest	Medium	Highest
	Young adults	High	Highest	Highest	Medium	Highest
Kassena Nankana Municipal	Women	Highest	Highest	High	Medium	Highest
	Men	Medium	Medium	Highest	Medium	Highest
	Youth	Medium	Medium	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest
Bawku Municipal	Women	Highest	Highest	Highest	Highest	Highest
	Men	Highest	Highest	High	Highest	Highest
	Youth	Medium	Medium	Highest	Highest	Highest
	Young adults	Medium	Medium	Highest	Highest	Highest
Bawku West	Women	Highest	Highest	Highest	High	Highest
	Men	High	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest
Bongo	Women	Highest	Highest	Medium	Medium	Highest
	Men	Highest	Highest	Medium	Medium	Highest
	Youth	Medium	Highest	Medium	Medium	Highest
	Young adults	Medium	Highest	Highest	Highest	Highest
Builsa North	Women	Medium	Highest	Highest	Highest	Highest
	Men	Medium	Highest	Highest	Highest	Highest
	Youth	Highest	Highest	Highest	Highest	Highest
	Young adults	Highest	Highest	Highest	Highest	Highest
Pusiga	Women	Medium	High	Highest	Highest	Highest
	Men	Highest	High	Highest	Highest	Highest
	Youth	Highest	Medium	Highest	Highest	Highest
	Young adults	Highest	High	Highest	Highest	Highest
Talensi	Women	Highest	Medium	Highest	Highest	Highest
	Men	Highest	High	Highest	Highest	Highest
	Youth	Highest	High	Highest	Highest	Highest
	Young adults	Highest	High	Highest	Highest	Highest

Builsa South	<i>Women</i>	Highest	High	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest
Binduri	<i>Women</i>	Highest	Highest	High	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Medium	Highest	Highest	Highest	Highest
Bolgatanga Municipal	<i>Women</i>	High	Highest	Medium	Highest	Highest
	<i>Men</i>	High	Highest	Highest	High	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Highest	Highest	Highest
Kassena Nankana West	<i>Women</i>	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	High	Highest
	<i>Young adults</i>	Medium	Medium	Highest	High	Highest
Kassena Nankana East	<i>Women</i>	Highest	Highest	Highest	High	Highest
	<i>Men</i>	Medium		Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Medium	Highest	Highest
	<i>Young adults</i>	Highest	Highest	Medium	Highest	Highest
Tempane	<i>Women</i>	Highest	Highest	Medium	Highest	Highest
	<i>Men</i>	Highest	Highest	Highest	Highest	Highest
	<i>Youth</i>	Highest	High	Medium	Medium	Highest
	<i>Young adults</i>	Highest	Highest	Highest	High	Highest
Garu Tempane	<i>Women</i>	Highest	Highest	Highest	Highest	Highest
	<i>Men</i>	High		Highest	Highest	Highest
	<i>Youth</i>	Highest	Highest	Highest	Highest	Highest
	<i>Young adults</i>	Highest	Highest	High	Highest	Highest

PRIORITY FOR ACTION (social/gender group should be top priority for application of this adaptation strategy due to their high vulnerability based on results from our survey)

	Highest
	High
	Medium

4.1.3 Costs and Benefits of Proposed Adaptation Options

4.1.3.1 On-Farm

The cost benefit analysis of the various on-farm adaptation options available has been done bearing in mind their associated potential economic, environmental and social benefits and costs to ensure all potential costs and benefits are considered (**Table 23**).

Table 23 Potential costs and benefits of adaptation strategies

Adaptation Options	Components	Costs	Benefits
Conservation Agriculture	Drip irrigation (water bottles etc)	<ul style="list-style-type: none"> The initial investment may be high Potential damage to bottles by animals and humans 	<ul style="list-style-type: none"> Low operational costs Water is used to its maximum level by plants Reduction in fertilizer and nutrient loss Soil infiltration capacity is increased.
	Rainwater harvesting (channel rainwater from gutters to farms)	<ul style="list-style-type: none"> Investing in rain harvesting facilities is require capital Runoff collection may involve land alterations and soil compaction 	<ul style="list-style-type: none"> improving and sustaining water services delivery Ensures all-year-round farming Availability of water of water for domestic purposes
	Provision of agricultural inputs for vulnerable households for dry season farming	<ul style="list-style-type: none"> Cost of establishment of community outlets to supply inputs may be high Cost of inputs maybe higher as compared to income from the sale of agricultural produce Input cost may be higher than the increase in the 	<ul style="list-style-type: none"> Access to improved seeds access of farmers to modern agricultural inputs Improved on-farm income Improve farm productivity and profitability

		value of the output	
	Training farmers in agroforestry, woodlots establishment, and afforestation from a community-based approach	<ul style="list-style-type: none"> • Cost of training of farmers • Procurement of seedlings may be higher 	<ul style="list-style-type: none"> • Improved agroforestry practices • Climate change mitigation • Enhanced community resilience
Application of integrated disease and pest management	Planting drought-resistant crops Planting disease-resistant crops	<ul style="list-style-type: none"> • Cost of improved and draught resistance crops • Cost of breeding technology may be high 	<ul style="list-style-type: none"> • Improved food security • Will reduce crop losses due to droughts to pests
Crop insurance schemes	Agricultural Insurance	<ul style="list-style-type: none"> • Insurance cost is high and may not directly increase a farmer's income • Insurance indemnity only becomes payable in the event of a claim under a policy • mobilizing sufficient insurance capacity to cover the sum at risk 	<ul style="list-style-type: none"> • Insurance will significantly help to manage agricultural risk particularly to safeguard farm income losses under adverse weather conditions and similar events beyond the control of primary producers
	Community-based grain banks	<ul style="list-style-type: none"> • Cost of establishing community grain banks may be expensive 	<ul style="list-style-type: none"> • Improved availability of food • improving local food security • Grain banks make food supplies available at the hardest times of the year at carefully controlled prices • Providing a community-based solution to critical food shortages

	Creation of fire belts	<ul style="list-style-type: none"> • Preparation of fire breaks may be at a high cost 	<ul style="list-style-type: none"> • Prevention of bushfire • Enhance food security
	Provision of agricultural inputs for vulnerable households for dry season farming	<ul style="list-style-type: none"> • Cost of establishment of community outlets to supply inputs may be high • Cost of inputs maybe higher as compared to income from the sale of agricultural produce • Input cost may be higher than the increase in the value of the output 	<ul style="list-style-type: none"> • Access to improved seeds • access of farmers to modern agricultural inputs • Improved on-farm income • Improve farm productivity and profitability
Adaptive Trials	Planting drought-resistant crops Planting disease-resistant crops	<ul style="list-style-type: none"> • Cost of improved and draught resistance crops • Cost of breeding technology may be high 	<ul style="list-style-type: none"> • Improved food security • Will reduce crop losses due to droughts to pests
Demonstration sites	Establishing pilot plots within the project sites Providing technical training to farmers and other members	<ul style="list-style-type: none"> • Cost of pilot plot establishment may be high • Land tenure/acquisition procedure may present challenges 	<ul style="list-style-type: none"> • Improved food security • Will reduce crop losses due to enhanced technical know-how

4.1.3.2 Off-Farm

The cost benefit analysis of the various on-farm adaptation options available has been done bearing in mind their associated potential economic, environmental and social benefits and costs to ensure all potential costs and benefits are considered (**Table 24**)

Table 24 Potential costs and benefits of off-farm adaptation strategies

Adaptation Strategy	Components	Costs	Benefits
Access to financial support	Soft loans with no or low interest rates and cashless inputs	<ul style="list-style-type: none"> Access to timely and transaction-friendly credit facilities may be difficult 	<ul style="list-style-type: none"> Improve smallholder farmer adaptive capacity
	Agricultural Insurance	<ul style="list-style-type: none"> Insurance cost is high and may not directly increase a farmer's income Insurance indemnity only becomes payable in the event of a claim under a policy mobilizing sufficient insurance capacity to cover the sum at risk 	<ul style="list-style-type: none"> Insurance will significantly help to manage agricultural risk particularly to safeguard farm income losses under adverse weather conditions and similar events beyond the control of primary producers
Awareness and knowledge on climate change and adaptation strategies	Community sensitization campaign and media engagement	<ul style="list-style-type: none"> Mobilizing community support may be a challenge from the start There is risk of not properly translating concepts in the local context of communities for easy comprehension 	<ul style="list-style-type: none"> Build the capacity of smallholder farmers. Promote sustainability of climate smart agricultural investments and support
Capacity development for agricultural extension officers	Technical training	<ul style="list-style-type: none"> Cost of organizing training may be high Availability of extension officers may also pose challenges 	<ul style="list-style-type: none"> Strengthen contributions of officers to climate resilient agriculture.
Access to weather information and early	Developing climate services and increasing access to	<ul style="list-style-type: none"> Location specific climate services development may be difficult due to 	<ul style="list-style-type: none"> Enhanced farmer decision-making process (investment options, use drought-

warning systems for agriculture	meteorological information	time constraints and financial challenges <ul style="list-style-type: none"> • Interpretation of information by smallholder farmers may not be effective 	tolerant crop varieties, and diversify livelihood options in response to climate change)
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4.2 GENDER-BASED INDICATORS TO MONITOR VULNERABILITY REDUCTIONS AND SUSTAINABILITY OF ADAPTATION MEASURES

The extent to which people are affected by climate change impacts is partly a function of their gender, poverty, social status, power and access to and control over resources. The present CCVA revealed that the impacts of climate change affect women, children, youth and men differently across the regions and districts. Women are more exposed and sensitive to the various climate-related hazards and commonly face higher risks and greater burdens from the impacts of climate change. The Assessment also revealed that the effects of the various climate-related hazards on youth in the assessment areas, though negative was not too significant in terms of numbers and the youth were also found to be more mobile. Women in the assessment areas are particularly vulnerable to climate change because they are highly dependent on local natural resources for their livelihood and are less mobile. Majority of men play leadership roles and hold decision-making positions at regional, district, and community levels. Women in all the studied regions especially in the three northern regions are credited with lower positions. Again, women have unequal opportunities to participate in all capacities regarding climate change decisions.

Any adaptation actions by GASIP should fully integrate gender perspectives at all levels. It is important to mainstream gender issue in climate change adaption options. Strengthening the integration of gender-specific adaptation options into GASIP programs and projects will be useful in its adaptation efforts in northern Ghana. There is the need to promote active involvement and participation of women, youth, children, aged and other vulnerable persons in the formulation and implementation of climate change adaption projects in the districts.

Provision of resources to the women and youth will also enhance the adaptation measures in the four Assessment regions. Effective climate change adaptation option requires the provision of requisite human, financial and material resources to climate change vulnerable persons. Adequate financial resources such as soft loans, insurance packages, jobs training, grants and

livelihood support financial programmes must be provided to smallholder women farmers to enable them to adapt to the effects of climate change

Based on the integrated findings from this CCVA, We have provided some gender-based indicators to monitor vulnerability reductions and sustainability of GASIP's adaptation measures in the Assessment areas.

Table 25 Gender-based indicators to monitor vulnerability reductions and sustainability of adaptation measures

No.	Adaptation Action	Indicators for monitoring progress Adaptation Actions
1	Access to financial support	The proportion of women with access to credit and financial support
2	Access to weather information and early warning systems for agriculture	% of women and youth with access to weather information and early warning systems
3	Awareness and knowledge on climate change and adaptation strategies	The proportion of women who are aware and have knowledge in climate change and adaptation strategies
4	Adoption of drought resistance crops	% of women applying drought resistant agricultural practices
5	Conservation agriculture	The proportion of women practising conservation agriculture
6	Agroforestry	The proportion of women practising agroforestry
7	Demonstration sites	The proportion of women and youth involved in demonstration sites
8	Project design and implementation	Involvement of women and youth in designing and implementing adaptation projects
9	Decision-making	The proportion of women and youth represented in all decision-making processes, at all levels of project implementation
10	Planning	Pro-poor and gender-sensitive project planning
11	Adaptative capacity	The proportion of women whose adaptive capacity has been enhanced

4.3 NATIONAL CONTEXT FOR CLIMATE CHANGE ADAPTION AND AGRICULTURE

Climate change poses many challenges for Ghana. The government of Ghana recognises the potential impact of climate change on multiple sectors of the country's economy and has therefore put in place a number of policies and strategies to deal with climate change and adaptation. These include the Ghana Nationally Determined Contribution (GH-NDC), National Climate Change Policy (NCCP), National Climate Change Master Plan (NCCMP) and the National Climate Change Adaptation Strategy (NCCAS). These national policies and strategies provide an important platform for climate change adaptation and mitigation in Ghana. The NCCP provides the underpinnings for climate change adaptation actions in government planning, budgeting and development objectives.

4.4 INSTITUTIONAL COLLABORATION FOR EFFECTIVE ADAPTATION

To ensure an effective implementation of the adaptation options, there is the need for institutional collaboration, governmental agencies, private sector and civil society organizations operating in the four regions, districts and the communities. Within the Assessment districts, there are a number of institutions such as the Environmental Protection Agency (EPA), Forestry Commission (FC), National Disaster Management Organisation (NADMO), Ghana National Fire and Rescue Service (GNFRS), District Directorate of Agriculture (DDA), Community-Based Organisations (CBOs), Ghana Irrigation Development Authority (GIDA), Community Water and Sanitation Authority (CWSA), Civil Society Organisations which support climate change mitigation and adaptation actions. An effective institutional collaboration among all these stakeholders will enhance the implementation of adaptation options in the districts. This collaboration will also strengthen the capacity of institutions, improve synergies and avoid duplications of effort. More specifically this report recommends the institutions listed in **Table 26** as relevant for GASIP to consult and collaborate with, in designing and implementing the adaptive strategies proposed.

Table 26 Institutional collaboration for coping and adapting to climate-related hazards

Hazard Type	Institutions for collaboration	
	Main	Others
Flood	Ghana Meteorological Agency, Hydrological Services Department	National Insurance Commission, NADMO, Water Resources Commission, Town and Country Planning Departments, Ghana Water Company Limited, UNHCR, Ghana Education Services, Religious Bodies
Drought	Ghana Meteorological Agency, Hydrological Services Department, Water Resources Commission	National Insurance Commission, NADMO, Water Resources Commission, Town and Country Planning Departments, Ghana Water Company Limited, UNHCR, Religious Bodies
Dry spells	Ghana Meteorological Agency	Savanna Agricultural Research Institute (SARI), Universities
Pests and diseases	Ministry of Food and Agriculture (MOFA) [<i>Plant Protection and Regulatory Services, Agricultural Engineering Services Directorate</i>]	Ghana Health Services, NGOs, World Health Organisation, Food and Drugs Board, Noguchi Memorial Institute for Medical Research
Bushfires	Ghana National Fire and Rescue Services (GNFRS), Forestry Commission (FC), MOFA	National Insurance Commission, NADMO, Water Resources Commission, Town and Country Planning Departments, Ghana Water Company Limited, UNHCR
Windstorms	Ghana Meteorological Agency	EPA, Universities, Information Services Department,

Climate-induced erosion	Survey Department	EPA, Universities, Information Services Department, Religious Bodies
Changes in rainfall pattern	Ghana Meteorological Agency	MOFA, Universities, MMDAs
Seasonal temperature changes	Ghana Meteorological Agency	MOFA, Universities, MMDAs,
Climate-induced soil infertility	Geological Survey Department, NADMO	MMDAs, Ministry of Lands and Forestry,
Increase in temperature	Ghana Meteorological Agency	MMDAs, Universities, Information Services Department, Religious Bodies

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APPENDIX 1: Household Questionnaire Instrument.

UNIVERSITY OF GHANA

DEPARTMENT OF GEOGRAPHY AND RESOURCE DEVELOPMENT

Climate Vulnerability Assessment Questionnaire

This questionnaire is designed as part of a survey to ascertain the vulnerability of selected communities in Northern, Upper East, Upper West and Brong Ahafo in Ghana to climate change. We humbly request your kind cooperation in filling this questionnaire. All information provided will be treated as confidential and your anonymity is assured. Your participation in this survey is voluntary so you are free to end it at any point in time.

PART A: BACKGROUND INFORMATION

A1. INTERVIEW DETAILS

Name of enumerator/interviewer			
Enumerator/Interviewer ID			
Date of interview	Day: Month:Year:		
Time interview began	:	Time interview ended	:
Community/Village			
Community GPS Coordinate	Lat (N): Long (W):		
District			
Region			

A2. RESPONDENT/HOUSEHOLD HEAD INFORMATION

Name	
Gender	1.....Female Male
Length of stay in community Years,Months

2. Religious Affiliation	1= Christian 2= Muslim3= Traditional4= No religion 5= Other.....
Education	1=No formal schooling 2=Some primary schooling 3=Completed primary schooling 4=Some secondary schooling 5=Completed jh secondary school or equivalent 6=Completed college/ pre-university /university 7=Completed post-graduate 8= Young children not of school age
3. Were you born in this community?	1=Yes 2=No
4a. If No, did you move here less than 10 years ago?	1=Yes 2=No
b. If you have moved to this area as an adult, why did you move? Circle	1=My wife/husband is from here 2=They gave me land here 3= Drought/flood or other weather related condition 4=Other reason (Specify)

Economic activities: What are your economic activities by season? Tick all relevant activities by season and rank them by income (1 for most important crop).

Economic activity	Wet season		Dry season		Income per annum (rough estimate in the past year)
	<input checked="" type="checkbox"/>	Ranking	<input checked="" type="checkbox"/>	Ranking	
Crop farming					
Livestock farming					
Poultry					
Trader					
Petty trading					
Public servant					
Fishing					
Self-employed					
Hunting					
Artisanry					
Pito brewery					

Economic activity	Wet season		Dry season		Income per annum (rough estimate in the past year)
	<input checked="" type="checkbox"/>	Ranking	<input checked="" type="checkbox"/>	Ranking	
Akpeteshie distillation					
Sheabutter processing					
Dawadawa processing					
Charcoal burning					
Groundnut processing					
Food vending					
Sale of firewood					
Businessmen/woman					
Others (Specify)					
Others (Specify)					
Others (Specify)					

Profile of Other Household (HH) Members

	HH-member Relation to respondent 1=Respondent 2=Spouse 3 = Child 4 = Brother/Sister 5 = Grand Child 6 = Other (Specify)_____	Age (years) 1= 13 - 19 2= 20 - 30 3= 31 - 40 4= 41 - 50 5= 50 - 60 6= Above 60	Gender 1 = Male 2 = Female	Months per year this person lives in the house	Education 1=No formal schooling 2=Some primary schooling 3=Completed primary schooling 4=Some secondary schooling 5=Completed jh secondary school or equivalent 6=Completed college/ pre- university /university 7=Completed post- graduate 8=Young children not of school age	If this person is under 16, are they still at school 1=Yes, 2=No	What is this person's MAIN occupation 1=Farmer 2=Other agricultural laborer 3=Artisan 4=Civil Servant, 5=Self-employed/own business 6=Student/pupil 7=Unemployed, 8=Retired 9=Other (specify)_____ 10=NA (e.g. for young children)	What is this person's SECONDARY occupation 1=Farmer 2=Other agricultural laborer 3=Artisan 4=Civil Servant, 5=Self- employed/own business 6=Student/pupil 7=Unemployed, 8=Retired 9=Other (specify)_____ 10=NA (e.g. for young children)	Months per year this person is employed 1=Full time 2=6-11 months/yr 3=3-6 months/yr 4=Less than 3 month/yr 5= Unemploye d/NA	Monthly salary (GHS) [1] < 100 [2] 100-500 [3] 501-1000 [4] 1001-2000 [5] 2001-3000 [6] 3001-4000 [7] 4001-5000 [8] > 5000
HHM 2										
HHM 3										
HHM 4										
HHM 5										
HHM 6										
HHM 7										

HHM 8										
HHM 9										
HHM 10										

PART B. LIVING STANDARDS OF HOUSEHOLDS

This section aims to collect information on household living standards using the following indicators: *Electricity (EL) and Assets (AS): Flooring (FL), Sanitation (TO), Cooking Fuel (CF), improved water (WA),*

Assets [EL; AS]	Does your household have?	
	Electricity [EL]	Yes.....1 No.....2
	Radio [AS]!	Yes.....1 No.....2
	Refrigerator [AS]!	Yes.....1 No.....2
	Television[AS]	Yes.....1 No.....2
	Non-mobile Telephone [AS]	Yes.....1 No.....2
	Mobile Telephone[AS]	Yes.....1 No.....2
	Bicycle [AS]	Yes.....1 No.....2
	Motorbike/ Scooter/tricycle [AS]	Yes.....1 No.....2
	Car [AS]	Yes.....1 No.....2
	Truck [AS]	Yes.....1 No.....2

House Flooring [FL]	<p>Interviewer Observe: Main material for the dwelling Floor</p> <p>Code:</p> <p>Natural floor</p> <p>Earth/sand.....01</p> <p>Dung.....02</p> <p>Rudimentary floor</p> <p>Wood planks.....01</p> <p>Palm/bamboo.....02</p> <p>Finished floor</p> <p>Parquet or polished wood.....01</p> <p>Vinyl or asphalt strips.....02</p> <p>Ceramic tiles.....03</p> <p>Cement.....04</p> <p>Carpet.....05</p> <p>Other (specify)_____</p>
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Sanitation [TO]	<p>What kind of toilet facility do members of your household usually use?</p> <p>Code:</p> <p>Flush / pour flush01</p> <p>Flush to piped sewer system.....02</p> <p>Flush to septic tank..... 03</p> <p>Flush to pit (latrine).....04</p> <p>Flush to somewhere else.....05</p> <p>Flush to unknown place/not sure/DK...06</p> <p>where.....15</p> <p>Pit Latrine</p> <p>Ventilated Improved Pit latrine01</p> <p>(KVIP).....02</p> <p>Pit latrine with slab.....03</p> <p>Pit latrine without slab / open pit.....04</p> <p>Composting toilet.....05</p>
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	Bucket.....06 Hanging toilet/hanging latrine.....07 No facilities or bush or field.....08 Other (specify) _____ 96
Sanitation: Sharing Facility [TO]	Do you share this toilet facility with other households? Yes0 No1
Cooking Fuel [CF]	What type of fuel does your household mainly use for cooking? Electricity.....01 Liquid Propane Gas (LPG).....02 Natural gas.....03 Biogas.....04 Kerosene.....05 Coal / Lignite.....06 Charcoal.....07 Wood.....08 Straw/shrubs/grass.....09 Agricultural crop.....10 Animal dung.....11 No Food Cooked in Household.....95 Other (specify)_____ 96

Primary Source of Drinking Water [WA]	<p>What is the main source of drinking water for the household members?</p> <p>Piped water</p> <p>Piped into dwelling.....01</p> <p>Piped into yard or plot.....02</p> <p>Public tap/standpipe.....03</p> <p>Tubewell/borehole.....04</p> <p>Dug well</p> <p>Protected well.....01</p> <p>Unprotected well.....02</p> <p>Water from spring</p> <p>Protected spring.....01</p> <p>Unprotected spring..... 02</p> <p>Rainwater</p> <p>Tanker-truck.....61</p> <p>Cart with small tank/drum.....71</p> <p>Surface water (river, stream, dam, lake, pond, canal, irrigation channel)81</p> <p>Bottled Water.....91</p> <p>Satchet water.....92</p> <p>Other (specify)_____96</p>
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Primary Source of Non-Drinking Water [WA]	What is the main source of water used by your household for other purposes? Such as cooking and handwashing? Piped water Piped into dwelling.....01 Piped into yard or plot.....02 Public tap/standpipe.....03 Tubewell/borehole.....04 Dug well Protected well.....01 Unprotected well.....02 Water from spring Protected spring.....01 Unprotected spring.....02 Rainwater collection.....03 Tanker-truck.....04 Cart with small tank/drum.....05 Surface water (river, stream, dam, lake, pond, canal, irrigation channel)81 Other (specify)-----
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PART C.EXPOSURE, SENSITIVITY TO CLIMATIC HAZARDS

C1. Overall Community Experience

C1.1 How will you rate the contributions of these features of your **community to** climate change vulnerability? (Tick where appropriate)

Community Characteristics	Ratings: 1- Very critical; 2 – Critical; 3 – Fairly critical; 4 – Little significant influence;; 5 – No significant influence				
	1	2	3	4	5
Topography					
Nearness to refuse dump					
Nearness to water body					
Nature of building structures					

Drainage systems					
Others.....					

C1.2 Has your **community** experienced any of these climatic hazards? (CHECK ALL THAT APPLY)

#	Hazard	Yes	No
1	Flood		
2	Drought		
3	Dry spells		
4	Pests and diseases		
5	Bushfires		
6	Windstorms		
7	Climate-induced erosion		
8	Changes in rainfall pattern		
9	Seasonal temperature change		
10	Climate-induced soil infertility		
11	Increase in temperature		
12	Others specify).....		

C1.3 If “Yes”, how **often** does it happen? (CHECK APPROPRIATE BOX)

#	Climatic hazard	Frequency of occurrence				
		Has happened once	Happens annually	> 5 years	> 10 years	Rarely happens
1	Flood					
2	Drought					
3	Dry spells					
4	Pests and diseases					
5	Bushfires					
6	Windstorms					
7	Climate-induced erosion					
8	Changes in rainfall pattern					
9	Seasonal temperature change					
10	Climate-induced soil infertility					
11	Increase in temperature					
12	Others.....					

Climate hazards	C2.1 Which of the following climate-related events has your household <u>experienced</u> in the last 10 years? (check all that apply)	C2.2 How would you rate the <u>frequency</u> of this occurrence? 3 = High 2 = Medium 1 = Low	C2.3 How would you rate the <u>severity</u> of this hazard? 3 = High 2 = Medium 1 = Low	C2.4 How would you rate the <u>degree of negative impact</u> on your <u>household</u> by this hazard? 3 = High 2 = Medium 1 = Low	C2.4 How would you rate the <u>degree of negative impact</u> on your <u>community</u> by this hazard? 3 = High 2 = Medium 1 = Low
<i>Flood</i>					
<i>Drought</i>					
<i>Dry spells</i>					
<i>Pests and diseases</i>					
<i>Bushfires</i>					
<i>Windstorms</i>					
<i>Climate-induced erosion</i>					
<i>Changes in rainfall pattern</i>					
<i>Seasonal temperature change</i>					
<i>Climate-induced soil infertility</i>					
<i>Increase in temperature</i>					
<i>Others. Specify</i>					

C3. Susceptibility of Livelihood Activities to Climate Hazards

Please indicate the susceptibility of the applicable your livelihood activities/occupation to the climatic hazards listed.

Livelihood activity (INTERVIEWER TO LIST OCCUPATION OF RESPONDENT)	Degree of susceptibility of socioeconomic activity [3 – Highly susceptible, 2 – Susceptible and 1- Less susceptible]. LIST THE APPLICABLE NUMBER											Others. Specify
	Flood	Drought	Dry spells	Pests and diseases	Bushfires	Windstorms	Climate-induced erosion	Changes in rainfall pattern	Seasonal temperature changes	Climate-induced soil infertility	Increase in temperature	

FARMERS ONLY

If respondent's main occupation is farming, ASK the rate of susceptibility of different crops cultivated to the various climate related hazards using a scale of 1-3] [3 – Highly susceptible, 2 – Susceptible and 1- Less susceptible] during the farming life cycle.

FLC 1: Early stages (sowing, manure/fertilizer application)

#	Crop Cultivated	Degree of susceptibility of socioeconomic activity [3 – Highly susceptible, 2 – Susceptible and 1- Less susceptible],											
		Flood	Drought	Dry spells	Pests and diseases	Bushfires	Windstorms	Climate-induced erosion	Changes in rainfall pattern	Seasonal temperature changes	Climate-induced soil infertility	Increase in temperature	Others. Specify
1	Maize												
2	Sorghum												
3	Rice												
4	Millet												
5	Groundnut												
6	Okra												

7	Cowpea												
8	Cassava												
9	Cotton												
10	Cashew												
11	Mango												
12	Pepper												
13	Cowpea												
14	Others.....												

.....

FLC2: Crop management stage (on farm)

#	Crop Cultivated	Degree of susceptibility of socioeconomic activity [3 – Highly susceptible, 2 – Susceptible and 1- Less susceptible],											
		Flood	Drought	Dry spells	Pests and diseases	Bushfires	Windstorms	Climate-induced erosion	Changes in rainfall pattern	Seasonal temperature changes	Climate-induced soil infertility	Increase in temperature	Others. Specify
1	Maize												
2	Sorghum												
3	Rice												
4	Millet												
5	Groundnut												
6	Okra												
7	Cowpea												
8	Cassava												
9	Cotton												
10	Cashew												
11	Mango												
12	Pepper												
13	Cowpea												
14	Others.....												

.....

.....

FLC3. Harvesting and post-harvesting (yield quality and quantity, storage, marketing)

#	Crop Cultivated	Degree of susceptibility of socioeconomic activity [3 – Highly susceptible, 2 – Susceptible and 1- Less susceptible].											
		Flood	Drought	Dry spells	Pests and diseases	Bushfires	Windstorms	Climate-induced erosion	Changes in rainfall pattern	Seasonal temperature changes	Climate-induced soil infertility	Increase in temperature	Others. Specify
1	Maize												
2	Sorghum												
3	Rice												
4	Millet												
5	Groundnut												
6	Okra												
7	Cowpea												
8	Cassava												
9	Cotton												
10	Cashew												
11	Mango												
12	Pepper												
13	Cowpea												
14	Others.....												

.....

.....

C4. Provisioning Ecosystem Services Use and Susceptibility to Climate Hazards

#	Provisioning Ecosystem Services	Which of the ff does your household collect and use (check all that apply)	Please rate the susceptibility of the variety of natural resources/provisioning ecosystem services to the following climate hazards ([3 – Highly susceptible, 2 – Susceptible and 1- Less susceptible].										Increase in temperature	Others. Specify
			Flood	Drought	Dry spells	Pests and diseases	Bushfires	Windstorms	Climate-induced erosion	Changes in rainfall pattern	Seasonal temperature changes	Climate-induced soil infertility		
1	Fuelwood													
2	Bushmeat													
3	Fodder and forage													
4	Freshwater													
5	Building material													
6	Wildfood/ plants													
7	Medicinal Plants													
8	Livestock													
9	Poultry													

.....

.....

C5.Provisioning Ecosystem Services-Use Conflicts?

<i>Provisioning ecosystem service</i>	<i>Do you sometimes have to fight with other households in order to gain access to any provisioning ecosystem service? 1= Yes, 2= No</i>	<i>With whom?</i>
Fuelwood		
Bushmeat		
Fodder and forage		
Freshwater		
Building material		
Wildfood/ plants		
Medicinal Plants		
Livestock		
Poultry		

C6. Compared to other households in this community, I would say that my household has

<i>Level of access</i>	<i>Check Appropriately</i>
more access to provisioning ecosystem services	
Less access to provisioning ecosystem services	
The same access to provisioning ecosystem services	

PART D.COPING AND ADAPTIVE STRATEGIES

D1. Source of climate-related knowledge

Please tell me the sources of climate related information/data for your household (*INTERVIEWER TO PROMPT RESPONDENT FOR ANSWERS*)

Source of climate-related knowledge	CHECK WHERE APPLICABLE	Do you use this information 1= Yes, 2= No	If No, briefly state the reason
Ghana Meteorological Services			
Newspapers			
Radio			
TV			
Mobile phone			
Internet			
Family and friends			
Village expert			
Children			
Extension officers			
School/Teachers			
Visiting climate scientists and researchers			
Others....specify			

D2. Household perception of overall coping capacity to climate hazards

Climate hazards	Overall, how would you rate the difficulty of coping with this hazard for your household? <i>3= High, 2= medium, 1=low</i>
Flood	
Drought	
Dry spells	
Pests and diseases	
Bushfires	
Windstorms	
Climate-induced erosion	
Changes in rainfall pattern	
Seasonal temperature change	
Climate-induced soil infertility	
Increase in temperature	
Others specify).....	

D3. Household coping strategies (specific measures) to climate hazards

When your household is exposed to this climate hazard, how do you cope with the effect as it relates to your main livelihood activity?

Climate hazard	How do you cope with the effect	Reasons why you adopted these measures
Flood		
Drought		
Dry spells		
Pests and diseases		
Bushfires		
Windstorms		
Climate-induced erosion		
Changes in rainfall pattern		
Seasonal temperature change		
Climate-induced soil infertility		
Increase in temperature		
Others specify).....		

D4. Institutional, Governance and Leadership Actions

D4.1 For each of the following statements, rate your level of agreement

5 = strongly agree, 4 = agree, 3 = neither agree nor disagree 2 = disagree, 1 = strongly disagree,

Statement	Level of agreement of a scale of 1-5 (PROVIDE APPROPRIATE NUMBER)
Our community leaders have successfully led us through climate hazards in the past.	
Our community leaders are interested in climate change issues and the impacts on our community.	
Our community has leaders who have knowledge and skills to effectively take charge of climate change adaptation.	
I trust our leaders to lead the community through climate change adaptation.	
Our community leaders/government officials inform us of national or regional climate change policy or initiatives that may impact our community.	
Our community leaders inform us where we can get climate-related information.	
Our leaders suggest to us what we can do to adapt to changing climate.	
Our leaders can provide us with the resources we need for climate adaptation activities.	
Our leaders encourage community members to take part in climate adaptation planning.	
My voice is heard in community planning for climate change adaptation.	
I have had the opportunity to participate in community-level decision-making	

D4.2 Examples of community leaders' initiatives on climate change [not just household effects]

<i>Climate hazard</i>	<i>Examples of specific measures initiated by community leaders for coping with hazard</i>	<i>Is this measure effective?</i> 1= Yes 2= No
Flood		
Drought		
Dry spells		
Pests and diseases		
Bushfires		
Windstorms		
Climate-induced erosion		
Changes in rainfall pattern		
Seasonal temperature change		
Climate-induced soil infertility		
Others (specify).....		

D5. Migration

Are there any members in your household who have migrated out? Yes / No

Who? (relationship to the respondent)	Where?	What occupation?	Permanent (1) / Seasonal (2)	Reason migration for	Any benefitsordisbenefits

D6. Social participation and inclusion

<i>Are you a member of any group on climate change mitigation and adaptation? YES/NO</i>	<i>Name of the group</i>	<i>Scope of climate change issues addressed</i>	<i>Have you benefitted from participating in the group(s)?</i>	<i>Opportunities for including women and youth</i>

D7. Credit

<i>Have you received credit?</i>	<i>From whom?</i>	<i>What is the nature of the credit?</i>	<i>Received as individual or group?</i>	<i>If group, is it only women / men / mixed group?</i>	<i>For what?</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No		Cash / in-kind Others (Specify;)	<input type="checkbox"/> Individual <input type="checkbox"/> Group		

D8. Extension Service

<i>Any visit from extension workers/ services?</i>	<i>Who?</i>	<i>How frequent do they visit you?</i>	<i>What do you benefit from the extension service?</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> MoFA <input type="checkbox"/> NADMO <input type="checkbox"/> Health <input type="checkbox"/> NGO (Specify) <input type="checkbox"/> Others (Specify:)		

APPENDIX 2: Focus Group Discussion Guide

The objective of this group discussion is to identify and understand differences in knowledge, impacts/effects and vulnerability to climate change at community level.

Community Group: **Men Women Youth**

Community:

District:

Region:

**Number of
Participants:**

Time Started: Time Ended:

-
1. What are the main climate-related risks, hazards events in this community? How often do these events occur? Are there any trends or changes in the frequency of events over time?
 2. Please tell us the five MOST important climate-hazards affecting your livelihood systems
 3. How important are climate factors to community vulnerability relative to others
 4. Who (social groups) are impacted the most in this community and why do you say so?
 5. What are current strategies to cope during the difficult events? Are they working?
 6. How do they differ between men and women?
 7. Have coping strategies changed based on the changing frequency of events?
 8. Have they changed for both men and women? If not, why not?
 9. What events do you expect will occur in the future? When?
 10. Does this perception of future events affect your plans for the future? Do you anticipate changes to your livelihoods? Do you anticipate changes to gender roles and relations?
 11. What has been the general effects of these events on the community? Which livelihood systems do you think are impacted the most by?
 12. What coping strategies are currently used to deal with the hazards identified? Are they working?
 13. Are there different strategies that women and men would like to adopt which would reduce the impact of hazards on your livelihoods?

14. What resources do different groups have that would help them to adopt these new strategies?
15. What are the main sources of knowledge on climate related hazards? Have these knowledge sources been effective in the past? Role of traditional/local/indigenous knowledge in dealing with effects
16. What in your opinion are the likely impact of climate change in the future?. How should the impacts be addressed? What role do you see for different members of the community in addressing these impacts
17. Which organisations/institutions/groups (from government, civil society, private sector, religious groups, etc.) are found in the community and are helping you address climate change effects?
18. Is there cooperation with other communities to cope with and adapt to climate-related hazards
19. Does the community have an established social information and communication channels
20. Access to savings and credit schemes, and microfinance services
21. Access to money transfers and remittances from cities and abroad

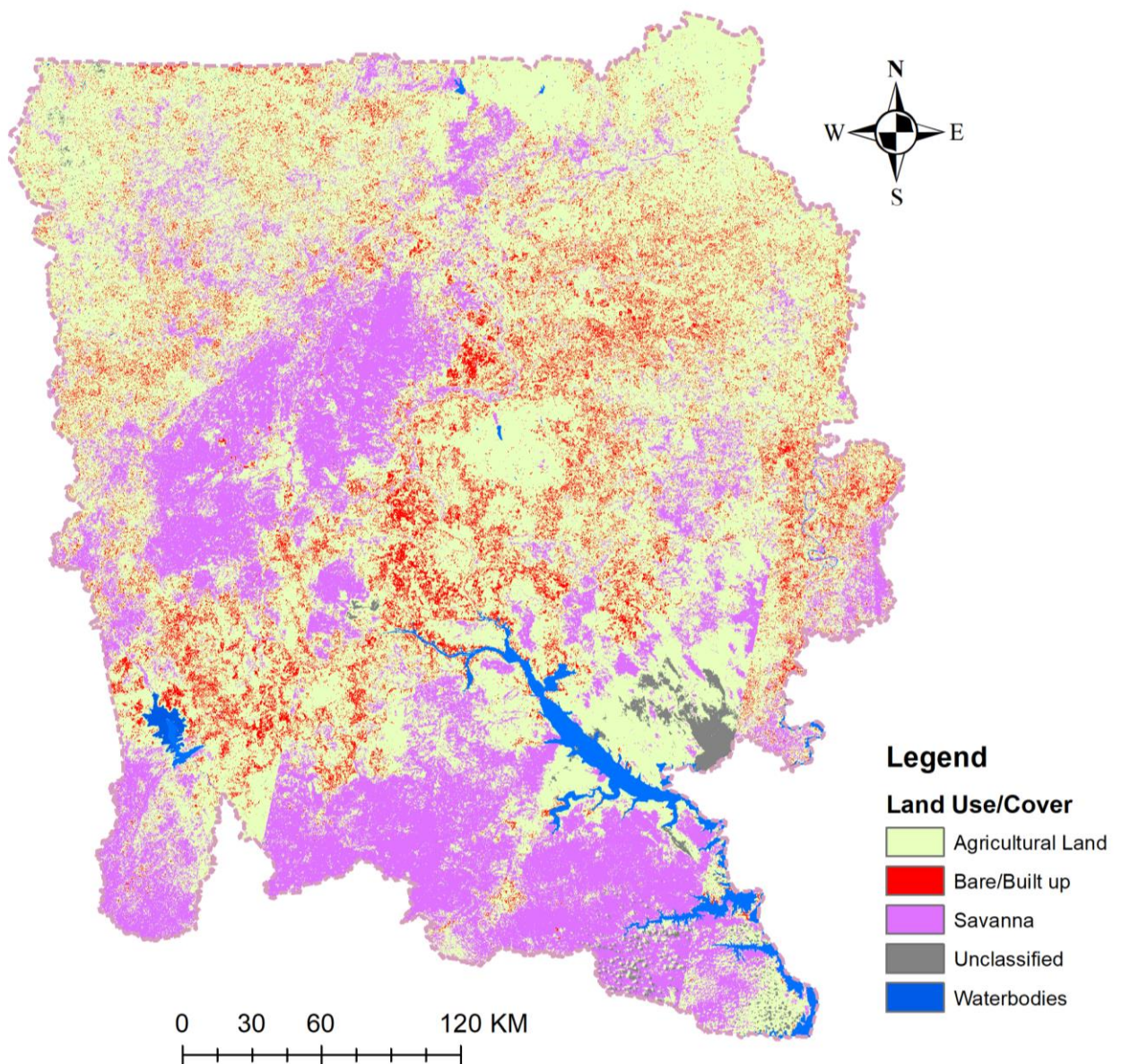
APPENDIX 3: Total number of households interviews for the Assessment

Table 1. Surveyed households stratified across regions and districts

Region	District	Sampled Households
Brong Ahafo	Atebubu Amantin	40
	Banda	42
	Kintampo North	40
	Kintampo South	42
	Pru	40
	Sene East	59
	Sene West	40
	Tain	40
	Total	343
Northern	Chereponi	30
	East Gonja	30
	Gushegu	28
	Kpandai	30
	Nanumba South	29
	Saboba	30
	Sagnarigu	30
	Tolon	25
	Yendi Municipal	32
	Zabzugu	35
	Bunkprugu-Yunyoo	28
	East Mamprusi	28
	Karaga	26
	Mamprugu-Mogduri	40
	Sawla-Tuna-Kalba	30
	West Gonja	30
	Bole	30
	Central Gonja	25
	Kumbungu	22
	Mion	25
	Nanumba North	28
	Savelugu-Nanton	24
	Tamale Metropolitan	30
	North Gonja	32
	Tatale Sangule	40
	West Mamprusi	42
	Total	30
Upper West	Daffiema-Busie Issa	30
	Jirapa	28
	Nadowli	34
	Sissala East	22
	Sissala West	30
	Wa West	32
	Wa East	37
	Lambussie Karni	20
	Lawra	20
	Nandom	20
	Wa Municipal	30

	Total	273
Upper East	Nabdam	32
	Kassena Nankana Municipal	38
	Bawku Municipal	35
	Bawku West	22
	Bongo	38
	Builsa North	36
	Pusiga	22
	Talensi	30
	Builsa South	28
	Binduri	18
	Bolgatanga Municipal	30
	Kassena Nankana West	33
	Kassena NankanaEast	23
	Tempane	28
	Garu Tempane	21
	Total	434
Grand Total		1829

APPENDIX 4: Land Use/ Land Cover Map of the Assessment area



APPENDIX 5: Other On-Farm climate change adaptation option for evaluation and implementation by GASIP

No.	Adaptation strategy
1	Construction of dugouts for water supply
2	Provision of improved seed
3	Bee keeping
4	Bounding of valleys for rice farming
5	Aquaculture (Training of farmers on rearing and harvesting of fish (tilapia)
6	Cultivation of vegetables for urban centres
7	Expansion of dams in communities in Northern, Upper East and Upper West Regions (E.g. Karaga dam)
8	Provision of tractors for farmers to use
9	Rehabilitation of existing irrigation facilities
10	Establish and promote local markets for staple foods (Yam, millet)
11	Establishment of small-scale agroprocessing centers (maize, groundnuts, shea etc) in communities
13	Community warehouse and storage facilities
14	Changing cropping intensity
15	Reducing water use in land preparation
16	Maintaining crop residues