

Republic of Zimbabwe

Smallholder Irrigation Revitalization Programme

Final project design report

Main report and appendices

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Currency equivalents

Currency Unit	=	Multi-currency regime, mainly US\$
US\$1.0	=	US\$ 1

Fiscal Year

01 January – 31 December

Weights and measures

1 kilogram	=	1000 g
1 000 kg	=	2.204 lb.
1 kilometre (km)	=	0.62 mile
1 metre	=	1.09 yards
1 square metre	=	10.76 square feet
1 acre	=	0.405 hectare
1 hectare	=	2.47 acres

Abbreviations and acronyms

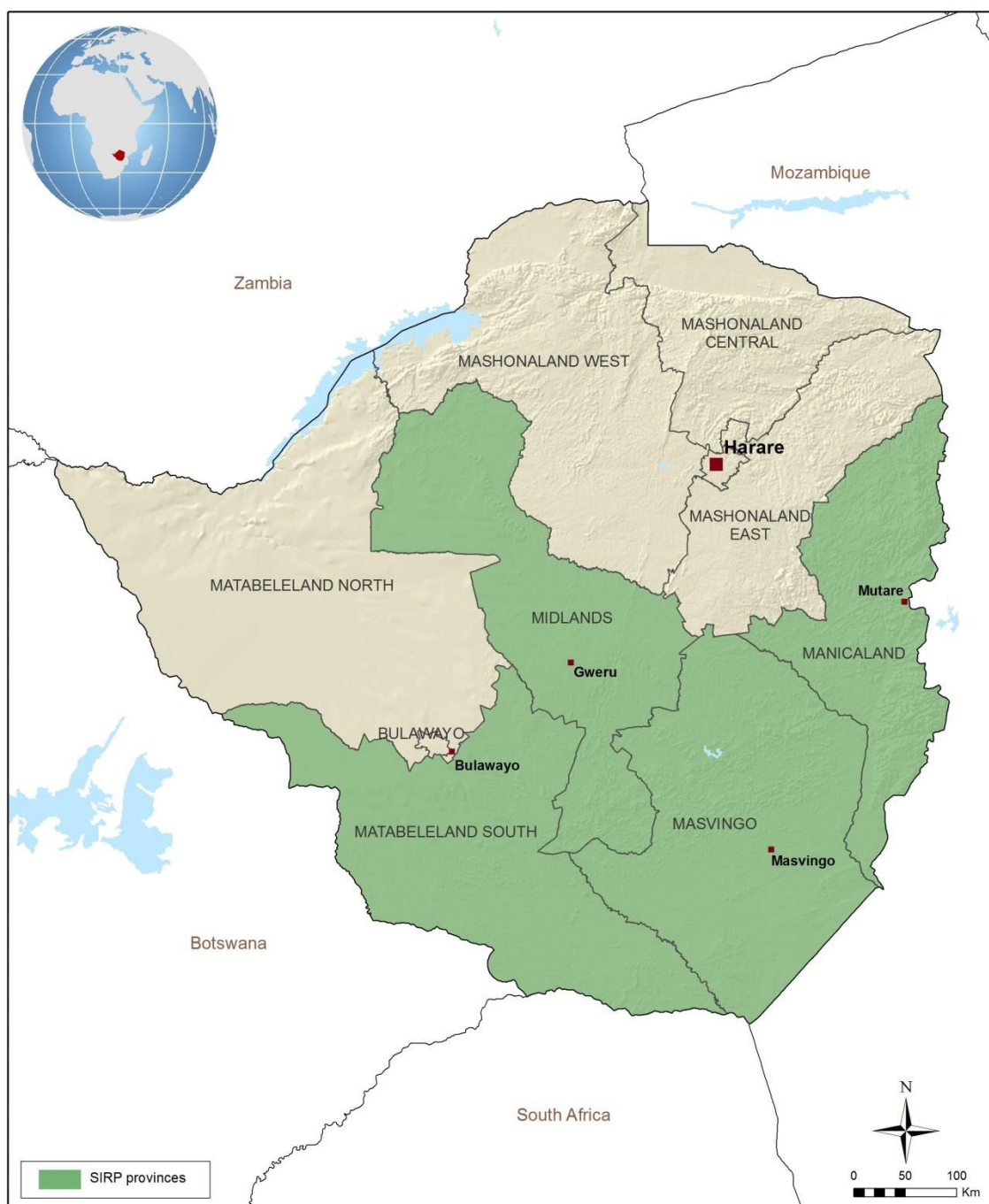
AfDB	African Development Bank
AGRITEX	Agricultural, Technical and Extension Services
AMA	Agricultural Marketing Authority
ANSC	Agriculture National Steering Committee
ASAP	Adaptation for Smallholder Agricultural Programme
CAADP	Comprehensive Africa Agricultural Development Programme
CADS	Cluster Agricultural Development Services
CAPF	Comprehensive Agriculture Policy Framework
CBZ	Commercial Bank of Zimbabwe
DFID	Department for International Development (UK)
DLVS	Department of Livestock and Veterinary Services
DoI	Department of Irrigation
DoM	Department of Mechanisation
DR&SS	Department of Research and Specialist Services
E&M	Economics and Markets
EMA	Environmental Management Agency
EU	European Union
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GMB	Grain Marketing Board
HDI	Human Development Index
HIV	Human Immuno-Deficiency Syndrome
IFAD	International Fund for Agricultural Development
JICA	Japan International Cooperation Agency
MAMID	Ministry of Agriculture, Mechanisation and Irrigation Development
MEWC	Ministry of Environment, Water and Climate
MOFED	Ministry of Finance and Economic Development
PCU	Programme Coordination Unit
PSC	Programme Steering Committee
RIMS	Results and Impact Management System
SDC	Swiss Development Cooperation
SIP	Sector Investment Programme
UNDP	United National Development Programme
USAID	United States Agency for International Development
ZAIP	Zimbabwe Agricultural Investment Plan
ZFC	Zimbabwe Fertiliser Company
ZFU	Zimbabwe Farmers' Union
ZimASSET	Zimbabwe Agenda for Sustainable Socio-Economic Transformation
ZINWA	Zimbabwe National Water Authority
ZNFU	Zimbabwe National Farmers' Union
ZUNDAF	Zimbabwe United Nations Development Assistance Framework

Map of the Programme area

Republic of Zimbabwe

Smallholder Irrigation Revitalization Programme (SIRP)

Design report



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 | 05-05-2016

Executive Summary¹

1. **Background.** This final design mission follows on a first design mission held in March 2016, and an identification mission, which was held in October 2015, and resulted in the preparation of a Project Concept Note. The programme design was cleared for pipeline entry following its successful presentation at an IFAD senior management committee (OSC) on 9 February 2016 and underwent a QE review process on 17 May 2016, giving the go-ahead for a final design mission.

2. **Geography.** Zimbabwe is a landlocked country with a total population of 14.6 million people on an area of approximately 390,757 square kilometres. Zimbabwe is administratively organized in 10 provinces and classified into five agro-ecological regions called Natural Regions. Natural Regions I, II and III comprise of areas with high potential for agriculture and livestock production. Natural Regions IV and V are the semi-arid areas and cover about 64 per cent of the country, and are home to more than 60 per cent of the rural population. Climatic conditions are largely subtropical with one rainy season, from late October to March. Zimbabwe is one of the hotspots for climate change, with predicted increases in temperatures and rainfall variability, and increased probability of extreme events such as droughts and flash floods.

3. **Economic context.** Zimbabwe has experienced a deteriorating socioeconomic environment. After the financial crisis of 2008, Gross Domestic Product (GDP) suffered its greatest annual decline in its history (-17%), and the country continued to go through a prolonged period of hyperinflation. The introduction of the multi-currency system and other economic stabilizing measures in 2009 saw the country having positive economic growth since 2009. Zimbabwe's total GDP increased from US\$ 11 billion in 2011 to US\$ 14.2 billion in 2016. However, there has been a downturn in this growth to 4.5 per cent as from 2013 and GDP is expected to drop to 1.0 per cent in 2015. GDP is projected to increase by 3.3 per cent in 2017.

4. **Poverty and vulnerability in semi-arid areas.** The 2015 Zimbabwe Poverty Atlas shows widespread poverty in rural areas where 76 per cent of people live below the national poverty line. Poverty levels vary across districts and wards, with poverty prevalence rates reaching 85.7 per cent in Matabeleland North, and above 80 per cent in several rural districts of other provinces. HIV prevalence has declined but still remains high at 15 per cent.

5. **Food security.** Zimbabwe's recurrent droughts and food insecurity conditions have remained dire over the past decade. With the El Niño weather phenomenon—associated with severe drought in Zimbabwe—the Zimbabwe Vulnerability Assessment Committee has indicated that at least 1.5 million people - 16 per cent of the rural population - will have insufficient means to meet their minimum food needs this season. Recent surveys found that one in three under-five year old children was stunting and one in ten was underweight.

6. **Agriculture** forms the basis of the direct and indirect livelihoods of over 70 per cent of Zimbabwe's population. In 2014, agriculture accounted for 14 per cent of GDP and provided 60 per cent of the raw materials required by the manufacturing industry and 40 per cent of total export earnings. However, it only accounted for 8 per cent of government spending. The country's main staple crops are maize, sorghum and millet. The main export commodities are: tobacco, cotton, sugar, sunflowers, tea and banana. Livestock plays an important role in the agriculture of Zimbabwe, as a means of diversification of income as a way of reducing vulnerability and income risk. Most households in the rural areas are net food buyers: they do not produce enough food to meet their

¹ Final Design mission composition. IFAD: Mr Thomas Rath, Country Programme Manager; Mr Oussama Ameziane, economist and financial specialist; Mr Guido Rutten, environment and climate change adaptation specialist; Ms Joylyn Ngoro, consultant country liaison officer and institutions specialist; FAO: Mr Jean Risopoulos, team leader; Mr Mohammed Yesuf Abdella, irrigation specialist; Mr Diogo Machado Mendes, value chain specialist; Ms Barbora Hladka, market access specialist.

needs and as a consequence, have to rely on markets and other non-farm sources such as casual labour and humanitarian assistance to bridge the food gap to the next season.

7. **Policy and Institutional Framework** – Zimbabwe's development priorities are outlined in the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZimASSET 2013-2018), the country's poverty eradication strategy. The ZimASSET priorities for 2015 are centred on achieving and sustaining high agricultural production and productivity, market access, increased incomes and improved nutrition. Other important policy documents and frameworks include: The 10-Point Plan for Economic Growth, the Zimbabwe Agricultural Investment Plan (ZAIP 2013- 17); draft Comprehensive Agricultural Policy Framework 2012-2032 (CAPF); draft National Irrigation Policy and Strategy; National Food and Nutrition Security Policy.

8. **Programme Rationale:** Zimbabwe has one of the highest levels of water development for irrigation in the region and has a significant portion of its irrigated potential realized. There is evidence from literature and field visits that households in smallholder irrigation schemes are better off in terms of food production, income, nutrition and general wellbeing than households relying on rainfed agriculture. One key advantage of irrigation is to raise average crop yields with technologies that substantially reduce the uncertainties farmers face in rainfed agriculture. Smallholder irrigation schemes produce crops throughout the year, achieving a 200 per cent cropping intensities. In addition to achieving higher yields than rainfed yields, irrigators are able to increase crop production and incomes in the dry winter season, when dryland production is impossible because of lack of rain, thus managing risks and uncertainties. The revitalization process should encompass both the modernization of physical infrastructure with the corresponding investment to redevelop irrigation social institutions and production infrastructure as tools for more autonomy, participation and ownership at local level, as well as the development of business strategy and market linkages to make irrigation farming more productive and profitable, including for adjacent rainfed areas.

9. **Programme Area.** SIRP will revitalize about 5,000 ha of existing smallholder irrigation schemes, mostly in communal and old resettlement areas in the natural regions III, IV and V in the provinces of Manicaland, Masvingo, Matabeleland South, and Midlands four provinces. This represents about 40 per cent of the estimated total equipped area of about 12,500 hectares for small-scale irrigation. These regions have the greatest need for revitalization of smallholder irrigation systems. While direct programme implementation will be initially limited to the four provinces, SIRP will further support more rigorous and systematic feasibility studies of new irrigation schemes at the national level to build a pipeline of irrigation schemes to be developed in the future.

10. **Clustering.** In the selected provinces, preference will be given to areas with a higher concentration of existing schemes (clusters) and potential for future expansion. The selection of the targeted irrigation schemes will prioritize areas that optimize a combination of bio-physical, technical, socio-economic and institutional criteria, in order to achieve economies of scale and scope, and to maximize efficiency, effectiveness and large scale positive impacts. The programme will implement a systematic participatory and iterative process for the selection of irrigation schemes to be rehabilitated.

11. **Selection criteria** for schemes will include: (i) water availability (a sine qua non criterion); (ii) technical and economic viability of investment/revitalization; (iii) commitment to cost-sharing; (iv) payment of electricity and water bills or commitment to clear arrears; (v) potential for private sector investment (off-takers, input suppliers, financial institutions) interest; (vi) market potential; and (vii) willingness of the group of irrigators and their management committee to develop and implement a revitalization plan. The thrust of the programme is to build smallholder farmers capacity to move towards irrigated farming as a business in order to enable sufficient financial returns, long term sustainability, and replicability/ scalability to other areas. The programme will advise irrigators and their Irrigation Management Committees (IMCs) on the best combination of high value and food crops that have a market and that can grow competitively.

12. **Targeting strategy.** SIRP will implement an inclusive targeting strategy to ensure that benefits are distributed to a large number of smallholder poor farmers, and poorer members of the communities. Women will account for at least 50 per cent of the target, in line with their participation in irrigated agriculture SIRP beneficiaries will include:

- (a) 12,500 households (62,500 people) with an average of 0.4ha in the irrigation schemes. These are productive poor smallholders that are currently engaging in irrigation agriculture in the existing irrigation schemes. It is expected that SIRP will result in i) an increase in production and productivity of selected commodities; ii) an increase of annual household income; and iii) increased market integration.
- (b) 12,500 households (62,500 people) with no access to irrigation in the greater-scheme and sub-catchment areas relying on rainfed agriculture and livestock.
- (c) 2,000 youth who will be involved in production, aggregation, marketing, service provision and build small and medium-scale businesses along the irrigation value chain.
- (d) 500 extension and technical service providers to improve their capacity for more responsive, effective and efficient service delivery.

13. **Programme Objectives.** The overall goal of the Smallholder Irrigation Revitalization Programme (SIRP) is that Rural households achieve food and nutrition security and are resilient to climate change effects and economic shocks in the programme districts. The programme objective is that Rural households sustainably increase their income in SIRP supported schemes and adjacent rainfed areas. This will be achieved by rehabilitating and/or expanding targeted irrigation schemes and supporting these and surrounding rainfed areas to increase productivity, production and income, as well as improving access to agricultural markets and financial services.

14. **Main programme indicators.** It is expected that the programme will result in i) an increase in production and productivity of selected commodities; ii) an increase of annual household income; iii) increased market integration and iv) a smallholder agricultural production system that is better adapted to climate change. This is expected to contribute to improved resilience and improved food security and nutrition.

15. **Component 1: Sustainable Smallholder Irrigation Development** will focus on revitalizing existing irrigation schemes and rendering them fully operational, thereby contributing to improved incomes of targeted household. This will be achieved by rehabilitating 5,000 ha of existing irrigation schemes, while financing further scheme design studies nationwide. It will also entail increasing the area of existing smallholder irrigation schemes under effective operation and maintenance by irrigators and their Water Users Organizations (WUOs), through the preparation and implementation of *Revitalization Plan* at scheme level. Finally this will be achieved by strengthening the capacity of government departments to provide quality service to smallholder irrigators, and engaging in a policy dialogue on issues affecting small-scale irrigators. This component will consist of three sub-components: 1) Scheme selection and rehabilitation; 2) Improved Smallholder Irrigation Management, and 3) Enhanced institutional capacity for irrigation development.

16. **Component 2: Climate-smart Agriculture and Market Access** focus will be to improve in both rainfed and irrigated conditions the productivity and sustainable production of main commodity groups, through improved cropping intensity on selected schemes, and increased adoption of improved varieties, fertilizers, Good Agricultural Practices and Climate Smart Agriculture practices and technologies. This component will seek to improve Village Natural Resources Management planning, including soil and water conservation in adjacent rainfed areas and the preparation and implementation of a *Greater Scheme Agricultural Plan*. The Natural Resources Management Facility, will provide matching grants to farmers in adjacent rainfed areas to undertake income generating projects that utilises natural resource in a sustainable manner as well as complement soil and water conservation technologies. This component will also focus on improving farm profitability and household incomes by increasing market access and linkages between the different value chain actors for both irrigation and rainfed farmers. This component will promote good nutrition practices

and gender mainstreaming as part of the agricultural and market supports. Finally this component will strengthen the capacity of government departments to provide quality service to smallholder farmers, and engage in policy dialogue on issues affecting smallholder farmers. This component will consist of three sub-components: 1) Enhanced agricultural practices and farmers' organizational capacity; 2) Market access and rural financial services; and 3) Enhanced institutional capacity for market-led production.

17. **Programme Implementation approach.** The proposed principles of engagement for programme design are as follows:

- (a) On the basis of IFAD's mandate, SIRP will target productive poor smallholders that are currently engaging in irrigation as well as poor and vulnerable smallholders engaged in rainfed farming in the adjacent rainfed areas.
- (b) Without compromising on food security, the programme will support the move towards smallholder irrigated farming as a business in order to enable sufficient financial returns to targeted smallholders, long term sustainability of investment and replicability/scalability of the smallholder irrigation development approach.
- (c) SIRP will adopt a participatory approach. The programme will support farmers' own development efforts, based on the preparation of a Revitalization Plan and a *Greater Scheme Agricultural Plan* by the farmers/irrigators through their organizations, as well as willingness and ability of these to contribute an initial cash deposit to meet the recovery of Operations and Maintenance (O&M) costs.
- (d) Investment to be made on a cost-sharing basis, with capital expenditure being mainly financed by the programme, while farmers have to cover full O&M of their scheme, including cost of water and depreciation of (movable) equipment.
- (e) Prioritize rehabilitation of existing schemes, while verifying adequate water availability at pre-feasibility stage, proximity of market to sell produce at a competitive price (market catchment) as well as interest of private sector and financial institutions to work with the scheme or cluster, and institutional set-up (number of districts, wards).
- (f) SIRP will engage with the private sector (off-takers, input suppliers, financial institutions) early on in the process of prioritizing schemes to be rehabilitated, in order to ensure viable linkages with in- and output markets and support services during implementation.
- (g) Ensure that the capacity of Government to provide services to smallholders is strengthened, while supporting the implementation of different business model and business relations between farmers and private sector, including contracting out of key service provision to irrigators/farmers.

18. **Programme oversight.** The implementation of SIRP would be jointly undertaken by several agencies and organizations working within their specialised fields of competence and mandate. This calls for the need for sound coordination of the different agencies and stakeholders which would be achieved through the establishment of the Programme Steering Committee (PSC) and a Programme Coordination Unit (PCU) within MAMID.

- (a) **Programme Steering Committee (PSC)** chaired by the Permanent Secretary of MAMID will provide overall policy and strategic guidance on programme focus, priorities and institutional strengthening. The aim is to: a) ensure that the programme is moving in the right direction towards achievement of its development objective; b) contribute to the higher level sector policy and strategic goals, under ZimASSET; and c) is implemented in harmonization and alignment with other programmes and initiatives in the sector.
- (b) **The Programme Coordination Unit** will be responsible for day to day management, consolidation of AWPBs, Procurement Plans, Progress and Financial Report as received from the other implementing entities and co-ordinate the procurement of goods, works and services. The PCU will also take charge of monitoring and evaluation and provide support to implementation and supervision missions. The PCU will be hosted by the Department of

Economics and Markets at MAMID and consist of a full time competitively recruited Programme Coordinator (PC), Programme Accountant, Procurement Specialist, Monitoring and Evaluation/Knowledge Management Specialist, and Administrative Assistant as well as four Provincial Facilitators.

19. **Programme implementation.** The programme will be implemented by the relevant departments in MAMID. Component 1 will be implemented by the Department of Irrigation (DoI), while Component 2 will be implemented by the Department of Agriculture Technical and Extension Services (AGRITEX).

20. **Supervision.** The SIRP would be directly supervised by IFAD. Direct supervision would encompass four discrete processes: (i) loan and grant administration; (ii) procurement review; (iii) audit review and; (iv) supervision and implementation support. Direct supervision would be applied as a continuous process which requires on-going communication and engagement with Government and PCU and IP management. Key supervision processes which would be applied are outlined below.

21. **Programme Costs.** Total Programme costs to be incurred during the seven-year implementation period, including price and physical contingencies, duties and taxes, are estimated at approximately US\$ 51.27 million. This includes base costs amounting to US\$ 48.4 million and estimated physical and price contingencies in the amount of US\$ 3.7 million (2 per cent of the base costs). Estimated foreign exchange expenditure is about US\$ 13 million (27 per cent of total project costs), whereas duties and taxes amount to US\$ 8.66 million (16 per cent). Investment costs represent 86 per cent of the base costs, with recurrent costs accounting for the remaining 14 per cent. programme management costs account 9 per cent of total programme costs.

22. **Programme Financing.** SIRP will be financed by the Government of Zimbabwe, Programme beneficiaries, IFAD, and pending official confirmation, OFID. IFAD will finance 49 per cent (US\$ 25.5 million) of the programme costs (US\$ 51.27 million) on grant terms (under the Debt Sustainability Framework). The Government will finance taxes and duties (US\$ 8.15 million), representing 16 per cent of total costs². Beneficiaries will contribute 6 per cent of total project costs, US\$ 2.86 million through financial contributions to the operation and maintenance of rehabilitated infrastructure, cost sharing of post-harvest technologies, and in kind contribution to soil and water conservation activities. It is anticipated that OFID will finance 29 per cent³ (US\$ 15 million) of programme costs, covering primarily Civil Works related to irrigation rehabilitation and road improvement.

23. **Financial analysis.** Based on prevailing farming practices, four representative farm models were developed to reflect the main types of SIRP interventions at the farm level: (i) Farms 1 & 2 (9,000ha) represent the rainfed areas, with Farm 2 representing the more arid project areas, and Farm 1 those with more rainfall. Both Farms 1 & 2 include the installation and maintenance of a rooftop water harvesting unit, which should provide households with water required for supplementary irrigation during early years of tree development; (ii) Farm 3 (4,200 ha) corresponds to those plots that will benefit from rehabilitation; and (iii) Farm 4 (800ha) accounts for expansion of irrigated area. Two activity models (beekeeping [1,000 HH] and goat rearing [1,500HH]) were developed to represent income generating activities that will be promoted by the programme. The results of the financial analysis for the different farm and activity models show positive NPVs, ranging between US\$ 1,981 and US\$ 24,229. The highest net-benefits are derived from irrigated agriculture.

24. **Economic analysis** The base case economic internal rate of return (EIRR) is estimated at 22.0 per cent. The benefit/cost ratio is estimated at 1.98, and the payback period at 7.6 years. The Economic Net Present Value (ENPV) is estimated at US\$ 30.77 million. The EIRR is robust to changes in the expected benefits or costs. Switching values were calculated at -51 per cent for benefits and 113 per cent for costs. Such variations in costs and benefits are unlikely to occur during

² The estimate of taxes and duties was based on the rates in effect at the time of the design. In conformity with the principle that no taxes or duties would be financed out of the proceeds of the IFAD and OFID financing, any future changes in the rates and/or structures of taxes and duties would apply to the programme.

³ If OFID funding does not materialise alternative sources of funding will be sought by the Government of Zimbabwe.

implementation of SIRP. Adoption rates of 75 per cent on rainfed plots, 85 per cent on irrigated plots and 65% for Income Generating have been assumed in the cost benefit analysis.

25. **Programme Risks** – The principal risks affecting the realisation of the SIRP programme include (1) non-fulfilment of arrears settlement, (2) non-availability of co-financing from OFID, (3) programme implementation delays, (4) limited responsiveness of service providers, (5) inability of farmers to contribute to initial commitment and operational costs, (6) climate change and climate variability, (7) market and economic constraints.

26. **Sustainability.** The long-term success of investments in irrigated infrastructure is governed by a number of key factors. First, prior to investment a diagnostic study of the key issues affecting scheme performance needs to be carried out, with high level of participation by the targeted farmers. This study will identify the root causes of system failure, be it technical, social, financial or environmental, and allow SIRP to adequately target investments. Secondly, interventions should take into account larger natural resources management issues to ensure environmental sustainability. By investing in Community-Based Natural Resources Management in adjacent rainfed areas, SIRP proactively deals with potential environmental issues while also ensuring a longer life time for the scheme itself. Third, adequate capacity is required to operate and maintain schemes, to manage finances and to effectively prevent or resolve any social conflicts related to access to land or water.

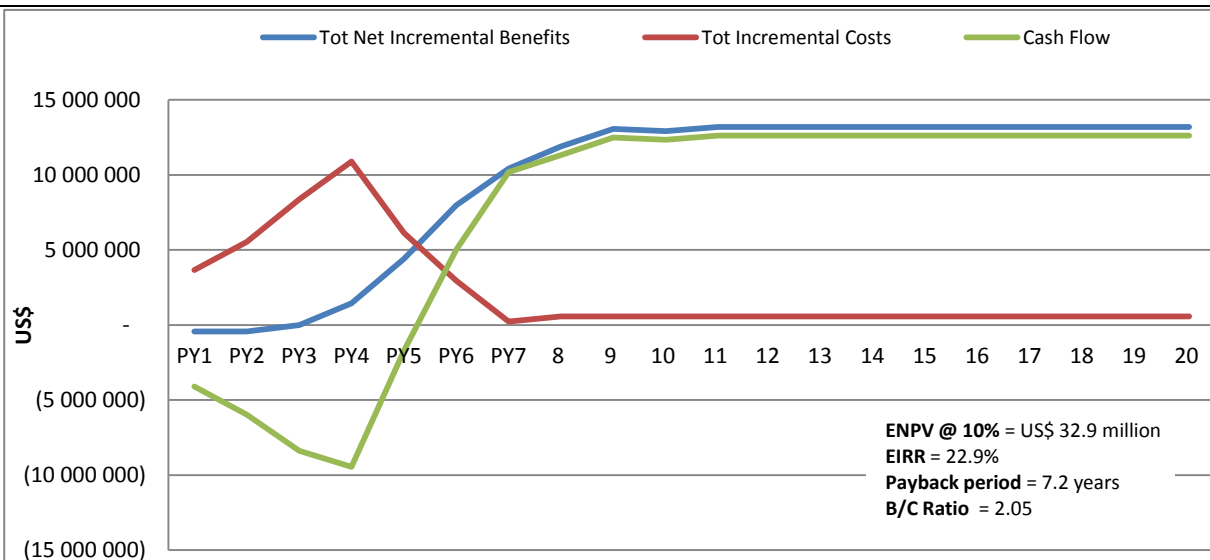
Summary tables of the Economic and Financial Analysis

Crop/Farm Models				Financial Analysis: Incremental Benefits/a (US\$)										NPV (USD)		FIRR	
WOP				PY1	PY2	PY3	PY4	PY5	PY6	PY7	Y8	Y9	Y10 - 20	@ 10%			
FARM 1 NR III & IV Improved rainfed (1ha)				86	(78)	(19)	139	145	296	697	690	690	686	686	3 551	115%	
FARM 2 NR IV & V Improved rainfed (1ha)				51	(106)	(9)	211	220	368	339	332	330	326	323	1 981	108%	
FARM 3 Irrigation Rehabilitation (0.4ha)				130	370	1 464	3 216	3 363	3 363	3 363	3 363	3 363	3 363	3 363	24 229		
FARM 4 Irrigation Expansion/c				25	540	475	1 569	3 321	3 468	3 468	3 468	3 468	3 468	3 468	22 864		
Activity Model Beekeeping (6 hives)				-	(617)	489	727	849	967	933	1 207	1 209	1 207	1 209	7 121	106%	
Activity Model Goat Rearing (60 Goats)				-	(460)	(109)	45	220	755	1 035	1 035	1 264	1 154	1 074	5 476	56%	
a/before family labour costs																	
MAIN ASSUMPTIONS & SHADOW PRICES ¹								PROJECT COSTS AND INDICATORS FOR LOGFRAME									
FINANCIAL	Output		Av. Incremental	Price (USD/kg)	Input prices		Price (USD)	TOTAL PROJECT COSTS (in million USD)			51.28	Base costs		47.698	PMU		4.449
	Maize		89%	0.4	Seeds (per Kg)		0.71	Beneficiaries			125 000 People	25 000 Households					
	Sorghum		91%	0.6	Farmyard manure (per ton)		5.00	Cost per beneficiary			410 USD xperson	2 051 USD xHH		Adoption rates	75% and 85%		
	Groundnuts		89%	0.6	Basal fertilizer (per kg)		0.73	Components and Cost			USD Millions	Outcomes and Indicators					
	Beans (irrigated)		75%	1.5	Top dress fertilizer (per Kg)		0.70	Sustainable Smallholder Irrigation Development			27.7	1.Irrigation schemes fully operational		a. 5,000 ha of irrigation shcemes under effective operation and maintenance by WUAs			
	Tomato (irrigated)		200%	0.5	Herbicides (per Kg)		6.62	Climate Smart Agriculture and Market Access			20	1. Increased Adoption of Improved technologies and practices 2. Environmental aspects; 3. Farmers benefitting from improved access to markets 4. women empowered in project supported structures		1. Improved agricultural production: Yield increases of main crops 2. 9,000 ha of land under improved management practices 3. 18-fold increase in gross total value of marketed commodities per year on supported irrigation schemes			
	Maize (irrigated)		150%	0.4	Insecticides (per litre)		16.6										
	Cowpeas		-	0.75	Fungicide (per Kg)		9										
	Citrus		-	0.80	Gypsum (kg)		0.16										
	Woodlot		-	30/m3													
ECONOMIC	Official Exchange rate (OER)		1			Discount rate (opportunity cost of capital)		10%		Programme Coordination			4.5	Programme Coordination		1. Effective/efficient programme management	
	Shadow Exchange rate (SER)		1			Social Discount rate		10%									
	Standard Conversion Factor		1.0			Output conversion factor (average)		0.73									
	Shadow Wage Rate Factor (SWRF)		0.05			Input Conversion factor (average)		0.86									

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	Target HH	Target ha	Project Year							Total
			Y1	Y2	Y3	Y4	Y5	Y6	Y7	
FARM 1 NR III & IV Improved rainfed (1ha)	4 000	4 000								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	75%	75%		8%	15%	30%	15%	8%	0%	75%
no. of HH	3 000		-	300	600	1 200	600	300	-	3 000
cummulative no. of HH			-	300	900	2 100	2 700	3 000	3 000	
no. of ha		3 000	-	300	600	1 200	600	300	-	3 000
cummulative no of ha			-	300	900	2 100	2 700	3 000	3 000	
FARM 2 NR IV & V Improved rainfed (1ha)	6 000	5 000								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	75%	75%		8%	15%	30%	15%	8%	0%	75%
no. of HH	4 500		-	450	900	1 800	900	450	-	4 500
cummulative no. of HH			-	450	1 350	3 150	4 050	4 500	4 500	
no of ha		3 750	-	375	750	1 500	750	375	-	3 750
cummulative no of ha			-	375	750	1 500	2 250	2 625	3 000	
FARM 3 Irrigation Rehabilitation (0.4ha)	10 500	4 200								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	85%	85%		9%	17%	34%	17%	9%	0%	85%
no. of HH	8 925		-	893	1 785	3 570	1 785	893	-	8 925
cummulative no. of HH			-	893	2 678	6 248	8 033	8 925	8 925	
no of ha		3 570	-	357	714	1 428	714	357	-	3 570
cummulative no of ha			-	357	714	1 428	2 142	2 500	2 857	
FARM 4 Irrigation Expansion/c	2 000	800								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	85%	85%		9%	17%	34%	17%	9%	0%	85%
no. of HH	1 700		-	170	340	680	340	170	-	1 700
cummulative no. of HH			-	170	340	680	1 020	1 190	1 360	
no of ha		3 570	-	68	136	272	136	68	-	680
cummulative no of ha			-	68	136	272	408	476	544	
Activity Model Beekeeping (6 hives)	1 000									
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	65%	65%		0%	7%	13%	26%	13%	0%	65%
no. of HH	650		-	65	130	260	130	65	-	650
cummulative no. of HH			-	65	195	455	585	650	650	
Activity Model Goat Rearing (50 Goats)	1 500									
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	65%	65%		0%	7%	13%	26%	13%	0%	65%
no. of HH	975		-	98	195	390	195	98	-	975
cummulative no. of HH			-	98	293	683	878	975	975	
Totals										
Total Number of HH	25 000.00			1 675	4 795	9 590	4 795	2 398	-	
total Number of ha				1 100	2 200	4 400	2 200	1 100		
Total Cumulative HH				1 675	6 470	16 060	20 855	23 253		
Total Cumulative ha				1 100	3 300	7 700	9 900	11 000		

E C O N O M I C A N A L Y S I S	Project Year	Net Incremental Benefits (USD)	Cumulative Incremental Benefits (USD)	Net Incremental Costs (USD)	Cumulative Incremental Costs (USD)	Cash Flow (USD)	Cumulative cash flow
	PY1	(429 870)	(429 870)	3 657 988	3 657 988	(4 087 858)	(4 087 858)
	PY2	(421 980)	(851 850)	5 547 354	9 205 342	(5 969 334)	(10 057 192)
	PY3	(14 842)	(866 692)	8 378 275	17 583 617	(8 393 117)	(19 508 578)
	PY4	1 437 872	571 180	10 889 258	28 472 875	(9 451 386)	(21 221 603)
	PY5	4 413 442	4 984 622	6 126 468	34 599 343	(1 713 026)	(22 934 629)
	PY6	7 959 510	12 944 132	2 963 224	37 562 567	4 996 286	(17 938 343)
	PY7	10 423 513	23 367 645	238 956	37 801 523	10 184 557	(7 753 786)
	8	11 880 886	35 248 531	574 956	38 376 479	11 305 930	3 552 143
	9	13 054 665	48 303 196	574 956	38 951 435	12 479 709	16 031 852
	10	12 912 672	61 215 867	574 956	39 526 391	12 337 716	28 369 568
	11	13 188 347	74 404 215	574 956	40 101 347	12 613 391	40 982 959
	12	13 188 347	87 592 562	574 956	40 676 303	12 613 391	53 596 350
	13	13 188 347	100 780 909	574 956	41 251 259	12 613 391	66 209 741
	14	13 188 347	113 969 256	574 956	41 826 215	12 613 391	78 823 133
	15	13 188 347	127 157 603	574 956	42 401 171	12 613 391	91 436 524
	16	13 188 347	140 345 950	574 956	42 976 127	12 613 391	104 049 915
	17	13 188 347	153 534 297	574 956	43 551 083	12 613 391	116 663 306
	18	13 188 347	166 722 644	574 956	44 126 039	12 613 391	129 276 697
	19	13 188 347	179 910 992	574 956	44 700 995	12 613 391	141 890 088
	20	13 188 347	193 099 339	574 956	45 275 951	12 613 391	154 503 479
	NPV@10% (USD)	30 776 761					
	EIRR	22.0%					



SENSITIVITY ANALYSIS (SA)				
		Δ%	Link with the risk matrix	IRR (%) NPV (USD M)
Base scenario				22% 30 776 761
Project benefits	-10%	Market risk Limited responsiveness of service providers Inability of farmers to contribute to initial commitment and operational costs. Climate change and climate variability Non-availability of co-financing macro-economic stability		20% 24 765 344
Project benefits	-20%			18% 18 753 928
Project benefits	-50%			10% 719 679
Project benefits	10%			24% 36 788 177
Project benefits	20%			26% 42 799 593
Project costs	10%			20% 27 843 020
Project costs	20%			19% 24 909 280
Project costs	50%			15% 16 108 059
1 year lag in ben.			Programme Implementation delays	19% 23 529 688
2 years lag in ben.			Non fulfilment of Arrears settlement	16% 16 941 440

Logical Framework

Narrative Summary	Performance Indicators (all data will be disaggregated by gender, as applicable)	Baseline	Targets		Means of verification	MoV Frequency	MoV responsibility	Assumptions (A)/ Risks (R)
			Midterm (Y3)	End Project				
GOAL								
Rural households achieve food and nutrition security and are resilient to climate change effects and economic shocks in the programme districts	Reduction in the prevalence of chronic malnutrition in children under five (weight for age) (RIMS)	TBD	-1%	-3%	PCU survey of 4 provinces ZIMVAC reports	Annual	Food and Nutrition Council	Macro-economic stability (A)
	Improved household assets ownership index (RIMS)	Baseline data	+5%	+20%	PCR reports			
	Smallholder HH cope with effects of climate change (RIMS 1.8.5) ⁴	baseline data	10,000	20,000	PCR reports	Annual	MAMID PCU Survey?	
OBJECTIVE								
Rural households sustainably increase their income in SIRP supported schemes and adjacent rainfed areas.	Diet Diversity Score	5	9	12	ZIMVAC; DDF; HDDS	Seasonal, Annual	MAMID PCU	Macroeconomic stability maintained
	Annual household income on irrigation schemes	\$129	\$1,000	\$3,490	PCR Progress reports; surveys			
		Number of people benefiting from project services, by gender	0	100,000 50,000	120,000 60,000	Progress reports	Annual	MAMID PCU
OUTCOMES								
Component 1: Sustainable Smallholder Irrigation Development								
Outcome 1a: Irrigation schemes fully operational	Effectiveness (RIMS 2.1.2): Incremental hectares of crop grown throughout seasons	4200ha 100% intensity	2950 ha 175% int	5000ha 175% int	Progress reports	Annual	MAMID; PCU	Target group shoulders O&M
Component 2: Climate-smart Agriculture and Market Access								
Outcome 2a: Increased adoption of improved technologies and practices	Improved agricultural production: avg. yield increase (kg/ha) of main crops: <div><div>-</div>Maize</div> <div><div>-</div>Beans</div> <div><div>-</div>Tomato</div> <div><div>-</div>Maize rainfed</div> <div><div>-</div>Sorghum rainfed</div> <div><div>-</div>Groundnut rainfed</div>	2 MT/ha 1 MT/ha 10 MT/ha 0.5 MT/ha 0.7 MT/ha 0.5 MT/ha	5 MT 1.75 MT 30 MT 1 MT 1.4 MT 1 MT	5 MT 1.75 MT 30 MT 1 MT 1.4 MT 1 MT	Progress reports; PCR; IMC ⁵ records;	Seasonal, Annual	MAMID PCU	Target group increases market share of production (A)

⁴ In SIRP, resilience to the effects of climate change will be measured by number of households having access to irrigated land, cultivate at least 3 different crops (diversification) and apply GAPs including soil improvement techniques

⁵ Irrigation Management Committee

Narrative Summary	Performance Indicators	Baseline	Midterm (Y3)	End Project	Means of verification	MoV Frequency	MoV responsibility	Assumptions (A)/ Risks (R)
<i>Outcome 2b:</i> Farmers benefitting from improved access to markets and financial services	Gross total value of marketed commodities per year	\$800,000	\$7.5 m	\$15 m	IMC records; Farmer records Market survey	Seasonal	MAMID, PCU	Farmers understand market functions (A)
Subcomponent 1.1: Development and management of irrigation scheme assets								
<i>Output 1.1:</i> Small-scale irrigation schemes revitalized.	Area of irrigation schemes rehabilitated	0 ha	2,000ha	5,000ha	Progress reports	Annual	PCU	Expertise to carry out the study is available (A) Prices for material and works remain within assumed margins (A)
Subcomponent 1.2: Improved smallholder irrigation management								
<i>Output 1.2 a:</i> Irrigators and their WUOs obtain knowledge in efficient irrigation management	Number of irrigators trained in irrigation management	0	7,000	12,500	Progress reports	Annual	PCU	Training is demand driven (A)
Subcomponent 1.3: Enhanced institutional capacity for irrigation development								
<i>Output 1.3 b:</i> Enhanced capacity in Gov. staff on irrigation service delivery	Number of Government staff trained in irrigation and O&M selected topics ⁷	0	250	250	Progress reports	Annual	PCU	Staffing levels are maintained or increased at all levels (A)
Subcomponent 2.1: Enhanced agricultural practices and farmers' organizational capacity								
<i>Output 2.1a:</i> Strengthened capacity of farmers and their organizations	Number of people trained in GAP, soil and water conservation, nutrition education and organization	0	11,250	25,000	Progress reports	Annual	PCU	VC actors are willing to cooperate (A); Training is demand driven (A)
Subcomponent 2.2: Market access and rural financial services								
<i>Output 2.2a:</i> Strengthened business capacity of farmers and value chain actors	Number of people trained in agri-business, post-harvest and marketing skills ⁶ , and financial literacy	0	7,500	25,000	Progress reports	Annual	PCU	VC actors are willing to cooperate (A)
<i>Output 2.2b Value addition technology promoted at scheme and adjacent rainfed area</i>	Number of schemes and adjacent rainfed areas with demonstrated post-harvest technology	0	50	125				
Subcomponent 2.3: Enhanced institutional capacity for market-led production								
<i>Output 2.3 c:</i> Enhanced capacity in Gov. staff on service delivery	Number of Government staff trained in production, and market access	0	500	500	Progress reports	Annual	PCU	Staffing levels are maintained or increased at all levels (A)

⁶ An individual is likely to be trained in more than one topic.

I. Strategic context and rationale

A. Country and rural development context

1. **Geography.** Zimbabwe is a landlocked country with a total population of 14.6 million people on an area of approximately 390,757 square kilometres in the southern part of Africa. Zimbabwe is administratively organized in 10 provinces and classified into five agro-ecological regions called Natural Regions. Natural Regions I, II and III comprise of areas with high potential for agriculture and livestock production. Natural Regions IV and V are the semi-arid areas and cover about 64 per cent of the country, and are home to more than 60 per cent of the rural population. Climatic conditions are largely subtropical with one rainy season, from late October to March.

2. **Climate.** Zimbabwe is experiencing recurrent droughts and prolonged mid-season dry spells even in good seasons, with adverse effects on food production, income and nutrition security, and rural livelihoods. Zimbabwe is one of the hotspots for climate change, with predicted increases in temperatures (+ 2 °C by 2080⁷), increases in rainfall variability, and increased probability of extreme events such as droughts and flash floods. Surface water resources in Natural Regions IV and V are projected to decrease significantly, and average net primary production on rangelands is expected to decrease by some 25 per cent by 2080 thereby also inducing increased risks of natural resource conflicts.

3. **Population and Human Development.** Zimbabwe's population is estimated at 14.6 million people (2014) and projected to grow to reach 20.3 million people in 2020. The population living below income poverty line is estimated at 72.3 per cent with a multidimensional poverty index of 29.3 per cent. This is a significant decrease from 2006 when 42.4 per cent of the population lived in extreme poverty. The 2015 Zimbabwe Poverty Atlas shows widespread poverty in rural areas where 76 per cent of people live below the poverty line. Poverty levels vary across districts and wards, with poverty prevalence rates reaching 85.7 per cent in Matabeleland North, and above 80 per cent in several rural districts of other provinces. There has been a marked improvement in Zimbabwe's Human Development Index, moving 12 ranks from 173 of 187 countries in 2011 to 155 out of 188 countries in 2015. However, despite the improvements, this is still below the regional average. Life expectancy that had dropped from 60 years to 42 years since 2000, has significantly increased to 57.8 years (58.9 years for women and 56.2 years for men) in 2015. Stunting prevalence in children has shown a downward trend from a peak of 35 per cent in 2005/6 to 27.6 per cent in 2014. Zimbabwe has also seen a notable decline in HIV prevalence from 25 per cent in 1997 down to 15 per cent in 2014, but remains one of the highest HIV prevalence rates globally.

4. **Economic context.** Zimbabwe has experienced a deteriorating socioeconomic environment. After the financial crisis of 2008, Gross Domestic Product (GDP) suffered its greatest annual decline in its history (-17%), and the country continued to go through a prolonged period of hyperinflation. The introduction of the multi-currency system and other economic stabilizing measures in 2009 saw the country having positive economic growth since 2009. Zimbabwe's total GDP increased from US\$ 11 billion in 2011 to US\$ 14.2 billion in 2016, but the real GDP growth has decreased to -1.1 per cent in 2016. It is projected to increase by 3.3 per cent in 2017 to reach US\$ 15.4 billion. Diaspora remittances are also on the rise amounting to US\$ 935 million, which is about 48 per cent of total remittances which were about US\$ 2 billion. In 2014, the Gross National Income (GNI) per capita stood at US\$ 840, which has been on an upward trend, since 2009. The country enjoyed a GDP growth rate of 6.0 per cent in 2009, reaching a peak of 11.9 per cent in 2011. This recovery was driven by mining (35 per cent of GDP) and agriculture (12 per cent of GDP). However, there has been a downturn in this growth to 4.5 per cent as from 2013 and GDP is expected to drop to 1.0 per cent in 2015.

⁷ IIED/Brown et al. (2012) Climate change impacts, vulnerability and adaptation in Zimbabwe. See for more details appendix 12, SECAP Review Note.

5. **Agriculture** forms the basis of the direct and indirect livelihoods of over 70 per cent of Zimbabwe's population. In 2014, agriculture accounted for 14 per cent of GDP and provided 60 per cent of the raw materials required by the manufacturing industry and 40 per cent of total export earnings. However, it only accounted for 8 per cent of government spending. Lack of access to finance is another key constraint to agricultural growth and leads to insufficient farm inputs, which in turn translates into low outputs and productivity. The country's main staple crops are maize, sorghum and millet. The main export commodities are: tobacco, cotton, sugar, sunflowers, tea and banana. Livestock plays an important role in the agriculture of Zimbabwe, as a means of diversification of income as a way of reducing vulnerability and income risk. Almost all farmers own livestock with poultry and cattle are ranked as the most important livestock type. Most households in the rural areas are net food buyers: they do not produce enough food to meet their needs and as a consequence, have to rely on markets and other non-farm sources such as casual labour to bridge the food gap to the next season.

6. **Poverty and vulnerability in semi-arid areas.** The 2015 Zimbabwe Poverty Atlas shows widespread poverty in rural areas where 76 per cent of people live below the national poverty line. Poverty levels vary across districts and wards, with poverty prevalence rates reaching 85.7 per cent in Matabeleland North, and above 80 per cent in several rural districts of other provinces. Stunting prevalence in children is 27.6 per cent. HIV prevalence has declined but still remains high at 15 per cent. Agriculture forms the basis of the direct and indirect livelihoods of over 70 per cent of Zimbabwe's population. Most households in the rural areas are net food buyers: they do not produce enough food to meet their needs and as a consequence, have to rely on markets and other non-farm sources such as casual labour and humanitarian assistance to bridge the food gap to the next season.

7. **Food security.** Zimbabwe's recurrent droughts and food insecurity conditions have remained dire over the past decade. With the El Niño weather phenomenon—associated with severe drought in Zimbabwe, the Zimbabwe Vulnerability Assessment Committee has indicated that at least 1.5 million people - 16 per cent of the rural population - will have insufficient means to meet their minimum food needs during the 2015-16 season. As a consequence of high poverty prevalence, food and nutrition insecurity are widespread with a concentration in semi-arid areas, with an estimated 12 per cent of the rural population persistently suffering from food shortages over the past 5 years. Recent surveys found that one in three under-five year old children was stunting (height for age) and one in ten was underweight. Food poverty affects between 10 and 20 per cent of the country's population and this happens even in a normal rainfall season.

8. **Fast Track Land Reform Programme.** Land is the key asset for agriculture. Before 1980, a racially skewed land ownership pattern prevailed in Zimbabwe, with a stark divide between large-scale commercial farms (owned by about 4,500 mostly white farmers) occupying 80 per cent of agricultural land and small-scale farms on the remaining 20 per cent, farmed by over 1 million black farmers. Post-independence land reform initiatives were based on a willing buyer-willing seller principle, and were meant to make land available for use by more people. The implementation of the Fast Track Land Reform Programme (FTLRP) that began in 2000 was a new, radical land redistribution to reverse the racially-skewed agrarian structure and discriminatory land tenures inherited from the colonial rule. The FTLRP established two models of resettlement: The A1 model targeted small scale farmers and poor families, providing land use permits on 3-6 ha of arable land and common grazing, while the A2 scheme targeted new 'commercial' farmers, providing larger individual plots on long-term lease to beneficiaries. The agricultural sector now comprises of about 87 per cent small scale farmers in communal areas and old resettlement schemes; 10 per cent of newly allocated A1 farmers; one per cent of A2 farmers, one per cent of small-scale commercial farms, and less than 0.5 per cent of large scale commercial farmers. The Government of Zimbabwe is developing a national land policy and finalizing consultations to establish a Land Commission for land administration, as a strategy for securing land rights, with regulated leaseholds and temporary permits. Communal and old resettlement areas will continue to be administered under the Communal Land Act which gives powers to traditional leaders for land allocation and administration.

9. **Policy, Governance and Institutions.** Zimbabwe's development priorities are outlined in the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZimASSET 2013-2018), the country's poverty eradication strategy. The ZimASSET priorities for 2015 are centred on achieving and sustaining high agricultural production and productivity, market access, increased incomes and improved nutrition. Other important policy documents and frameworks include: The 10-Point Plan for Economic Growth, the Zimbabwe Agricultural Investment Plan (ZAIP 2013-17); draft Comprehensive Agricultural Policy Framework 2012-2032 (CAPF); draft National Irrigation Policy and Strategy; National Food and Nutrition Security Policy.

10. Agricultural development and food security is coordinated by the Ministry of Agriculture, Mechanisation and Irrigation Development (MAMID), with several technical departments and parastatal. The Department of Irrigation is mandated with planning, identification, designing, construction, operation, monitoring and management of irrigation schemes. About 33 per cent of staff are based at the Headquarters in Harare, mostly senior engineers. The remaining staff are distributed in the 8 provinces, but there is no presence at the district and ward levels, where the irrigation schemes are located. The Department of Agricultural Technical and Extension Services (AGRITEX) is mandated to provide market-oriented technical, advisory and extension services, farmer training, and dissemination of technologies. AGRITEX is headed by a Principal Director and has two Deputy Directors for its two divisions, namely; Field and Technical Services. The Field Services Division operates through eight provincial offices, 60 districts, 380 agricultural extension supervisors, and 5,200 frontline agricultural extension workers. There are three (3) extension workers per ward in the high potential cropping areas; two (2) per ward in medium potential cropping area and one (1) per ward in the dry regions where livestock production is major source of livelihood. Each district has three (3) Agricultural Specialists responsible for the general technical development in the district. Extension activities are managed at the district level by the District Agricultural Extension Officer and at provincial level by the Provincial AGRITEX Officer. Field services staff members are responsible for extension services to farmers and there is at least one full time extension worker from AGRITEX at larger irrigation schemes.

11. The Division of Technical Services provides technical backstopping to field staff through subject specialists in branches of crops, horticulture, agribusiness and marketing, land use planning and training and information. Each branch is headed by a Chief Agricultural Specialist based at Head Office. Each of the branches is staffed with relevant experts with at least one stationed at the province. The Technical Division also hosts the M&E Unit for the department but this currently not functional due to resource constraints. However, there are 8 Agricultural Economists at head office who can perform the M&E function with the assistance of provincial and district staff. As of January 2016 the moment, the total number of specialists is 68. The total staff establishment for AGRITEX is 5,686 of which 4,906 positions are filled. Out of the filled positions, 2,187 are women. AGRITEX staffing level is considered to be reasonable with 4,487 technical extension workers on the ground against an establishment of 4,746. Moreover, it has been reported that the level of staff turnover in government has stabilised⁸ and therefore government stand to benefit from staff training and other capacity building measures under SIRP.

12. Zimbabwean farmers are organized in several unions, including: the Zimbabwe Farmers Union which is Zimbabwe's largest agricultural union with over 1 million members, consisting of communal and resettled farmers (resettled on the village-based, small-scale plots in the 1980–1985 government land reform programmes). The private sector encompasses seed processors, fertilizer manufacturers, agro-chemical companies, agro-dealers, mechanization and irrigation equipment manufacturers, and traders.

⁸Based on the meeting at Agritex Human Resources Department

B. Rationale

13. Zimbabwe has one of the highest levels of water development for irrigation in the region and has a significant portion of its irrigated potential realized. There is evidence from literature and field visits that households in smallholder irrigation schemes are better off in terms of food production, income, nutrition and general wellbeing than households relying on rainfed agriculture. One key advantage of irrigation is to raise average crop yields with technologies that substantially reduce the uncertainties farmers face in rainfed agriculture. Smallholder irrigation schemes produce crops throughout the year, achieving 200 per cent cropping intensities. In addition to achieving higher yields than rainfed yields in a normal season, irrigators are able to increase crop production and incomes in the dry winter season, when dryland production is impossible because of lack of rain. The gross margins and resultant incomes for irrigating farmers are often significantly greater than for dryland farmers. They are able to practice more intensive crop production and diversification into high value crops both for the local and export markets, thus increasing their incomes and managing risks and uncertainties.

14. Smallholder irrigation in Zimbabwe has been a cycle of build/operation/rehabilitate that is heavily dependent on government and donor funding. Government data indicates that about 56 per cent of the existing schemes are not functional, or partially functional, with a high proportion in Matebeleland south. There has also been a marked increase in non-functional schemes from 2012-2013. A common feature is that rehabilitation has primarily focused on physical infrastructure development and repairs (or “hardware”), without the corresponding investments in farmers’ institutional development, production activities and market linkages (software). The rehabilitation is often initiated, driven and managed by the Department of Irrigation. As a result, there is a general lack of community ownership, responsibility and participation in the management of the irrigation assets, particularly for the headwork, main canal and motor pumps. With inadequate use of inputs (improved varieties and fertilizers), lack of labour and inefficient agricultural practices, crop productivity is often well below the optimum. The limited size of landholding (0.1 ha in some schemes) and lack of resources further make it difficult to fully benefit from irrigation.

15. As a departure from traditional rehabilitation of irrigation infrastructure, the revitalization⁹ process should encompass both the modernization of physical infrastructure with the corresponding investment to redevelop irrigation social institutions and production infrastructure as tools for more autonomy, participation and ownership at local level, as well as the development of business strategy and market linkages to make irrigation farming more productive and profitable. These are critical components of the performance and sustainability of irrigation systems.

16. The thrust of the programme is commercialisation of smallholder agriculture, both irrigated and in the adjacent rainfed area. The programme will assist smallholder farmers to produce for the market and to build their capacity to adopt a more business approach in operating their schemes through reducing operating costs and to operate schemes more efficiently and productively. The corollary is that farmers will need to monitor scheme performance in relation to ongoing costs in order to work out how best to maximise financial returns, long term sustainability, and replicability/scalability to other areas. The programme will advise targeted farmers on the best combination of high value and nutritious food crops to grow competitively based on market availability. The revitalization approach taken by the programme goes beyond rehabilitation only, and includes all aspects that are needed to enable long-lasting success.

⁹ For definition and process of revitalization, see Mwendera E. and Chilonda P. 2013. Methodological framework for revitalisation of smallscale irrigation schemes in Southern Africa. *International Journal of Agricultural Science Research* Vol. 2(3), pp. 067-073, March 2013 Available online at <http://www.academereseearchjournals.org/journal/ijasr>.

II. Programme description

A. Programme area and target group

17. SIRP will revitalize about 5,000 ha of existing smallholder irrigation schemes, mostly in communal and old resettlement areas in the natural regions III, IV and V in the provinces of Manicaland, Masvingo, Matabeleland South, and Midlands four provinces. This represents roughly 40 per cent of the estimated total equipped area of about 13,000 hectares. These regions have the greatest need for revitalization of smallholder irrigation systems. These are the semiarid areas that comprise of 49 per cent of the land under smallholder irrigation. These regions cover about 64 per cent of the country, and are home to more than 65 per cent of the rural population. These areas are also the 'hotspots' for climate change, with predicted increases in temperatures and rainfall variability, and increased experience of recurrent droughts over the last decades. While direct programme implementation will be initially limited to the four provinces, SIRP will further support more rigorous and systematic feasibility studies of new irrigation schemes at the national level to build a pipeline of irrigation schemes to be developed in the future. The programme aims to develop a holistic approach and build institutional capacity for revitalizing smallholder irrigation in Zimbabwe.

Table 1: Current and potential irrigation schemes in SIRP provinces

Province	Number of schemes	Number of Irrigators	Total Potential Area	Total Equipped Area	Total Used Area	% of schemes	
						reported	not functional
Manicaland	89	11,026	12,632	7,999	6,237	25%	
Masvingo	49	6,028	3,288	1,086	1,203	13%	
Matabeleland South	68	6,714	8,242	2,324	2,502	34%	
Midlands	53	4,833	1,864	1,310	953	47%	
Total	259	28,601	26,026	12,719	10,895	30%	

Source: Department of Irrigation database, MAMID

18. In the selected provinces, SIRP will engage in a limited number of districts with higher concentration of existing schemes (clusters) and potential for future expansion. The selection of the targeted irrigation schemes will prioritize areas that optimize a combination of bio-physical, technical, socio-economic and institutional criteria, in order to achieve economies of scale and scope, and to maximize efficiency, effectiveness and large scale positive impacts. The programme will implement a systematic participatory and iterative process for the selection of irrigation schemes to be rehabilitated.

19. The criteria used for selecting irrigation schemes are listed in table 2. These criteria will be used to filter the highest potential schemes at three different moments in the identification-design-implement process cycle and can be applied as pass/fail criteria, and/or as prioritization criteria.

Table 2: Scheme selection criteria

Criterion	Indicator	Pass/Fail	Prioritization	Step		
				1	2	3
Water Availability	Water availability of sufficient quality	Availability confirmed by pre-FS and FS		X	X	X
Market Potential	Distance from market of > # inhabitants (in hours)	(none)	less hours	X		
Size	Scheme and plot size	(none)	Scheme > 10ha	X		
Complementarity	Activities under other projects	(none)	Complementary projects active	X		
payment of ZINWA and ZESA bills	Historical Payment performance,% paid over the last 2 years	(none)	Higher %		X	X
Community Interest + extension services	Through Revitalisation plan; commitment to market led production	Signed by all scheme and land holders + Quality standards attained, 80% commit	(none)		X	X
Technical Feasibility	Scheme design technically	FS, DD approved	(none)		X	X

Financial Feasibility	sound FIRR, NPV	FIRR > 10%; NPV > 0	Higher FIRR/NPV	X	X
Private Sector interest	Expression of interest by off-taker	Written EoI received	(none)	X	X
Community commitment for cost sharing	Upfront cash contribution per hectare, put into O&M fund guaranteed by community collateral	Minimum 100US\$/ha	(none)	X	

Source: Final design mission Aide Memoire

20. Evidence or estimates of water availability, even in a drought year will be a sine qua none condition for scheme eligibility. Such availability will need to be evidenced by river gauge and reservoir measurements where available, and complemented by catchment modelling exercises taking into account expected changes in rainfall patterns as a result of climate change.

21. There are two criteria for assessing market potential: in the first step, a basic estimation of the distance to market; in the second and third step, private sector parties will be invited to take part in the selection of sites and indicate their endorsement of schemes as having market potential and subsequently to prioritize them. Synergies with other revitalization efforts will be sought in the selection of schemes, by exclusion of schemes that have recently benefitted from services such as provided by SGRP, but prioritization of schemes where complementary projects are active.

22. Community interest and historic performance also drive scheme selection and prioritization. The payment rate of ZINWA and, where applicable, ZESA bills will be used to prioritize highly-committed communities. Communities furthermore have to specify their contributions to the revitalization efforts in the Revitalization Plan signed by all scheme members, which will be subject to a quality review. Finally, communities will be required to commit an up-front cash contribution of at least 100 US\$/ha to be put into a O&M fund, to be used once the scheme is fully functional again.

23. Finally, technical and financial feasibility assessment are crucial tests to ascertain that schemes can be sustainably managed by farmers, e.g. providing sufficient revenue for increased incomes and to sustain O&M costs. The feasibility study and detailed design will be oriented towards reducing operational costs, for instance by converting pumped schemes to gravity-fed schemes or by increasing water use efficiency and thereby reduce pumping costs.

24. In Zimbabwe, small-scale communal and old resettlement farmers are categorized in four broad categories based on their resource endowments and livelihood strategies.

- (a) **A:** vulnerable households without enough labour and land resources.
- (b) **B1:** Poor households with access to land and limited labour in existing irrigation schemes, but with limited income. These households have limited access to inputs, labour and finance and tend to use irrigation for subsistence farming. They tend to practice deficit irrigation due to lack of resources. As a result, their productivity is often very low and experience crop failure.
- (c) **B2:** Emerging smallholder farmers with land and labour, and potential to intensify and diversify their production to generate marketable surplus. These households have resources to expand land under irrigation, intensify production and employ extra labour. They are food secure with limited income security.
- (d) **C:** Market oriented farmers who have labour, land and income but no access to financial services to expand production or diversify into higher value production. They are able to make upfront cash contributions and mobilize resources to pay for water and electricity bills. They are also likely to invest in their individual irrigation systems as they move up the value chain. They need support engagement into market linkage arrangements with private sector and engage into high value products.

25. SGRP will implement an inclusive targeting strategy to ensure that programme benefits are distributed to a large number of smallholder poor farmers, and poorer members of the communities. SGRP will target 25,000 smallholder poor rural households (125,000 people) in the four different categories with relevant interventions for each group of farmers. Women (heads of households, wives

and young women) will account for at least 50 per cent of the target, in line with their participation in irrigated agriculture. SIRP beneficiaries will include:

- (a) 12,500 households (62,500 people) with an average of 0.4ha in the irrigation schemes. These are productive poor smallholders that are currently engaging in irrigation agriculture in the existing irrigation schemes. It is expected that SIRP will result in i) an increase in production and productivity of selected commodities; ii) an increase of annual household income; and iii) increased market integration.
- (b) 12,500 households (62,500 people) with no access to irrigation in the greater-scheme and sub-catchment areas relying on rainfed agriculture and livestock.
- (c) 2,000 youth who will be involved in production, aggregation, marketing, service provision and build small and medium-scale businesses along the irrigation value chain.
- (d) 500 extension service providers to improve their capacity for more responsive, effective and efficient service delivery.

26. **Direct Targeting Households in existing irrigation schemes:** SIRP will target 12,500 households (62,500 people) small-scale irrigators in communal and old resettlement areas. These are households in existing irrigation schemes that have the ability to cost-share and make financial and material contributions to operation and maintenance of irrigation assets. Women account for at least 50 per cent of the target, in line with their participation in irrigated agriculture. The following are categories that will be targeted directly:

- (a) **Expansion of irrigated areas to target new households.** Table 1 indicates that there are about 28,000 households accessing irrigation schemes in the four provinces. This is only a small minority of small scale farmers, below the national average of 4.5 per cent of households that have access to irrigation schemes. An analysis of the database on smallholder irrigation schemes in communal and old resettlement areas reveals that 37 per cent of potential irrigable area in existing schemes is not equipped and 11 per cent of equipped area is not used. There is considerable possibility of expansion of area equipped (more than 6,000 ha), in existing schemes particularly in Manicaland and Masvingo. Expanding area under irrigation in existing schemes will target and benefit a number of additional households. It is also an opportunity to target more women and youth. Expansion will be determined by feasibility studies if they demonstrate that there is a very low probability of physical resettlement, economic displacement of populations and irreversible environmental impacts.
- (b) **Households with no access to irrigation.** SIRP will also target an equivalent number (12,500 households) of B1 and B2 farmers in adjacent rainfed areas. These are resource-constrained women and men, who are not currently members of the existing irrigation schemes. They benefit indirectly from irrigation through casual labour opportunities (14 per cent) and availability of farm produce in local markets (15 per cent)¹⁰. These farmers will also participate and benefit from the promotion of enhanced agricultural practices and climate-smart innovations as well as farmers organizational capacity (component 2.1).
- (c) **Vulnerable households (Category A):** These farmers will also indirectly benefit through provision of labour to irrigating farmers, as revitalization of irrigation schemes is likely to increase labour demand. They will also benefit from the availability of produce in local markets, and through providing labour for soil and water conservation.
- (d) **Women:** SIRP will ensure gender equality mainstreaming in all the activities, including ensuring that women's opinions are sought during diagnostic stages of scheme development and their needs catered for throughout the scheme development process; that women gain equal opportunity to become plot owners and members of scheme management committees; and that women obtain more secure rights on the land they irrigate or farm; and finally monitor

¹⁰ Zimbabwe Vulnerability Assessment Committee. 2014 Rural Livelihoods Assessment.

the gender impact of programme activities and procedures. Specific project interventions will include preparing a gender training manual with a section on HIV and conduct gender sensitisation course for key staff of service delivery organisations to promote women representation in Irrigators and Farmers Organizations and assist women farmers and those in leadership positions to hold annual forums to discuss interests and requirements.

- (e) **Youth:** The youth have limited opportunities to own and use land in existing irrigation schemes. They also have limited opportunities for off-farm activities. SIRP will target the youth directly. In each scheme, the programme will identify and facilitate a group of 10-15 low skilled rural youth producers already engaged or potentially interested in engaging in irrigated agriculture, as producers, artisans, or casual labourers. With a target of 125 irrigation schemes to be revitalized, SIRP can involve and benefit up to 1,500 young men and women as irrigators. There will be opportunities to allocate land to youths in irrigation schemes to be expanded. In addition, there will be opportunities to target and involve about 250 young men and women to become aggregators, agro-dealers, traders or agents between market-oriented producers and off takers or large agro-industries and/or wholesalers. SIRP will also target and provide vocational training to around 1,000 youth as private sector service providers for the supply, operation and maintenance of irrigation assets, lease of small equipment, repair and maintenance of post-harvest equipment and mechanization.

27. SIRP recognizes that revitalizing smallholder irrigation has important gender dimensions, affecting women and men differently, and different categories of women. Access to irrigation resources and opportunities are frequently unequal. Women are more active than men in irrigated agriculture, but they have limited access and control to land in irrigation schemes. They are also under-represented in the Irrigation Management Committees, and often have limited voice and influence in decision-making. The continuous deterioration and break down of irrigation infrastructure has increased the burden on women, as maintenance activities in the schemes are not gender differentiated. Irrigation agriculture requires intensive labour that increase the burden on women and girls. Their time poverty, due to their domestic and reproductive roles and gender relations, makes it more difficult for women to irrigate as efficiently and frequently as men. SIRP will develop and implement a gender transformative action learning systems approach that positions women as the drivers of change for revitalization of irrigation assets.

B. Development objective and impact indicators

28. The overall goal of SIRP is that Rural households achieve food and nutrition security and are resilient to climate change effects and economic shocks in the programme districts. SIRP Objective is that Rural households sustainably increase their income in SIRP supported schemes and adjacent rainfed areas.

29. This will be achieved by revitalizing existing high potential irrigation schemes and their surrounding rainfed areas, so as to increase productivity and production, as well as through selecting suitable high value crops to improve access to agricultural markets and financial services for targeted smallholders, thereby contributing to increasing targeted smallholder income, while ensuring nutrition and food security, and finally enhancing service delivery through capacity building within concerned institutions.

30. It is expected that the programme will result in i) an increase in production and productivity of selected commodities; ii) an increase of annual household income; iii) increased market integration; and iv) a smallholder agricultural production system that is better adapted to climate change. This is expected to contribute to improved resilience and reduced prevalence of stunting in children below the age of five years.

C. Outcomes/Components

Outcomes

31. The programme proposed components and expected outcomes are as follows (table 3):

Table 3: List of SIRP component and outcomes

Component	Outcome
1. Sustainable Smallholder Irrigation Development	Irrigation schemes fully operational
2 Climate-smart Agriculture and Market Access	Increased adoption of improved technologies and practices
	Farmers benefitting from improved access to markets
	Area of land under improved management practices
	Women empowered in project supported structures
	Food use and nutrition improved at household level

32. Main indicators would include:

- (a) At impact level: Reduced prevalence of chronic malnutrition in children under five (RIMS III); Improved household assets ownership index (RIMS III); Smallholder households report to cope with effects of climate change (RIMS 1.8.5).
- (b) At the results level: Increased annual household income, improved diet diversity score, and increased number of people benefitting from programme services.
- (c) At outcome levels: component 1 - Incremental ha of crop grown throughout seasons. For component 2 - increased yields (kg/ha) of main commodities (irrigated Maize, Beans, Tomato; rainfed Maize, Sorghum, Groundnut); and gross total value of marketed commodities by year.

Component 1 Sustainable Smallholder Irrigation Development

33. **Objective:** The objective of this component is to transform low-performing irrigation schemes into fully functional ones in terms of efficient water management and low-cost operation and maintenance by Water User Organizations (WUO). This would result in an increased cropping intensity and thereby be the basis for sustained, commercial irrigated agriculture.

34. The Programme will finance the revitalization of irrigation schemes in the natural regions III, IV and V in the provinces of Manicaland, Masvingo, Matabeleland South, and Midlands, while financing further scheme design studies nationwide. The Programme aims to develop a holistic approach and build institutional capacity of irrigators and Government agencies, including DoI, to revitalize smallholder irrigation in selected schemes. Total potential area for revitalization by SIRP in four provinces is about 12,500 ha, assuming that all area that is currently equipped for irrigation has potential for improvement.

35. This component will be divided into three inter-related sub-components: (i) Scheme Selection and Rehabilitation; (ii) Improved Smallholder Irrigation Management; and (iii) Enhanced Institutional Capacity for Irrigation Development. The implementation of this component will be led by DoI.

Sub-Component 1.1 Scheme selection and rehabilitation

36. This sub-component will consist of two sets of activities: 1) conducting feasibility studies and detailed designs; and 2) irrigation scheme rehabilitation

37. **Feasibility studies and detailed design:** The programme will prepare pre-feasibility, feasibility studies and detailed design reports to rehabilitate about 5,000 ha of irrigation distributed in different schemes (as stand-alone or cluster), each not less than 10 ha, to be selected along the following

criteria which are further detailed in Appendix 2: Taking an average irrigable area of 40 ha per scheme, the Programme will rehabilitate about 125 irrigation schemes benefiting about 12,500 irrigators.

38. The technical studies and reports to be delivered for target schemes will include:

(i) Prefeasibility studies' technical reports including participatory performance assessment; (ii) Feasibility studies' reports including a revitalization plan; (iii) Detailed design report (including construction drawings and implementation schedule, bill of quantity, specification, engineering estimates as well as tender documents); and (iv) Preliminary O&M manual.

39. Pre-feasibility studies will be based on the standard process, e.g. a forward-looking multi-disciplinary and participatory analysis of scheme viability from a technical, social and financial point of view. In addition, and specific to SIRP's revitalization objective, the pre-feasibility studies will be informed by a participatory performance assessment (PPA), which aims at identifying the underlying social, financial and technical causes of historic low performance and will be crucial for all stakeholders to reach a common understanding of priorities in revitalizing the scheme.

40. After a second selection based on the results of the pre-feasibility study, a more thorough feasibility study will be carried out and a scheme revitalization plan will be developed. The feasibility studies will be under the responsibility of DoI in collaboration with irrigators, IMCs, and in consultation with the resident and district AGRITEX extension agent, as well as other relevant Government departments. Some feasibility studies will be contracted out. It is estimated that approximately 6,000 ha will be subject to feasibility studies.

41. As most schemes will incur rehabilitation, as opposed to being green field investments, the feasibility studies will provide a menu of different aspects, which may or may not be relevant. Depending on scheme-specific requirements, these could include: (i) hydrologic and water resources availability study to acceptable level of reliability taking current and foreseeable rainfall and catchment characteristics as well as climate change projections into consideration; (ii) bathymetric surveys (reservoir dams sedimentation); (iii) for dams over 20 years old, dam safety and instrumentation to ensure reasonable operation of the scheme for anticipated service years; (iv) diagnostic meteorological and hydrometric network survey and water resources monitoring; (v) land suitability, engineering and soils surveys and investigations to include but not limited to topographical, salinity, fertility, geotechnical, groundwater table and water quality; (vi) surface and sub-surface hydraulics with focus on prevailing and/or proposed irrigation structures and systems; (vii) agronomic in the light of land suitability, market, climatic condition; (viii) detailed inventory of irrigation and drainage infrastructures and assets including last-mile access roads; (ix) diagnostic assessment of the irrigation O&M system, to include technical, institutional and related challenges and opportunities for improvement in view of subsequent assessment of training and capacity building related needs; (x) socio-economic studies and an analysis of input and output markets; and (xi) Environmental and Social Impact Assessments (ESIAs).

42. Poor drainage of irrigation schemes leads to waterlogging and salinization, rendering agricultural land unproductive and causing potential health issues. SIRP will pay specific attention to drainage provisions in scheme designs. Adequate slopes and levelling will improve drainage, and drainage canals will be constructed where required. In case last-mile access roads are constructed, side drains need to be included.

43. The DoI will be responsible for the supervision of these studies and for contracting out detailed designs to be carried out by engineering companies. In order to avoid accountability issues the same company responsible for detailed design of a scheme, will be responsible for supervision of the works there. In order to enhancing the quality of deliverables, systematic procedures to recommended decisions and clearance in the project processing cycle will be established. DoI will have a supervisory role over the both the designing and implementing contractors.

44. SIRP will focus on community ownership of the revitalization process. To do so, the feasibility study will be accompanied by a scheme Revitalization Plan agreed by all parties, which contains (i) a

summary of the PPA listing historic performance issues; (ii) actions agreed to increase performance, with deadlines and responsible actors assigned for each action; and (iii) key performance indicators to monitor progress. Some actions, specifically those related to agricultural development and market linkages, will be further developed under component 2.

45. **Irrigation scheme revitalization.** The second set of activities will focus on the rehabilitation of headwork, primary and secondary conveyance (open and closed conduit) systems, night/ regulating storage tanks and on-farm structures such as distribution boxes, offtakes, field water application and drainage technologies, access roads, small bridges, culverts, and fences as per the tender documents prepared by the above-mentioned company conducting the detail designs. In addition, the electromechanical works will include, but not limited to, supply and installation of pump and related ancillary works, construction of access road, small bridges, culverts, fences and establishing a pilot conversion of diesel pumped scheme to solar power pumping system. Out of the 5,000 ha to be developed, the programme envisages to rehabilitate 4,000 ha (75 per cent), expand 800 ha (20 per cent), pilot the substitution of diesel pump run irrigation schemes of about 200 ha (5 per cent), and supervise the construction/installation of civil and electromechanical works.

46. Finally, building on the preliminary O&M manual prepared by the feasibility studies and detailed design, contractors will support water users organisation (WUO) to prepare the final O&M manual on how to operate the rehabilitated scheme. In this regard, a hands-on training will also be provided to WUOs, DoI staff and scheme level operators in the following sub-components.

Sub-Component 1.2 Improved Smallholder Irrigation Management

47. **Objective:** This sub-component aims at empowering targeted irrigators and their Organizations (i.e. Irrigation management committees (IMCs) to establish a more effective and inclusive governance institutions to enhance ownership, participation, operations and maintenance (O&M), management, productivity and sustainability of the revitalized schemes.

48. This sub-component will consist of activities related to strengthening community irrigation asset management and optimal water distribution. To this end, the Programme will transform the current IMCs to a more effective WUOs to undertake the O&M responsibilities at the hydraulic unit (tertiary) level and beyond.

49. SIRP will promote a set of interventions which include: (i) institutional development of the irrigators groups and their irrigation WUO; (ii) support for participatory planning and management of irrigation assets; and (iii) develop the capacity of youth to ensure pump and irrigation material maintenance and repair.

50. **Institutional development of irrigation water users organizations (WUOs).** SIRP will assist WUOs to establish effective governance mechanisms for effective recovery of O&M fees; and organizing mutually beneficial collective actions. The Programme will develop the capacity of irrigators with focus, but not limited, to irrigation water management and O&M, WUGs by-laws and fee structure. In addition, WUGs leaders will be trained in formalization and enforcement of WUGs by-laws, planning, implementation and monitoring of O&M, fee collection, financial management and book-keeping. It is estimated that approximately 12,500 irrigators will be supported by the project in 125 schemes, comprising of approximately 700 WUOs.

51. **Support for participatory planning and management of irrigation assets and O&M.** This activity will include training on community visioning and participatory planning, monitoring and evaluation as well as preparation and implementation of irrigation water management plans as identified in the Revitalization Plan. SIRP will also fund exchange visits between irrigation schemes and an innovation competition as part of community learning and innovations to strengthen the implementation of irrigation assets management plans. This support will include strengthening irrigation O&M fee collection. To ensure the interest and commitment of the beneficiaries towards the Programme, each irrigator will be required to deposit 100 US\$/ha in a blocked bank account before start-up of any physical intervention, to cover O&M costs for the first season after rehabilitation.

52. **Training and equipment for youth to engage in irrigation maintenance and repair.** To ensure the close attendance of the WUOs and the irrigators in terms of maintaining irrigation equipment at local level, the Programme will provide vocational training for selected local youth in irrigation equipment repair and maintenance. It will also provide starter kit for the graduated youth to set-up an irrigation asset repair and maintenance business.

Sub-Component 1.3 Enhanced institutional capacity for irrigation development

53. **Objective.** This sub-component aims to enhance DoI capacity on irrigation service delivery, both at central and provincial level, and to contribute to evidence-based policy development in smallholders' irrigation-related issues.

54. **Activities.** This sub-component consists of two sets of activities: (i) enhancing the capacity of DoI to provide quality service to smallholder irrigation farmers; and (ii) enhancing the capacity of DoI to engage in policy dialogue on smallholder irrigation issues.

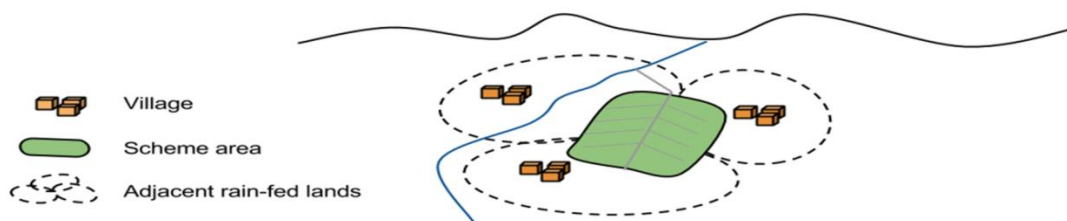
55. Enhancing the capacity of DoI to provide quality service delivery. This activity will include: a) Providing vehicles, motorbikes and funding operation costs to the DoI to enhance its service delivery capacity to smallholder irrigation farmers; b) Preparing training materials and providing training mentorship for DoI staff following a training needs assessment for DoI as well as a training sources assessment; c) Contracting specialised service providers to prepare training materials and conduct specialised training services on water management, irrigation design and construction supervision, contract management, O&M in irrigation asset management among others; d) Undertaking an inventory of smallholder irrigation schemes, with the help of a service provider, which will entail a full survey in all provinces, following testing of a template. Data collection is expected to be done by AGRITEX staff on the ground; and, finally e) Developing DoI capacity to conduct participatory feasibility studies and detailed designs of an additional 2,000 ha irrigation nationwide to provide pipeline investments in smallholder irrigation.

56. **Enhancing the capacity of participating agencies to engage in policy dialogue.** This activity involves building national capacities through testing actual evidence-informed 'policy dialogue' among relevant stakeholders – government, representatives of farmers, WUOs and the private sector, on three issues: (i) formalize the status of IMCs to become legally recognized WUOs with certified rights to water and land; (ii) clarify irrigation assets ownership; and (iii) revise water pricing for smallholder irrigation. It is also noted that the policy dialogue could be adjusted to any issue connected to locally identifiable and agreed policy matters on smallholder-irrigated agriculture that IFAD or the GoZ wants to address.

Component 2 Climate-smart Agriculture and Market Access

57. **Objective.** The objective of this component is to achieve sustainable crop production and farm competitiveness and profitability. This component will target both the irrigated areas, as well as the adjacent lands which belong to the same villages engaged in the irrigation scheme, called the adjacent rainfed areas (see example in Figure 1).

Figure 1: Sketch of irrigation scheme with the adjacent rainfed areas



58. A major thrust and principle for engagement for SIRP is to enhance participation, ownership and to give control of decisions to local community groups. This subcomponent builds on the participatory assessments carried out under sub-component 1.1, to arrive at participatory selection

and planning of interventions. For the irrigated area, these interventions are contained in the scheme *Revitalization Plan*, linked to other interventions aimed at rehabilitation of irrigation infrastructure and at irrigation management. Agriculture productivity, natural resources management and market led interventions will be specified in a *Greater Scheme Agricultural Plan*.

59. **Activities.** This component will be implemented through three sub-components: (i) Enhanced agricultural practices and farmers' organizational capacity; (ii) Market access and rural financial services; and (iii) Enhanced institutional capacity for market-led production.

60. AGRITEX will lead the implementation of the component, which will also involve other relevant government departments, while contracting different service providers. As market opportunities will influence production choices, input suppliers and off-takers will also provide capacity building to ensure sustainability and good market access.

Sub-Component 2.1 Enhanced agricultural practices and farmers' organizational capacity

61. **Objective.** This sub-component aims at empowering targeted farmers to improve their agricultural practices and sustainably increase productivity and efficient use of natural resources. To do so, SIRP will focus on: (i) Participatory natural resources mapping; (ii) participatory planning, monitoring and evaluation; (iii) promotion of good agricultural practices; (iv) Natural Resources Management Facility will provide matching grants to farmer groups in adjacent rainfed areas for the implementation of income generating activities that utilises natural resources in a sustainable manner and also complement soil and water conservation technologies; and (v) promotion of nutrition education and gender equality, and economic empowerment.

62. **Participatory Natural Resources Mapping.** The first set of activities under this sub-component will include the following steps: a) *Initiating or revitalizing environmental subcommittees* under the Village Development Committees (VIDCOs) environmental subcommittees, a participatory diagnostic will be carried out including committee and village members to identify opportunities for improvement. All environmental committee members will receive training to carry out their duties; and b) *Participatory natural resource and productivity mapping.* SIRP will assist the environmental committee to lead a process of NRM planning, starting with a participatory identification and mapping of natural resources and current production systems in the village area, including soil sampling. Based on the mapping, participants will be assisted to identify challenges and opportunities in using the natural resources they share.

63. **Participatory Planning, Monitoring and Evaluation.** This second set of activities concerns the development of the Revitalization Plan and the Greater Scheme Agricultural Plan and includes: a) *Exchange visits.* Exchange visits will be organized for selected representatives to nearby villages that have successfully implemented natural resources management and good agricultural practices; and b) *Participatory planning.* Based on the results of the exchange visits and the natural resources mapping, communities will prioritize and select interventions for their own lands, including soil and water conservation measures, management of stream bank cultivation, good agricultural practices, wildlife management and grazing land management practices. The outcomes of this exercise will be documented in the Revitalization Plan and the Greater Scheme Agricultural Plan.

64. **Good Agricultural Practices.** SIRP will support pluralistic extension services delivery to promote the adoption of good agricultural practices. Interventions promoted by SIRP under this sub-component will be tailored to the specific situation. Implementation in rainfed areas will include a) *establishment of Farmer Field Schools (FFS)* to increase community coherence and stimulate discovery based learning; b) *training on the adoption of Good Agricultural Practices (GAPs)* including use of quality seed of improved varieties, timely planting and weeding, integrated soil fertility management, appropriate use of fertilizers, integrated pest management and water-nutrient use efficiency; c) *Natural Resources Management Facility:* SIRP will support training of beneficiaries and through NRNF, matching grants would be provided for farmers in adjacent rainfed areas to undertake income generating activities that utilises natural resources in a sustainable manner and complement *soil and water conservation* technologies. Beneficiaries will contribute 10 per cent of the total cost of

investment in cash, provide labour and set aside O&M funds. Farmers would also be trained in GAPs, business management training, *Climate-Smart Agriculture (CSA)*, including sustainable agriculture practices, enhancing resilience and adaptation to climate changes, implementation of traditional techniques, such as mulching, intercropping, conservation agriculture, and pasture and manure management; and business management training. In some cases additional physical and biological measures such as vegetated contour bunds, hedgerows and gully plugs will be undertaken as part of the implementation of the income generating activity. The income generating activities will be identified in the Greater Scheme Agricultural Plan.

65. **Implementation of demonstration plots on irrigation schemes.** The SIRP will facilitate trainings in agronomy and establishment of demonstration plots on irrigation schemes, focusing on profitability of the action, adaptation to a quickly changing environment driven by market and a more individualistic approach. Demonstration plots will present different trials conducted by farmers on crops and varieties identified during the need assessment.

66. **In-depth training in agronomic practices, use and procurement of input resources** will be provided to Representatives of the Agriculture Committee on selected schemes. Each farmer business group will designate a Representative for Agriculture Committees for respective schemes. These will act as focal points for information transfer from different stakeholders approaching the scheme to individual farmers in their respective groups.

67. **Promotion of gender equality, and economic empowerment.** Gender mainstreaming will take place within all the activities under SIRP. However, this sub-component will address gender equality and nutrition through (a) facilitating and strengthening women's organizations; and (b) promoting good nutrition. *Promotion of Gender Equality:* while SIRP will ensure gender equality mainstreaming in all the activities, specific project interventions will include: a) Prepare a gender training manual, with a specific section on HIV and conduct gender sensitisation course for key staff of service delivery organisations to promote women representation in WUO and Farmers Organizations; and b) Assist women farmers and women farmers in leadership positions (in farmer's organisations, management committees) to hold annual forums.

68. **Promotion of good nutrition** will be achieved through nutrition education and demonstration of nutrition gardens, food fairs, cooking and feeding demonstrations. *Nutrition education:* SIRP will engage the services of a nutritionist to develop a training module on basic nutrition education that will be integrated into the training program. This would assist to raise awareness of communities to improve access to local foods and diversify family diets for better nutrition in rural communities including the nutrition for the HIV infected and affected people. *Demonstrations of nutrition gardens* can enhance availability and diversity through food grown and income generated from surplus sales. The project will establish demonstration gardens of the 125 irrigation schemes and the adjacent rainfed area. *Food fairs and cooking/feeding demonstrations.* Each irrigation scheme and adjacent rainfed area will hold a food fair on a rotational basis at provincial level. The aim is to improve access to local foods and diversify family diets for better nutrition of rural communities.

Sub-Component 2.2 Market access and rural financial services

69. **Objective** is to improve farm profitability and household incomes by increasing market access and linkages between the different value chain actors. It will target smallholders in selected irrigation schemes and adjacent rainfed area. **Activities.** This sub-component will consist of five sets of activities: i) Rural Financial Services; ii) Broad-based training in agribusiness development and marketing; iii) Brokering market linkages and information access; iv) Post-harvest management training and demonstration of low-cost assets; and v) Rehabilitation of feeder roads, including small bridges. This sub-component will be led by AGRITEX and will involve private sector actors.

70. **Rural Financial Services.** This activity aims at improving access to and use of adequate financial services by the target population. This will be achieved through two interventions: a) *Training in Financial Literacy.* A specialised service provider will be recruited to undertake a needs

assessment, develop a curriculum for the main trainings and an implementation and roll-out strategy. The training will strengthen the capacity of farmers and their organizations to: (i) manage their farm-household cash flows; (ii) analyse the profitability and cash flows of productive farm and non-farm activities/enterprises/investment opportunities; (iii) make optimal use of existing financial services for household and business needs; and (iv) engage in community-based finance and with financial service providers and other financiers; and b) *Community-Based Finance Institutions Development*. The programme will enhance the capacity for local resource mobilisation by strengthening CBFIs such as Internal Savings and Loan Groups (ISALs), savings clubs, and Savings and Credit Cooperative Organisations (SACCOS). Based on an initial stocktaking of existing CBFIs promotion plans for each cluster of schemes will be developed and implemented. Based on this inventory, several specialised service providers will be contracted to implement plans for each cluster of schemes for upgrading CBFIs and increasing their numbers. Possible activities include the creation of new ISAL groups, strengthening of existing groups and creation of local apex structures (clusters), transformation into more formalised financial institutions such as SACCOS, and linkage of CBFIs to formal financial institutions (banks and MFIs).

71. Broad-based training in agribusiness development and marketing. This activity will focus on short term capacity building of farmers on schemes and adjacent rainfed area. A specialised technical service provider will undertake a capacity needs assessment of different target group segments develop a training curriculum and a roll-out strategy. Two types of training will be provided, depending on location: a) *Training for farmers on irrigation schemes*. A general training on business skills, management best practices and product quality standards demanded by the market will be available to all farmers in the project area. A separate, more in-depth training will be provided on business management and marketing to each scheme's marketing committee; b) *Training of targeted community members in adjacent rainfed area* to promote the development and improved management of farm and non-farm businesses for rainfed farmers through enhanced business skills. Training will include agro-processing, commercialization, as well as non-farm activities like tinsmiths, mechanics, carpentry, and the provision of other services. Sound business proposals will then be connected to emerging micro businesses, farmer business groups, schemes and clusters.

72. Brokering market linkages and information access. The programme will engage with the different value chain actors to ensure that farmers produce what the markets demand in terms of quantity, quality and frequency. To achieve this, SIRP will contract one or more Business Development Service Providers (BDSP), with ample experience in Zimbabwe to a) *Establish farmer business groups*: Farmers in each scheme will be grouped into business groups of 5 to 15 members for better engaging with the markets. Appropriate business models will be chosen for each scheme based on distance to markets, group cohesion and experience. Different modalities of supply contracts will be discussed including the provision of high-quality inputs in line with market demand, either on a cash-upon delivery or on a credit basis, as well as forward contracts specifying volumes, qualities and prices; b) *Establish value chain platforms*: The value chain platforms are housed at scheme or cluster level, occupy a physical space where producers, buyers and financial institutions can meet. Regular meetings of stakeholders can increase understanding of the market and improve the quality and adherence to supply contracts. This space will be equipped with the necessary hardware to facilitate the club's activities; c) *Improve information flow between the different value chain actors*: The programme will focus on improving the capacity of farmers to access market information in a timely manner. This will be achieved by adopting already existing information technology communication platforms at national level and by helping farmers to actively participate in the electronic market platforms available. Finally the BDSP will *Empower AGRITEX presence at the scheme level* to i) assist farmers in measuring and reporting the correct information regarding production volumes, crop development, product quality. This will improve the functioning of the market once it is introduced in the electronic platform; ii) collect, analyse and report on this information to the relevant departments in MAMID.

73. Post-harvest management training and low-cost assets. SIRP will support the introduction of appropriate post-harvest technologies and infrastructure at scheme levels and train farmers in

performing these activities, in close relationship with off-takers, this will involve: a) *Building of a multipurpose post-harvest management centre (pack-shed)*: including storage, cold room, gathering place, housing the business clubs, which will be owned by the scheme members and managed by the scheme marketing and business committee. This will be cost-shared between farmers, the project, and wherever possible, the private off-takers; b) *Piloting and promoting different innovative low cost technologies* for storage and processing of perishable products at irrigation scheme level and cluster level, with financing from the project through a matching grant. An inventory of available technologies will be prepared in collaboration with off-takers, as well as training to meet market requirements; c) *Training of youth as artisans to provide post-harvest value addition services*: To ensure the sustainable adoption of the piloted technologies, the programme will support local suppliers of spare parts and other material used. This will create demand for non-farm products and services in the rural areas and thus provide opportunities for non-farm job creation. The programme will provide local youths and artisans with vocational training in post-harvest value addition activities such as product handling, storage, and transport.

74. **Rehabilitation of roads.** One of the main hurdles faced by smallholders is how to take their produce to markets or how to attract off-takers to collect the produce at farm gate. Acknowledging this situation, and with a view to improve logistics and decrease marketing costs, SIRP will engage in the rehabilitation of the last mile feeder roads connecting the scheme to the main road. The rehabilitation will focus to addressing critical bottlenecks, such as drainage, gravel filling potholes, culvers, small bridges as an integral part of developing the irrigation schemes. This will be undertaken by a private contractor or Rural District Council, Ministry of Local Government and Public Works to be supervised by District Development Fund (DDF). Two activities would be undertaken: a) *Design and supervision for road rehabilitation*: DDF would be responsible for the design and supervision of the 100km road rehabilitation programme and b) *Rehabilitation works for roads*: DDF would contract Private Sector Providers to undertake the works. DDF would be responsible for supervising the contract.

Sub-Component 2.3 Enhanced institutional capacity for market-led production

75. This sub-component will include the provision of training and mentorship, vehicles and other equipment and the funding of operating costs. In addition, the programme will build the capacity of participating agencies to engage in policy dialogue on issues affecting smallholder farmers in market access and natural resources management. The policy issues to be discussed include among others: (i) trade policy instruments and how these facilitate access to foreign markets investment incentives; and (ii) integration of multiple water use provisions into the design of irrigation schemes.

76. **Objective** of this subcomponent is to improve the quality of service provision to smallholder irrigators among the government agencies. This will be achieved through the provision of technical assistance, activity-specific training, material support and the funding of incremental operating costs.

77. **Activities.** This sub-component consists of two sets of activities: (i) enhancing the capacity of AGRITEX and others to provide quality service delivery to smallholder irrigation farmers; and (ii) enhancing the capacity of AGRITEX to engage in policy dialogue on smallholder irrigation issues.

78. **Enhancing the capacity of AGRITEX and other departments** to provide quality service delivery will be achieved through: a) Provision of vehicles, equipment and material as well as funding to finance incremental operating costs associated with the involvement of AGRITEX and other government departments in SIRP activities; b) *Training needs assessment and Training and mentorship for AGRITEX staff and others*. The PCU will engage the services of a consultant to carry out a training needs assessment for the key implementing agencies (AGRITEX, Economics and Markets (EMA), Climate Change Management and Agriculture Marketing Agency (AMA)). Specialised Technical Assistance, mainly from the service providers, would be hired to prepare training material and provide training to approximately 500 AGRITEX staff and other government service providers on a variety of identified courses. Training is envisaged mainly at two levels, a) inter-agency training course on Participatory Methodologies in Scheme Planning and Design, Training for Transformation, Gender Sensitisation, Environmental Impact Assessment, and Monitoring and Evaluation and

Knowledge Management; b) Technical training for AGRITEX staff covering a range of technical aspects of good agronomic practices such as: water management; farming as a business, agronomy foundations, horticulture, extension methods, soil and water conservation; post-harvest management and value addition, marketing; and c) Conducting study tours and exchange visits to other countries with successful experience in participatory irrigation management or successful smallholder horticulture production and marketing will be organized by the PCU. In addition, the project would provide funds for the hire of buses for Local “look and learn” visits on FFS and exchange visits with similar on-going projects.

79. **Engaging AGRITEX and others to engage in policy dialogue.** The aim is to promote policy dialogue among key stakeholders in targeted area, on issues affecting smallholder agriculture. With regards to natural resources management, potential topics for policy dialogue will be (i) the effective and cost-efficient implementation of environmental and social management plans (ESMPs); (ii) integration of multiple water use provisions into the design of irrigation schemes; (iii) innovative methods for prevention of livestock intrusion into irrigation schemes; and (iv) multi-benefit approaches to soil and water conservation. With regards to market access and competitiveness, policy dialogue would be centered on the themes of (i) trade policy instruments and how these facilitate access to foreign markets; (ii) fiscal incentives to investment, namely duty and tax exemption for the importation or purchase in the domestic market of machinery and other inputs; (iii) incentives for private companies to engage with smallholder farmers; and (iv) main cost-drivers of Zimbabwean agriculture, namely those that most affect smallholder farmers, and the creation of a roadmap to improve performance.

D. Lessons learned and adherence to IFAD policies

80. **Lessons learned** from IFAD investments in the country are limited because of the long break in engagement. However there are some key lessons from past irrigation projects, as follows:

- (a) The key determinants for well performing irrigation schemes in Zimbabwe include: Use of inputs/fertilizers, reliable water supply, larger farm sizes, use of improved technology (incl. seeds), mechanisation and organisational level of farmers regarding scheme management including O&M.
- (b) Value crops need to be promoted of staple crops to ensure scheme viability. Crop choices vary by farming category and natural region. It is critical to link farmers to markets and/or value addition opportunities, to ensure that productivity enhancement lead to net income increase for farmers.
- (c) Demand driven approaches to irrigation scheme investments should be promoted and farmer contributions should be in cash, rather than in-kind to enhance ownership and sustainability of irrigation schemes.
- (d) Need for a legal and policy frameworks for the registration of water users organisation in Zimbabwe to increase chances for the schemes to be viable and sustainable.
- (e) Including rehabilitation of micro-catchment areas is essential for the sustainability of irrigation schemes. Enhancing the working of the catchment and sub-catchment councils can help in the protection of catchment areas, hence mitigating risk of reduced river flows.
- (f) Inadequate water availability is a major contribution to decreased crop productivity. In general, one third of all farmers in Zimbabwe indicate that water access is not secure, both in quantity as well as in timing, while farmers in communal schemes and gardens suffer most from water availability insecurity.
- (g) Poor repair and maintenance of irrigation infrastructure was observed as a problem in all irrigation categories. Farmer ownership of scheme infrastructure leads to improvements in O&M. For communal irrigators, the ownership of infrastructure between scheme members/ farmers, IMC and DoI needs to be clarified.

- (h) Land tenure insecurity is an underlying issue leading to low performance of the irrigation sector. The communal and garden schemes are under communal tenure system, where land is communally owned and no title is issued to plot owners in gazetted irrigation schemes. Highest yields are shown in Gardens and lowest in communal irrigation projects. Land utilisation is higher for smaller sized schemes than larger schemes. Smaller irrigation schemes seem to be more sustainable than bigger schemes.
- (i) Schemes that do not have substantial government support seem to perform better than those who have. They show higher yields, a higher percentage of produce sold, and higher value crops grown by the farmers. Peri-urban gardens supply a considerable amount of vegetables to Harare and other urban centres around the country, with no or minimal government support.
- (j) Ensure institutional sustainability, through clearly defined roles and responsibilities. Existing agencies/institutions/systems should be used, to the extent possible, and where necessary, strengthened. Ensure that programme coordination, management and implementation arrangements recognise the roles and responsibility of lower levels of government, such as RDCs, to enhance chances of sustainability.
- (k) Improve coordination of the support by various Government department, such as AGRITEX, DoI and other government departments, to avoid a lagging of support for agriculture development due to over-emphasis on infrastructure development.
- (l) Promote a change of mind-set among support service personnel and ensure adoption of work methods which both stimulate the participation of beneficiaries throughout the development process to enhance ownership by communities.

81. **IFAD policies.** IFAD Strategic Framework 2016-2025 strategic goal is to 'enable rural households and communities to gain increasingly remunerative, sustainable and resilient livelihoods that help them permanently move out of poverty and food insecurity'. To achieve this, IFAD will focus on three interlinked and mutually reinforcing strategic objectives:

- (a) **Strategic Objective 1: Increase poor rural peoples' productive capacities** – investing in rural people, especially the most vulnerable, to improve their skills to become more productive farmers, fishers, or artisans;
- (b) **Strategic Objective 2: Increase poor rural peoples' access to markets** – increasing poor rural peoples' access to and integration in markets for goods, services and wage labour both in agriculture and in non-farm activities on a sustainable and profitable basis;
- (c) **Strategic Objective 3: Strengthen the environmental sustainability and climate resilience of poor rural peoples' economic activities** – strengthening rural people's ability to be able to adequately take care of the environment in which they live while, at the same time, benefiting from it.

82. **SIRP is aligned with all three Strategic Objectives.** The programme will increase poor rural people's productive capacities (SO1) by providing them with access to irrigation water, training on irrigated agricultural practices, and training on good agricultural practices for farmers in rainfed areas. The programme will increase target beneficiaries' access to markets (SO2) by providing broad-based training in agribusiness development and marketing, by brokering market linkages and by providing low-cost post-harvest training and assets. Finally, the programme will strengthen the environmental sustainability and climate resilience of target beneficiaries' economic activities (SO3), by promoting community-based natural resources management, and by making them less dependent on climatic variability.

83. **Targeting and gender and women economic empowerment policy** – SIRP will target productive poor smallholders that are currently engaging in irrigation as well as poor and vulnerable smallholders engaged in rainfed farming in the greater scheme areas around targeted irrigation schemes. The programme will further target at least 2,000 youth who will be involved in production, aggregation, marketing, service provision and build small and medium-scale businesses along the

irrigation value chain. Women will account for at least 50 per cent of the target, in line with their participation in irrigated agriculture.

84. **Rural finance policy** – SIRP will support a number of demand-driven and innovative approaches to rural financial services, including (i) strengthening financial literacy and community-based microfinance; (ii) technical assistance to selected financial service providers to strengthen their capacity to service smallholder farmers; and (iii) encourage risk-sharing through a partial guarantee facility for selected financial service providers.

85. **Improving Access to Land and Tenure Security** – SIRP will engage in existing schemes and the rainfed areas surrounding these schemes. SIRP follows national priorities to support poor smallholder farmers and follows the “do-no-harm” principle, ensuring that no vulnerable groups are negatively affected and avoiding elite capture. SIRP will support community-based natural resources management, empowering farmers to manage their land resources sustainably. Interventions will be subject to Free, Prior and Informed Consent.

86. **Environment and climate change** – The environmental and social classification of SIRP is **Category B**. The programme may have some adverse social impacts on human populations or environmentally significant areas, but these risks will be minimized through a solid site selection and scheme design process as well as through investments in the greater scheme area, and any remaining risks will be identified in the Environmental and Social Impact Assessment (ESIA) and remedied by scheme-specific mitigation measures agreed upon in the Environmental and Social Management Plan (ESMP) for each scheme. More details are available in the SECAP Review Note in Appendix 14.

III. Programme implementation

A. Approach

87. The proposed principles of engagement for programme design are:

- (a) On the basis of IFAD’s mandate, SIRP will target productive poor smallholders that are currently engaging in irrigation as well as poor and vulnerable smallholders engaged in rainfed farming in adjacent rainfed areas around targeted irrigation schemes. Approximately 50 per cent of these are expected to be women. It will be important to target a sufficiently high number of smallholders so as to bring the investment/beneficiary ratio within acceptable levels.
- (b) Without compromising on food security, the programme will support the move towards smallholder irrigated farming as a business in order to enable sufficient financial returns to targeted smallholders, long term sustainability of investment and replicability/scalability of the smallholder irrigation development approach.
- (c) Engage in a limited number of districts with higher concentration of existing schemes (clusters) and potential for future expansion. Cluster schemes to be supported in areas that optimize a combination of bio-physical, socio-economic and institutional criteria, in order to achieve economies of scale and scope, and to maximize efficiency and effectiveness of programme funds, in particular for institutional support.
- (d) Use as selection criteria the availability of water, the economic viability of their investment/rehabilitation project, and the capacity of farmer group to develop plan for operation and maintenance on the full rehabilitated area. This include their capacity to pay for water and electricity bills, and their commitment to make an initial deposit/commitment fee and/or their commitment to start repaying their debts before being eligible for programme support.
- (e) SIRP will adopt a participatory approach, whereby beneficiaries would be encouraged to take part in the various stages of the scheme development process. The programme will support farmers’ own development efforts, based on the preparation of feasibility studies by the DoI

and business plans by the farmers through their organizations, as well as willingness and ability to contribute an initial cash deposit.

- (f) Engage with the private sector (off-takers, input suppliers, financial institutions) early on in the process of prioritizing schemes to be rehabilitated, in order to ensure viable linkages with in- and output markets and support services during implementation.
- (g) Investment to be made on a cost-sharing basis, with capital expenditure being mainly financed by the programme, while farmers have to cover full O&M of their scheme, including cost of water and depreciation of (movable) equipment.
- (h) Prioritize rehabilitation of existing schemes, while verifying adequate water availability at pre-feasibility stage, proximity of market to sell produce at a competitive price (market catchment) as well as interest of private sector and financial institutions to work with the scheme or cluster, and institutional set-up. Programme to focus on greater scheme area, by looking at irrigators farming systems, including rainfed plots around schemes. Prioritize crops that have a market and can be grown competitively by reducing costs and improving productivity.
- (i) Focus the geographical scope on Agro-Ecological Zones III, IV and V of the following provinces: Manicaland, Masvingo, Matabeleland South, and Midlands. Facilitate improved coordination between departments at local level, through joint planning and coordination of activities in priority districts.
- (j) Ensure that the capacity of Government to provide services to smallholders is strengthened, while supporting the implementation of different business model and business relations between farmers and private sector, including contracting out of key services to irrigators/farmers, including to improve group capacity, productivity and organization of production, linkages to input and output markets, provision of agricultural credit and reduction of post-harvest losses as well as access to rural financial services.

B. Organizational framework

88. SIRP implementation will involve various government institutions and partners, including private sector providers that will play different roles at various levels for effective delivery of programme benefits to the intended beneficiaries. Implementation of the Programme will be governed by four main principles: a) alignment with the Government of Zimbabwe systems and procedures, especially those governing public expenditure management and procurement; the programme implementation agencies will be responsible for implementation of their components and would be supported to ensure their capacity to deliver on their mandates; b) greater empowerment of beneficiaries to take a leading role through their grassroots institutions in programme implementation; c) cooperation with the private agricultural service providers and various players in the priority agricultural commodity value chains; and d) stronger partnerships and harmonization with the Government's development partners and other stakeholders in the sector.

89. The key delivery ministries include: Ministry Agriculture, Mechanisation and Irrigation Development (MAMID); Ministry of Lands and Rural Resettlement (MLRR); Ministry of Rural Development, Preservation and Promotion of Culture (MRDPPC); Ministry of Finance and Economic Development (MoFED); Ministry of Environment, Water and Climate (MEWC); Ministry of Small and Medium Enterprises and Cooperative Development (MSMECD). Other key institutions include: Department of Irrigation, Department of Economics and Markets, AGRITEX, Rural District Councils (RDCs), Agricultural Marketing Authority, Department of Research and Specialist Services, ZINWA/ Catchment Councils Private Services Providers and Water Users Groups.

90. **Programme oversight** a multi-sector stakeholder Programme Steering Committee (PSC), chaired by the Permanent Secretary of MAMID, will be established to provide overall programme oversight, direction and advice to the Programme. The aim is to: a) ensure that the Programme implementation is well coordinated and Implementing Agencies such as the DoI and AGRITEX benefit from close collaboration; b) ensure that the Programme is moving in the right direction towards achievement of its development objective; c) contribute to the higher level sector policy and strategic

goals, under ZimASSET; and d) is implement SIRP in harmonization and alignment with other Programmes and initiatives in the sector. The PSC will be made up of representatives of the principal stakeholders including ministries relevant to SIRP, farmer organizations, and the private sector. These include: MAMID, MLRR, MRDPPC, MoFED, MEWC, MSMECD, IMC, farmer organisations, selected number of Civil Society and Private Sector Providers. The PSC will meet bi-annually to review and approve physical and financial progress, assess management effectiveness, decide on corrective measures where appropriate, review lessons learned and good practices, and approve AWPBs and Programme Procurement Plan.

91. At provincial level, the coordination of programme activities would be through the Provincial Agricultural Committee, which is the subcommittee of the Provincial Development Committee chaired by the Provincial Administrator. Coordination of programme activities at district level would be effected through the District Agricultural Committee, which is a subcommittee of the Rural District Development Committee chaired by the District Administrator.

92. **Programme coordination.** The Programme Coordination Unit (PCU) will be established at MAMID and report to the PS; its main task is to coordinate programme implementation – with the implanting agencies (DoI and AGRITEX) and serve as the secretariat to the PSC. It would be comprised of full time competitively recruited staff for the duration of the programme and be established under the Department of Economics and Markets in MAMID, who would be responsible for the recruitment of the PCU staff and would provide the PCU with office space. The PCU will consist of a: Programme Coordinator, Monitoring & Evaluation and Knowledge Management Specialist, Procurement Specialist, Programme Accountant and Administrative Assistant. In addition to the permanent staff of the PCU, there is budget provision to strengthen the skill mix of the PCU through recruitment of short term technical assistance in different areas, depending on the need.

93. The Programme Coordinator and his/her team will work closely with the two Principal Directors for Irrigation and Mechanization, as well as for AGRITEX, and will report to the Permanent Secretary of MAMID through the Director of Economics and Markets. The PCU will be responsible for day to day management of the programme, consolidation of AWPBs, Procurement Plans, Progress and Financial Report as received from the districts and implementing entities and co-ordinate the procurement of goods, works and services. The PCU will also take charge of monitoring and evaluation and provide support to implementation and supervision missions. The PCU will be the Secretariat of the PSC.

94. **Programme implementation** agencies would be responsible for the implementation of their components in collaboration with relevant partners and would be supported to ensure their capacity to deliver on their mandates. At the scheme level, emphasis will be given to training of WUO and their IMCs in order to improve scheme management and operation efficiency and prepare the WUOs for management transfer. Emphasis would also be given to the cooperation with private agricultural service providers and various players in priority agricultural value chains. The PCU will be responsible for efficient and effective coordination of the stakeholders involved under the programme.

95. **National Level** – the recipient will be the Government of Zimbabwe represented by Ministry of Finance and Economic Development (MoFED). The lead Implementing Agency will be the Ministry of Agriculture, Mechanisation and Irrigation Development (MAMID) under the leadership of the Minister of Minister of Agriculture, Mechanisation and Irrigation Development, with the support of the Permanent Secretary. The MAMID will oversee programme implementation; ensure that it is aligned with sector priorities and complements the programmes/projects and initiatives of the other development partners supporting the sector.

96. **Province level:** The implementation of SIRP shall largely focus at district level, but there are practical limitations in directly coordinating so many districts. As a solution to this problem, a full time Provincial Facilitator (PF) will be competitively recruited for each of the 4 targeted provinces of Manicaland, Masvingo, Matabeleland South and Midlands; their recruitment will be approved by the PSC. The PFs will report to the Programme Coordinator, and will coordinate the activities of implementing agencies through the districts. The PF will participate in the Provincial Agriculture

Committee (PAC), which is a subcommittee to the Provincial Development Committee (PDC) chaired by the Provincial Administrator. The PF will work closely with the Provincial AGRITEX Officer, Provincial Irrigation Engineer and Provincial Mechanisation Engineer, who are also members of the PAC.

97. **District level:** At district level, each implementing agency will deliver the tasks as per AWPB. The PF will work closely with the District Agriculture Extension Officer and the District mechanisation Officer at district level. Coordination at district level would be achieved through the District Agricultural Management Committee (DAMC) at district level, which is a sub-committee of the Rural District Development Committee, chaired by the District Administrator. By working with the District Agriculture Extension Officer, the Programme Facilitator will maintain closer links between SIRP and the existing mechanisms for technical coordination at district and sub-district level, (i.e. the Rural District Development Committee and its sub-committees). The PF will work closely with district level implementing agencies to develop work plans, coordinate with other stakeholders, report on progress and monitor implementation.

C. Planning, M&E, learning and knowledge management

98. **Programme M&E.** The SIRP's approach to planning, M&E and knowledge management system will be developed with a view of building on the strengths and avoiding the weaknesses of the current government system and the other smallholder irrigation Programmes in Zimbabwe. The framework has been developed to ensure compatibility with the Government of Zimbabwe; particularly the ZimASSET as well as the IFAD policies and tools, such as the IFAD Results and Impact Management System (RIMS). In this regard, high level outcome indicators for the SIRP have been aligned to the high level impact indicators for the ZimASSET, as the SIRP is seen as a significant intervention that should contribute to the development efforts of the country. The logframe also takes into account RIMS indicators, at impact, outcome and output level.

Planning

99. The main tools for SIRP planning, will comprise the updated logframe, M&E framework including its indicators and targets, and the Results Based Annual Workplan and Budget (RB-AWPB). The logframe provides the indicators and the targets of the overall programme implementation from output over outcome, development objective to impact levels. The RB-AWPB will break up these physical targets by year and attach financial resources (IFAD grant, OFID loan, Government budget) to them. The RB-AWPB shall present financial and physical outputs and outcomes of the programme for the given year, and reports on the accumulative achievements. The execution of the RB-AWPB will be monitored along the M&E framework of the programme and reported back in regular intervals from quarterly to semi-annuals reports. The cycle of planning, monitoring and reporting is essential for efficient management of the programme and for achieving the results as agreed.

Monitoring and evaluation

100. The M&E system is designed to generate comprehensive and reliable information, to improve planning and decision-making for effective managing SIRP towards results and impact. It will be used to inform performance of the SIRP with the PCU having the ultimate responsibility for the proper function of the M&E system for the program. The programme's M&E system is designed to offer comprehensive and reliable information to improve planning and decision-making for results-based management. Results generated from the RIMS indicators are reported back directly to IFAD, once a year. Both, programme and RIMS indicators, at each level will be used to manage the programme and assess its progress and achievements.

101. The logical framework would constitute the basis for results-based M&E, and include an initial list of indicators to track progress and achievements. This list can be updated during project implementation. All M&E data, analysis, and reporting would be disaggregated by gender, M&E activities would be based on the IFAD Guide for Project M&E.

102. **Programme Baseline Study.** A baseline will be designed and carried out at programme start-up in areas with pre-identified schemes. Baselines will be scheme-specific as per outcome of the selection process. The baseline studies will form the basis for assessing programme effectiveness and results achievement. The household survey shall be repeated at mid-term (PY 3-4) and by programme completion. These repeated measurements will allow obtaining the required data and information for assessing the performance and achievements of the programme over time. Baseline studies include the target group and a control group, and will incorporate the Multi-dimensional Poverty Assessment Tool (MPAT). This will be essential to determine the attribution of results to programme activities. In addition, SIRP will conduct an impact evaluation at end of the programme with a specific focus on gender to inform modifications of interventions for greater impact on women's empowerment.

103. **Reporting.** Three reports would be produced: (i) a quarterly progress report by each IP and service provider; (ii) a semi-annual progress report; and (iii) an annual progress report. The programme logframe includes the draft indicators against which project performance would be monitored and the sources of data to be used; these indicators would be discussed and agreed at project start-up. Each programme participant would issue the set of three reports that would be consolidated by the PCU, reviewed and approved by the PSC prior to its submission to IFAD, the Government and co-financiers.

104. **Start-up workshop.** MAMID will organize a SIRP start-up workshop, with the aim of sensitising all potential stakeholders' service providers and beneficiaries regarding programme objectives and scope, roles and responsibilities. The workshop's timing and agenda will be agreed between Government and co-financiers. The objective is to obtain a full buy-in and ownership of SIRP by all stakeholders. The programme design report needs to be disseminated widely from national to community levels, and relevant key persons should be invited to the workshop.

Learning and knowledge management

105. **Learning system.** SIRP learning systems comprise monthly, quarterly, bi-annual and annual review meetings/workshops, capturing information on progress, lessons and finding solutions for implementation constraints at different levels. These review platforms will serve as a learning event, as well as to monitor and influence the process through which results are supposed to be achieved. Minutes/short report from each workshop will capture workshops results and provide feedback that would be factored into the programme's AWPB for the succeeding year, thus closing the circle of participatory, demand-driven planning and implementation.

106. **Innovations and lessons learnt.** SIRP would rollout a number of new and innovative approaches in the area of: (a) irrigation schemes feasibility studies; (b) rehabilitation and revitalization of smallholder irrigation schemes; (c) village level natural resources management plans; (d) improved farmers organization and marketing; (e) improved access to markets, and better returns; and (f) better link to financial services, through access to savings and credit.

107. **Communication.** SIRP will provide space for capturing, documenting and disseminating of programmes' lessons and innovations using different technologies. It will involve both internal and external communication. Within the programme, the KM function will closely work with the M&E system to support the capturing, documenting and sharing of information and lessons. The programme will document and distribute proceedings of the internal learning events. Financial management, procurement and governance.

D. Financial management, procurement

Financial Management

108. The financial management arrangements will, to the extent feasible, be mainstreamed within the Government of Zimbabwe systems. The financial management assessment has shown that the Government systems have potential to provide adequate controls and ensure proper management of programme funds. It is however noted that this will not happen in the first two years of programme

implementation as a number of aspects of the Public Financial Management systems are undergoing review and enhancement. It is therefore expected that mainstreaming will be progressively achieved during the life of SIRP.

109. Funding from IFAD will be administered through a separate designated account that will be opened solely to receive Programme funds from IFAD. MAMID's Director of Finance and Administration will be responsible for ensuring existence of adequate financial management arrangements throughout SIRP implementation. The operational day-to-day financial management functions including budgeting, accounting, funds flow management, internal control, financial reporting, and ensuring timely external audits will be the responsibility of a Programme Accountant overseen by the Chief Accountant, Department of Irrigation (DoI), MAMID and assisted by assigned Accountants at Head office and in the programme provinces.

110. To provide assurance of strong internal controls, MAMID will ensure regular internal audit activity provided by the internal audit unit of the Ministry. Supervision missions would report on the activity of the internal audit with respect to SIRP by reviewing their reports and assessing management's responsiveness to any recommendations formulated. Internal controls will also be verified during the annual audit exercise by external audit and reported to IFAD in a management letter, in line with IFAD's audit guidelines.

111. In compliance with IFAD's General Conditions, SIRP financial statements shall be audited on an annual basis in accordance with IFAD audit guidelines. The audit reports together with the related management letters shall be submitted to IFAD no later than six months after the end of each fiscal year. Financial management arrangements including, staffing, budgeting, accounting, funds flow, disbursements, financial reporting, internal controls and auditing are detailed in Appendix 7.

Procurement

112. Procurement will be governed by the Procurement Act of the Republic of Zimbabwe and the related procurement regulations under statutory Instrument 171 of 2002. The overall public procurement responsibility and regulation rests with the State Procurement Board. As defined by the procurement regulations, the power to make procurement decisions at a procuring entity level rests with the accounting officer or delegated personnel within the entity's limits of procurement thresholds.

113. The operational day-to-day procurement functions including procurement planning, execution of procurement actions and reporting will be the responsibility of the procurement unit of the PMU, MAMID supported by Administrators at Head office and in the programme provinces. To capacitate the staff responsible for procurement, a Procurement Specialist will be recruited in a performance based contract to support PMU and capacitate the staff responsible for procurement in MAMID.

114. All procurement financed from proceeds of the IFAD grant will be exempt from national and local duties and taxes. All procurement will be executed only against approved procurement plans and AWPBs, specifying items to be procured, responsibility for the procurement and the appropriate procurement methods. There will be need to improve record keeping at all levels including the beneficiary communities to facilitate verification during missions and audits in the course of implementation. Details on the procurement arrangements are presented in Appendix 8.

E. Supervision

115. The SIRP would be directly supervised by IFAD. Direct supervision would encompass four discrete processes: (i) loan and grant administration; (ii) procurement review; (iii) audit review; and (iv) supervision and implementation support. Direct supervision would be applied as a continuous process which requires on-going communication and engagement with Government and PCU and IP management.

116. Programme supervision with focus on: a) implementation performance and progress towards objectives; b) programme investments, outputs, outcomes and impact; c) quality of AWPB, M&E and

reporting; d) effectiveness of the steering committee, programme management, implementing institutions and service providers; e) transparency and participation; and f) targeting and gender.

117. Implementation support will provide advice for the following aspects: a) efficient achievement of programme objectives; b) implementing and mainstreaming new approaches for example the integration of climate resilience as a core element across all IPs and component activities; c) addressing operational issues and problems; and d) generating lessons and articulating best practices.

118. The supervision process would guide the programme towards the achievement of strategic objectives and broader poverty reduction outcomes, while ensuring fiduciary compliance and responsiveness to the accountability framework. Several instruments would be applied to influence implementation: on-going policy dialogue with Government; adjustment of annual work plans and budgets; revision of implementation manuals; undertaking of supervision and mid-term review missions, and legal amendments as appropriate.

F. Risk identification and mitigation

119. To ensure a successful re-engagement of IFAD in Zimbabwe after a prolonged period of absence, and to ensure sustainability of the proposed interventions, high attention is given to identification and management of risks. The current programme design limits the exposure to risks, and proposes measures to manage those risks deemed acceptable or inevitable. Macro-economic and political instability, however, remains a key risk outside the control of the programme.

120. The principal risks affecting the realisation of the SIRP programme include (1) Non-fulfilment of arrears settlement; (2) Non-availability of co-financing from OFID; (3) Programme implementation delays; (4) Limited responsiveness of service providers; (5) Inability of farmers to contribute to initial commitment and operational costs; (6) Climate change and climate variability; (7) Market constraints.

121. Table 4 provides a matrix providing an assessment of the current level for each risk, and identifying the main possible consequences as well as proposed mitigation measures.

Table 4: Risk identification and mitigation matrix

Risks	Current Level	Possible Consequences	Mitigation
1. Non-fulfilment of arrears settlement	Medium to high	There is risk of the government defaulting on its repayment obligations to IFAD in respect of the recently signed debt settlement plan	The Reserve Bank of Zimbabwe and MoFED have committed to ensure liquidity to settle the arrears as they fall due
2. Non-availability of Co-financing from OFID	Medium	Insufficient finance may reduce the extent of programme investments and outreach	GoZ needs follow up closely with OFID, and confirm in writing the amount that they wish to invest
3. Programme implementation delays	Medium to High	Challenges with fulfilling contractual obligations and delays in the release of programme finance. Delays in achieving program results	PCU will hire a temporary technical assistance during start-up to help set-up the financial management system and help fulfil pre-disbursement conditions
4. Limited responsiveness of service providers	Low to medium	As a result of the difficult macro-economic situation, many service providers (government, parastatal, private sector) are operating with reduced capacity and have liquidity crisis	Capacity building of public sector service providers is embedded in the programme design. Private sector service providers will be engaged on the basis of performance based contract and will be subject to stringent supervision
5. Inability of farmers to contribute to initial commitment and operational costs	High	No sense of ownership of rehabilitated irrigation infrastructure and assets leading to poor O&M and performance	The programme will target those schemes where farmers demonstrate willingness and ability to pay
6. Climate change and climate variability	Medium to high	Investments will not be able to increase cropping intensity and higher yields. Income will not	SIRP will effectively reduce the impacts of climatic shocks, and integrate the effects of climate change into the planning and

Risks	Current Level	Possible Consequences	Mitigation
		increase and poverty will persist	design of irrigation investments
7. Market constraints	Medium to high	Uncoordinated production of crops may result in over supply and dampening of prices on the local market	SIRP will improve irrigators' access to information, promote value-addition at scheme level, and link them to established markets

IV. Programme costs, financing, benefits and sustainability

A. Programme costs

122. Total programme costs to be incurred during the seven-year implementation period, including price and physical contingencies, duties and taxes, are estimated at US\$ 51.277 million. This includes base costs amounting to US\$ 47.7 million and estimated physical and price contingencies in the amount of US\$ 2.6 million (5 per cent of the base costs). Estimated foreign exchange expenditure is about US\$ 13 million (27 per cent of total project costs), whereas duties and taxes amount to US\$ 12.33 million (25 per cent). Investment costs represent 86 per cent of the base costs, with recurrent costs accounting for the remaining 14 per cent. Programme management costs account for about 9 per cent of total programme costs.

Table 5: Programme Cost Summary by Component

	Base Cost							Total
	2017	2018	2019	2020	2021	2022	2023	
A. Sustainable Smallholder Irrigation Development								
1. Scheme Selection and Rehabilitation	219	1 583	3 985	7 135	4 262	1 707	22	18 912
2. Improved Smallholder Irrigation Management	126	702	518	864	724	1 054	506	4 493
3. Enhanced Institutional Capacity for Irrigation Development	959	170	136	169	226	122	42	1 823
Subtotal	1 304	2 455	4 639	8 167	5 211	2 883	570	25 228
B. Climate-Smart Agriculture and Market Access								
1. Enhanced Agricultural Practices and Farmers' Organizational Capacity	28	1 123	1 775	2 011	1 020	401	12	6 371
2. Market Access and Rural Financial Services	1 049	1 777	1 785	1 844	1 092	592	-	7 938
3. Enhanced Institutional Capacity for Market-led Production	1 778	466	430	397	337	259	254	3 920
Subtotal	2 854	3 366	3 991	4 052	2 449	1 251	266	18 229
C. Programme Coordination								
1. Programme Management and Coordination	1 106	653	629	585	406	385	476	4 241
Subtotal	1 106	653	629	585	406	385	476	4 241
Total BASELINE COSTS	5 264	6 474	9 259	12 804	8 067	4 519	1 311	47 698
Physical Contingencies	-	69	192	360	224	96	-	942
Price Contingencies								
Inflation								
Local	30	106	262	502	438	341	161	1 840
Foreign	7	29	115	288	233	126	0	797
Subtotal Inflation	37	134	377	790	671	466	161	2 637
Devaluation	-	-	-	-	-	-	-	-
Subtotal Price Contingencies	37	134	377	790	671	466	161	2 637
Total PROJECT COSTS	5 301	6 677	9 628	13 954	8 962	5 082	1 473	51 277
Taxes	1 625	984	1 415	1 967	1 292	757	280	8 300
Foreign Exchange	747	974	2 371	4 299	2 730	1 217	1	12 339

B. Programme financing

123. SIRP will be financed by the Government of Zimbabwe, programme beneficiaries, IFAD, and pending official confirmation, OFID. IFAD will finance 50 per cent (US\$ 25.5 million) of the programme costs on grant terms, under the Debt Sustainability Framework. The Government will finance taxes and duties (US\$ 7.9 million), representing 15 per cent of total costs¹¹. Beneficiaries will contribute 6 per cent of total programme costs, US\$ 2.869 million through financial contributions to the operation and maintenance of rehabilitated infrastructure and matching cash contributions under the Natural Resource Management Facility. It is anticipated that OFID will finance 29 per cent¹² (US\$ 15 million) of programme costs. OFID financing will cover uniquely Civil Works related expenditure (i.e. irrigation and roads).

¹¹ The estimate of taxes and duties was based on the rates in effect at the time of the design. In conformity with the principle that no taxes or duties would be financed out of the proceeds of the IFAD and OFID financing, any future changes in the rates and/or structures of taxes and duties would apply to the programme.

¹² If OFID funding does not materialise alternative sources of funding will be sought by the Government of Zimbabwe.

Table 6: Programme Financing Plan by Component

	IFAD		ORD		Beneficiaries		The Government		Total		For. Exch.	Local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%			
A. Sustainable Smallholder Irrigation Development													
1. Scheme Selection and Rehabilitation	3 751	17.8	14 194	67.3	-	-	3 143	14.9	21 088	41.1	9 826	8 118	3 143
2. Improved Smallholder Irrigation Management	2 292	47.7	-	-	1 831	38.1	681	14.2	4 803	9.4	50	4 072	681
3. Enhanced Institutional Capacity for Irrigation Development	1 479	78.5	-	-	-	-	404	21.5	1 883	3.7	146	1 334	404
Subtotal	7 522	27.1	14 194	51.1	1 831	6.6	4 228	15.2	27 774	54.2	10 022	13 524	4 228
B. Climate-Smart Agriculture and Market Access													
1. Enhanced Agricultural Practices and Farmers' Organizational Capacity	5 728	86.8	-	-	175	2.7	696	10.6	6 599	12.9	192	5 710	696
2. Market Access and Rural Financial Services	5 929	70.7	806	9.6	863	10.3	787	9.4	8 385	16.4	1 438	5 769	1 179
3. Enhanced Institutional Capacity for Market-led Production	2 833	69.6	-	-	-	-	1 237	30.4	4 070	7.9	527	2 306	1 237
Subtotal	14 490	76.0	806	4.2	1 038	5.4	2 721	14.3	19 054	37.2	2 157	13 785	3 112
C. Programme Coordination													
1. Programme Management and Coordination	3 489	78.4	-	-	-	-	960	21.6	4 449	8.7	160	3 330	960
Total PROJECT COSTS	25 500	49.7	15 000	29.3	2 869	5.6	7 909	15.4	51 277	100.0	12 339	30 638	8 300

Table 7: Programme Financing Plan by Expenditure Account

	IFAD		OFID		Beneficiaries		The Government		Total		For. Exch.	Local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%			
1. Consultancies	5 617	81.1	613	8.9	-	-	692	10.0	6 923	13.5	-	6 231	692
2. Equipment & Materials	1 892	97.1	-	-	-	-	56	2.9	1 948	3.8	150	1 742	56
3. Goods, Services & Inputs	2 122	72.2	-	-	690	23.5	127	4.3	2 939	5.7	836	1 689	415
4. Operating Costs	2 145	45.9	-	-	1 831	39.1	702	15.0	4 678	9.1	-	3 976	702
5. Salaries & Allowances	1 842	75.0	-	-	-	-	614	25.0	2 456	4.8	-	1 842	614
6. Workshops	742	85.0	-	-	-	-	131	15.0	873	1.7	-	742	131
7. Training	6 719	85.0	-	-	-	-	1 186	15.0	7 905	15.4	-	6 719	1 186
8. Vehicles	1 091	45.0	-	-	-	-	1 336	55.0	2 427	4.7	734	357	1 336
9. Works	3 329	15.8	14 387	68.1	348	1.6	3 065	14.5	21 129	41.2	10 619	7 340	3 169
Total PROJECT COSTS	25 500	49.7	15 000	29.3	2 869	5.6	7 909	15.4	51 277	100.0	12 339	30 638	8 300

C. Summary benefits and economic analysis

124. SIRP's main quantifiable benefits are (i) the increase in productivity and production that will result from investments on both irrigated and rainfed plots; (ii) improved market access leading to increased farm profitability; (iii) reduced post-harvest losses thanks to the introduction of post-harvest technologies and training in post-harvest handling; (iv) increased off-farm income through promotion of income generating activities in the greater scheme area.

125. Increases in the ratio of effective crop area harvested, to the physical area, known as crop intensity, are also estimated to occur on both irrigated and rainfed plots. A main thrust of the programme is to build smallholder farmers' capacity to move towards irrigated farming as a business in order to enable sufficient financial returns and long-term sustainability. Accordingly it is assumed that cropping patterns on irrigated plots will favour market oriented production of higher value crops.

126. **Financial analysis.** Ten crop models thought to be representative of the typical cropping patterns in the programme area were produced: (i) rainfed maize; (ii) rainfed sorghum; (iii) rainfed groundnuts; (iv) rainfed cowpeas/maize intercropped; (v) rainfed citrus/cowpeas/maize intercropped, (vi) rainfed woodlot/maize/cowpea intercropped; (vii) irrigated maize; (viii) irrigated tomatoes; and (ix) irrigated beans. Sugar beans and tomato are used as proxies for horticultural crops and crops that might be suitable for contract farming in general. Citrus and Woodlots represent potential environmentally friendly income generating crops that could be promoted in the rainfed areas under component 2.

127. For both irrigated and rainfed crops a major assumption underlying the "without-project" situation is the suboptimal access to and application of inputs, poor soil conditions, substandard farm management and poor post-harvest handling. For irrigated crops, poor access to timely and adequate irrigation water also underpins the "without-project" situation.

128. Based on prevailing farming practices, four representative farm models were developed to reflect the main types of SIRP interventions at the farm level: (i) Farms 1 & 2 (9,000ha) represent the rainfed areas, with Farm 2 representing the more arid project areas, and Farm 1 those with more rainfall. Both Farms 1 & 2 include the installation and maintenance of a rooftop water harvesting unit, which should provide households with water required for supplementary irrigation during early years of tree development; (ii) Farm 3 (4,200 ha) corresponds to those plots that will benefit from rehabilitation; and (iii) Farm 4 (800ha) accounts for expansion of irrigated area. Two activity models (beekeeping [1,000 HH] and goat rearing [1,500HH]) were developed to represent income generating activities that will be promoted by the programme.

129. On irrigated plots, an increase in cropping intensity from 100 per cent to 175 per cent is expected. Increased cropping intensity is also expected on rainfed plots as a result of increased intercropping. Table 8 below shows the cropping patterns utilised in the “with” and “without” project scenarios for each Farm model. The phasing-in of household participation in SIRP taking into account the adoption rates as presented in table 9 that follows.

Table 8: Cropping Patterns

SIRP (CROPPING PATTERNS)		Without Project	With Project						
	Unit	1 to 20	1	2	3	4	5	6	7 to 20
Farm 1 - Rainfed Farm (NR III & IV)									
Cropping intensity	%	100%	100%	100%	100%	100%	100%	100%	100%
Maize	ha	0.40	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Maize/Cowpea intercrop/a	ha	0.10	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Maize/cowpea/citrus intercrop/a	ha	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Sorghum	ha	0.25	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Groundnuts	ha	0.25	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Cropped Area	ha	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Plot Area	ha	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Farm 2 - Rainfed Farm (NR IV & V)									
Cropping intensity	%	100%	100%	100%	100%	100%	100%	100%	100%
Maize	ha	0.40	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Maize/Cowpea intercrop/a	ha	0.10	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Maize/cowpea/woodlot intercrop/a	ha	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Sorghum	ha	0.25	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Groundnuts	ha	0.25	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Cropped Area	ha	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Plot Area	ha	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Farm 3 - Irrigated/Irrigated Rev									
Cropping intensity	%	100%	175%	175%	175%	175%	175%	175%	175%
Maize (irrigated)	ha	0.20	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Sugarbeans (irrigated)	ha	0.10	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Tomato (irrigated)	ha	0.10	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Total Cropped Area	ha	0.40	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Total Plot Area	ha	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Farm 4 - Rainfed/Irrigated									
Cropping intensity	%	100%	175%	175%	175%	175%	175%	175%	175%
Maize	ha	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maize/Cowpea intercrop/a	ha	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sorghum	ha	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Groundnuts	ha	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maize (irrigated)	ha	0.00	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Tomato (irrigated)	ha	0.00	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Sugarbeans (irrigated)	ha	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Total Cropped Area	ha	0.40	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Total Plot Area	ha	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

a/ with intercropping land use goes above 100%

130. **Beneficiaries.** The programme will rehabilitate about 5,000 ha of existing smallholder irrigation schemes. The primary beneficiaries of the programme will be 25,000 small scale poor rural households (equivalent to 125,000 people), of whom 12,500 households with an average landholding

of 0.4 ha in the irrigation schemes, and 12,500 relying on rainfed agriculture and livestock with an average landholding of 1 ha within the greater scheme areas. The programme will train at least 500 extension service providers from Government departments and other organizations and create off-farm employment opportunities for approximately 2,000 youths. SIRP will implement an inclusive targeting strategy with an objective of ensuring that the benefits of the programme are distributed to a large number of smallholder poor farmers, and vulnerable members of the communities, women and the youth, directly or indirectly. Not all households will be willing or able to profit from the SIRP; adoption rates were estimated at 85 per cent on irrigated plots, 75 per cent on rainfed plots and at 65 per cent for income generating activities.

Table 9: Benefiting Households per year

	Target HH	Target ha	Project Year							Total
			Y1	Y2	Y3	Y4	Y5	Y6	Y7	
FARM 1 NR III & IV Improved rainfed (1ha)	4 000	4 000								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	75%	75%	0%	8%	15%	30%	15%	8%	0%	75%
no. of HH	3 000		-	300	600	1 200	600	300	-	3 000
cumulative no. of HH			-	300	900	2 100	2 700	3 000	3 000	
no. of ha		3 000	-	300	600	1 200	600	300	-	3 000
cumulative no. of ha			-	300	900	2 100	2 700	3 000	3 000	
FARM 2 NR IV & V Improved rainfed (1ha)	6 000	5 000								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	75%	75%	0%	8%	15%	30%	15%	8%	0%	75%
no. of HH	4 500		-	450	900	1 800	900	450	-	4 500
cumulative no. of HH			-	450	1 350	3 150	4 050	4 500	4 500	
no. of ha		3 750	-	375	750	1 500	750	375	-	3 750
cumulative no. of ha			-	375	1 125	2 625	3 375	3 750	3 750	
FARM 3 Irrigation Rehabilitation (0.4ha)	10 500	4 200								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	85%	85%	0%	9%	17%	34%	17%	9%	0%	85%
no. of HH	8 925		-	893	1 785	3 570	1 785	893	-	8 925
cumulative no. of HH			-	893	2 678	6 248	8 033	8 925	8 925	
no. of ha		3 570	-	357	714	1 428	714	357	-	3 570
cumulative no. of ha			-	357	1 071	2 499	3 213	3 570	3 570	
FARM 4 Irrigation Expansion/c	2 000	800								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	85%	85%	0%	9%	17%	34%	17%	9%	0%	85%
no. of HH	1 700		-	170	340	680	340	170	-	1 700
cumulative no. of HH			-	170	340	680	680	850	850	
no. of ha		680	-	68	136	272	136	68	-	680
cumulative no. of ha			-	68	204	476	612	680	680	
Activity Model Beekeeping (6 hives)	1 000									
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	65%	65%	0%	7%	13%	26%	13%	7%	0%	65%
no. of HH	650		-	65	130	260	130	65	-	650
cumulative no. of HH			-	65	195	455	585	650	650	
Activity Model Goat Rearing (50 Goats)	1 500									
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	65%	65%	0%	7%	13%	26%	13%	7%	0%	65%
no. of HH	975		-	98	195	390	195	98	-	975
cumulative no. of HH			-	98	293	683	878	975	975	
Totals										
Total Number of HH	25 000.00			1 675	4 795	9 590	4 795	2 398	-	
total Number of ha				1 100	2 200	4 400	2 200	1 100		
Total Cumulative HH				1 675	6 470	16 060	20 855	23 253		
Total Cumulative ha				1 100	3 300	7 700	9 900	11 000		

131. The results of the financial analysis for the different crops and farm models show positive NPV. The highest net-benefits are derived from the growing of vegetables in the plots that were previously rainfed and become irrigated after the programme.

Table 10: Incremental benefits for the considered crops and farm models (USD/ha)

Crop/Farm Models	WOP	Financial Analysis: Incremental Benefits/a (US\$)										NPV (USD) @ 10%	FIRR
		PY1	PY2	PY3	PY4	PY5	PY6	PY7	Y8	Y9	Y10-20		
FARM 1 NR III & IV Improved rainfed (1ha)	86	(78)	(19)	139	145	296	697	690	690	686	686	3 551	115%
FARM 2 NR IV & V Improved rainfed (1ha)	51	(106)	(9)	211	220	368	339	332	330	326	323	1 981	108%
FARM 3 Irrigation Rehabilitation (0.4ha)	130	370	1 464	3 216	3 363	3 363	3 363	3 363	3 363	3 363	3 363	24 229	
FARM 4 Irrigation Expansion (0.4ha)	25	540	475	1 569	3 321	3 468	3 468	3 468	3 468	3 468	3 468	22 864	
Activity Model Beekeeping (6 hives)	-	(617)	489	727	849	967	933	1 207	1 209	1 207	1 209	7 121	106%
Activity Model Goat Rearing (60 Goats)	-	(460)	(109)	45	220	755	1 035	1 035	1 264	1 154	1 074	5 476	56%

a/before family labour costs

132. **Economic analysis.** An economic analysis was performed for the total programme investment according to programme targets. The analysis is based on estimates of incremental costs and benefits associated to investments in the rehabilitation of infrastructure on selected schemes and the

promotion of good agricultural practices and agribusiness development on the irrigation schemes and in the surrounding/adjacent rainfed areas. The following factors underlie this economic analysis:

- (a) A Social Discount Rate of 10 per cent was chosen for the evaluation of this investment project. This was based on a consultation of the long term deposit rates and government bond returns in Zimbabwe.
- (b) A 20 year analysis period has been assumed which includes a seven year investment period.
- (c) Economic investment and recurrent costs are net of duties, taxes and price contingencies. All direct costs to the incremental production, such as farm inputs, operation and maintenance of irrigation infrastructure and equipment and labour are fully included. Total Economic costs are calculated as US\$ 40.7 million of which recurrent costs account for US\$ 5.4 million.
- (d) The exchange rate used in the analysis is fixed at 1 US\$ = 1 US\$ - because this is the main currency used in Zimbabwe at present, following adoption of multi-currency basket of currencies in 2009.
- (e) Market prices used in the financial analysis were corrected by eliminating the effects of indirect taxes and/or subsidies. In practical terms, this implied that for the economic analysis market prices were converted into shadow prices using appropriate conversion factors.
- (f) Unemployment rate was last estimated at 95 per cent (2009) by the CIA Fact book¹³. The same source acknowledges that under present conditions this number is impossible to be estimated. The shadow wage (SW) was then determined as $SW = (1 - 95 \text{ per cent}) * \text{wage}$.

133. Consideration of Externalities. Small-scale irrigation projects can bring a number of direct and indirect benefits. These can be associated to: increases in the value and volume of production such as raises in incomes, improved food security and nutrition, increase in household assets and savings, reduced vulnerability to shocks; generation of positive economic externalities such as job creation, increased market participation and food availability, improved social equity; improvement in environmental sustainability through adequate water and soil conservation practices (e.g. soil cover, gains in irrigation efficiency, improved drainage); capacity development, institutional strengthening, and policy changes. Some changes, such as environmental impacts can constitute a benefit but also a risk to the water users' group or to the population downstream irrigation schemes. These will be the subject of environmental assessment studies conducted prior to interventions. Due to quantification issues, neither positive nor negative externalities were quantified and included in the model.

134. **Economic rate of return (EIRR).** Given the above assumptions, the base case economic internal rate of return (EIRR) for SIRP is estimated at 22 per cent. The benefit/cost ratio is estimated at 1.98, and the payback period is 7.6 years. The Net Present Value is estimated at US\$ 30.77 million.

Table 11: Cost-benefit analysis economic indicators

Economic Net Present Value (USD) @ 10%	30 776 761
Economic Internal Rate of Return (EIRR)	22.0%
NPV benefits (USD)	60 114 163
NPV costs (USD)	30 353 622
b/c ratio	1.98
Payback period	7.6 years

135. The key risks to the success of SIRP implementation have been identified and analysed in the main report of this project design document. A sensitivity analysis was conducted on the EIRR and ENPV to determine the effect that reduced project benefits, increased project costs, or a lag in benefits could have on the economic viability of the investment (table 12).

¹³ Central Intelligence Agency. (2016). Zimbabwe. In The World Factbook. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/zi.html>

Table 12: Sensitivity Analysis

Base scenario:	Change	IRR	NPV
	0%	22.0%	30 776 761
Project benefits	-10%	20.1%	24 765 344
Project benefits	-20%	18.0%	18 753 928
Project benefits	-50%	10.4%	719 679
Project benefits	10%	23.8%	36 788 177
Project benefits	20%	25.6%	42 799 593
Project costs	10%	20.2%	27 843 020
Project costs	20%	18.7%	24 909 280
Project costs	50%	14.9%	16 108 059
1 year lag in benefits		18.6%	23 529 688
2 years lag in benefits		16.0%	16 941 440

136. The analysis indicates that the programme's profitability is robust to impacts of identified risks. Switching values were calculated for incremental benefits and incremental costs. Benefits would have to be reduced by 51 per cent, or cost increased by 113 per cent for SIRP to become economically unviable. Such variations in costs and benefits are unlikely to occur during implementation of SIRP.

D. Sustainability

137. The long-term success of investments in irrigated infrastructure is governed by a number of key factors. First, prior to investment a diagnostic study of the key issues affecting scheme performance needs to be carried out, with high level of participation by the targeted farmers. This study will identify the root causes of system failure, be it technical, social, financial or environmental, and allow SIRP to adequately target investments. Secondly, interventions should take into account larger natural resources management issues to ensure environmental sustainability. By investing in community-level Natural Resources Management in the greater scheme area, SIRP proactively deals with potential environmental issues while also ensuring a longer life time for the scheme itself. Third, adequate capacity is required to operate and maintain schemes, to manage finances and to effectively prevent or resolve any social conflicts related to access to land or water.

138. SIRP will provide significant training to farmers both in the irrigation scheme as well as in the adjacent rainfed area. SIRP furthermore recognizes that the capacity within government to deal with these issues and train farmers is currently limited due to a lack of funding and experience, and will therefore identify service providers to fill up capacity gaps while building capacity of government staff. Engagement of the programme in any scheme will be built on the premise that irrigation and rainfed farmers will need to be able to manage the scheme and natural resources independently of government support before the end of the programme. To achieve that goal, an exit strategy will be developed in the first year of the programme.

139. The climate risk classification of SIRP is Moderate. Although Zimbabwe's rural population is at high risk due to the climate change impacts, the interventions proposed under SIRP are quintessentially designed to minimize those impacts. Revitalized irrigated agriculture is a key adaptation pathway to respond to increasing (intra-) seasonal variability of water supply. Water use efficiency will be improved by reducing conveyance losses and by training farmers on irrigation water management. When designing extensions to existing schemes, increased crop water requirements due to increased evapotranspiration will be taken into account to determine potential irrigable area. Interventions in the adjacent rainfed lands aim to restore the natural resource base and use it in a more sustainable way, thereby increasing resilience to shocks. Finally, the selection of new schemes to be studied will be informed by the National Adaptation Plan currently under development, in order to select areas most crucially affected by climate change.

140. Limited potential for significant negative social and environment impact caused by the programme has been identified, and SIRP has therefore been confirmed under a "B" social and environmental classification.

141. SIRP will address sustainability by improving planning and implementation of environmentally and economically sound agricultural practices in rainfed lands, and produce longer-term environmental benefits that will increase sustainability of the irrigation schemes. SIRP's approach will be to engage directly in sustainable management of the lands directly adjacent to irrigation schemes. The programme will target a total of 12,500 hectare of rainfed land.

Appendix 1: Country and rural context background

1. Zimbabwe is a landlocked country with a total population of 14.6 million people on an area of approximately 390,757 square kilometres in the southern part of Africa. Zimbabwe is administratively organized in 10 provinces and classified into five agro-ecological regions called Natural Regions. Natural Regions I, II and III comprise of areas with high potential for agriculture and livestock production. Natural Regions IV and V are the semi-arid areas and cover about 64 per cent of the country, and are home to more than 60 per cent of the rural population. Climatic conditions are largely subtropical with one rainy season, from late October to March. Zimbabwe is one of the hotspots for climate change, with predicted increases in temperatures and rainfall variability, and increased probability of extreme events such as droughts and flash floods. Zimbabwe is likely to face its worst drought since 1992, and the UN World Food Programme has already warned that more than 1.5m people (12 per cent of the population) are likely to be food-insecure in 2016.

2. **Political context.** Relations with the international community have been difficult for years, due to the land reforms and political conflicts between opposition and government. There are positive signals of re-engagement of the international community with the Government of Zimbabwe (GoZ). In 2014, the European Union lifted its economic sanctions on Zimbabwe and in 2015, it provided a US\$ 270 million commitment for development assistance. The Government has also engaged negotiations with its international financial institutions regarding the settlement of the country's arrears, and has made progress in the implementation of its engagements. The International Monetary Fund and the African Development Bank have commended Zimbabwe's strong commitment to reforms. In December 2015, the IFAD Executive Board approved Zimbabwe's Debt Rescheduling Proposal, amounting to US\$ 23.1 million. Bilateral partners such as Denmark, United Kingdom, Italy, and the United States have fielded high level trade missions to Zimbabwe.

3. **Population and Human Development.** Zimbabwe's population is estimated at 14.6 million people (2014) and projected to grow to reach 20.3 million people in 2020. The population living below income poverty line is estimated at 72.3 per cent with a multidimensional poverty index of 29.3 per cent. This is a significant decrease from 2006 when 42.4 per cent of the population lived in extreme poverty. The 2015 Zimbabwe Poverty Atlas shows widespread poverty in rural areas where 76 per cent of people live below the poverty line. Poverty levels vary across districts and wards, with poverty prevalence rates reaching 85.7 per cent in Matabeleland North, and above 80 per cent in several rural districts of other provinces. However, while most development parameters indicated a downward trend when the country faced an extended period of hyperinflation, political instability, sanctions and drought, there is increasing evidence that Zimbabwe is stabilizing and moving toward a path to recovery. There has been a marked improvement in Zimbabwe's Human Development Index¹⁴, moving 12 ranks from 173 of 187 countries in 2011 to 155 out of 188 countries in 2015. However, despite the improvements, this is still below the regional average. Life expectancy that had dropped from 60 years to 42 years since 2000, has significantly increased to 57.8 years (58.9 years for women and 56.2 years for men) in 2015. Stunting prevalence in children has shown a downward trend from a peak of 35 per cent in 2005/6 to 27.6 per cent in 2014. Zimbabwe has also seen a notable decline in HIV prevalence from 25 per cent in 1997 down to 15 per cent in 2014, but remains one of the highest HIV prevalence rates globally.

4. **Economic context.** During the 1980s and early 1990s, Zimbabwe was on a trajectory to becoming a Middle Income Country. However since 1997, it experienced a deteriorating socioeconomic environment. After the financial crisis of 2008, Gross Domestic Product (GDP) suffered its greatest annual decline in its history (-17%), and the country continued to go through a prolonged period of hyperinflation. The introduction of the multi-currency system and other economic stabilizing measures in 2009 saw the country having positive economic growth since 2009.

¹⁴ Human Development Report 2015

Zimbabwe's total GDP increased from US\$ 11 billion in 2011 to US\$ 14.2 billion in 2016, but the real GDP growth has decreased to -1.1 per cent in 2016. It is projected to increase by 3.3 per cent in 2017 to reach US\$ 15.4 billion. Diaspora remittances are also on the rise amounting to US\$ 935 million, which is about 48 per cent of total remittances which were about US\$ 2 billion. In 2014, the Gross National Income (GNI) per capita stood at US\$ 840, which has been on an upward trend, since 2009. The financial sector faces the challenge of a limited domestic deposit base, which reduces the capacity of banks to provide credit to the private sector, particularly the small-scale sector, on appropriate repayment terms. The credit risk of the country is perceived to be high, limiting its credit access. Economic growth in Zimbabwe is likely to remain well below the levels envisaged in the government's five-year economic programme, the Zimbabwe Agenda for Sustainable Socioeconomic Transformation, Zimbabwe (ZimASSET).

5. The economy is diversified but with a heavy emphasis towards agriculture and mining, which are by far the country's major foreign-currency earning sectors. In recent years the mining industry has faced challenges such as frequent power outages, inefficient infrastructure, flight of skilled workers, and shortages of funds for working capital and recapitalization. The manufacturing industry also has suffered constraints such as deindustrialization, inadequate and erratic supply of key economic enablers (namely electricity, fuel, coal, and water), and the high cost of establishing business. Despite the economic challenges, Zimbabwe has made progress in implementing its macroeconomic and structural reform programme, restoring confidence and improving financial management.

6. **Agriculture and Food Security.** Agriculture forms the basis of the direct and indirect livelihoods of over 70 per cent of Zimbabwe's population. The country's main staple crops are maize, sorghum and millet. The main export commodities are: tobacco, cotton, sugar, sunflowers, tea and banana. Livestock plays an important role in the agriculture of Zimbabwe, as a means of diversification of income as a way of reducing vulnerability and income risk. Almost all farmers own livestock with poultry and cattle are ranked as the most important livestock type. Most households in the rural areas are net food buyers and as a consequence, have to rely on markets and other non-farm sources such as casual labour to bridge the food gap to the next season. Zimbabwe's recurrent droughts and food insecurity conditions have remained dire over the past decade. With the El Niño weather phenomenon—associated with severe drought in Zimbabwe, the Zimbabwe Vulnerability Assessment Committee¹⁵ has indicated that at least 1.5 million people - 16 per cent of the rural population - will have insufficient means to meet their minimum food needs during the 2015-16 season. This represents a 164 per cent increase on the numbers of food-insecure people during 2013-14 though it is only a little above the five-year average for Zimbabwe.

7. **Fast Track Land Reform Programme.** Land is the key asset for agriculture. Before 1980, a racially skewed land ownership pattern prevailed in Zimbabwe, with a stark divide between large-scale commercial farms (owned by about 4,500 mostly white farmers) occupying 80 per cent of agricultural land and small-scale farms on the remaining 20 per cent, farmed by over 1 million black farmers. During the 1980s and 1990s, successive land reforms were meant to make land available for use by more people, and were based on a willing buyer-willing seller principle. The implementation of the Fast Track Land Reform Programme (FTLRP) that began in 2000 was a new, radical land redistribution to reverse the racially-skewed agrarian structure and discriminatory land tenures inherited from the colonial rule. The FTLRP established two models of resettlement: The A1 model targeted small scale farmers and poor families, providing land use permits on 3-6 ha of arable land and common grazing, while the A2 scheme targeted new 'commercial' farmers, providing larger individual plots on long-term lease to beneficiaries. The agricultural sector now comprises of about 87 per cent small scale farmers in communal areas and old resettlement schemes; 10 per cent of newly

¹⁵ The Zimbabwe Vulnerability Assessment Committee (ZimVAC) conducts annual rural livelihood assessment and provides a comprehensive information system that informs Government and its Development Partners on programming necessary for saving lives and strengthening rural livelihoods in Zimbabwe.

allocated A1 farmers; 1 per cent of A2 farmers, one per cent of small-scale commercial farms, and less than 0.5 per cent of large scale commercial farmers.

8. The FTLRP has been the subject of numerous studies and controversial analyses and commentaries. Recent research¹⁶ provide more nuanced analyses of the complexities and tensions of the FTLRP. These analyses conclude that Zimbabwe's land redistribution has reduced gross racial and class inequalities in land ownership, and has brought into being a potentially productive agrarian structure. They further conclude that that 'small-scale farming, under the right conditions, can generate livelihoods and be a motor of wider growth.

9. The Government of Zimbabwe is developing a comprehensive national land policy and finalizing consultations to establish a Land Commission for land administration, as a strategy for securing land rights, with regulated leaseholds and temporary permits. The Ministry of Lands and Resettlement is piloting large scale land mapping and issuance of resettlement permits for A1 and A2 model under the Statutory Instrument 53 of 2015. The new permits recognize joint ownership and the rights of the spouse, as permit holder is defined as head of household and his spouse as specified. However, the new land policy only concerns agricultural land outside the communal and old resettlement areas. Communal and old resettlement areas will continue to be administered under the Communal Land Act which gives powers to traditional leaders for land allocation and administration.

10. **Policy, Governance and Institutions.** Zimbabwe's development priorities are outlined in the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZimASSET 2013-2018), the country's poverty eradication strategy. Its priorities are centred on achieving and sustaining high agricultural production and productivity, market access, increased incomes and improved nutrition. Other important policy documents include: The 10-Point Plan for Economic Growth, the Zimbabwe Agricultural Investment Plan (ZAIP 2013-17); draft Comprehensive Agricultural Policy Framework 2012-2032 (CAPF); National Irrigation Policy and Strategy; National Food & Nutrition Security Policy.

11. Agricultural development and food security is coordinated by the Ministry of Agriculture, Mechanisation and Irrigation Development, with several technical departments and a number of parastatals. The Department of Irrigation is mandated with planning, identification, designing, construction, operation, monitoring and management of irrigation schemes. The Department has a total staff complement of 192: 62 engineers, 11 economists and 119 technicians. About 33 per cent of staff are based at the Headquarters in Harare. The remaining are distributed in the 8 provinces, but there is no presence at the district and ward levels, where the irrigation schemes are located. The limited resources for the procurement of equipment; weakened in-service training due to operation resource constraints; limited staff mobility to supervise irrigation projects; and incomplete database on the status and functionality of irrigation schemes, combine to make the Department less effective. The Department of Agricultural Technical and Extension Services (AGRITEX) face similar challenges, but has a reasonable staffing level of 4,012 (2,194 women) frontline extension workers, who are posted in wards and villages, with at least one extension staff in each irrigation scheme.

12. Zimbabwean farmers are organized in several unions, including: the Zimbabwe Farmers Union which is Zimbabwe's largest agricultural union with over 1 million members, consisting of communal and resettled farmers (resettled on the village-based, small-scale plots in the 1980–1985 government land reform programme); the Zimbabwe Commercial Farmers Union, and the Zimbabwe National Farmers Union mainly newly resettled farm owners under the FTLRP. The private sector encompasses seed processors, fertilizer manufacturers, agro-chemical companies, agro-dealers, mechanization and irrigation equipment manufacturers, and traders. The decrease is related to the overall downturn of the economy, poor infrastructure, power shortages and an unfavourable financial

¹⁶ For detailed discussions see Scoones, I., Marongwe, N., Mavedzenge, B., Murimbarimba, F., Mahenehene, J. and Sukume, C., 2010. *Zimbabwe's Land Reform: Myths and Realities*. Harare and London: Weaver Press, and James Currey. Lionel Cliffe, Jocelyn Alexander, Ben Cousins & Rudo Gaidzanwa (2011) *An overview of Fast Track Land Reform in Zimbabwe: editorial introduction*, *The Journal of Peasant Studies*, 38:5, Moyo, S. 2011a. *Three Decades of Agrarian Reform in Zimbabwe: Changing Agrarian Relations*. *Journal of Peasant Studies*. <http://www.aiastrust.org/index.php>

environment. The collapse of the private sector is particularly severe in the rural areas, with agro dealers and rural centres having shut down. Many non-governmental organizations are active in the agricultural sector with a wide range of activities, including support to irrigation.

Annex 1

Table 1: Country Data 2014/2015

INDICATOR	DATA
Population (Million)	14.6
Population below poverty lines (%)	72.3
Gross Domestic Product (US\$ Billion)	14.2
Gross National Income per capita (US\$)	1773
Human development index (Rank)	0.51 (155 out 188)
Gender Development Index	0.504 (112 out 188)
Africa Gender Development index	68% (8 out 52)
Malnutrition (% stunting in under 5 children)	32.3
Life Expectancy at birth (Years)	57.5
HIV Prevalence (%)	18.8
Food Insecurity (number of people)	1,500,000

Table 2

Country Data Sheet*			
Republic of Zimbabwe			
Land Area (km ²)	390 757	GNI per capita (USD) (2014)	840
Total Population (millions) (2015)	15.25	GDP per capita growth (annual %) (2014)	1.40%
Population density (people per km ²) (2015)	39.4	Inflation, consumer prices (annual %) (2014)	1.6
Local Currency	USD	Exchange rate: USD	n/a
Social Indicators:		Economic Indicators:	
Population Growth (annual%) (2014)	2%	GDP (USD million) (2014)	14,197
Crude Birth Rate (per thousand people) (2014)	35	GDP growth (annual %)	
Mortality rate, under-5 (per 1000) (2015)	71		2006 -3.50%
Life expectancy at birth (years) (2014)	57		2008 -17.70%
			2011 11.90%
Total labour force (million) (2014)	7.7		2014 3.80%
Female labour force as a % of total (2014)	50%	Sectorial distribution of GDP:	
		% Agriculture (2014)	20%
Education:		% Industry (2014)	26%
Net Enrolment rate (primary, both sexes %) (2012)	89%	% Services (2014)	53%
Adult literacy rate (% age 15 and above) (2011)	84%		
		Consumption	
Nutrition:		General government final consumption expenditure (% of GDP) (2014)	24%
Prevalence of undernourishment (2015)	33%	Household final consumption expenditure (% of GDP) (2014)	88%
Prevalence of stunting, height for age (% of children under 5) (2014)	28%		
Prevalence of underweight, weight for age (% of children under 5) (2014)	11%		
Health:		Balance of Payments (USD millions)	
Health expenditure, total (as % of GDP) (2014)	6%	Merchandise exports (2014)	3 063
Physicians (per thousand people) (2011)	0.1	Imports of goods and services (% of GDP) (2014)	4 200
Population using improved water sources (%) (2014)	77%		
Population using improved sanitation facilities (%) (2014)	37%	Balance of merchandise trade:	(1 137)
Agriculture and Food (2014):		Current account balances (USD millions)	
Food imports (% of merchandise imports) (2014)	15%	before official transfers	N/A
Fertiliser consumption (hundreds of grams per ha of arable land) (2014)	37	after official transfers	N/A
Food production index (2014)	98	Foreign direct investment, net inflows (BoP, current USD millions) (2014)	545
Cereal Yield (kg per ha) (2014)	789		
		Government Finance:	
Land Use:		Cash surplus/deficit (as % of GDP)	N/A
Arable Land as % of land area	10%	total expense	N/A
Forest area as % of total land area	40%	External Debt Stocks as % of GNI (2014)	84%
Agricultural Irrigated land (km ²)	1 740	Total debt service	N/A
		Lending interest rate (%) (2016)**	3%
		Deposit interest rate (%) (2016)**	12%
*Data Source is the World Bank's Data online portal unless otherwise indicated			
** Reserve Bank of Zimbabwe			

Appendix 2: Poverty, targeting and gender

1. **Poverty and vulnerability in semi-arid areas.** The 2015 Zimbabwe Poverty Atlas¹⁷ shows widespread poverty in rural areas where 76 per cent of people live below the national poverty line. Poverty levels vary across districts and wards, with poverty prevalence rates reaching 85.7 per cent in Matabeleland North, and above 80 per cent in several rural districts of other provinces. Stunting prevalence in children is 27.6 per cent. HIV prevalence has declined but still remains high at 15 per cent. Agriculture forms the basis of the direct and indirect livelihoods of over 70 per cent of Zimbabwe's population. Most households in the rural areas are net food buyers: they do not produce enough food to meet their needs and as a consequence, have to rely on markets and other non-farm sources such as casual labour and humanitarian assistance to bridge the food gap to the next season. Zimbabwe's recurrent droughts and food insecurity conditions have remained dire over the past decade, making millions of people vulnerable to food insecurity and poverty. It is estimated that at least 1.5 million people - 16 per cent of the rural population - will have insufficient means to meet their minimum food needs and will require humanitarian assistance. This is a 164 per cent increase compared to 2013-14 season.

2. **Gender Equality.** With 69.1 per cent on the Africa Gender Equality Index that measures gender differences across three dimensions: economic opportunities, human development, and law and institutions¹⁸, Zimbabwe ranks 8th out of 52 African countries. Literacy rates for women are very high and comparable to men's: 94 per cent of women and 96 per cent of men are literate. Over 55.3 per cent of people have some secondary education, with near gender-parity in enrolment in lower secondary school. According to the Zimbabwe Demographic and Health Survey¹⁹, rural women make independent decisions or jointly with their husbands on the use of cash income and health care. Female headed households are also on the increase, reaching 44 per cent in rural areas, due to male outmigration and HIV prevalence. Despite the achievements, there are wide gender disparities with respect to access and control and ownership of economic resources and involvement in community decision making.

3. **Potential for smallholder irrigation.** Zimbabwe is increasingly experiencing recurrent droughts and prolonged mid-season dry spells even in good seasons, with adverse effects on food production, income and nutrition security, and rural livelihoods. Zimbabwe has one of the highest levels of water development for irrigation in the region and has a significant portion of its irrigated potential realized. There is evidence from literature and field visits that households in smallholder irrigation schemes are better off in terms of food production, income, nutrition and general wellbeing than households relying on rainfed agriculture. One key advantage of irrigation is raising average crop yields with technologies that substantially reduce the uncertainties farmers face in rainfed agriculture. Smallholder irrigation schemes produce crops throughout the year, achieving a 200 per cent cropping intensities. In addition to achieving higher yields than rainfed yields in a normal season, irrigators are able to increase crop production and incomes in the dry winter season, when dryland production is impossible because of lack of rain. The gross margins and resultant incomes for irrigating farmers are often significantly greater than for dryland farmers. They are able to practice more intensive crop production and diversification into high value crops both for the local and export markets, thus increasing their incomes and managing risks and uncertainties.

4. However, smallholder irrigation schemes have shown low performance, which was often caused by an unreliable and inadequate water delivery system. Current smallholder production levels

¹⁷ UNICEF Zimbabwe, The World Bank and Zimbabwe National Statistics Agency. 2015. Zimbabwe Poverty Atlas. Small Area Poverty Estimation. August 2015 available at www.unicef.org/zimbabwe and www.zimstat.co.zw/

¹⁸ African Development Bank Group 2015. Empowering African Women: An Agenda for Action. African Gender Equality Index. African Development Bank, Abidjan.

¹⁹ Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International. 2012. Zimbabwe Demographic and Health Survey 2010-11. Calverton, Maryland: ZIMSTAT and ICF International Inc.

is low, with yields between 30-50 per cent of potential²⁰. With inadequate use of inputs (improved varieties and fertilizers), lack of labour and inefficient agricultural practices, crop productivity is often well below the optimum. Most farmers use irrigation for subsistence farming and food security, rather than an opportunity to intensify and diversify into production of high value crops for income generation. The limited size of landholding (0.1 ha in some schemes) and lack of resources further make it difficult to fully benefit from irrigation. Studies have found that the major sources of income in the irrigation schemes were remittances (23 per cent), irrigation production (18 per cent), livestock sales (14 per cent) and casual labour (12 per cent). This is partly an indication of sub-optimal performance of smallholder irrigation schemes that, if revitalized, should account for a significant portion of household income.

5. Smallholder irrigation in Zimbabwe has been a vicious cycle of build/operation/rehabilitate that is heavily dependent on government and donor funding. The Rural Livelihood Assessment indicates that about 56 per cent of the existing schemes are not functional, or partially functional, with a high proportion in Matebeleland south. There has also been a marked increase in non-functional schemes from 2012-2013. A common feature is that rehabilitation has primarily focused on physical infrastructure development and repairs (or hardware”), without the corresponding investments in farmers’ institutional development, production activities and market linkages (software). As a result, there is a general lack of community ownership, responsibility and participation in the management of the irrigation assets, particularly for the headwork, main canal and motor pumps. Irrigation Management Committees are present in all the schemes and are tasked with enhancing farmer’s participation in management and decision making at the scheme level, introduce a system of discipline among the farmers and to control infield water distribution. They are not mandated to organise farmers on related aspects of irrigation such as marketing or access to financial and extension services. Another issue is mobilizing payments of water and electricity bills²¹.

6. As a departure from traditional rehabilitation of irrigation infrastructure, the revitalization²² process should encompass both the modernization of physical infrastructure with the corresponding investment to redevelop irrigation social institutions and production infrastructure as tools for more autonomy, participation and ownership at local level, as well as the development of business strategy and market linkages to make irrigation farming more productive and profitable. These are critical components of the performance and sustainability of irrigation systems.

SIRP Targeting Approach

7. Zimbabwe has 1,534,396 smallholder farmers, categorized in four broad categories (Annex 3) based on their resource endowments and livelihood strategies²³. SIRP will implement an inclusive targeting strategy to ensure that programme benefits are distributed to a large number of smallholder poor farmers, and poorer members of the communities. SIRP will target 25,000 smallholder poor rural households (100,000 people) in the four different categories with relevant interventions for each group of farmers. Women (heads of households, wives and young women) will account for at least 50 per cent of the target, in line with their participation in irrigated agriculture. SIRP beneficiaries will include:

- 1) 12,500 households (62,500 people) with an average of 0.4 ha in the irrigation schemes. These are productive poor smallholders that are currently engaging in irrigation agriculture in the existing irrigation schemes. It is expected that SIRP will result in i) an increase in

²⁰ In a study of Fuve, Panganayi and Rupike irrigation schemes, IWMI (2011) reported yields close to 50% of potential yields due to low nutrient status of the soil.

²¹ Most schemes have outstanding debts for electricity and water bills, with some schemes owing up to US\$ 40,000 for water and US\$ 44,000 for electricity. As a result, farmers are forced to practice deficit irrigation, often at critical stages of crop growth.

²² For definition and process of revitalization, see Mwendera E. and Chilonda P. 2013. Methodological framework for revitalisation of smallscale irrigation schemes in Southern Africa. International Journal of Agricultural Science Research Vol. 2(3), pp. 067-073, March 2013 Available online at <http://www.academeresearchjournals.org/journal/ijasr>.

²³ See Smallholder farmer agriculture inputs, extensions And market support programme. National guidelines for the 2011/2012 smallholder farmer agricultural inputs, extensions and support programme available at http://www.fao.org/fileadmin/user_upload/emergencies/docs/2_E-voucher_Zimbabwe.pdf.

production and productivity of selected commodities; ii) an increase of annual household income; and iii) increased market integration.

- 2) 12,500 households (62,500 people) with no access to irrigation in the greater-scheme and sub-catchment areas relying on rainfed agriculture and livestock.
- 3) 2,000 youth who will be involved in production, aggregation, marketing, service provision and build small and medium-scale businesses along the irrigation value chain.
- 4) 500 extension service providers to improve their capacity for more responsive, effective and efficient service delivery.

Geographic targeting

8. Data on irrigation schemes in communal and old resettlement areas is variable²⁴. The Department of Irrigation estimates indicate about 400 smallholder irrigation schemes with a potential area of 34,000 ha, of which about 17,000 ha are equipped and 13,000 ha are currently in use. SIRP will revitalize about 5,000 ha of existing smallholder irrigation schemes, mostly in communal and old resettlement areas in the natural regions III, IV and V in the provinces of Manicaland, Masvingo, Matabeleland South, and Midlands four provinces. This represents about 38 per cent of the estimated total equipped area of about 13,000 hectares in those four provinces. These regions have the greatest need for revitalization of smallholder irrigation systems. These are the semiarid areas that comprise of 49 per cent of the land under smallholder irrigation. These regions cover about 64 per cent of the country, and are home to more than 65 per cent of the rural population. These areas are also the 'hotspots' for climate change, with predicted increases in temperatures and rainfall variability, and increased experience of recurrent droughts over the last decades. These regions are currently facing their worst drought since 1992, putting smallholder farmers and poor rural people in increased vulnerability and extreme food insecurity. While direct programme implementation will be initially limited to the four provinces, SIRP will further support more rigorous and systematic feasibility studies of new irrigation schemes at the national level to build a pipeline of irrigation schemes to be developed in the future. The programme aims to develop a holistic approach and build institutional capacity for revitalizing smallholder irrigation in Zimbabwe.

Table 1: Potential irrigable, area equipped and area in use by province

Province	Number of schemes	Number of Irrigators	Total Potential Area	Total Equipped Area	Total Used Area	% of schemes reported not functional
Manicaland	89	11,026	12,632	7,999	6,237	25%
Masvingo	49	6,028	3,288	1,086	1,203	13%
Matabeleland South	68	6,714	8,242	2,324	2,502	34%
Midlands	53	4,833	1,864	1,310	953	47%
Total	259	28,601	26,026	12,719	10,895	30%

Source: Department of Irrigation database, MAMID

9. In the selected provinces, SIRP will engage in a limited number of districts with higher concentration of existing schemes (clusters) and potential for future expansion. The selection of the targeted irrigation schemes will prioritize areas that optimize a combination of bio-physical, technical, socio-economic and institutional criteria, in order to achieve economies of scale and scope, and to maximize efficiency, effectiveness and large scale positive impacts. The programme will implement a systematic participatory and iterative process for the selection of irrigation schemes to be rehabilitated.

10. The criteria used for selecting irrigation schemes are listed in table 2. These criteria will be used to filter the highest potential schemes at three different moments in the identification-design-

²⁴ SIRP will support the Department of Irrigation to develop a systematic and up to date geo-referenced database for smallholder irrigation in Zimbabwe.

implement process cycle (see sub-component 1.1) and can be applied as pass/fail criteria, and/or as prioritization criteria.

Table 2: Scheme selection criteria

Criterion	Indicator	Pass/Fail	Prioritization	Step		
				1	2	3
Water Availability	Water availability of sufficient quality	Availability confirmed by pre-FS and FS		X	X	X
Market Potential	Distance from market of > # inhabitants (in hours)	(none)	less hours	X		
Size	Scheme and plot size	(none)	Scheme > 10ha	X		
Complementarity	Activities under other projects	(none)	Complementary projects active	X		
payment of ZINWA and ZESA bills	Historical Payment performance,% paid over the last 2 years	(none)	Higher %		X	X
Community Interest + extension services	Through Revitalisation plan; commitment to market led production	Signed by all scheme and land holders + Quality standards attained, 80% commit	(none)		X	X
Technical Feasibility	Scheme design technically sound	FS, DD approved	(none)		X	X
Financial Feasibility	FIRR, NPV	FIRR > 10%; NPV > 0	Higher FIRR/NPV		X	X
Private Sector interest	Expression of interest by off-taker	Written EoI received	(none)		X	X
Community commitment for cost sharing	Upfront cash contribution per hectare, put into O&M fund guaranteed by community collateral	Minimum 100US\$/ha	(none)			X

11. Evidence or estimates of water availability, even in a drought year will be a sine qua none condition for scheme eligibility. Such availability will need to be evidenced by river gauge and reservoir measurements where available, and complemented by catchment modelling exercises taking into account expected changes in rainfall patterns as a result of climate change.

12. There are two criteria for assessing market potential: in the first step, a basic estimation of the distance to market; in the second and third step, private sector parties will be invited to take part in the selection of sites and indicate their endorsement of schemes as having market potential and subsequently to prioritize them. Synergies with other revitalization efforts will be sought in the selection of schemes, by exclusion of schemes that have recently benefitted from services such as provided by SIRP, but prioritization of schemes where complementary projects are active.

13. Community interest and historic performance also drive scheme selection and prioritization. The payment rate of ZINWA and, where applicable, ZESA bills will be used to prioritize highly-committed communities. Communities furthermore have to specify their contributions to the revitalization efforts in the Revitalization Plan signed by all scheme members, which will be subject to a quality review. Finally, communities will be required to commit an up-front cash contribution of at least 100 US\$/ha to be put into a O&M fund, to be used once the scheme is fully functional again.

14. Finally, technical and financial feasibility assessment are crucial tests to ascertain that schemes can be sustainably managed by farmers, e.g. providing sufficient revenue for increased incomes and to sustain O&M costs. The feasibility study and detailed design will be oriented towards reducing operational costs, for instance by converting pumped schemes to gravity-fed schemes or by increasing water use efficiency and thereby reduce pumping costs.

Self-targeting

15. Households in existing irrigation schemes: SIRP will target 12,500 households (62,500 people) small-scale irrigators in communal and old resettlement areas. These are households in existing irrigation schemes that have the ability to cost-share and make financial and material contributions to

operation and maintenance of irrigation assets. These are B1, B2 and C farmers, according to the small-scale classification in Zimbabwe²⁵.

- i) **B1:** Poor households with access to land and limited labour in existing irrigation schemes, but with limited income. These households have limited access to inputs, labour and finance and tend to use irrigation for subsistence farming. They tend to practice deficit irrigation due to lack of resources. As a result, their productivity is often very low and experience crop failure.
- ii) **B2:** Emerging smallholder farmers with land and labour, and potential to intensify and diversify their production to generate marketable surplus. These households have resources to expand land under irrigation, intensify production and employ extra labour. They are food secure with limited income security.
- iii) **C:** Market oriented farmers who have labour, land and income but no access to financial services to expand production or diversify into higher value production. They are able to make upfront cash contributions and mobilize resources to pay for water and electricity bills. They are also likely to invest in their individual irrigation systems as they move up the value chain. They need support engagement into market linkage arrangements with private sector and engage into high value products.

16. Women (heads of households, wives and young women) account for 50 per cent of the target, in line with their participation in irrigated agriculture. In many irrigation schemes, women heads of households have access to land in their own rights, and account for up to 60 per cent of plot owners in some irrigation schemes. The thrust of the programme is to build smallholder farmers' capacity, and related institutional support mechanisms, to move towards irrigated farming as a business in order to enable sufficient financial returns, cost recovery, long term sustainability, replicability and scalability. These farmers have the potential to increase their income several fold, compared to others with no access to irrigation. Through participatory processes, the programme will identify and support the best combination of high value and food crops for the triple objectives of food, income and nutrition security. SIRP will also promote crop diversification and rotation that are both important for sustainability of the system, resilience and risk management.

Direct Targeting

- i) **Expansion of irrigated areas to target new households.** Table 1 indicates that there are about 28,000 households accessing irrigation schemes in the four provinces. This is only a small minority of small scale farmers, below the national average of 4.5 per cent of households that have access to irrigation schemes. An analysis of the database on smallholder irrigation schemes in communal and old resettlement areas reveals that 37 per cent of potential irrigable area in existing schemes is not equipped and 11 per cent of equipped area is not used. There is considerable possibility of expansion of area equipped (more than 6,000 ha), in existing schemes particularly in Manicaland and Masvingo. Expanding area under irrigation in existing schemes will target and benefit a number of additional households. It is also an opportunity to target more women and youth. Expansion will be determined by feasibility studies if they demonstrate that there is a very low probability of physical resettlement, economic displacement of populations and irreversible environmental impacts.
- ii) **Households with no access to irrigation.** SIRP will also target an equivalent number (12,500 households) of B1 and B2 farmers in the rainfed lands directly adjacent to the scheme command areas. These are poor women and men, who are not currently members of the existing irrigation schemes. They benefit indirectly from irrigation through casual labour

²⁵ This classification distinguishes 4 groups of farmers based on their resources endowment (A, B1, B2, and C): A farmers are the vulnerable, poorer households with limited land and labour, that qualify for safety nets, social protection and humanitarian assistance. B1 and B2 are the productive farmers, but have been recipients of starter packs. C are the more resource endowed and marketed oriented farmers.

opportunities (14 per cent) and availability of farm produce in local markets (15 per cent)²⁶. These farmers will also participate and benefit from micro-catchment interventions (component 1.2) and the promotion of sustainable agricultural intensification and climate-smart innovations (component 1.3).

- iii) **Vulnerable households (Category A):** These farmers will also indirectly benefit through provision of labour to irrigating farmers, as revitalization of irrigation schemes is likely to increase labour demand. They will also benefit from the availability of produce in local markets, and participation in soil and water conservation for adjacent rainfed areas.
- iv) **Women:** SIRP will ensure gender equality mainstreaming in all the activities, including ensuring that women's opinions are sought during diagnostic stages of scheme development and their needs catered for throughout the scheme development process; that women gain equal opportunity to become plot owners and members of scheme management committees; and that women obtain more secure rights on the land they irrigate or farm; and finally monitor the gender impact of programme activities and procedures. Specific project interventions will include preparing a gender training manual and conduct gender sensitisation course for key staff of service delivery organisations to promote women representation in Irrigators and Farmers Organizations and assist women farmers (both irrigators and non-irrigation) and women farmers in leadership positions (in farmer's organisations, management committees and producer organisations) to hold annual forums to discuss interests and requirements.
- v) **Youth:** SIRP will target the youth directly. The youth have limited opportunities to own and use land in existing irrigation schemes. They also have limited opportunities for off-farm activities, partly due to the economic crisis in the country. In each scheme, the programme will identify and facilitate a group of 10-15 low skilled rural youth producers already engaged or potentially interested in engaging in irrigated agriculture, as producers, artisans, or casual labourers. With a target of 125 irrigation schemes to be revitalized, SIRP can involve and benefit 1,000 young men and women as irrigators. There will be opportunities to allocate land to youths in irrigation schemes to be expanded. In addition, there will be opportunities to target and involve about 250 young men and women to become aggregators, agro-dealers, traders or agents between market-oriented producers and off takers or large agro-industries and/or wholesalers. These youth will be identified, trained and supported to become agripreneurs and develop youth-led businesses for value addition and processing. SIRP will also explore opportunities to target and provide vocational training to around 1,500 youth to become private sector service providers or businesses for the supply, operation and maintenance of irrigation assets, lease of small equipment, repair and maintenance of post-harvest equipment and mechanization, etc.

17. **Empowerment measures** – A key thrust in SIRP is to empower local communities of men and women to actively participate and take ownership of the revitalization process of their irrigation schemes. The programme will support farmers' own development efforts, based on the preparation of feasibility studies and business plans by the farmers/irrigators through their organizations. SIRP will support institutional development of the selected irrigation schemes in order to empower and encourage more active participation and inclusion of local communities in planning, decision-making and management of irrigation schemes. Traditionally, local communities and farmers have had less (or no) voice and power in the rehabilitation process, which is often initiated and managed by the Department of Irrigation. An annual "Irrigation Innovation" competition will be introduced to reward best performing irrigation schemes as an approach to scaling up and building social capital. Component 2 includes a range of capacity building interventions to build irrigators skills in marketing, business, agro-enterprise development, financial education, record keeping, savings and financial management.

²⁶ Zimbabwe Vulnerability Assessment Committee. 2014 Rural Livelihoods Assessment.

18. **Enabling measures** – through a range of capacity development and institutional strengthening activities (component 1.3 and 2.3.), SIRP will strengthen capacity of 500 extension service providers from relevant government departments and other service providers and equip them with knowledge, skills and tools for effective poverty targeting, gender equality and women's empowerment, and youth engagement. Component 2 includes activities to facilitate financial education and access to financial services for women and the youth.

19. **Operational measures** – There is provision in the Programme coordination unit to recruit a Rural Sociologist to supervise the implementation of the poverty, gender and targeting strategy, and to develop capacity building tools for the implementation of activities under components 1.2 and 2.1 and to provide leadership, supervision and support capacity building and mentoring activities for gender mainstreaming.

20. **SIRP Gender Strategy** – SIRP recognizes that revitalizing smallholder irrigation has important gender dimensions, affecting women and men differently, and different categories of women. Access to irrigation resources and opportunities are frequently unequal. Women are more active than men in irrigated agriculture, but they have limited access and control to land in irrigation schemes. They are also under-represented in the Irrigation Management Committees, and often have limited voice and influence in decision-making. The continuous deterioration and break down of irrigation infrastructure has increased the burden on women, as maintenance activities in the schemes are not gender differentiated. Irrigation agriculture requires intensive labour that increases the burden on women and girls. Their time poverty, due to their domestic and reproductive roles and gender relations, makes it more difficult for women to irrigate as efficiently and frequently as men.

21. Many women have depleted their assets to pay for irrigation each cropping season. Still they are not able to benefit from the irrigation, yields tend to be significantly lower than what men obtain. Women tend to be irrigators of necessity, rather than opportunity, driven into irrigation by the lack of alternatives. At present, however, women's prospects of generating larger productivity gains and income are limited by a range of factors — a lack of irrigation and agronomy skills, lack of inputs, lack of labour, lack of finances, limited access to markets, and time constraints. Despite these constraints, poor women and men are able to adapt and innovate and can benefit from the revitalization of the irrigation schemes. They need interventions that help them to increase productivity, profitability and resilience to external shocks. Irrigation has the potential to substantially increase yields, which will raise farm productivity and if surplus crops can be marketed, it lead to higher income and contribute to sustainable food security and well-being. Organizing women into groups and building their social capital for collective action has the potential to increase their participation in decision-making and leadership, and increase their ability and confidence to actively participate and take ownership of the revitalization process of their irrigation schemes. This also has positive impacts in the areas of improved food and nutrition security, better access to information and markets. SIRP will develop and implement a gender transformative action learning systems approach that positions women as the drivers of change for revitalization of irrigation assets. SIRP will implement four pathways for empowering women and promoting gender equality. These are:

- i) *Strengthening women's social capital.* The programme will support AGRITEX to identify and strengthen existing women's groups in the irrigation schemes and adjacent rainfed areas. These will include village savings and lending associations, producer groups, self-help groups, and any other common interest groups. Where these groups don't exist, SIRP will facilitate their formation, development and functioning. The women will be assisted to hold annual forums on capacity building activities, the programme will develop women's self-confidence, leadership, social capital and collective agency that are necessary to participate in irrigation scheme planning and business plans development and implementation, access and control of productive assets, negotiate confidently in market transactions and with service providers, and have greater voice and influence in irrigation management committees/water user associations.

- ii) *Expand women's economic empowerment.* SIRP will ensure that women's opinions are sought during diagnostic stages of scheme development and their needs catered for throughout the scheme development process; that women gain equal opportunity to become plot owners and members of scheme management committees; and that women obtain more secure rights on the land they irrigate or farm; and finally monitor the gender impact of programme activities and procedures. This will involve preparing a gender training manual, with a specific section on HIV and conduct gender sensitisation course for key staff of service delivery organisations to promote women representation in WUO and Farmers Organizations. This will also involve assisting women farmers (both irrigators and non-irrigation) and women farmers in leadership positions (in farmer's organisations, management committees and producer organisations) to hold annual forums. A total of 200 forum sessions will be held and forum will be scheme based.
- iii) *Community nutrition education and food fairs.* SIRP recognizes that the empowerment of women is a key pathway to achieving nutritional outcomes. Nutrition education component will aim to improve household nutrition security and reduce children stunting through production and consumption of nutritious foods (bio-fortified foods, vegetable and livestock products), dietary diversification, better cooking and child feeding and caring practices. Using the nutrition dialogues provided in the *Healthy Harvest toolkit*,²⁷ AGRITEX staff in collaboration of the Ministry of health staff and relevant NGOs, will identify, train and equip "Nutrition Champions" and "Young Mother Clubs" who will lead activities on community nutrition education in their respective greater scheme areas.

22. **In addition, gender will be mainstreamed in other programme components.** SIRP recognizes that an explicit and more intensive focus on gender equality and women economic empowerment is essential for community participation, ownership of irrigation assets and improvements in agriculture productivity, income and food security. The project will include interventions designed towards closing gaps between women and men's participation in community planning and decision-making and leadership of local institutions. Improving women's voice and influence in community-driven feasibility studies, irrigation scheme revitalization and business plans development, will ensure that the supply and installation of in-field equipment take into account women's preferences and constraints, and opportunities for more efficient and labour saving technology. The Farmer Field and Business Schools will provide opportunities for women to host demonstrations, evaluate and adapt improved varieties, practice efficient water and nutrient use technologies, and other good irrigation agronomic practices. Women will also participate in the "look and learn" exchange visits.

23. Component 2 (Climate Smart Agriculture and Market Access) recognizes that men and women face different constraints in accessing productive and financial resources, and in participating in and benefiting from markets. Zimbabwe's women have a long experience with various forms of village savings and lending systems. They have a high reputation of trust and repayment of credit, but have limited access to finances and related services. SIRP will promote collective action to build the capacity and confidence among women's groups and to expand women's roles further down the agriculture value chain through training in post-harvest handling, packaging produce for the market, and basic income management and entrepreneurial skills. Under this component, SIRP will design appropriate market interventions and financial education that will (i) identify gender based constraints and opportunities in value chains, and resource access; (ii) implement strategies that increase women's access to markets (training in business skills, financial management, contract farming); (iii) ensure gender and women inclusion in signing of scheme contracts in case of contract farming; and (iv) track trends in how gender dynamics change with commercialization.

24. Finally, the programme will build capacity of 500 extension service providers and community facilitators in gender transformative action learning systems.

²⁷ http://www.fao.org/fileadmin/templates/tc/tce/pdf/Healthy_Harvest_training_manual_.pdf

25. **Youth Engagement.** Small landholding mean that most youths are not actively engaged in irrigation schemes. Plot ownership by youths was marginal and youths were not incorporated into IMCs. However, there is evidence that irrigation provides opportunities for the youth to make farming as a business and as a pathway out of poverty. SIRP will design appropriate interventions that provide incentives and opportunities for young men and women to take irrigation farming as a business: from production, aggregation, value addition, transportation, marketing and service provision, as outlined above under direct targeting. Such opportunities will include Youth Fund for scouting, training, mentoring and networking enterprising young men and women, providing them with all rounded business and entrepreneurship training and linking them to service providers.

26. **Youth Strategy:** SIRP will target the youth, aged 16-24 years directly. The youth have limited opportunities to own and use land in existing irrigation schemes. They also have limited opportunities for off-farm activities. In each scheme, the programme will identify and facilitate a group of 10-15 low skilled rural youth producers already engaged or potentially interested in engaging in irrigated agriculture, as producers, artisans, or casual labourers. With a target of 125 irrigation schemes to be revitalized, SIRP can involve and benefit up to 1,500 young men and women as irrigators. There will be opportunities to allocate land to youths in irrigation schemes to be expanded. In addition, there will be opportunities to target and involve about 250 young men and women to become aggregators, agro-dealers, traders or agents between market-oriented producers and off takers or large agro-industries and/or wholesalers. These youth will be identified, trained and supported to become agripreneurs and develop youth--led businesses for value addition and processing. SIRP will also target and provide vocational training to around 1,000 youth as private sector service providers or businesses for the supply, operation and maintenance of irrigation assets, lease of small equipment, repair and maintenance of post-harvest equipment and mechanization. Upon graduation they will be provided with an equipment kit to start their business.

Annex 1: Targeting checklist

Targeting checklist	Design
1. Does the main target group – those expected to benefit most – correspond to IFAD's target group as defined by the Targeting Policy (poorer households and food-insecure)?	Yes, SIRP target the rural poor in the semi-arid of Zimbabwe where over 75 per cent of people live below the poverty line. It is estimated that 1.5 million people face hunger in 2016.
2. Have target sub-groups been identified and described according to their different socio-economic characteristics, assets and livelihoods – with attention to gender and youth differences (matrix on target group characteristics completed)?	Yes, target group has been identified based on small scale farmer classification in Zimbabwe, and include women and the youth, and vulnerable households in rainfed agriculture.
3. Is evidence provided of interest in and likely uptake of the proposed activities by the identified target sub-groups? What is the evidence (matrix on analysis of programme components and activities by principal beneficiary groups completed)?	Yes, irrigation is a key livelihood opportunity and a strategic priority for both the Government and farmers. Field visits and consultations during the mission confirmed high interest from men and women and communities visited.
4. Does the design document describe a feasible and operational targeting strategy in line with the Targeting Policy, involving some or all of the following measures and methods:	Yes, the design describes a multi-pronged and inclusive targeting strategy.
<i>4.1 Geographic targeting – based on poverty data or proxy indicators to identify, for area-based projects or programmes, geographic areas (and within these, communities) with high concentration of poor people;</i>	Yes, SIRP targets the semi-arid areas of Zimbabwe where there is a high concentration of the rural poor, and where agricultural livelihoods are under threats due to recurrent drought.
<i>4.2 Direct targeting – when services or resources are to be channeled to specific individuals or households;</i>	SIRP targets 12,500 households in adjacent rainfed areas, who will benefit from climate smart agricultural interventions and catchment rehabilitation. Direct targeting measures to involve more women and youth are included.
<i>4.3 Self-targeting – when good and services respond to the priority needs, resource endowments and livelihood strategies of target groups;</i>	SIRP targets productive farmers currently in existing communal and old resettlement irrigation schemes. These are B1, B2, and C farmers who have land in irrigation schemes. Scheme selection criteria include ability to pay up-front financial commitments and mobilize resources for O&M.
<i>4.4 Empowering measures – including information and communication, focused capacity- and confidence-building measures, organizational support, in order to empower and encourage the more active participation and inclusion in planning and decision-making of people who traditionally have less voice and power;</i>	A number of empowering measures are proposed for building farmers and local communities' capacity to self-organize, plan, make decisions and manage their irrigation assets (Component 1.2, 2.1 and 2.2).
<i>4.5 Enabling measures – to strengthen stakeholders' and partners' attitude and commitment to poverty targeting, gender equality and women's empowerment, including policy dialogue, awareness-raising and capacity-building;</i>	Component 1.3 and 2.3 comprises of capacity building measures for government departments and service providers on innovative community-driven irrigation planning, development and management.
<i>4.6 Attention to procedural measures – that could militate against participation by the intended target groups;</i>	SIRP includes participatory approaches for inclusive governance institutions, gender equality and empowerment of women.
<i>4.7 Operational measures – appropriate project/programme management arrangements, staffing, selection of implementation partners and service providers.</i>	The design includes Technical assistance for a Rural Sociologist and appropriate budgets for involving organizations with expertise on community development, facilitation and training for transformation necessary for the implementation of the targeting strategy.
5. Monitoring targeting performance. Does the design document specify that targeting performance will be monitored using participatory M&E, and also be assessed at mid-term review? Does the M&E framework allow for the collection/analysis of sex-disaggregated data and are there gender-sensitive indicators against which to monitor/ evaluate outputs, outcomes and impacts?	Yes, the logical framework contains development outcomes and performance indicators that identify the indicators and the benefits of the programme. Baseline data and M&E systems will be disaggregated by gender and target groups. Participatory monitoring and evaluation systems will be established in the selected irrigation schemes.

Annex 2: Gender checklist

Gender checklist	Design
1. The programme design report contains – and programme implementation is based on – gender-disaggregated poverty data and an analysis of gender differences in the activities or sectors concerned, as well as an analysis of each programme activity from the gender perspective to address any unintentional barriers to women's participation.	Yes, the gender strategy outlines the strategic gender equality and women's empowerment activities as well as pragmatic interventions to mainstream gender in all programme components.
2. The programme design articulates – or the programme implements – actions with aim to: <ul style="list-style-type: none"> Expand women's economic empowerment through access to and control over productive and household assets; 	Yes, activities in 2.1 are designed to provide livelihood diversification opportunities to women, in addition to their access and control of irrigation assets, access to technologies in farmer field and business schools, and income from market access.
<ul style="list-style-type: none"> Strengthen women's decision-making role in the household and community and their representation in membership and leadership of local institutions; 	Yes, activities 1.2 are designed to build women's social capital and strengthen their participation and voice in community institutions, particularly the IMC and WUAs.
<ul style="list-style-type: none"> Achieve a reduced workload and an equitable workload balance between women and men. 	Irrigation agriculture is labour intensive and is likely to increase the burden to women and increase their workload. Farmer Field and Business Schools will identify efficient labour saving technologies to reduce women's workload. Engagement of men champions, male relatives and community leaders, behavioural change communication are additional measures.
3. The programme design report includes one paragraph in the targeting section that explains what the programme will deliver from a gender perspective.	Yes, an explicit gender targeting strategy is described.
4. The programme design report describes the key elements for operationalizing the gender strategy, with respect to the relevant programme components.	Yes, the gender strategy outlines strategic activities for gender equality and women's empowerment, and more pragmatic activities for integrating gender in all project components.
5. The design document – and the programme implements – operational measures to ensure gender-equitable participation in, and benefit from, programme activities. These will generally include:	
<i>5.1 Allocating adequate human and financial resources to implement the gender strategy.</i>	Technical assistance for the PMU will include a Rural Sociologist with gender expertise. There will be subject matter specialist at the provincial/district level to train and mentor field extension staff and community facilitators.
<i>5.2 Ensuring and supporting women's active participation in programme-related activities, decision-making bodies and committees, including setting specific targets for participation.</i>	Yes, component 2.1 focuses on promoting gender equality and women's empowerment. Gender-sensitive activities are proposed for all the components.
<i>5.3 Ensuring that project/programme management arrangements (composition of the project management unit/programme coordination unit, project terms of reference for staff and implementing partners, etc. reflect attention to gender equality and women's empowerment concerns.</i>	The PMU will have technical assistance with expertise on gender.
<i>5.4 Ensuring direct project/programme outreach to women (for example through appropriate numbers and qualification of field staff), especially where women's mobility is limited.</i>	Women will be active participants of all local institutions, IMC and WUO. AGRITEX field extension staff and community facilitators will facilitate Farmer Field and Business Schools in the respective irrigation schemes.
<i>5.5 Identifying opportunities to support strategic opportunities with government and other development organizations for networking and policy dialogue.</i>	See 5.3 above. In addition, SIRP will support the implementation of the Agriculture Sector Gender Strategy in the irrigation sector.
6. The programme's logical framework, M&E, MIS, and learning systems specify in design – and programme M&E unit collects, analyses and interprets sex- and age-disaggregated performance and impact data, including specific indicators on gender equality and women's empowerment.	Yes, gender specific outcomes for all programme components are outlined in the strategy, and will be further refined during the programme inception phase and development of participatory monitoring and evaluation systems.

Annex 3: Typology of small-scale farmers in Zimbabwe

Categories	Characteristics	Estimates number of households
A:	Poor households with limited land and labour. These households are supported mostly through humanitarian cash transfers, safety nets, food for assets programmes and remittances.	107 408
B1:	Poor households with access to labour and land, but no cash. Households can gain food security through cereal production support or improved garden or livestock production in combination with extension.	322 223
B2:	Emerging smallholder farmers with land and labour but cash constraints. Households can increase productivity to achieve food and income security. Increase cereal production and/or sale of agricultural (including livestock and garden) produce and improve Livelihood through sale of agricultural produce.	889 949
C:	Farmers that have labour and land but no credit access. Support engagement into market linkage arrangements with private sector and produce surplus.	214 815
Total		1 534 396

Annex 4: SIRP Interventions for different beneficiary groups

Key SIRP Interventions	Primary beneficiaries (12,500 Irrigating households)	Secondary Beneficiaries (12,500 Households in adjacent rainfed areas)
Baseline, M&E studies and community engagement	1	1
Feasibility studies and detailed design	1	0
Irrigation scheme revitalization	1	0
Participatory planning and business plan development	1	1
strengthening community irrigation asset management	1	0
institutional development of the groups	1	1
Revitalization Plan for the irrigation O&M system	1	0
Greater scheme agricultural plan	1	1
Farmer Field and Business Schools	1	1
community seed systems	1	0
Exchange visits	1	1
strengthening participation and leadership of women in irrigators and farmers organizations	1	1
Nutrition education	1	1
Livelihood diversification and asset building	2	1
natural resources management planning	2	1
Soil and water conservation practices	0	1
Broad-based training in agribusiness development and marketing	1	1
Establishment of farmer business groups	1	1
Access to input and output markets and implementation of business models	1	2
Access to information and the setting up of value chain platforms	1	2
Low cost post-harvest training and assets	1	1
Community-based finance	1	1
financial literacy, financial management and business development skills	1	1
Links to MFIs to finance working capital and investment needs	1	2

1= Priority Activity, 2= Secondary Activity

Appendix 3: Country performance and lessons learned

1. Lessons learned from IFAD investments in the country are limited because of the long break in engagement. In 2012, the Multi-Donor Trust Fund, managed by the World Bank, and in collaboration with the Department of Irrigation and JICA experts, commissioned a report to analyse determinants of the productivity and sustainability of irrigation schemes in Zimbabwe. The main conclusions of the final draft report (June 2013), are as follows:

- a) The key determinants for performance for irrigation schemes in Zimbabwe as: Use of inputs/ fertilizers, reliable water supply, bigger farm sizes, drier natural region, use of improved technology (incl. seeds), mechanisation and education level of farmers and scheme management.
- b) Crop choices vary by farming category and natural region. The highest diversity on cropping is observed in small gardens and in communal irrigation projects. Promote the production of high value crops in irrigation schemes to enhance scheme viability, based on market requirements; Link farmers to markets and/or value addition opportunities, to ensure that productivity enhancement lead to increase in farmers' incomes.
- c) Inadequate water availability is a major contribution to decreased crop productivity. In general, one third of all farmers in Zimbabwe indicate that water access is not secure, both in quantity as well as in timing, while farmers in communal schemes and gardens suffer most from insecurity.
- d) A wide range of yield gaps are observed, with average yields ranging from roughly 20 per cent to 35 per cent of yield potential. Highest yields are shown in Gardens and lowest in communal irrigation projects.
- e) Encourage demand driven approaches to irrigation scheme investments and farmer contributions to be in cash, rather than in-kind to enhance ownership and sustainability of irrigation schemes.
- f) Develop legal and policy frameworks for the registration of irrigation water user organizations in Zimbabwe to increase chances for the schemes to be viable and sustainable. This necessarily requires linkages to output markets so that farmers can sell surplus produce and earn enough income to pay adequate fees for effective operation and maintenance.
- g) Enhance ownership of the scheme infrastructure by the farmers to improve O&M. For communal irrigators, the ownership of infrastructure is not clear between scheme members/ farmers, IMC and DoI. Responsibility in O&M can be a problem, if farmers do not own it there appears to be less commitment.
- h) Poor repairing and maintenance of irrigation infrastructure was observed as a problem in all irrigation categories. About one third of the farmers indicate that the irrigation infrastructure is in a poor condition and needs to be rehabilitated. Leakages of pipes and breakdown of pumps is the most reported problem in all schemes.
- i) Land tenure insecurity is an underlying issue leading to low performance of the irrigation sector. The communal and garden schemes are under communal tenure system, where land is communally owned and no title is issued to plot owners in gazetted irrigation schemes. Land utilisation is higher for smaller sized schemes than larger schemes. The smaller irrigation schemes seem to be more sustainable than bigger schemes.
- j) Including rehabilitation of catchment areas is essential for the sustainability of irrigation schemes. Enhancing the working of the catchment and sub-catchment councils can help in the protection of catchment areas, hence reducing risk of reduced river flows.
- k) Ensure institutional sustainability, through clearly defined roles and responsibilities and use existing agencies/institutions/systems should be used, to the extent possible, and where necessary, strengthened. Ensure that Programme coordination, management and implementation arrangements recognise the roles and responsibility of lower levels of government, such as RDCs, to enhance chances of sustainability.

- l) Improve coordination of the support given to farmers by AGRITEX, DoI and other government departments, to avoid a lagging of support for agriculture development due to over-emphasis on infrastructure development.
 - m) Promote a change of mind-set among support service personnel and ensure adoption of work methods which both stimulate the participation of beneficiaries throughout the development process to enhance ownership by communities.
 - n) Schemes that do not have substantial government support seem to perform better than those who have. They show higher yields, a higher percentage of produce sold, and higher value crops grown by the farmers. Dependency on government support seems to reduce performance of irrigation. Peri-urban gardens supply a considerable amount of vegetables to Harare and other urban centres around the country, with no or minimal government support.
2. A number of implementation observations and lessons have been learnt during the first two years of the Smallholder Irrigation Support Programme, financed by the European Union and the Swiss Development Cooperation, and implemented by FAO and Government of Zimbabwe. These are highlighted below:
- a) *Irrigation* is a successful mitigation strategy against drought and climate change, and while irrigation schemes are not performing as well as they should, the socioeconomic indicators of the people living and having access to these schemes is better. There is a wide variance in the cost of irrigation rehabilitation per hectare, in Zimbabwe, with figures ranging from 2,000 to 12,000 US\$/ha.
 - b) *Scheme selection and location for market access* are vital factors influencing performance and that ultimately determine the scope for sustainability. Although the programme seeks to achieve against both food security and income objectives, these do not always coincide.
 - c) *Water availability*. Water is not seen as limiting factor by farmers, and there are poor water use efficiencies, even in drought prone districts. As a result, some scheme experience severe water logging and also can experience water shortages in certain seasons.
 - d) *Planning and participatory development* is not a once off activity rather it is an ongoing process that needs to be continually integrated into the activities of the irrigation schemes. Participatory development and irrigation rehabilitation processes are often very slow for all stakeholders. Partners' and farmer morale are affected by delays in planning and procurement. Scheme rehabilitation programmes should build sufficient time for diagnostic studies, planning and community engagement. Facilitators should be stationed close to the target schemes to ensure sufficient contact time and engagement. Time invested in developing scheme leadership at local levels is likely to result in long term gains in the irrigation sector.
 - e) *Effective stakeholder consultation and involvement* is critical in the project cycle. Participation and capacity development of government departments and partners enhances ownership and sustainability. The model of joint implementation, monitoring between the government and FAO is a model that requires effective understanding and analysis of the institutional bottlenecks and hindrances to effective participation.
 - f) *Poor Scheme Performance* - Most entry level studies and feasibility assessment revealed high levels of ineffective leadership and organization at most schemes. Leadership capacities are a key driver for poor scheme performance, with schemes in the same agro-ecological regions achieving extremely different results. Yield gaps at most schemes are significantly high. Investments in irrigation which do not address management, technical and business capacities are likely to fail. The programme will continue to promote innovative approaches to help restore productivity and profitability at the schemes.
 - g) *Low confidence in the private sector* - The programme is engaged with farmers on alternative irrigation management models. The programme has considered three management (business) models; namely the irrigation cooperative or company model; the out-grower/contract farming model; and farmer managed scheme model. Initial interest in alternate models is very low, indicating low farmer confidence in the private sector and fear of disempowerment. Although there is significant debate on advantages and disadvantages, sector stakeholders seem to prefer status quo and slower change.

- h) *Access to capital* - The lack of access to production finance continued to be a major discussion point with farmers and market actors. Most private entities approached cited liquidity challenges as a constraining factor, with many expecting FAO to inject production finance. Financial capacity of most private sector companies limited. Many face liquidity challenges and are unable to pre-finance contracts. Rigid contracts arrangement involving pre-contract guarantee instruments, pre-financing of works or significant retentions are unlikely to succeed.
- i) *Farmer contributions* - Although most beneficiaries appreciated the value of irrigation, the level of farmer contributions in cash and kind has been variable and for the most part unsatisfactory. The programme has no clear/robust mechanisms for 'receiving' or tracking the contributions. Examples of previous investments where farmers did not contribute.
- j) *Outstanding bills* - Most schemes still have challenges with both water and electricity bills, especially in Matebeleland South, with some bills dating back to the Zimdollar era. As a result some farmers have abandoned their plots as they are unable to repay the debt. The lack of input support and frequent electricity outages have affected production and reduced farmers' ability to pay.
- k) *Capacity*. The Department of Irrigation has many senior engineers with excellent academic credentials but limited practical experience. Training should focus on increasing exposure and more hands on work. There is any urgent need to capacitate cadres with modern design tools (cad) and software. Moreover there is limited capacity for irrigation design and feasibility assessments on the Zimbabwean market.

Appendix 4: Detailed programme description

1. The SIRP structure is articulated around two main components, the first one on the sustainable development of smallholder irrigation, and the second one on climate smart agriculture and market access. The first component focuses on irrigation scheme selection, rehabilitation and management, including strengthening irrigation water users organizations, and developing the capacity of the Department of Irrigation and other service providers. The second component focuses on improving agriculture productivity and production, both on the irrigation schemes, and adjacent rainfed areas, as well as developing market access and strengthening the capacity of AGRITEX and other government departments involved.

Component 1: Sustainable Smallholder Irrigation Development

2. **Rationale.** The irrigation schemes in Zimbabwe are in varied states of rehabilitation and functionality. A common feature is that rehabilitation has primarily focused on infrastructure development and repairs, often without the corresponding investments in farmers' organization and empowerment, water management, agricultural production activities and market linkages. Some schemes have been operating for many years, decades even, however many operated at sub-optimal levels. There is a general lack of community ownership and participation in the management of the irrigation assets. Irrigation Management Committees (IMCs) exist in all schemes, and are seen as a standard requirement although they do not have a formal status and powers to enforce by-laws.

3. There is unclear ownership of the developed irrigation assets. The sudden and informal transfer of operational responsibility of community based irrigation equipment to IMCs in 2009/10 led to a poor management and usage of resources, also given uncertain property rights. In many cases these changes were done without building irrigators' capacity and in the absence of any formal hand-over procedures.

4. The lack of property rights can also be a deterrent to generate income from the use of the infrastructure to ensure proper Operation and Maintenance (O&M). This has led to the current practice of ex-post repairs, where farmers raise funds after breakdown if not totally/partly abandoned.

5. Most schemes have high outstanding debts for electricity and water fees, but there is generally willingness to settle debts. Repayments of debts have led to the depletion of assets; in particular livestock, and therefore driving the farmers into poverty. As a result, farmers are forced to practice deficit irrigation, often at reduced frequency and/or reduced irrigation amount per period even during critical stages of crop growth. Thus, the need for cost effective irrigation design that takes into account alternative sources of sustainable energy to pump irrigation water is apparent.

6. The Water Policy stipulates that water fees are based on volumetric base; actual payments are established on area basis. Most hydrological gauging stations are malfunctioning. There is little evidence of provision for drainage, in areas where surface irrigation is practiced, resulting into waterlogging and salinity. There is need for Water Users Organizations (WUO) to engage in policy dialogue with the GoZ in order to clarify asset ownership and to promote volumetric based fee collection.

7. **Objective and approach:** The objective of this component is to transform low-performing irrigation schemes into fully functional ones in terms of efficient water management and low-cost operation and maintenance by Water User Organizations (WUO). This would result in an increased cropping intensity and thereby be the basis for sustained, commercial irrigated agriculture.

8. The Programme will finance the revitalization of irrigation schemes in the natural regions III, IV and V in the provinces of Manicaland, Masvingo, Matabeleland South, and Midlands, while financing further scheme design studies nationwide. The Programme aims to develop a holistic approach and build institutional capacity of irrigators and Government agencies, including DoI, to revitalize smallholder irrigation in selected schemes.

9. The potential irrigated area for revitalization in the four targeted provinces is about 12,500 ha (Total Area Equipped), assuming that all area that is currently equipped for irrigation has potential for improvement. See table 1 below for potential irrigated area for revitalization.

Table 1: Potential irrigated area for revitalization

Province	Number of schemes	Total Potential Area	Total Area Equipped	Total Used Area
Manicaland	89	12632	7999	6237
Masvingo	49	3288	1086	1203
Matabeleland South	68	8242	2324	2502
Midlands	53	1864	1310	953
Total	259	26026	12719	10895

Source: Irrigation database, Dol

10. The criteria used for selecting irrigation schemes are listed in table 2 and further detailed in Appendix 2 - Targeting. These criteria will be used to filter the highest potential schemes at three different moments in the identification-design-implement process cycle and can be applied as pass/fail criteria, and/or as prioritization criteria.

11. During SIRP design, a preliminary identification of schemes was carried out and the longlist of schemes was narrowed down using two key indicators listed for step 1; size (scheme and plot) and market potential (distance to market). Approximately 91 schemes (cluster or standalone) with a total area of 8,200 ha (i.e. 59 schemes 7,345 ha with registered or known location and 32 schemes 856 ha with unknown location) were selected in the four Programme provinces. These are illustrative of the current limitations of Dol database of irrigation schemes. Out of the schemes with known location, Manicaland represents almost two thirds (62 per cent) of the total identified area, while the rest represent 17 per cent Matabeleland South, 13 per cent Masvingo, and 3 per cent Midlands. In these schemes, plot size per HH ranges from 0.4 to 1 ha, although a few schemes in Masvingo with 0.3 ha plots on average, were included.

Table 2: Scheme selection criteria

Criterion	Indicator	Pass/Fail	Prioritization	Step		
				1	2	3
Water Availability	Water availability of sufficient quality	Availability confirmed by pre-FS and FS		X	X	X
Market Potential	Distance from market of > # inhabitants (in hours)	(none)	less hours	X		
Size	Scheme and plot size	(none)	Scheme > 10ha	X		
Complementarity	Activities under other projects	(none)	Complementary projects active	X		
payment of ZINWA and ZESA bills	Historical Payment performance,% paid over the last 2 years	(none)	Higher %		X	X
Community Interest + extension services	Through Revitalisation plan; commitment to market led production	Signed by all scheme and land holders + Quality standards attained, 80% commit	(none)		X	X
Technical Feasibility	Scheme design technically sound	FS, DD approved	(none)		X	X
Financial Feasibility	FIRR, NPV	FIRR > 10%; NPV > 0	Higher FIRR/NPV		X	X
Private Sector interest	Expression of interest by off-taker	Written EoI received	(none)		X	X
Community commitment for cost sharing	Upfront cash contribution per hectare, put into O&M fund guaranteed by community collateral	Minimum 100US\$/ha	(none)			X

Source: Final Design Mission Aide Memoire

12. Prior to start-up, the relevant Government departments will carry out participatory surveys to collect the missing data needed to finalize the first step of site selection. This will include schemes that have not yet been identified yet but which may represent low-hanging fruits in terms of

revitalization potential. Further selection will be done based on the pre-feasibility and feasibility studies.

13. This component will be divided into three inter-related sub-components: (i) Scheme Selection and Rehabilitation; (ii) Improved Smallholder Irrigation Management; and (iii) Enhanced Institutional Capacity for Irrigation Development.

Sub-Component 1.1 Scheme selection and rehabilitation

14. This sub-component will consist of two sets of activities: 1) conducting feasibility studies and detailed designs; and 2) irrigation scheme rehabilitation.

15. **Feasibility studies and detailed designs:** the programme will conduct pre-feasibility and feasibility studies as well as detailed design reports to rehabilitate 5,000 ha of irrigation distributed in different schemes (as standalone or cluster), each not less than 10 ha and minimum of 0.4 ha per HH, to be selected using the abovementioned criteria and further detailed in Appendix 2 on targeting. Taking an average irrigable area of 40 ha per scheme, the Programme will rehabilitate about 125 irrigation schemes benefiting about 12,500 irrigators. The technical studies and reports to be delivered for target schemes will include: (i) Prefeasibility studies' technical reports including participatory performance assessment; (ii) Feasibility studies' reports including revitalization plan; (iii) Detailed design report (including construction drawings and implementation schedule, bill of quantity, specification, engineering estimates as well as tender documents); and (iv) Preliminary O&M manual.

16. Those schemes fulfilling the prefeasibility level requirements will pass onto feasibility and detailed design levels for more detailed studies, analyses, and designs using best practices, see figure 1 below. Studies' findings and recommendations are to be thoroughly discussed with farmers, irrigators, and relevant government departments, at central and provincial level, and presented with relevant supporting technical annexes.

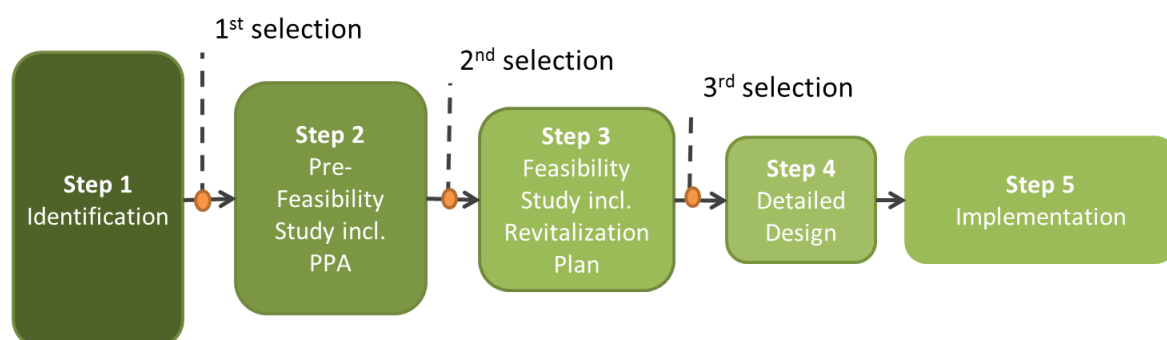


Figure 1: Critical milestone of scheme studies and design process

17. The SIRP pre-feasibility studies will be based on the standard process for pre-feasibility studies, e.g. a forward-looking multi-disciplinary and participatory analysis of scheme viability from a technical, social and financial point of view. In addition and specific to SIRP's revitalization objective, the pre-feasibility studies will be informed by a participatory performance assessment (PPA), which aims at identifying the underlying social, financial and technical causes of historic low performance. This PPA will be crucial for all stakeholders to reach a common understanding of priorities in revitalizing the scheme, to be taken up in the next step.

18. After a second selection based on the results of the pre-feasibility study, a more thorough feasibility study will be carried out and a scheme revitalization plan will be developed. The feasibility studies will be conducted by DoI in collaboration with irrigators, IMCs, and in consultation with the resident and district AGRITEX extension agent, as well as with EMA, ZINWA, AMA, RDC, DDF. And Mechanisation Department. It is estimated that approximately 6,000 ha will be subject to feasibility studies.

19. As most schemes will incur rehabilitation, as opposed to being greenfield investments, the feasibility studies will provide a menu of different aspects, which may or may not be relevant. Depending on scheme-specific requirements, these could include: (i) hydrologic and water resources availability studies to acceptable level of reliability taking the current and foreseeable rainfall and catchment characteristics as well as climate change projections into consideration; (ii) bathymetric surveys (reservoir dams sedimentation); (iii) market proximity and access; (iv) diagnostic meteorological and hydrometric network survey and water resources monitoring; (v) land suitability, engineering and soils surveys and investigations to include but not limited to topographical, salinity, fertility, geotechnical, groundwater table and water quality; (vi) surface and sub-surface hydraulics with focus on prevailing and/or proposed irrigation structures and systems; (vii) agronomic study in the light of land suitability, climatic condition and determine scheme-specific crop and field irrigation water requirements and water sources withdrawals with due consideration to other uses and users; (viii) detailed inventory of irrigation and drainage infrastructures and assets including last-mile access roads; (ix) diagnostic assessment of the irrigation O&M system, to include technical, institutional and related challenges and opportunities for improvement in view of subsequent assessment of training and capacity building related needs; (x) Socio-economic studies and an analysis of input and output markets; and (xi) Environmental and Social Impact Assessments (ESIAs). Detailed Terms of Reference for the Feasibility Studies will be prepared and included in the Programme Implementation Manual.

20. SIRP will focus on community ownership of the revitalization process. To do so, the feasibility study will be accompanied by a scheme Revitalization Plan agreed by all parties, which contains (i) a summary of the PPA listing historic performance issues; (ii) actions agreed to increase performance, with deadlines and responsible actors assigned for each action; and (iii) key performance indicators to monitor progress. Some actions, specifically those related to agricultural development and market linkages, will be further developed under component 2 once the scheme has been selected for implementation. This approach is represented in figure 2.

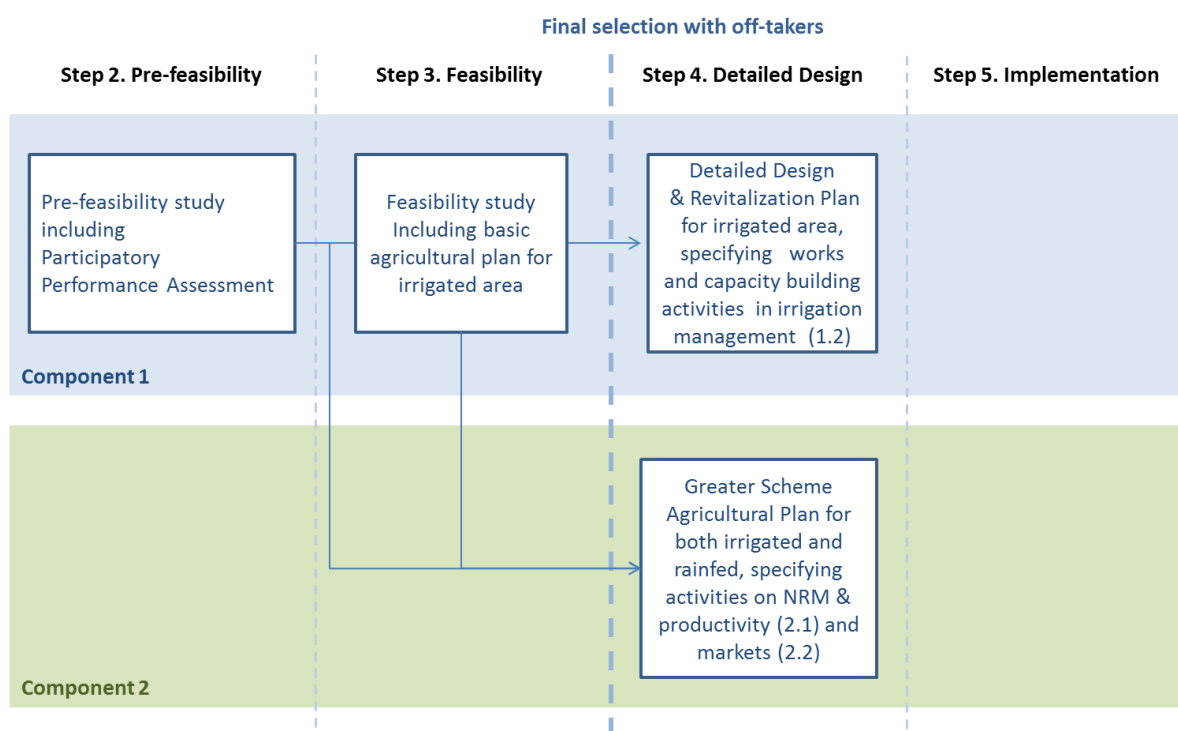


Figure 2 Link between Component 1 and 2 in terms of planning

21. The DoI, with the support of long-term Technical Assistant to be hired, will be responsible for the follow up of these studies and the detailed designs to be carried out by consulting company/ies. In order to avoid accountability issues the same company responsible for detailed design, will be

responsible for supervision of the works. In order to enhancing the quality of deliverables, systematic procedures to recommended decisions and clearance in the project processing cycle will be established.

22. **Irrigation scheme rehabilitation.** will focus on the actual rehabilitation of the headwork, primary and secondary conveyance (open and closed conduit) systems, night/regulating storage tanks and on-farm structures such as distribution boxes, offtakes, field water application and drainage technologies, access roads, small bridges, culverts, and fences as per the tender documents prepared by the design company. In addition, the electromechanical works will include, but not limited to, supply and installation of pump and related ancillary works, and establishing a pilot conversion of diesel/petrol/electric pumped scheme to solar power pumping system. Out of the 5,000 ha to be developed, SIRP will rehabilitate 4,000 ha (80 per cent), expand 800 ha (16 per cent), and pilot conversion of diesel/petrol/electric pumped schemes to solar power pumping system 200 ha (about 4 per cent). The main elements of the solar pump pilot include, purchase and installation of solar panels and power transmission system, fencing of the solar panels, storage tanks for flow regulation and to ensure availability of water during cloudy weather and water pump, unless the existing pumps are compatible and in good condition. Depending on the scale of the scheme a power control house, store and administrative office may be needed.

23. Building on the preliminary O&M manual prepared by the feasibility studies and detailed design, the final O&M manual (to include an as-built drawing) of the developed schemes will be prepared by the contractor. A hands-on training will also be provided to DoI staff and scheme level operators.

Sub-Component 1.2. Improved Smallholder Irrigation Management

24. **Rationale.** There is ample evidence that investment in social capital could dramatically increase the efficiency and productivity of small-scale irrigation systems, and could yield high rates of economic return. A major thrust and principle for engagement for SIRP is to enhance participation, local ownership and to allow irrigators and their Organizations. Such as Irrigation Management Committees (IMCs) to be involved in the decision making with respect to irrigation development and the asset management. This sub-component aims at strengthening Water Users Organizations (WUO) to develop the right combination of roles, rules, norms and values that support mutually beneficial collective action. SIRP will develop the capacity of the irrigators and their organization on improved irrigation water management at the level of their operational responsibility, so that schemes are operated efficiently and sustainably.

25. Main reasons for the prevailing poor irrigation water management include, among others: (i) weak farmers organization and irrigation management, leading to poor water delivery, distribution and on-farm application; (ii) disconnect between irrigation fees and services received; (iii) lack of incentive for water saving given the area based water allocation than volumetric; and (iv) high operating costs of the mainly pump dependent irrigation systems. Starting from the Programme outset, the Sub-component will empower irrigators and their Organizations to establish a more effective and inclusive governance institutions to increase local ownership, participation and decision making throughout the project cycle of the schemes to be revitalized. A key eligibility principle in SIRP will be the ability of irrigation schemes to make credible commitments for upfront financial contributions, off-set outstanding debts for water and electricity, and put in place mechanisms for collecting O&M fees and individual contributions.

26. **Objective.** This sub-component aims at empowering targeted irrigators and their Organizations (i.e. Irrigation management committees (IMCs) to establish a more effective and inclusive governance institutions to enhance ownership, participation, operations and maintenance (O&M), management, productivity and sustainability of the revitalized schemes.

27. **Activities.** This sub-component will consist of activities related to strengthening community irrigation asset management and optimal water distribution. To this end, the Programme will transform the current IMCs to a more effective WUO to undertake the O&M responsibilities at the hydraulic unit

(tertiary) level and beyond (as appropriate) with the exception of the dams, where ZINWA remains the institution responsible for management, operation and maintenance.

28. Depending on their scale, WUOs could have an apex WUO to include all schemes falling under the same hydraulic boundary. In addition, the Programme will build WUOs' capacity to: a) become financially accountable; b) manage irrigation water conveyance, distribution and on-farm application; and c) revitalizing volumetric based water fee structure which will give incentive to save water. It will also enhance the accountability of the WUOs by introducing effective and irrigators owned byelaws and promoting a transparent resource management mechanism that would contribute to the ownership and social acceptability of the cost recovery system by the users. However, introducing these changes will require a transformation to be led by champion irrigators to instil the roles and responsibilities of irrigation WUOs, liaise with DoI, ZINWA and private service providers, and progressively implement Participatory Irrigation Management.

29. SIRP will promote a set of interventions which include: (i) institutional development of the irrigators groups and their irrigation WUO; (ii) support for participatory planning and management of irrigation assets; and (iii) develop the capacity of youth to ensure pump and irrigation material maintenance and repair.

30. **Institutional development of irrigation water users organizations (WUOs).** SIRP will conduct an institutional analysis of the selected irrigation schemes and evaluate different options for transforming the current IMCs into broad-based WUOs that encourage active participation of men and women in decision making. This will be done during Feasibility Study and the outcomes will be agreed in the Revitalization Plan. SIRP will assist WUOs to establish effective governance mechanisms for effective recovery of O&M fees; and organizing mutually beneficial collective actions. The Programme will develop the capacity of irrigators with focus, but not limited, to irrigation water management and O&M, WUGs by-laws and fee structure. In addition, WUGs leaders will be trained in formalization and enforcement of WUGs by-laws, planning, implementation and monitoring of O&M, fee collection, financial management and book-keeping. It is estimated that approximately 12,500 irrigators will be supported by the project in 125 schemes, comprising of approximately 700 WUOs (assuming 5-6 WUOs of 15-20 irrigators, covering a total of 7 to 10 hectares).

31. **Support for participatory planning and management of irrigation assets and O&M.** This activity will include training on community visioning and participatory planning, monitoring and evaluation as well as preparation and implementation of irrigation water management plans (incl. O&M), as identified in the Revitalization Plan. SIRP will also fund exchange visits between irrigation schemes and an innovation competition as part of community learning and innovations to strengthen the implementation of irrigation assets management plans. This support will include strengthening irrigation O&M fee collection. To ensure the interest and commitment of the beneficiaries towards the Programme, each irrigator is required to deposit 100 US\$/ha in a blocked bank account before start-up of any physical intervention. Should the plot size be smaller than 1ha, the amount will be pro-rated. This amount is estimated to cover the O&M costs for the first production season after rehabilitation.

32. **Training and equipment for youth to engage in irrigation maintenance and repair.** To ensure the close attendance of the WUOs and the irrigators in terms of maintaining irrigation equipment at local level, the Programme will provide vocational training for selected local youth in irrigation equipment repair and maintenance. It will also provide starter kit for the graduated youth to undertake the required repair and maintenance.

Sub-component 1.3: Enhanced institutional capacity for irrigation development

33. **Rationale.** Although DoI staffing level is stable, it has a limited number of experienced engineers who are able to carry out identification, feasibility and detailed scheme designs. Given that the department is currently implementing other programmes, it is likely that its capacity could be overstretched with SIRP, hence the need to contract out part of the feasibility studies, as well as all the detailed design and supervision of works to private contractors. Since DoI will contract private service providers, its staff will require capacity building in the areas of contract management, contract

supervision, irrigation design and construction supervision, and irrigation asset management. In addition, the capacity of DoI to train farmers on water management is limited since it has no structures at scheme and district level. DoI will adopt a training of trainers approach and focus on capacitating the AGRITEX staff at scheme level.

34. **Objective** of this sub-component is to enhance DoI capacity on irrigation service delivery, both at central and provincial level, and to contribute to evidence-based policy development in smallholders' irrigation-related issues.

35. **Activities.** This sub-component consists of two sets of activities: (i) enhancing the capacity of DoI to provide quality service to smallholder irrigation farmers; and (ii) enhancing the capacity of DoI to engage in policy dialogue on smallholder irrigation issues.

36. **Enhancing the capacity of DoI to provide quality service delivery.** This activity will include:

- (a) *Providing vehicles, motorbikes and funding operation costs.* The DoI will receive vehicles equipment and recurrent expenditure in order to enhance its service delivery capacity to smallholder irrigation farmers;
- (b) *Preparing training materials and providing training mentorship for DoI staff;* The PCU will engage the services of a consultant to carry out a training needs assessment for DoI as well as to identify training sources; Specialised Service providers will be financed by the programme to come up with the necessary training materials and conduct specialised training services. Training will be conducted in water management, irrigation design and construction supervision, contract management, O&M in irrigation asset management among others. With regards to training on water management, DoI will adopt a train of trainers approach with a focus on capacitating front line AGRITEX extension staff at scheme level;
- (c) *Undertaking an inventory of smallholder irrigation schemes in Zimbabwe;* A specialised service provider will be hired to assist DoI with inventory of schemes. An internal workshop will be held with DoI staff in order to understand the shortcomings with the current database, to decide on what parameters are needed, the use of the database, the materials required and the responsibilities in this activity. The specialist will prepare a template for data collection and test it in the field with DoI staff. Data entry and processing will be done centrally. Based on the results of the test, a full survey will be rolled out in all the provinces. Data collection is expected to be done by AGRITEX staff on the ground. In each province enumerators would get a practical course of learning by doing while being supervised by trained DoI staff. DoI staff will be in charge of data entry and processing with the assistance of the Service provider;
- (d) *Developing DoI capacity to conduct participatory feasibility studies and detailed designs of an additional 2,000 ha irrigation nationwide.* The purpose of these studies will be to identify new land for expansion of smallholder irrigation based on existing water resources. Participatory feasibility studies and detailed designs would be contracted out to an engineering firm, supervised by a team of specialists provided by government. The work from this study will provide pipeline activities for future investments in smallholder irrigation by other stakeholders.

37. **Enhancing the capacity of participating agencies to engage in policy dialogue.** This activity involves building national capacities through testing actual evidence-informed 'policy dialogue' among relevant stakeholders – government, representatives of farmers, WUOs and the private sector, on three issues: (i) formalize the status of IMCs to become legally recognized WUOs with certified rights to water and lands; (ii) clarify irrigation assets ownership; and (iii) revise water pricing for smallholder irrigation. It is also noted that the policy dialogue could be adjusted to any issue connected to locally identified and agreed policy matters on smallholder-irrigated agriculture that the GoZ wants to address. Solving locally identified, prioritized and agreed upon policy issues and gathering wide support from variety of actors through process of dialogue can be expected to lead to more sustainable solutions than preconceived and packaged 'best practice' solutions. Sharing the

lessons learned and insights from the process in the SIRP targeted area can help scale up the results achieved; and the expectation is that the processes may inform policy processes at the national level.

Component 2 Climate-smart Agriculture and Market Access

38. **Rationale.** Decades of experience in irrigation development, both in Zimbabwe and beyond, have evidenced the need for an integrated approach to ensure commercial and environmental sustainability. This is the rationale behind the design of the SIRP programme. Without an increased orientation towards the market, improved access to inputs, and the adoption of good agricultural practices for increased productivity, farmers cannot create the revenue needed to increase their income and sustain the operation and maintenance (O&M) costs of schemes. Similarly, without considering the wider socio-economic and biophysical landscape, equity issues would limit impact to a small number of people only, and environmental issues would undermine the overall success of the programme.

39. Current low average yields in the irrigating schemes visited during project formulation are largely due to low input use efficiency, particularly for water; excessive soil tillage negatively impacting on soil water and nutrient holding capacity; and blanket application of fertilisers (not based on soil testing), leading to high production costs. There is great potential for improved production and productivity levels of farmers in schemes provided there is good farmer organization and adequate technical support by extension services. Better organization of production is crucial to achieve that potential, e.g. by maintaining appropriate rotations, ensuring uniformity of operations and increasing adequacy of input application.

40. Access to markets is among the main challenges faced by irrigating farmers on low-performing schemes. This is compounded by poor crop selection, and low volumes and low quality of the produce. Irrigation scheme production is mostly focused on perishable crops, which suffer from large post-harvest losses and quick deterioration during harvest, post-harvest handling, storage and transportation to markets. Although off-takers see a real potential in venturing into business with smallholder irrigation farmers, they lack sufficient resources to take on the larger issues affecting scheme performance related to irrigation infrastructure, debts to energy and water providers, lack of investment capital, and the farmers' limited scheme management skills. Most roads leading to farm gates are dilapidated. Rehabilitation of these roads is required with focus to addressing critical bottlenecks, e.g. drainage, gravel filling potholes, culverts and small bridges.

41. There is a strong rationale not only to invest in the revitalization of irrigated lands, but also of adjacent rainfed area. While environmental sustainability is a major issue for irrigation development and necessarily involves the larger farming systems, common management of shared natural resources requires equitable sharing of benefits. Investing in adjacent rainfed areas will allow to spread the benefits of SIRP to a larger number of farmers.

42. Current farming practices on rainfed area do not only cause land degradation, they do not suffice to reach potential productivity levels either. Introduction of good agricultural practices, combined with business and marketing training, and promotion income generating enterprises that raise productivity and utilise natural resources efficiently would be an incentive for farmers on rainfed land to improve their management of the lands. Furthermore, it would help to sustain productivity levels during droughts, therefore improving food and nutrition security. SIRP will promote Climate-Smart Agriculture, e.g. agricultural practices that make more efficient use of natural resources and that are more resistant to heat, droughts and floods.

43. It is recognised that the majority of the farmers are women and therefore special attention should be given to ensure that they benefit equally from the programme. However, on the existing schemes to be revitalised, the target group is already pre-selected. Therefore SIRP will encourage greater gender sensitivity when selecting committee members and replacement of irrigators.

44. **Objective.** The objective of this component is to achieve sustainable crop production and farm competitiveness and profitability. This component will target both the irrigated areas, as well as the

adjacent lands which belong to the same villages engaged in the irrigation scheme, called the adjacent rainfed areas (see figure 3). By targeting these areas, SIRP will be able to spread its impact in a more equitable way, and to address issues arising over the changing use of common natural resources such as land, forest and water.

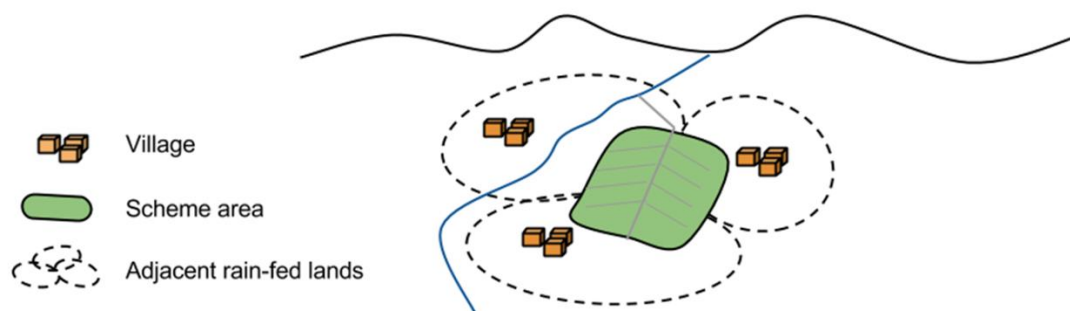


Figure 3 Illustration of the Adjacent Rainfed Area

45. A major thrust and principle for engagement for SIRP is to enhance participation, ownership and to give control of decisions to local community groups. This subcomponent builds on the participatory assessments carried out under sub-component 1.1, to arrive at participatory selection and planning of interventions. For the irrigated area, these interventions are contained in the scheme *Revitalization Plan*, linked to other interventions aimed at rehabilitation of irrigation infrastructure (sub-component 1.1) and at irrigation management (sub-component 1.2). Agriculture productivity and market led interventions, will be specified in a *Greater Scheme Agricultural Plan* (see figure 2 in Component 1).

46. This component will be implemented through three sub-components: (i) Enhanced agricultural practices and farmers' organizational capacity; (ii) Market access and rural financial services; and (iii) Enhanced institutional capacity for market-led production.

Sub-Component 2.1 Enhanced agricultural practices and farmers' organizational capacity

47. This sub-component aims at empowering targeted farmers to improve their agricultural practices and sustainably increase productivity and efficient use of natural resources. To do so, SIRP will focus on: (i) Participatory natural resources mapping; (ii) participatory planning, monitoring and evaluation; (iii) Natural Resources Management Facility that will provide matching grants for the implementation of income generating activities using good agricultural practices to raise productivity and incomes and complementing soil and water conservation technologies; and (iv) promotion of nutrition education and gender equality, and economic empowerment.

48. AGRITEX will lead the implementation of the subcomponent, while contracting different service providers. Private sector and especially input suppliers and off-takers will also provide capacity building of the farmers to ensure sustainability and good connection with sub-component 2.2, as market opportunities will influence production choices.

49. Once a scheme is selected for revitalization, SIRP will facilitate the development of the Revitalization Plan and the Greater Scheme Agricultural Plan. As the programme will intervene in a variety of agro-ecological zones with different socio-economic conditions, these plans will be site-specific. Farmers will take a leading role in prioritizing interventions, through their scheme and village-level structures. The farmers will be supported by AGRITEX, EMA and service providers.

50. **Participatory Natural Resources Mapping.** The first set of activities under this sub-component will include the following steps.

- (a) *Initiating or revitalizing environmental subcommittees* under the Village Development Committees (VIDCOs). In villages where no environmental subcommittees exist, VIDCOs will

be assisted to organize such structures through an election amongst village members, and be supported to define roles and responsibilities of different committee members. In the case of existing environmental committees, a participatory diagnostic will be carried out including committee and village members to identify opportunities for improvement. All environmental committee members will receive training to carry out their duties.

- (b) *Participatory natural resource and productivity mapping.* SIRP will assist the environmental committee to lead a process of NRM planning, starting with a participatory identification and mapping of natural resources and current production systems in the village area. Different participatory resource mapping techniques may be explored to facilitate this mapping exercise. The mapping will also include soil sampling as a determinant of suitable good agricultural practices. Based on the mapping, participants will be assisted to identify challenges and opportunities in using the natural resources they share.

51. **Participatory Planning, Monitoring and Evaluation.** This second set of activities concerns the development of the Revitalization Plan and the Greater Scheme Agricultural Plan and includes:

- (a) *Exchange visits.* Exchange visits will be organized for selected representatives to nearby villages that have successfully implemented natural resources management and good agricultural practices. Participants will, assisted by SIRP, identify approaches and technologies that could be beneficial for their own village area.
- (b) *Participatory planning.* Based on the results of the exchange visits and the natural resources mapping, and complemented by the inclusion of the Natural Resources Management Facility by SIRP to provide matching grants for income generating activities that utilise natural resources in a suitable manner, communities will make a planning of activities. Participants will prioritize and select interventions for their own and communal lands, including soil and water conservation measures, management of stream bank cultivation, good agricultural practices, wildlife management and grazing land management practices. Specific attention will be paid to ensuring that natural resource conservation goals are combined with income generation goals; ensuring alternative income sources for those people whose access to certain resources is reduced. The outcomes of this exercise will be documented in the Revitalization Plan and the Greater Scheme Agricultural Plan. Communities will also be trained to monitor and evaluate implementation of the plans, and to update them on a regular basis.

52. **Good Agricultural Practices.** SIRP will support pluralistic extension services delivery to promote the adoption of good agricultural practices. The methods used will be tailored to the specific situation. In irrigated areas, extension services will focus on field demonstrations focusing on profitability of the action, adaptation on needs of quickly changing environment driven by market and a more individualistic approach. Interventions promoted by SIRP under this sub-component will include:

- (a) *Implementation of the Farmer Field Schools in Adjacent Rainfed Area.* The activity will include (a) establishment of Farmer Field Schools (FFS) to increase community coherence and stimulate discovery based learning; (b) facilitation of applied training to farmers on the adoption of Good Agricultural Practices (GAPs): including use of quality seed of improved varieties, timely planting and weeding, integrated soil fertility management, appropriate application of fertilizers, integrated pest management and water-nutrient use efficiency; (c) promotion of Climate-Smart Agriculture (CSA), including sustainable agriculture practices, enhancing resilience and adaption to climate changes, implementation of traditional techniques, such as mulching, intercropping, conservation agriculture, and pasture and manure management and promotion of tools and techniques for reducing greenhouse gas emission. The program will train 10 Master trainers, 500 FFS facilitators and approximately 12,500 farmers on GAP and CSA in adjacent rainfed areas.
- (b) *Natural Resources Management Facility.* The activity will include (a) training of farmers in greater scheme area on GAPs, participatory planning in identification, prioritization,

formulation of income generating projects, business management and soil and water conservation technologies; (b) NRMF provides matching grants to smallholder farmers in the adjacent rainfed areas for income generating activities identified through a community participatory process under the Greater Scheme Agricultural Plan. Eligible projects must contribute to improved production, productivity and incomes of the target group through the sustainable utilisation of natural resources, and also complement soil and water conservation technologies. Under the facility, SIRP will provide training for beneficiaries in the requisite income generating enterprise and contribute 90 per cent of programme investments costs; (c) cash contribution of NRMF beneficiaries. The farmers would contribute 10 per cent of the overall investment cost in cash. In addition, the farmers would be required to set aside funds to meet operation and maintenance costs and contribute their labour. The facility is targeting 12,500 households in adjacent rainfed areas and target group will consist of 50 per cent women.

- (c) Eligibility criteria for NRMF includes: adoption by 80 per cent of households; meeting the target group criteria with farmers organised in groups; viable projects that increase productivity and income and complement soil and water conservation technologies; willingness to contribute 10 per cent of total investment costs in cash and commitment to set aside funds for O&M. The choice of income generating project will be entirely the responsibility of the community. An indicative list of income generating activities is given below:
- (d) *Production of Citrus- Cowpea – Maize (includes a water harvesting unit)*: The intervention targets 4,000 households in adjacent rainfed areas in NR III/IV to plant 1 ha of crops comprising: 0.25 ha citrus-cowpea and maize intercrop; 0.2 ha maize-cowpea intercrop; 0.2 ha maize; 0.25 ha groundnuts and 0.25 ha sorghum. The project will provide farmer groups with citrus seedlings, water harvesting facility, cowpeas, maize, groundnuts and maize seed as well as fertiliser and chemicals. A low cost irrigation facility using jerry can or plastic water bottles will be used. Farmers will receive training on crop husbandry and management, with a focus on land preparation, planting, fertiliser requirements, watering, disease and pest control, pruning and weeding, marketing and awareness on the benefits of intercropping. The beneficiaries will make a contribution of 10 per cent of the total investment costs in cash and will set aside funds for operation and maintenance for the water harvesting unit. The farmers would assist in the provision of manure which must be applied at planting, labour inputs for planting, weed control and protection against grazing. The project will promote good soil management techniques such as soil erosion control, use of ground cover crops, mulching, intercropping and application of compost. Potential benefits of intercropping may include: improvement in yield, reduction in pests and weeds, higher crop diversity per unit of land, improved soil fertility, and provision of insurance against crop failure. It is also promoted as a strategy to increase food and nutrition security and income before the citrus tree mature, as well as to maximise the efficiency of resources on smallholder plots. The project will contribute to increasing household incomes, improve soil and water conservation and contribute to the growth and development of citrus production for smallholder in Zimbabwe.
- (e) *Woodlot-Cowpea-Maize*: The intervention will target 5,000 households in adjacent rainfed areas in NRIV/V to plant 1 ha of crops consisting of 0.25 ha woodlot-cowpea and maize intercrop; 0.2 ha maize-cowpea intercrop; 0.2 ha maize; 0.25 ha groundnuts and 0.25 ha sorghum. Smallholder farmers in these regions experience marginal rainfall which results in poor crop production. In response to this situation, smallholder farmers' practicing rainfed agriculture must build their resilience by establishing tree woodlots as an alternative source of income. The project will provide the farmers with woodlot tree seedlings, maize, groundnuts, sorghum and cowpea seeds, fertilisers and chemicals. Farmers will also receive training from AGRITEX, Forestry Commission or NGOs on best practices in the management of woodlots and its integration with annual crops. Training by AGRITEX in the production for annual crops will build on the existing farmers' good agricultural practices, whereas farmer management of woodlots would require proper training to ensure fast growth and quality wood. Farmers would

be required to contribute 10 per cent in cash for the total investment costs, provision of manure, labour inputs for planting, weed control and protection against grazing. Intercropping of tree woodlot-maize and cowpeas will assist to curb soil erosion, restore soil productivity through the planting of nitrogen fixing cowpeas. Farmers would be encouraged to plant fast growing nitrogen fixing tree species in order to capitalise on the ecological and economic benefits of this practice. The enterprise serves as a safety net, providing not only income but low cost of source of fuel wood, food and nutrition security, fodder, housing material nitrogen fixing, improvement of the microclimate with trees acting as windbreak to reduce evaporation and increase water availability to field crops. It is expected that the intervention will enhance employment, improve livelihoods while maintaining environmental protection. Multiple sources of income from annual crops will enable the farmers to waiting for their woodlot to mature contrary to harvesting immature trees.

- (f) *Beekeeping*: Apart from providing alternative income sources for smallholder farmers in the targeted areas, the beekeeping project is also aimed at providing a practical tool for raising the awareness of communities of the importance of good management of their forests and for stimulating their conservation. The project will target 2,000 households who will be provided with improved beehives such as the Kenya Top Bar, bee suits, smokers, bee brushes and harvesting buckets. The facility will provide best practices training for beekeepers through the Department of Livestock Development and a number of Service Providers such as the Zimbabwe Farmers Development Trust, Domboshawa Beekeeping Centre, Beekeepers Association in Zimbabwe, and SAFIRE among others. Farmers will also be taught how to make hives and other accessories. Farmers will contribute 10 per cent of the total investment costs and will set aside money for beehive replacements. Farmers will be encouraged to plant trees that provide a rich source of nectar and pollen. The farmers who plant most trees would be rewarded with extra hives as an incentive. The project will target groups of farmers thereby assisting in strengthening these groups through bringing them together to share information experiences and learn from each other. The groups will be linked to Associations that will improve the farmer's technique, improve production and strengthen their position on the market.
- (g) *Goat rearing*: The aim of the goat rearing project would be to establish pasture grasses to facilitate goat feeding system while rehabilitating infertile lands and promoting soil and water conservation technologies; to improve the quality of local goat breed through the provision of improved buck and gilts, and to provide an alternative household income and nutrition source for smallholder farmers. The goat rearing project would be carried out by farmers' organised groups and will target 1,500 households in adjacent rainfed areas. The project would provide 22 head of goats' consisting of 20 female and 2 bucks for each group of 20 households. The beneficiaries would contribute 10 per cent of the total investment costs, provide goat housing, plant pasture grasses and each beneficiary would pay for two gilts after one year. Farmer training and selection of breeding stock would be facilitated by the AGRITEX and Department Livestock Development which falls under the Department of Veterinary Services. Benefits of the intervention include the upgrading of livestock; planting of pasture to minimise soil erosion, strengthening of farmer organisations and promotion of integrated farming through using manure in crop fields.
- (h) *Implementation of demonstration plots on irrigation schemes*. The SIRP will facilitate trainings in agronomy and establishment of demonstration plots on irrigation schemes. Demonstration plots will present different trials conducted by farmers on crops and varieties identified in sub component 2.2 and during the need assessment. The demonstrations will be led by AGRITEX, but also by the private sector identified in sub-component 2.2. The main objective of this activity is to equip farmers with GAP techniques applicable in small-scale commercially oriented irrigation agriculture, while focusing on sustainably increased production and yields and reduction of the cost or production. This activity will benefit approximately 12,500 irrigation farmers in 5,000 ha of targeted irrigation schemes.

- (i) *In-depth training in agronomic practices, use and procurement of input resources*, and other areas will be provided to Representatives of the Agriculture Committee on selected schemes. Each farmer business group will designate a Representative for Agriculture Committees for respective schemes. These will act as focal points for related duties and information transfer from different stakeholders approaching the scheme to individual farmers in their respective groups. Private sector will access scheme through business platforms established under the sub-component 2.2 and will provide AGRITEX and the Representatives of Agriculture Committee with specific information that can increase quality and marketability of the harvested product.

53. Promotion of nutrition education and gender equality, and economic empowerment.

Gender mainstreaming will take place within all the activities under SIRP. However, this sub-component will address gender equality and nutrition through (a) facilitating and strengthening women's organizations; and (b) promoting good nutrition through: 1) nutrition education; 2) demonstrations on nutrition gardens; and 3) food fairs and cooking/feeding demonstrations.

- (a) *Promotion of Gender Equality*: SIRP will ensure gender equality mainstreaming in all the activities, including ensuring that women's opinions are sought during diagnostic stages of scheme development and their needs catered for throughout the scheme development process; that women gain equal opportunity to become plot owners and members of scheme management committees; and that women obtain more secure rights on the land they irrigate or farm; and finally monitor the gender impact of programme activities and procedures. Specific project interventions will include:
 - (i) Prepare a gender training manual and conduct gender sensitisation course for key staff of service delivery organisations to promote women representation in WUO and Farmers Organizations. The target is to get to 50 per cent women representation, which is also in line with the Zimbabwe Gender Policy.
 - (ii) Assist women farmers (both irrigators and non-irrigation) and women farmers in leadership positions (in farmer's organisations, management committees and producer organisations) to hold annual forums. A total of 200 forum sessions will be held and forum will be scheme based.
- (b) *Promotion of good nutrition* will be achieved through nutrition education and demonstration of nutrition gardens, food fairs, cooking and feeding demonstrations:
 - (i) Nutrition education. SIRP will engage the services of a nutritionist to develop a training module on basic nutrition education that will be integrated into the training program. This would assist to raise awareness of communities to improve access to local foods and diversity family diets for better nutrition in rural communities. Behavioural change, communication and nutrition education are key components ensuring that production translates into special nutritious and diversified diet especially among children and lactating mothers. Therefore targeting women with such training is one of the most effective ways to ensure that children, the young people and the whole family receive adequate food.
 - (ii) Demonstrations of nutrition gardens. Nutrition garden can enhance availability and diversity through food grown and income generated from surplus sales. The project will establish demonstration gardens of the 125 irrigation schemes and the adjacent rainfed area. The nutrition garden will be established at the homestead of a volunteer. SIRP will provide the volunteer with seed, fertilisers, pesticides, and other material support. The nutrition garden will grow a variety of crops namely: carrots, butternuts, sweet potatoes, spinach, legumes, etc. A strong nutrition education component will be implemented using participatory approach and this will be combined with improved gardening support. The use of women promoters to advice village based groups will be encouraged since most of the nutrition gardens are managed and controlled by women and therefore the activity

would be instrumental in the promotion of women's empowerment. AGRITEX staff will be responsible to establish demonstrations for nutrition garden.

- (iii) Food fairs and cooking/feeding demonstrations. Each irrigation scheme and adjacent rainfed area will hold a food fair on a rotational basis at provincial level. The aim is to improve access to local foods and diversify family diets for better nutrition of rural communities. Women and men farmers will exhibit traditional crops and foods, emphasising their importance for local and national food and nutrition security. The exhibition will cover different type of cereals, legumes, roots and tubers, sorghum/millet, groundnut, sesame, yams, sweet potatoes. The cooking demonstrations will promote recipes on how to prepare the different types of foods to provide family with a balanced nutrition. Food fairs will be organised by AGRITEX. who will work with district nutritionist to plan and conduct food fairs and disseminate information to encourage the adoption of improved nutrition practice.

Sub-Component 2.2 Market access and rural financial services

54. **Rationale.** Access to markets is one of the major constraints to increased income and improved livelihood to farmers. In most cases, farmers produce the same products at the same time without a defined marketing strategy, and are generally not aware of market requirements for volumes and quality. The increased production expected from the rehabilitation of the irrigation schemes will put further pressure for farmers to find markets.

55. Private companies are increasingly reluctant to provide inputs on credit, extension services, and price definition on supply contracts. This happens because farmers frequently engage in side-selling, fail to meet the required quality and volumes. Incentives should be put in place for farmers to value long-term business relations and cooperation with other value chain actors in effective win-win relationships. Often lack of transparency and poor understanding of market trends and contractual conditions are at the heart of the coordination problem leading to lack of trust.

56. Lending and other financial services to smallholders are extremely limited and are largely confined to contract farming and tripartite arrangements in tightly-structure value chains whereby financial institutions are directly reimbursed by the off-takers through a stop-order arrangement. While developing new lending products is beyond the reach of this project, there is scope to improve savings mobilization through strengthening informal savings clubs and associations, improving financial literacy and numeracy of farmers, while strengthening Community Based Finance Institutions (CBFI).

57. A number of electronic information platforms are currently operating in Zimbabwe with the purpose of spreading agricultural market information between different actors along the value chains. This generally takes the shape of a centrally managed database that includes volumes traded at the main markets, prices of transactions, and the farmers and traders operating in the market. These databases are regularly kept by an organization that registers market information on a daily basis. It then operates a fee-based service of broadcasting information on market opportunities through sms and phone calls.

58. Post-harvest losses along supply chains, in particular for horticulture products can be as high as 60 per cent in Zimbabwe. Horticulture and high value crops produced at the schemes are subject to seasonality and the risk of oversupply, especially in the dry season from June to September. The lack of capacity of farmers to store or process fresh products makes them vulnerable to market flooding and financial losses. For example, a storage temperature of below 12 degrees is sufficient to triple the shelf life and decrease rapid deterioration of most of the horticulture produce. Investments in the cold chain tend to be highly capital demanding, but ongoing research and availability of low cost post-harvest technologies brings opportunities for farmer groups and other chain actors to invest in these technologies.

59. Other post-harvest activities that can bring further added value at farm level include the cleaning, grading, weighing, drying, cutting, washing, packaging and storage of farm products. To the

extent there is a clear market for these basic processed products, the programme will support the introduction of said technologies at the farm level and train farmers in performing these activities.

60. **Objective** is to improve farm profitability and household incomes by increasing market access and linkages between the different value chain actors. It will target smallholders in selected irrigation schemes and adjacent rainfed area. This sub-component will consist of five sets of activities: i) Rural Financial Services; ii) Broad-based training in agribusiness development and marketing; iii) Brokering market linkages and information access; iv) Post-harvest management training and demonstration of low-cost assets; and v) Rehabilitation of feeder roads, including small bridges. This sub-component will be led by AGRITEX and will involve private sector actors.

61. **Rural Financial Services.** This activity aims at improving access to and use of adequate financial services by the target population. Expected results include enhanced capacity of the target population to mobilise and use financial services effectively and increased number and value of loans to target population.

- (a) *Training in Financial Literacy.* There is a need to strengthen basic financial literacy and management skills across the targeted farmers, farmer organizations and rural youth. Such broad-based training will create the foundation for farming as a business, local resource mobilization and engagement with external partners (financial service providers, agribusiness). A specialised service provider will be recruited to undertake a needs assessment of different population segments and organizations and develop a curriculum for the main trainings and an implementation and roll-out strategy. The training will strengthen the capacity of farmers and their organizations to: (i) manage their farm-household cash flows; (ii) analyse the profitability and cash flows of productive farm and non-farm activities/enterprises/investment opportunities; (iii) make optimal use of existing financial services for household and business needs (savings, loans, mobile banking services); and (iv) engage in community-based finance and with financial service providers and other financiers (off-takers, input suppliers). The service provider will train a certain number of farmers directly in order to field-test and fine-tune the methodology. An evaluation will be conducted after the first year to assess relevance and adequacy of the content and delivery mechanism. Local trainers will be trained on the job and through Training of Trainer (TOT) approaches. During the second half of programme implementation, refresher trainings will be provided to local trainers and beneficiaries.
- (b) *Community-Based Finance Institutions Development.* The programme will enhance the capacity for local resource mobilisation by strengthening CBFIs such as Internal Savings and Loan Groups (ISALs), savings clubs, and Savings and Credit Cooperative Organisations (SACCOS). Based on an initial stocktaking of existing CBFIs in and around the targeted irrigation schemes, promotion plans for each cluster of schemes will be developed and implemented. It will be conducted by a specialised service provider in collaboration with local AGRITEX officers and local leaders and service providers. Based on this inventory, several specialised service providers will be contracted to establish and implement plans for each cluster of schemes for upgrading CBFIs and increasing their numbers. Possible activities include the creation of new ISAL groups, strengthening of existing groups and creation of local apex structures (clusters), transformation into more formalised financial institutions such as SACCOs, and linkage of CBFIs to formal financial institutions (banks and MFIs). Service providers will be recruited on a competitive basis. The service provider will also train local leaders, AGRITEX officers and community volunteers in the methodology.

62. **Broad-based training in agribusiness development and marketing.** This activity will focus on short term capacity building of farmers on schemes and adjacent rainfed area. A specialised technical service provider will undertake a capacity needs assessment of different target group segments develop a training curriculum and a roll-out strategy.

- (a) *Training for farmers on irrigation schemes:* a general training on business skills, management best practices and product quality standards demanded by the market will be available to all

farmers in the project area. A separate, more in-depth training will be provided on business management and marketing to each scheme's marketing committee. A second phase will focus providing mentoring and assistance to farmers. This will be done through contacts with service providers to offer practical solutions to day-to-day problems.

- (b) *Training of targeted community members in adjacent rainfed area:* this activity will promote the development and improved management of farm and non-farm businesses for rainfed farmers through enhanced business skills. Training will include agro-processing, commercialization, as well as non-farm activities like tinsmiths, mechanics, carpentry, and the provision of other services. Sound business proposals will then be connected to emerging micro businesses, farmer business groups, schemes and clusters.

63. **Brokering market linkages and information access.** The programme will engage with the different value chain actors to ensure that farmers produce what the market (local, national or international) demands in terms of quantity, quality and frequency. The creation of successful partnerships with the private sector and institutional off-takers is fundamental for business success. This set of activities will be contracted to one or more Business Development Service Providers, with ample experience in Zimbabwe. This activity breaks down in the following sub-activities:

- (a) *Establishment of farmer business groups:* Farmers in each scheme will be grouped into business groups of 5 to 15 members for better engaging with the markets. Each farmer will choose with whom he/she wants partner based on personal experience, business orientation and trust. These groups need to be established in a way that all members feel comfortable to share sensitive information, access credit and repay it. Appropriate business models will be chosen for each scheme based on distance to markets, willingness to accept external management, group cohesion and experience with the type of crops demanded. Different modalities of supply contracts will be discussed that may include the provision of high-quality inputs in line with market demand, either on a cash-upon delivery or on a credit basis, as well as forward contracts specifying volumes, qualities and prices.
- (b) *Establishment of value chain platforms:* The value chain platforms are housed at scheme or cluster level, occupy a physical space where producers, buyers and financial institutions can meet (multi-purpose pack-shed, described below). Their purpose is to help identify bottlenecks in the different value chains and develop strategies to address them. Regular meetings of stakeholders can increase understanding of the market and improve the quality and adherence to supply contracts. This space will be equipped with the necessary hardware to facilitate the club's activities: meeting room, computer, information material.
- (c) *Improve information flow between the different value chain actors:* The programme will focus on improving the capacity of farmers to access market information in a timely manner. This will be achieved by adopting already existing information technology communication platforms at national level; and by supporting the governmental agencies whose mandate it is to provide information for the different agricultural value chains. This sub-activity will focus on helping the farmers to actively participate in the electronic market platforms available. In particular, the programme will strive for these actors to access the same platforms to spread their business information.
- (d) *Empower AGRITEX presence at the scheme level* to i) assist farmers in measuring and reporting the correct information regarding production volumes, crop development, product quality. This will improve the functioning of the market once it is introduced in the electronic platform; ii) collect, analyse and report on this information to the relevant departments in MAMID.

64. **Post-harvest management training and low-cost assets.** The capacity to store perishable products, in particular, will increase food safety and add to the farmers' bargaining power. To the extent that there is a clear market for these basic processed products, and in collaboration with private sector off-takers, the programme will support the introduction of post-harvest technologies and

infrastructure at scheme levels and train farmers in performing these activities. A close relationship with off-takers will be sought to guarantee that the appropriate technologies are introduced:

- (a) *Building of a multipurpose post-harvest management centre (pack-shed)*: this could include storage, cold room, gathering place, housing the business clubs. This will be owned by the scheme members and managed by the scheme marketing and business committee. In the schemes where this structure already exists, the programme will concentrate on its improvement and equipment. This will be cost-shared between farmers, the project, and wherever possible, the private off-takers.
- (b) *Piloting and promoting different innovative low cost technologies for storage and processing of perishable products at irrigation scheme level and cluster level*. This will be managed and owned by the farmer groups who show more entrepreneurship and willingness to pilot these technologies. It will be financed by the project through a matching grant, with the project initially paying 80 per cent of the cost of the equipment. Particular attention will be placed on artisanal and low cost technologies. Training will be provided in collaboration with off-takers to meet market requirements. An inventory of available technologies cost-benefit analysis will be prepared in collaboration with off-takers.
- (c) *Training of youth as artisans to provide post-harvest value addition services*: To ensure the sustainable adoption of the piloted technologies, the programme will support local suppliers of spare parts and other material used. This will create demand for non-farm products and services in the rural areas and thus provide opportunities for non-farm job creation. The programme will provide local youths and artisans with vocational training in post-harvest value addition activities such as product handling, storage, and transport.

65. **Rehabilitation of roads.** One of the main hurdles faced by smallholders is how to take their produce to markets or how to attract off-takers to collect the produce at farm gate. Acknowledging this situation, and with a view to improve logistics and decrease marketing costs, SIRP will engage in the rehabilitation of the last mile feeder roads connecting the scheme to the main road. The rehabilitation will focus to addressing critical bottlenecks, such as drainage, gravel filling potholes, culvers, small bridges as an integral part of developing the irrigation schemes. This will be undertaken by private contractors to be contracted and supervised by the DDF. Two activities would be undertaken:

- (a) *Design and supervision for road rehabilitation*: Private Contractor (s) would be responsible for the design and supervision of the 100km road rehabilitation programme.
- (b) *Rehabilitation works for roads*: Private Sector Providers to undertake the works. DDF would be responsible for supervising the contract.

Sub-Component 2.3 Enhanced institutional capacity for market-led production

66. **Rationale:** AGRITEX has a long history of dealing with smallholder irrigation. The main advantage of the department is that it has a structure that covers the whole country with staff at provincial, district and ward levels. Country-wide, AGRITEX technical staff stands at 4,487 specialists, with a vacancy rate of approximately 6 per cent. In targeted provinces stands AGRITEX technical staff totals 2,243 specialists, with a vacancy rate of less than 4 per cent. There is at least one agricultural extension worker assigned to each irrigation scheme to provide on-site technical support. There are about 4,400 extension workers, extension supervisors and district officers in AGRITEX. Out of 60 districts only less than 20 districts have aged vehicles. Less than 20 per cent of extension workers have a motor cycle.

67. AGRITEX has limited experience in working with farmers from a business perspective and therefore needs to build capacity to work with WUOs to adopt a business orientation. Other identified capacity gaps concern the limited skills in participatory methods for irrigation design and management, gender awareness and monitoring and evaluation skills. Challenges faced by AGRITEX relate to: i) limited mobility (vehicles and motor bikes) to enhance farmer contact; ii) limited operational resources including equipment for field work (extension worker kits); iii) weakened in-service training due to operation resource constraints.

68. **Objective** of this subcomponent is to improve the quality of service provision to smallholder irrigators among the government agencies. This will be achieved through the provision of technical assistance, activity-specific training, material support and the funding of incremental operating costs.

69. **Activities.** This sub-component consists of two sets of activities: (i) enhancing the capacity of AGRITEX and others to provide quality service delivery to smallholder irrigation farmers; and (ii) enhancing the capacity of AGRITEX to engage in policy dialogue on smallholder irrigation issues.

70. **Enhancing the capacity of AGRITEX and other departments** to provide quality service delivery will be achieved through:

- (a) *Provision of vehicles, equipment and materials:* Under the programme, AGRITEX would be provided with 21 four wheel drive double cab vehicles (16 at district level, 4 at provincial level and 1 at central level), 125 motorcycles and extension worker kit (one per scheme), laptops, desktop computers, printers, photocopiers, database management software. In addition, SIRP will also provide funding to finance incremental operating costs associated with the involvement of AGRITEX and other government departments in SIRP activities.
- (b) *Training needs assessment and Training and mentorship for AGRITEX staff and others.* The PCU will engage the services of a consultant to carry out a training needs assessment for the key implementing agencies (AGRITEX, Economics and Markets (EMA), Climate Change Management and Agriculture Marketing Agency (AMA)). Specialised Technical Assistance, mainly from the service providers, would be hired to prepare training material and provide training to approximately 500 AGRITEX staff and other government service providers on a variety of identified courses. Training is envisaged mainly at two levels, mainly:
 - (i) Inter-agency training courses (AGRITEX, DoI, AMA, RDCs, EMA, Climate Change Management, Economics and Markets) will be held during three days covering: Participatory Methodologies in Scheme Planning and Design, Training for Transformation, Gender Sensitisation, Environmental Impact Assessment, and Monitoring and Evaluation and Knowledge Management.
 - (ii) Technical training for AGRITEX staff: covering a range of technical aspects of good agronomic practices such as: water management; farming as a business, agronomy foundations, horticulture, extension methods, soil and water conservation; post-harvest management and value addition, markets and marketing. For FFS, a 5 day training of trainers (TOT) course for 50 AGRITEX staff would be conducted in all the 4 targeted provinces.
 - (iii) Conducting study tours and exchange visits: Study tours to other countries with successful experience in participatory irrigation management or successful smallholder horticulture production and marketing will be organized by the PCU. In addition, the project would provide funds for the hire of buses for Local “look and learn” visits on FFS and exchange visits with similar on-going projects.

71. **Engaging AGRITEX and others to engage in policy dialogue.** The aim is to promote policy dialogue among key stakeholders in targeted area, on issues affecting smallholder agriculture.

72. With regards to natural resources management, potential topics for policy dialogue will be (i) the effective and cost-efficient implementation of environmental and social management plans (ESMPs); (ii) integration of multiple water use provisions into the design of irrigation schemes; (iii) innovative methods for prevention of livestock intrusion into irrigation schemes; and (iv) multi-benefit approaches to soil and water conservation.

73. With regards to market access and competitiveness, policy dialogue would be centered on the themes of (i) trade policy instruments and how these facilitate access to foreign markets; (ii) fiscal incentives to investment, namely duty and tax exemption for the importation or purchase in the domestic market of machinery and other inputs; (iii) incentives for private companies to engage with

smallholder farmers; and (iv) main cost-drivers of Zimbabwean agriculture, namely those that most affect smallholder farmers, and the creation of a roadmap to improve performance.

Annex 1 : Preliminary Scheme Identification from Department of Irrigation's Inventory

Preliminary irrigation scheme identification- from Dol inventory

No	Province	District	Scheme Name	Ha equipped	Area in use (Ha)	Benefi- ciaries	Plot Size	Potential Market	Km to mark et	Remark	Area Clustered/ Unclusterd	Sub- total	%age
1	MANICALAND	Chimanimani	Chakohwa	87	87	140	0.6	Chimanimani	46		1677	4576	62
2		Chimanimani	Mandima	70	70	140	0.5	Chimanimani	27				
3		Chipinge	Musikavanhu	700	700	700	1.0	Chipinge	45				
4		Chipinge	Chibuwe	357	357	655	0.5	Chipinge	38				
5		Chipinge	Mutema	120	180	450	0.4	Chipinge	26				
6		Chipinge	Mutandahwe	27	27	68	0.4	Checheche	24				
7		Buhera	Murambinda	38	38	76	0.5	Murambinda	11				
8		Makoni	Tandi	21	21	53	0.4	Headlands	54				
9		Mutasa	Honde 1	20	20	50	0.4	Hauna	12				
10		Nyanga	Nyajezi	100	100	250	0.4	Nyanga	29				
11		Nyanga	Triashill	57	57	143	0.4	Nyanga	36				
12		Nyanga	Nyatsanza	20	20	50	0.4	Nyanga	73				
13		Buhera	Bonde	364	364	364	1.0	Birchenough	10	ClusterA	1496		
14		Buhera	Deure	330	330	450	0.7	Birchenough	5	ClusterA			
15		Chimanimani	Nyanyadzi	440	440	633	0.7	Birchenough	24	ClusterA			
16		Chimanimani	Nenhowe	100	100	100	1.0	Birchenough	30	ClusterA			
17		Chipinge	Taona	262	262	655	0.4	Birchenough	15	ClusterA			
18		Makoni	Chiduku Ngove	44	44	88	0.5	Rusape	25	ClusterB	145		
19		Makoni	St theresa	25	25	63	0.4	Rusape	22	ClusterB			
20		Makoni	Masvosva	22	22	55	0.4	Rusape	36	ClusterB			
21		Makoni	Chiware	20	20	50	0.4	Rusape	14	ClusterB			

No	Province	District	Scheme Name	Ha equipped	Area in use (Ha)	Benefi- ciaries	Plot Size	Potential Market	Km to mark et	Remark	Area Clustered/ Unclusterd	Sub- total	%age
22	MASVINGO	Makoni	Chiduku Tikwiri	19	19	38	0.5	Rusape	21	ClusterB	60		
23		Makoni	Dewedzo	15	15	38	0.4	Rusape	28	ClusterB			
24		Makoni	St faith	30	30	75	0.4	Rusape	10	ClusterC			
25		Makoni	Upper lesape	20	20	50	0.4	Rusape	25	ClusterC			
26		Makoni	Epiphany	10	10	25	0.4	Rusape	16	ClusterC			
27		Mutare	Marange	200	200	420	0.5	Mutare	29	ClusterD	260		
28		Mutare	Chitakatira	40	40	40	1.0	Mutare	16	ClusterD			
29		Mutare	Nyachowe	20	20	40	0.5	Mutare	17	ClusterD			
30		Mutare	Hmalaya	40	40	40	1.0	Mutare	32	ClusterE	65		
31		Mutare	Osborne	25	25	25	1.0	Mutare	30	ClusterE			
32		Nyanga	Nyamaropa	442	442	553	0.8	Nyanga	45	ClusterF	873		
33		Nyanga	Nyakomba	431	431	528	0.8	Nyanga	48	ClusterF			
34		MASVINGO	Masvingo	Rupike	100	100	200	0.5	Masvingo	64			
35										*Missing from the Inventory			
36	Masvingo		Mushandike	847	847			Masvingo	20				
37	Mwenezi		Dinhe	35	35	42	0.8	Rutenga	19				
38	Zaka		Fuve panganai B	78	78	82	1.0	Masvingo	97		70		
39	Bikita		Rozva	80	50	95	0.5	Bikita	8	ClusterG			
40	Bikita		Shereni	20	20	43	0.5	Bikita	8	ClusterG			
41	Chiredzi		Chilonga	142	142	320	0.4	Chiredzi	48	ClusterH	182		
	Chiredzi		Tsvovani	40	40	100	0.4	Chiredzi	50	ClusterH			
42	METABELE S	Beitbridge	Tongwe	27.4	27.4	76	0.4	Beitbridge	30		491.4	948	13
43		Beitbridge	Bili	21	21	46	0.5	Beitbridge	80				
44		Bulilima	Ingwizi outgrowers	100	100	219	0.5	Plumtree	70				

No	Province	District	Scheme Name	Ha equipped	Area in use (Ha)	Beneficiaries	Plot Size	Potential Market	Km to market	Remark	Area Clustered/ Unclustered	Sub-total	%age
45		Bulilima	Moza	75	75	200	0.4	Plumtree	48				
46		Umzingwane	Mzinyathini	32	32	80	0.4	Bulawayo	46				
47		Umzingwane	Duncal	14	14	28	0.5	Bulawayo	22				
48		Matobo	Valley		200	400	0.5	Plumtree	48				
49		Gwanda	Sukwe	22	22	44	0.5	Gwanda	60				
50		Insiza	Silalabuhwa	437	437	845	0.5	Gwanda	37	ClusterI	457		
51		Insiza	Siwazi	20	20	50	0.4	Gwanda	39	ClusterI			
52	MIDLANDS	Gweru	Insukamini	36.5	36.5	115	0.32	Gweru	27		51.5	509	3
53		Shurugwi	Zananda	15	15	28	0.54	Shurugwi	29		223.5		
54		Mberengwa	Biri Extension	131	131	200	0.66	Zvishavane	60	ClusterJ			
55		Mberengwa	Chimwe Chegato	64	64	128	0.50	Zvishavane	60	ClusterJ			
56		Mberengwa	Biri	28.5	28.5	58	0.49	Zvishavane	60	ClusterJ	233.5		
57		Mvuma	Hama Mavhaire	111	111	111	1.00	Masvingo	32	ClusterJ			
58		Mvuma	Mhende	98	100	256	0.39	Masvingo	45	ClusterJ			
59		Mvuma	Bangure	22.5	22.5	66	0.34	Masvingo	57	ClusterJ			
					7344.9	6436	0.5	4065					

Irrigation schemes without location- data from Dol inventory

No	Province	District	Scheme Name	Ha equiped	Area in use (Ha)	Benefi- ciaries	Plot Size	Potential Market	Km to market	Remark	Provincial Sub-total
1	Manicaland	Buhera	Mutunhu	15	15	30	0.5			Missing from Map	645
2		Chimanimani	Tonhorai	70	70	82	0.9			Missing from Map	
3		Chimanimani	Bomhoni	49	49	123	0.4			Missing from Map	
4		Chimanimani	Gudyanga	48	48	62	0.8			Missing from Map	
5		Chimanimani	Quaggas	40	40	100	0.4			Missing from Map	
6		Chimanimani	Shinja	28	28	60	0.5			Missing from Map	
7		Chimanimani	Makwe	20	20	50	0.4			Missing from Map	
8		Mutasa	Mtarazi	32	32	53	0.6			Missing from Map	
9		Mutasa	Makuwaza	30	30	60	0.5			Missing from Map	
10		Mutasa	Mpenga	30	30	60	0.5			Missing from Map	
11		Mutasa	Inyashuti	22	22	55	0.4			Missing from Map	
12		Mutasa	Doweguru	21	21	42	0.5			Missing from Map	
13		Mutasa	Manunure	20	20	40	0.5			Missing from Map	
14		Mutasa	Chidzinzwi	20	20	50	0.4			Missing from Map	
15		Mutasa	Rupinda	19	19	42	0.5			Missing from Map	
16		Mutasa	Gondejenya	18	18	36	0.5			Missing from Map	
17		Nyanga	Chitsanza	38	38	95	0.4			Missing from Map	
18		Nyanga	Nyamarimba	34	34	85	0.4			Missing from Map	
19		Nyanga	Nyaruwaka	30	30	75	0.4			Missing from Map	
20		Nyanga	Sadza	24	24	60	0.4			Missing from Map	
21		Nyanga	Nyautare	19	19	48	0.4			Missing from Map	
22		Nyanga	Sanyatse	18	18	45	0.4			Missing from Map	
23	Masvingo	Zaka	Nyatare A	10	10	20	0.5			Missing from Map	10

No	Province	District	Scheme Name	Ha equiped	Area in use (Ha)	Benefi- ciaries	Plot Size	Potential Market	Km to market	Remark	Provincial Sub-total
24	Mat S	Beitbridge	Chisala	8.8	8.8	22	0.4			Missing from Map	145
25		Beitbridge	Hlongwane	7	7	20	0.4			Missing from Map	
26		Insiza	Zhulube	15	15	40	0.4			Missing from Map	
27		Insiza	Sifinini	5	5	8	0.6			Missing from Map	
28		Mangwe	Bambanani	70	70	160	0.4			Missing from Map	
29		Matobo	Goffingo	10	10	20	0.5			Missing from Map	
30		Umzingwane	Mziki	35	35	70	0.5			Missing from Map	
31		Umzingwane	Sewondo	30	30	60	0.5			Missing from Map	
32	Midlands	Mberengwa	Mpwapkezi	20	20	58	0.34			Missing from Map	20
	Total				855.8	1831					855.8

Appendix 5: Institutional aspects & implementation arrangements

Institutional framework

1. SIRP implementation will involve various government institutions and partners, including private sector providers that will play different roles at various levels for effective delivery of programme benefits to the intended beneficiaries. Implementation of the programme will be governed by four main principles: a) alignment with the Government of Zimbabwe systems and procedures, especially those governing public expenditure management and procurement, and integration of programme implementation into relevant institutions implementing the programme. Implementation, to the extent feasible, will take place using the existing government structures.

2. The programme implementation agencies will be responsible for implementation of their components and would be supported to ensure their capacity to deliver on their mandates; a) greater empowerment of beneficiaries to take a leading role through their grassroots institutions in programme implementation; b) cooperation with the private agricultural service providers and various players in the priority agricultural commodity value chains; and c) stronger partnerships and harmonization with Government's development partners and other stakeholders in the sector.

3. The key areas for intervention for SIRP include: development and management of scheme assets, improved smallholder irrigation management, enhanced institutional capacity for irrigation development, enhanced agricultural practices and farmers organisational capacity, market access and rural financial services, enhanced institutional capacity for market-led production. The implementation arrangement for each programme component will be provided in the detailed Programme Implementation Manual (PIM).

4. The key delivery ministries include: Ministry Agriculture, Mechanisation and Irrigation Development (MAMID); Ministry of Lands and Rural Resettlement (MLRR); Ministry of Rural Development, Preservation and Promotion of Culture (MRDPPC); Ministry of Finance and Economic Development (MoFED); Ministry of Environment, Water and Climate (MEWC); Ministry of Small and Medium Enterprises and Cooperative Development (MSMECD).

5. The other key institutions include: Department of Irrigation, Department of Economics and Markets, AGRITEX, Rural District Councils (RDCs), Agricultural Marketing Authority, Department of Research and Specialist Services, District Development Fund (DDF), Department of Mechanisation, ZINWA/Catchment Councils Private Services Providers and Water Users Organisations (includes irrigators and non-irrigators). The Programme Coordination Unit established under MAMID with the provincial facilitators at province level will be responsible for ensuring the coordination in the implementation of the activity by the various government departments takes place in a synchronised manner in the targeted provinces. Technical assistance will be provided to support the implementation at all the levels. Private Service providers will be instrumental in providing specialist technical services which will be accompanied with training to build local expertise to sustain interventions.

Implementation approach

6. The proposed principles of engagement for programme design are:

- a. On the basis of IFAD's mandate, SIRP will target productive poor smallholders that are currently engaging in irrigation as well as poor and vulnerable smallholders engaged in rainfed farming in the greater scheme areas around targeted irrigation schemes. Approximately 50 per cent of these are expected to be women. It will be important to target a sufficiently high number of smallholders and other stakeholders so as to bring the investment/beneficiary ratio within levels acceptable to IFAD.
- b. Without compromising on food security, the programme will support the move towards smallholder irrigated farming as a business in order to enable sufficient financial returns to targeted smallholders, long term sustainability of investment and replicability/scalability of the

smallholder irrigation development approach. In line with the draft national policy on irrigation, SIRP is exploring the most cost-effective way of developing smallholder irrigation to set a model for future scaling up at national level.

- c. Engage in a limited number of districts with higher concentration of existing schemes (clusters) and potential for future expansion. Cluster schemes to be supported in areas that optimize a combination of bio-physical, socio-economic and institutional criteria, in order to achieve economies of scale and scope, and to maximize efficiency and effectiveness of programme funds, in particular for institutional support. Coordinate with existing projects supporting smallholders and irrigation.
- d. Use as selection criteria of the schemes the availability of water, the economic viability of their investment/rehabilitation project, and the capacity of farmer group to develop plan for operation and maintenance (O&M) on the full rehabilitated area. This include their capacity to pay for water and electricity bills, and their commitment to make an initial deposit/commitment fee and/or their commitment to start repaying their debts before being eligible for programme support.
- e. SIRP will adopt a participatory approach, whereby beneficiaries would be encouraged to take part in the various stages of the scheme development process. The programme will support farmers' own development efforts, based on the preparation of feasibility studies by the Department of Irrigation (DoI) and business plans by the farmers/irrigators through their organizations as well as willingness and ability to contribute an initial cash deposit to capital expenditure.
- f. Engage with the private sector (off-takers, input suppliers, financial institutions) early on in the process of prioritizing schemes to be rehabilitated, in order to ensure viable linkages with in- and output markets and support services during implementation.
- g. Investment to be made on a cost-sharing basis, with capital expenditure being mainly financed by the programme, while farmers have to cover full O&M of their scheme, including cost of water and depreciation of (movable) equipment.
- h. Prioritize rehabilitation of existing schemes, while verifying adequate water availability at pre-feasibility stage, proximity of market to sell produce at a competitive price (market catchment) as well as interest of private sector and financial institutions to work with the scheme or cluster, and institutional set-up (number of districts, wards). Programme to focus on adjacent rainfed area, by looking at irrigators farming systems, including rainfed areas around schemes. Prioritize crops that have a market and that farmers can grow competitively by reducing production costs and improving productivity.
- i. Focus the geographical scope on Agro-Ecological Zones III, IV and V of the following provinces: Manicaland, Masvingo, Matabeleland South, and Midlands. Facilitate improved coordination of MAMID departments at local level, through joint planning and coordination of activities in priority districts.
- j. Ensure that the capacity of Government to provide services to smallholders is strengthened, while supporting the implementation of different business model and business relations between farmers and private sector, including contracting out of key services to irrigators/ farmers, including to improve group cohesion and capacity, productivity and organization of production, linkages to input and output markets, provision of agricultural credit and reduction of post-harvest losses as well as access to rural financial services.

Organizational framework

7. Implementation of SIRP would be undertaken by several agencies and organizations working within their specialised fields of competence and mandate. The main programme stakeholders and their roles and responsibilities are presented in the table below:

Table 1: Roles and responsibilities of key programme delivery agencies

Organization	Stakeholder	Capacity assessment and proposed activities
Ministry of Finance and Economic Development (MoFED)	Fund recipient, establishment of imprest account. Allocation and timely release of counterpart funds. Enter into and implement agreement. Facilitate disbursement and withdrawal applications. Communicate with IFAD/OFID on amendments in the reallocation of grant/loan amount.	Has capacity to deliver its tasks and has good collaboration with MAMID, which is the main executing agency for the programme.
Ministry of Agriculture, Mechanization and Irrigation Development (MAMID)	MAMID is the Lead Agency responsible for overall programme implementation. Keep supporting documents, submit any reporting requirements, including the annual report and financial statements, and establish and maintain the imprest account.	Has capacity since the PCU reports to the MAMID Permanent Secretary through the Director of Economics and Markets who would advise the Permanent Secretary. Has limited capacity to meet all the procurement and financial related tasks procedures on time. This mainly because all the financial tasks are centralized within the MAMID. The programme would employ a full time Programme Accountant and Procurement Specialist. Weak information systems and the unavailability of reliable data, create a planning and monitoring impediment. M&E systems in DoI, Economics and Markets and AGRITEX to be strengthened as part of the M&E for SIRP.
Ministry of Lands and Rural Resettlement	Custodian of land outside communal land. Could play a role in the provision of land for the design of new schemes.	Has capacity to participate in the identification of irrigable land since it has structures at district level.
IFAD/OFID	Financing of the programme grant/loan. Supervision and performance monitoring on programme implementation. Review of procurement and provision of no objection. Fiduciary review and fund flow.	Has capacity to deliver on its tasks.
Agricultural Sector Steering Committee	Coordinating agricultural programme implementation. Reviews policy options and recommendations from policy dialogue and recommends them to Cabinet. Formulating draft policies for consideration by Agricultural Sector Inter-ministerial Committee after receiving input from thematic working groups and Provincial Agricultural Coordination Committee.	Limited capacity to deliver on the policies and would require technical assistance to draft the policies.
Agricultural Marketing Authority	Promote the proper marketing and fair pricing of agricultural products. Promote contract farming of strategic crops for food and raw materials. Promote the efficient administration of marketing of any agricultural products on the local and international market.	Limited Field presence limits capacity to engage farmers. As a way of promoting coordination, AMA would benefit from participating in the training on "farming as a business" to give a more holistic perspective of the value chain.
Department of Irrigation	Lead the contract management responsibility from preparing ToRs and tender documents to hire TAs and contractors respectively. TAs, lead the process of feasibility studies, detailed design as well as supervision of works. Assist in operation and maintenance of irrigation infrastructure. Rehabilitation and/or modernization of irrigation infrastructure training of farmers in water management. Feasibility study and designing of irrigation schemes. Establish a functional M&E on irrigation scheme inventory.	Adequately staffed at head office and province level and limited field presence. Has limited capacity to undertake the feasibility studies, detailed design as well as supervision of works. DoI will deploy an irrigation engineer and 2 technicians at each site during the rehabilitation. The programme will provide TA to assist in implementing the component. Training would be offered to boost the skills of staff. Inventory of smallholder irrigation schemes is incomplete and database needs upgrading. An inventory for smallholder irrigation schemes would be undertaken and a functional database established. Lack of vehicles, computers, other equipment and the funding of operating costs. These will be catered for in the programme.
Department of Economics and Markets	Responsible for coordination, and review of agricultural policies and programmes including SIRP. Provision of marketing information services. Monitoring and evaluation of agricultural policies, programmes, impacts and Marketing of agricultural products. Host the PCU	Weak coordination capacity and lack of a functional M&E system. The PC would report to the Permanent Secretary of MAMID through the Director of Economics and Markets. Under SIRP, coordination would be achieved through Programme Steering Committee where the Department would be a member. SIRP would assist to revitalize the Dpt M&E system.
Department of Agriculture and Extension Services (AGRITEX)	Train farmers, provide advisory extension services and Disseminate agricultural and market related information. M&E: Monitor crop and livestock production trends and provision of regular reports to MAMID and other stakeholders; Collate agricultural production information. Disseminate and promote adoption of new technologies through on farm trials and demonstrations, field days, agricultural shows, exchange visits, farmer field schools and technology fairs. Provide capacity building of farmers in agronomy, business development and marketing. Participate in the diagnostic survey of schemes, selection of schemes and feasibility studies.	Strong field presence but requires technical capacity and equipment to enhance delivery of services for the farmers. Limited capacity to provide business management training to the farmers. SIRP would hire private service providers. Limited technical skills for extension advisory role to farmers, Extension workers would receive appropriate training under this programme. Non-functional M&E system for AGRITEX. M&E system to be strengthened. Limited number of vehicles, computers, extension kits and other equipment and the funding of operating costs. These will be catered for in the programme.

Organization	Stakeholder	Capacity assessment and proposed activities
Department of Mechanization	Demonstrate new equipment and technology for post harvest. Participate in soil and water conservation programme for rainfed farmers under SIRP.	Adequately staffed at head office and structure ends at district level therefore the department has capacity to implement.
District Development Fund (DDF)	Falls under the Office of the President and Cabinet Responsible for the rehabilitation and maintenance of rural infrastructure including rural feeder roads.	The department is adequately staffed at province and district levels and therefore has the capacity to carry out the rehabilitation of roads. Equipment might be aged, but the department has the ability to pool equipment from other districts. Staff are adequately trained to supervise contracts.
The Rural District Councils	Participate in scheme selection on behalf of WUOs. Coordination of development plans that feed into sector Annual Work Plans and Budget. Coordination of all development programmes through the RDDC and the subcommittee on District Agricultural Management Committee. Coordination of stakeholders at district level. Custodian Communal land.	Limited capacity to coordinate local level planning in accordance with their mandate is limited. The District AGRITEX Officer chairs the District Agriculture Management Committee and would work with the Provincial Facilitator.
Zimbabwe National Water Authority (ZINWA)	Issuance of water permits. Delivery of agreement water to smallholder irrigation schemes. Maintenance of dam/pump stations. Secretariat to the Catchment Council (CC); provide technical support to CC.	Weak collaboration between ZINWA and DoL leading to dam construction without the accompanying irrigation development. Coordination to be strengthened during the design of new irrigation schemes. Poor revenue collection on water bills from the farmers is constraining ZINWA budget. SIRP 's involvement with ZINWA and Catchment Councils would be in terms of facilitating the and strengthening inter-agency collaboration and management procedures of the overall programme and as part of participatory scheme development process itself and there would be no direct SIRP investment in the agencies.
Catchment Councils/Sub Catchment Councils	Issuance of water permit. Catchment management and protection.	Limited capacity to deliver due to poor resource base and few staff. Lack of clarity on the roles between ZINWA and Catchment Councils. The focus on SIRP is on the adjacent rainfed area to the scheme and will not work in the catchment or sub-catchment
Climate Change Management	Coordinating entity for all climate change related policy action in Zimbabwe. Managing the implementation of Zimbabwe's National Climate Change Response Strategy.	Climate change is high on the policy agenda for GoZ. Climate Change Department was recently established and therefore is likely to face capacity constraints. More than 15 agencies are coordinated and this could cause challenges in harmonizing response. Climate Change Management will be a key member of SIRP coordination committees to keep the project in line with government policies on climate change.
Private Service Providers	Provision of training to implementing agencies. Conducting feasibility studies and design of irrigation schemes, rehabilitation of feeder roads. Construction/rehabilitation of irrigation infrastructure, and development of O&M manual. Input suppliers, provision of extension and buying farm produce using the out-grower schemes. Provision of rural finance.	Has the capacity to carry out the tasks but need close supervision.
Irrigation Technical Assistance	Prepare ToRs for feasibility studies and detailed designs consultancy, review of studies and designs Prepare ToRs for various consultancies such as preparing training materials and conducting various trainings to DoL staff, youth groups and IMCs, policy studies to define irrigation asset ownership and transforming IMC to WUO.	The TA and the consulting company/ies to be hired will train them to adequately engage in the Programme. The hands-on training and skills gained while working with the consultants and the TA will strengthen DoL capacity. The DoL staff will also receive training of trainers (ToT) course for training IMCs and irrigators on O&M aspects.
Water Users Organisations (WUOs)	Participation in participatory planning and irrigation design. Assume responsibility of scheme management. Responsible for election of IMCs, approval of budgets, action planning, annual reports, adoption and amendments of regulations; O&M—planning, implementation, distribution and maintenance of works training WUO members in irrigation techniques; management of financial and general administration of the WUO.	Limited capacity to assume full responsibility for management transfer. TAs and service providers will train and facilitate them to adequately engage in the programme. Limited skills in business management. IMCs will be trained by service providers and DoL to properly operate and maintain the schemes. WUO by laws not legally binding. Project to explore ways to convert WUOs into legal entities.
Environmental Management Authority (EMA)	Ensure that adequate environmental safeguards are met in the targeted areas. Carry out environmental education, conservation of natural resources in the area surrounding smallholder irrigation schemes.	Has capacity to carry out the tasks through its decentralized structure.

Programme coordination and management

8. The recipient will be the Government of Zimbabwe represented by Ministry of Finance and Economic Development (MoFED). The lead Implementing Agency will be the Ministry of Agriculture, Mechanisation and Irrigation Development (MAMID) under the leadership of the Minister, with the support of the Permanent Secretary. The MAMID will oversee programme implementation; ensure that the programme is aligned with sector priorities and complements the programmes/projects and initiatives of the other development partners supporting the sector. SIRP would be undertaken by several agencies and organizations working within their specialised fields of competence and mandate. This calls for the need for sound coordination of the different agencies and stakeholders which would be achieved through the establishment of the Programme Coordination Unit (PCU) within the Ministry of Agriculture, Mechanisation and Irrigation Development (MAMID).

9. **Programme oversight:** A multi-sector stakeholder Programme Steering Committee (PSC), chaired by the Permanent Secretary of MAMID, will be established to provide overall programme oversight, direction and advice to the Programme. The aim is to: a) ensure that the Programme implementation is well coordinated and Implementing Agencies such as the Department of Irrigation and AGRITEX benefit from close collaborations; b) ensure that programme implementation is moving in the right direction towards achievement of its development objective; c) contribute to the higher level sector policy and strategic goals, under ZimASSET; and d) is implement SIRP in harmonization and alignment with other Programmes and initiatives in the sector. The PSC will be made up of representatives of the principal stakeholders including ministries relevant to SIRP, farmer organizations, and the private sector. These include: Ministry Agriculture, Mechanisation and Irrigation Development (MAMID); Ministry of Lands and Rural Resettlement (MLRR); Ministry of Rural Development, Preservation and Promotion of Culture (MRDPPC); Ministry of Finance and Economic Development (MoFED); Ministry of Environment, Water and Climate (MEWC); Ministry of Small and Medium Enterprises and Cooperative Development (MSMECD); Irrigation Management Committees (IMC), farmer organisations, selected number of Civil Society and Private Sector Providers. The membership of the PSC would be reviewed during programme implementation and there is scope to widen it further or to invite stakeholders depending on the topic under review. The PSC will meet bi-annually to review and approve physical and financial progress, assess management effectiveness, decide on corrective measures where appropriate, review lessons learned and good practices, and approve AWPBs and Programme Procurement Plan (PPP). Minutes of the meetings will be included in the programme's progress reports for review by IFAD.

10. At provincial level, the coordination of programme activities would be through the Provincial Agricultural Committee, which is the subcommittee of the Provincial Development Committee chaired by the Provincial Administrator. Coordination of programme activities at district level would be effected through the District Agricultural Committee, which is a subcommittee of the Rural District Development Committee chaired by the District Administrator.

11. **Programme coordination.** The Programme Coordination Unit (PCU) will be established at MAMID and report to the PS; its main tasks is to coordinate the programme implementation with the implementing agencies (DoI and AGRITEX) and serve as the secretariat to the PSC. It would be comprised of full time competitively recruited staff for the duration of the programme and be established under the Department of Economics and Markets in MAMID, who would be responsible for the recruitment of the PCU staff and would provide the PCU with office space. The PCU will consist of a: Programme Coordinator, Monitoring & Evaluation and Knowledge Management Specialist, Procurement Specialist, Programme Accountant and Administrative Assistant. In addition to the permanent staff of the PCU, there is budget provision to strengthen the skill mix of the PCU through recruitment of short term technical assistance in areas of value chain and marketing, natural resources management, procurement, rural finance, irrigation engineering, financial management, agronomy, economics, climate change, training and others depending on the need. Two drivers for the PCU would be seconded by government and the salaries would be paid by government as part of its

contribution to SIRP. An organizational chart of the project is provided in Annex1. Detailed TOR for the PCU staff and technical experts are given in Annex 2.

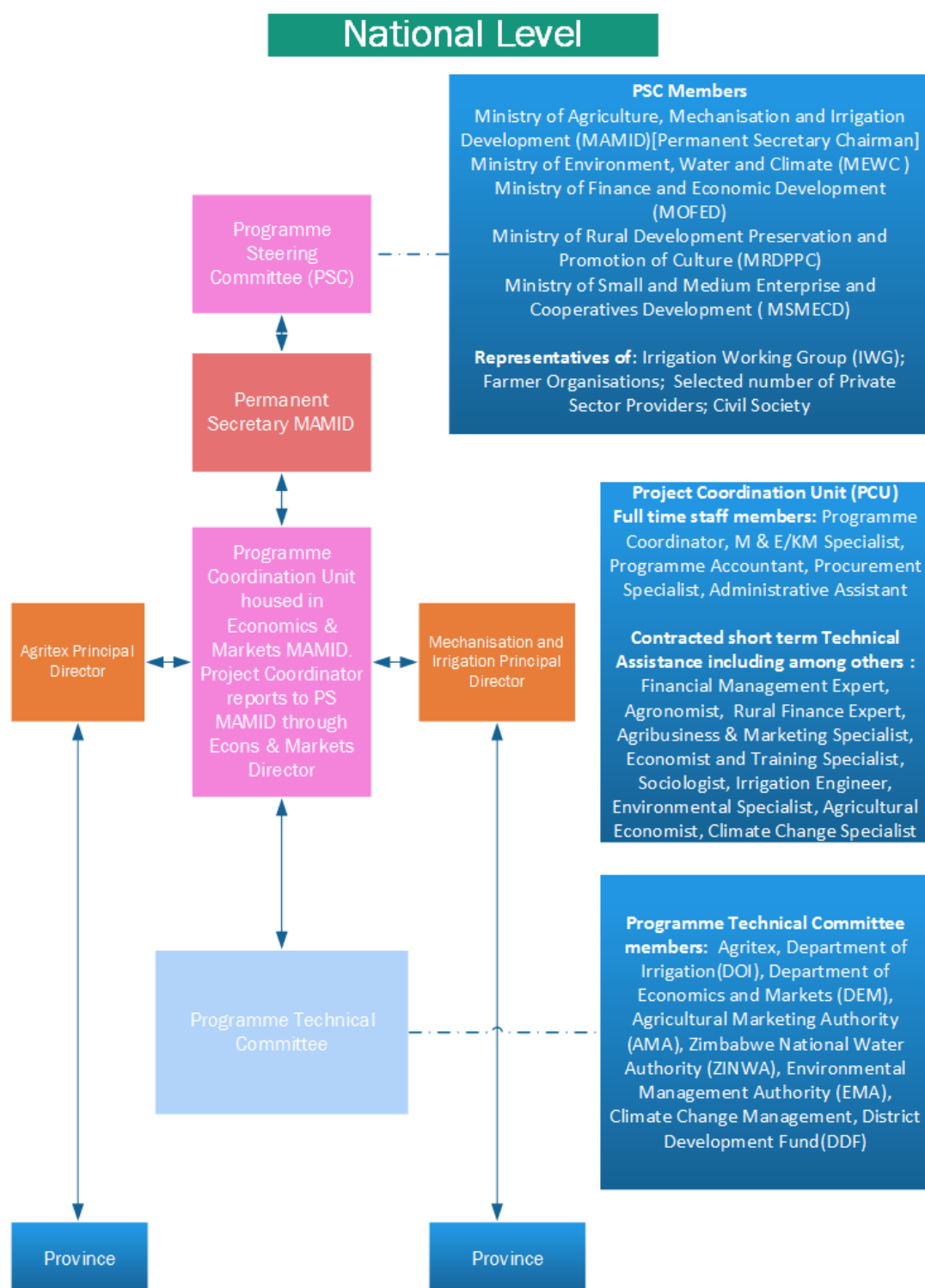
12. The Programme Coordinator and his/her team will work closely with the two Principal Directors for Irrigation and Mechanization, as well as for AGRITEX, and will report to the Permanent Secretary of MAMID through the Director of Economics and Markets. The PCU will be responsible for day to day management of the programme, consolidation of AWPBs, Procurement Plans, Progress and Financial Report as received from the districts and implementing entities and co-ordinate the procurement of goods, works and services. The PCU will also take charge of monitoring and evaluation and provide support to implementation and supervision missions. The PCU will be the Secretariat of the PSC.

13. The PCU will be responsible for: a) support delivery of programme to beneficiaries by managing and coordinating technical backstopping, capacity building activities, flow of information and tracking programme results, harmonize implementation approaches, assist on procurement of large goods, works and services; b) manage disbursement of funds to programme implementing agencies; c) strengthen the national level partnerships and build synergies with other development partners in the sector to ensure that SIRP interventions complement and do not duplicate interventions of government and other development partners; d) facilitate study tour for representatives from programme implementation partners to visit other countries that are deemed successful in the management transfer of smallholder irrigation and facilitate a feedback session to share of experiences with other stakeholders when they return from the visit; e) play an important role in backstopping and guiding the agencies and other programme implementation entities to ensure that the programme is implemented in accordance with agreed approach and processes for delivering each of the programme components, and provide timely technical advice necessary to facilitate implementation and achievement of intended results; f) ensure quality of programme implementation through regular implementation reviews and follow up on key processes, especially during the first twelve months of programme implementation; and g) review and consolidate the draft progress reports, financial reports, AWPBs from the different implementing agencies and other technical documents, with support of subject matter technical experts, prior to submission to the PSC for guidance, decision and approval.

14. The PCU will also organize and coordinate analytical work and studies, such as annual audits, mid-term review, supervision missions, impact assessments and programme completion evaluation. The PCU would be provided with, salaries, allowances, O&M, vehicles, computers and office equipment as detailed in the cost tables. Funding provision has been made for the contracting of short term technical assistance.

15. **A Programme Technical Committee**, comprising of staff drawn from government technical departments, will provide technical support to the PCU on a demand driven basis. The technical committee will review in detail technical documents, such as physical progress and financial reports, work plans and budget, procurement plans, technical studies and evaluation reports and distil issues that need attention, decisions and/or guidance from the PSC. The technical team shall provide demand-driven technical support and professional advice to the PSC. The Programme Technical Committee comprises of experts drawn from the relevant government agencies, such as the Department Agricultural Extension Services (AGRITEX); Department of Irrigation; Department of Economics and Markets (E&M); Agricultural Marketing Authority (AMA), Zimbabwe National Water Authority (ZINWA); Environmental Management Authority (EMA); Economics and Markets District Development Fund (DDF) and Climate Change Management.

Figure 1: National Level Structure



16. **Programme implementation:** would be based on the approved AWPB for the implementing institutions. The lead institutions for the implementation of the two components of the programme include 1) DoI for Component 1: Sustainable Smallholder Irrigation Development and 2) AGRITEX for Component 2: Climate-smart Agriculture and Market Access. The programme will be implemented using existing administrative structures and technical services from government, with provision of contracting and additional services from private service providers and short term technical expertise in agronomy, irrigation, marketing, sociology, fiduciary, M&E, will be mobilized as and when required.

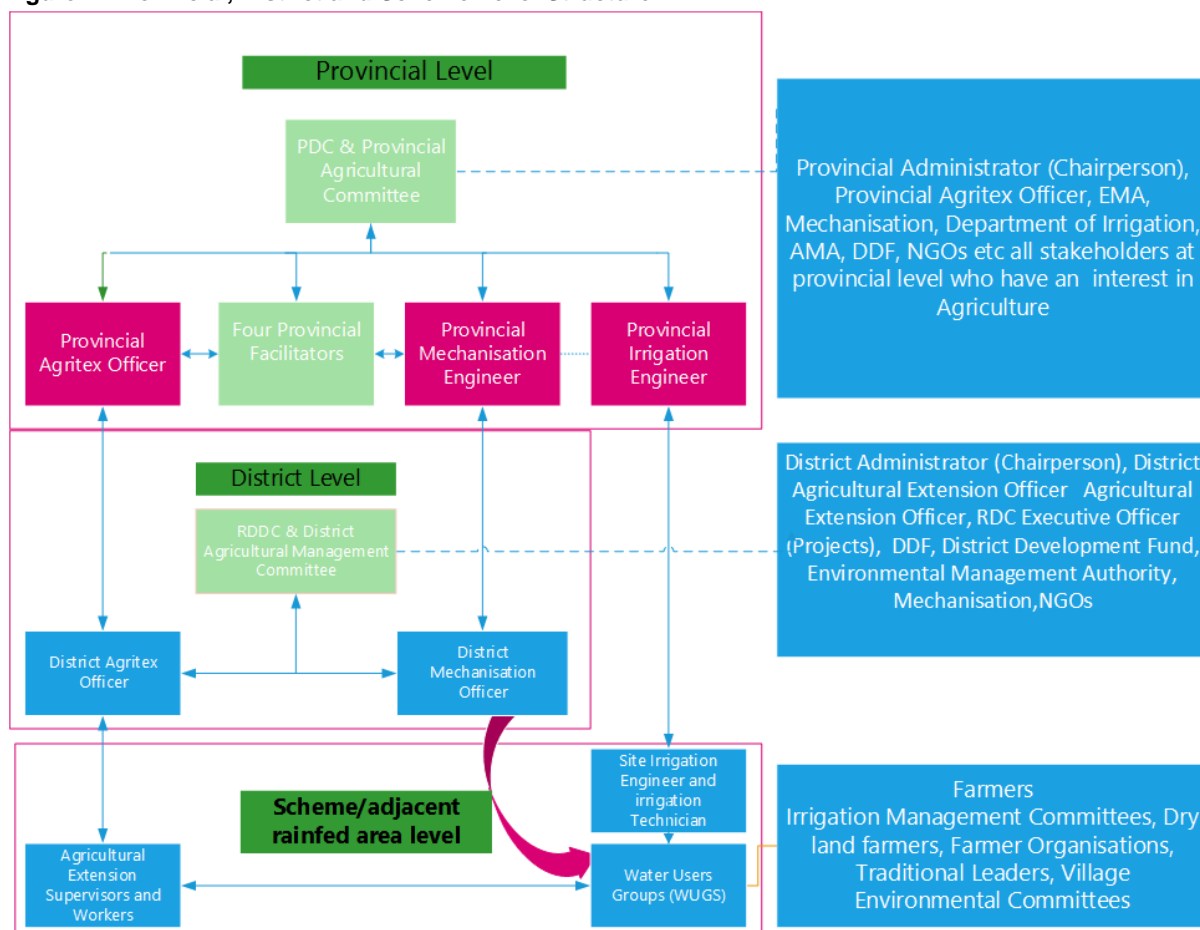
17. The programme implementation agencies would be responsible for the implementation of their components in collaboration with relevant partners and would be supported to ensure their capacity to deliver on their mandates. At the scheme level, emphasis will be given to training of WUO and their IMCs in order to improve scheme management and operation efficiency and prepare the WUOs for management transfer. Emphasis would also be given to the cooperation with private agricultural service providers and various players in priority agricultural value chains. The PCU will be responsible for efficient and effective coordination of the stakeholders involved under the programme.

18. **Province level:** The implementation of SIRP shall largely focus at district level, but there are practical limitations in directly coordinating so many districts. As a solution to this problem, a full time Provincial Facilitator (PF) will be competitively recruited for each of the 4 targeted provinces of Manicaland, Masvingo, Matabeleland South and Midlands. The recruitment of PF would be approved by the PSC. The PFs will report to the Programme Coordinator, will participate in the coordination committees both at provincial and district levels, and will coordinate the activities of implementing agencies through the districts. The PF will participate in the Provincial Agriculture Committee (PAC), which is a subcommittee to the Provincial Development Committee (PDC) chaired by the Provincial Administrator. The PF will work closely with the Provincial AGRITEX Officer, Provincial Irrigation Engineer and Provincial Mechanisation Engineer, who are also members of the PAC. The PF will be responsible for: (i) the coordination and facilitation of programme implementation by relevant government agencies at district level; (ii) monitor programme implementation and prepare progress and annual reports; (iii) collection and consolidation of all support documents, reporting documents and annual audit report and financial statements; (iv) monitoring and evaluation of programme activities and outputs, including periodic review, preparation of progress reports identifying issues and action plans; (v) contract services for smallholder irrigation scheme rehabilitation; and (vi) ensure compliance with grant conditions. The PF would be provided with salaries, allowances, office equipment and sundries, computers and 4 wheel drive vehicles. The PF would cover a number of districts in a province, with a focal point person at each of the district. The PFs will be provided with 4 – wheel drive pickup, office computer, office equipment, allowances and necessary operating costs. Funds would be allocated for supporting the coordination role of the local level authorities arising from their involvement in SIRP related activities.

19. **District level:** At district level, each implementing agency will deliver the tasks as per AWPB. The PF will work closely with the District Agriculture Extension Officer and the District mechanisation Officer at district level. Coordination at district level would be achieved through the District Agricultural Management Committee (DAMC) at district level. The membership of the District Agricultural Management Committee comprise of representatives of government agencies and NGOs with interest in agriculture, including smallholder irrigation development. The members of the committee includes: District Agricultural Extension Officer (chair); District Mechanisation Engineer, Agricultural Extension Officer, Executive Officer (Projects) of Rural District Council, Environmental Management Authority, District Development Fund and NGOs. The DAMC is a sub-committee of the Rural District Development Committee, chaired by the District Administrator. By working with the District Agriculture Extension Officer, the Programme Facilitator will maintain closer links between SIRP and the existing mechanisms for technical coordination at district and sub-district level, (i.e. the Rural District Development Committee and its sub-committees). The PF will work closely with district level implementing agencies to develop work plans, coordinate with other stakeholders, report on progress and monitor implementation.

20. **Scheme level:** At the scheme level, the PF will coordinate the activities of key implementing agencies namely: DoI, AGRITEX, Private Sector Providers, DDF and Mechanisation. The Department of Irrigation will deploy an irrigation engineer and two irrigation technicians at any active site undergoing the rehabilitation of the irrigation scheme. However the irrigation engineer could cover more schemes and would move to a different site once the rehabilitation is completed. The Agricultural Extension Supervisor and the Agricultural Extension Worker(s) would be responsible for the provision of agricultural extension to WUO(s) and the farmers in the adjacent rainfed area. The district mechanisation officer is also working with the WUO(s) at scheme level. Implementing agencies will implement programmes directly with the Water User Groups. Scheme level institutions include the WUO (s); farmers, Irrigation Management Committees (IMCs); farmers from adjacent rainfed area, farmer organisations; village environmental management committees, as well as the traditional leadership in the community.

Figure 2: Provincial, District and Scheme Level Structure



21. **Phasing:** Three implementation phases are foreseen and these are: i) start-up phase (three months); ii) first phase for a duration of three years; and iii) second phase for a duration of four years. Start-up phase activities include the recruitment of PCU staff, preparation of the initial AWP&B, preparation of procurement plan, opening of bank accounts and finalization of the Programme Implementation Manual. During the first three years, systems and procedures would be developed and refined, staff trained through the preparation and implementation of the initial series of schemes. A Mid Term Review (MTR) would take place no later than during year three. If circumstances require, the MTR can be held earlier to adjust the programme design. Depending on the outcome of the MTR, the second phase of SIRP would be carried out for duration of four years.

22. **Workshops and information meetings:** The PCU in collaboration with MAMID will organize stakeholder orientation workshop at national level for representatives of stakeholders as part of the

pre-implementation/start-up phase of the programme. The workshop is designed to introduce SIRP, confirm the criteria for scheme selection and endorse the first AWPB and Procurement Plan. In addition, the aim of these workshops is to raise awareness, explain the scope, the policy framework, the activities and role of the stakeholders in the programme. This would be followed by further national information meeting to be held for senior government staff for participating agencies. Similar workshops will be held at each province and the first group of districts and schemes to be engaged under the programme. Similar meetings would be held at district and scheme level in subsequent years when additional districts join the programme. Four provincial meetings would be held in Year 1. The Provincial Agricultural Extension Worker, Provincial Irrigation Engineer and other stakeholders at provincial level will attend meetings in their respective provinces. District based information meetings will include members of the RDDC in order to familiarise key district based personnel with the objectives of SIRP.

23. Strengthening M&E function in key MAMID departments: The objective of this activity is to strengthen the M&E function of Economics and Markets, DoI and AGRITEX for efficient and effective monitoring and evaluation of the SIRP. The current M&E system in MAMID's departments is non-functional. The M&E personnel are not trained to carry out M&E functions and the computers are old and not functioning. There is limited interaction between the M&E sections and other sections. Information available within MAMID is seldom disseminated and used in planning.

24. The absence of an efficient and effective M&E system affects the ability to keep track and gauge the performance of SIRP at various stages of implementation. It is therefore important to strengthen the M&E system of these departments as a key element to operationalize SIRP's M&E framework. It is envisaged that the PCU will be responsible for the M&E system for SIRP. The information derived from the M&E system of both DoI (responsible for component 1) and AGRITEX (responsible for component 2) would feed into the M&E system for SIRP.

25. To this effect, the PCU will hire the services of an international M&E consultant for 12 months to help set-up the M&E system. The international consultant will provide backstopping to the local M&E/KM specialist hired by the PCU. TOR for the International M&E consultant are provided in the Annex 2. The following activities are envisaged:

- (a) *Technical assistance to develop and operationalise system produce M&E manual and train users and procure web based management software:* The consultant will carry out a review of the ongoing M&E function, processes and detailed activities in key departments; define the M&E objectives in relation to the SIRP logical; identify strengths and weaknesses, particularly gaps in the flow of information; look into quality, volume and frequency of information, match with existing needs and make adjustments.
- (b) *Develop M&E training manual and design M&E database.* Based on the identified needs, the consultant will develop a training manual on M&E. The manual will take into account the SIRP logical framework and the list of indicators to measure progress and achievement. The tools to be developed consist of the various templates to monitor the two components of SIRP, and the design of the baseline survey for pre-identified schemes. The consultant will also develop a computerised database to enhance availability, quality and utilisation of information as well as a training manual for the maintenance of the database. Funds would be allocated for the procurement of computerised software to be used to set up the M&E database system.
- (c) *Conduct M&E training and mentorship for staff of key departments:* The consultant will also enhance staff understanding on M&E function through training and mentorship on M&E and application on the job. A multi-sectoral 3 day generic training on M&E will take place at national level. Under this activity 200 people will be trained in M&E at provincial level comprising of 50 people TOT per province. Staff will also be trained in data collection, processing and analysis using computerised databases as well as the maintenance of databases. The same TOT course would be repeated in each of the targeted 4 provinces and be organised by the Provincial AGRITEX staff in conjunction with the Provincial Facilitator.

Key DoI and AGRITEX staff from province, district and scheme level will participate in the training.

- (d) *Field training on data collection and processing*: the consultant will train 500 field level staff in data collection and processing. The consultant will provide mentorship and follow up to staff where necessary and will also assist to create linkages with M&E sections in other organisations for strong, information and exchanges, not only on issues but on M&E techniques and matters related to information management. Vehicles, computers would be provided for the departments to enable them to undertake the task. AGRITEX, DoI and Economics and Markets would be responsible for the activity in collaboration with the PCU M&E specialist.

26. **Studies:** The studies to be undertaken include: Baseline study, Annual audit, Mid Term Review and Project Completion Report and Impact Survey.

- (a) *Baseline studies*: The PCU M&E specialist, in collaboration with AGRITEX, would also commission baseline studies during participatory diagnosis phase (refer to Appendix 6).
- (b) *Annual audit* would be carried out by an independent audit firm. The PCU would be responsible for preparing the financial statements. (refer to Appendix 8).
- (c) *A Mid-Term Review* for the programme would be commissioned during year 3. The MTR would be managed by the Programme Coordinator and would involve selected officials from the key implementing agencies as well as consultants, financed under the programme. The TOR for the exercise would be approved by the PSC and IFAD and would focus on lessons learnt. The draft MTR would be discussed at a stakeholder workshop to which representatives from all implementing agencies farmers, government, private sector and NGOs would be invited. Approval of the final MTR by IFAD would be necessary for the continuation of the programme. The PCU will be responsible in ensuring that the recommendations of the review are fully implemented.
- (d) *Project Completion Report and Impact Survey*: The PCU would hire technical assistance to prepare project completion report and impact survey. As a result, PCU staff will be employed for another 6 months after the end of the programme in order to finalise these reports. The report would be submitted by government to IFAD).

27. **Knowledge Management and Communication:** Specialised technical assistance would be recruited each year to carry out the following activities: (i) Documentation of best practices; (ii) Development of SIRP website; (iii) Radio aired sensitisation campaigns; and (iv) development of promotional material. The PCU would recruit specialised private sector providers to produce promotional material for the programme comprising of brochures, t-shirts, leaflets, pens, etc. The aim is to raise awareness to the public on the programme.

28. SIRP will coordinate and harmonize with programmes financed by various development partners. This would be aimed at taking advantage of existent synergies and avoiding duplications. The Programme will complement and learn lessons from the More Food Programme, the EU Smallholder Irrigation Support Programme, initiatives with the Swiss Development Cooperation, USAID, DFID, ensuring harmonized contribution to Government's strategic priorities under ZimASSET.

29. **Capacity building.** Key implementing agencies face a number of capacity limitations for them to take on the roles and responsibilities envisaged under this programme. The programme will employ different types of capacity building measures and these include: Provision of training and mentorship for key government staff, study tours and look and learn visits, provision of equipment and materials and technical assistance to conduct studies to come up with guidelines or policy options.

30. Technical Assistance will be hired to produce comprehensive training modules and manuals. Capacities will be built through testing actual evidence-informed 'policy dialogue' among relevant stakeholders – government, representatives of farmers, water users and the private sector. Sharing

the lessons learned and insights from the process in the SIRP targeted area can help scale up the results achieved; and the expectation is that the processes may inform policy processes at the national level and generate some knowledge and discussion.

31. Private sector providers (both local and international) will be contracted to provide specialised technical assistance and at the same time offer mentoring to the staff of implementing agencies. Most of the capacity building for the implementing institutions will take place throughout the programme duration period.

32. The programme will operate simultaneously in the 4 targeted provinces and training will cover a relatively wide range of topics. Provision would be made to contract a capacity development consultant for 1 month in Year 1 to carry out a training needs assessment for the key implementing agencies, assist in the identification and development of suitable courses, develop TOR to hire technical assistance for the development of training material and implementing the trainings. A Capacity Building Plan is provided in Annex 3.

Detailed implementation arrangements per component

Component 1: Sustainable Smallholder Irrigation Development

33. The Component will be implemented using the existing administrative structures and technical services of the government, the Department of Irrigation, in close participation with irrigators. The PCU will contract long-term and short-term consultancy services in various aspects as and when required. Contractors will be hired to construct civil and electro-mechanical works.

Sub-Component 1.1 Scheme Selection and Rehabilitation

34. **Feasibility studies and detailed designs:** The DoI is responsible to play the lead role of preparing the feasibility studies with the support of the TA to be hired during the first year of the programme. Although the support to increase the DoI capacity will include all technical staff at national level and from the four programme provinces, it is assumed that an irrigation engineer and two irrigation technicians will be assigned to each scheme to be revitalized.

35. At the outset of the programme, preliminary set of schemes identified at desk level will undergo through a rigorous consultation of the communities before proceeding to the next stage. Once the feasibility studies are finalized similar consultation will be made, this time, with detailed list of activities and preliminary costing as well as the amount expected from the community for advance payment of the first year O&M costs included. It is only after the payment of this amount (estimates as 100 US\$ per farmer) in a blocked bank account that the detailed design should be prepared for ultimate implementation. At this stage the community should also submit an official application for the development with indicative budget known.

36. The actual studies and designs will be prepared by qualified company/ies to be hired as per the ToRs to be prepared by the DoI and the TA. In order to avoid accountability issues the same company responsible for detailed design, will be responsible for supervision of the works.

37. For the DoI and the TA to play their lead role, they will be provided with transportation facilities for field travels (a 4WD vehicle) with associated recurrent costs. Provincial DoI staff located at targeted schemes will be provided with 16 motorbikes (4 per province) to facilitate various studies/ investigation, supervision of works and future O&M and mobilize the community as supervised (technically) by the nation DoI staff.

38. To ensure the quality of deliverables (feasibility studies and detailed designs) and effective implementation, as lead by the TA, the programme will introduce a systematic procedure of desk review (to include field visits; if needed) and clearance before giving a signal of moving an identified scheme from one stage of the project processing cycle to the next. In particular, the final appraisal of the feasibility study and subsequent detailed designs to be prepared by the company/ies should pass through a rigorous review of the Programme Technical Committee, comprising of technical staff from various government departments providing technical support to the PCU.

39. The physical implementation of the scheme revitalization will be undertaken by competitively selected contractors as supervised by the abovementioned feasibility study and detailed design consulting company/ies, as well as by DoI engineer and technicians.

Sub-component 1.2: Improved smallholder irrigation management

40. SIRP will contract a service provider to work with DoI staff at province level to strengthen and empower irrigation WUO, with the backstopping of Central level staff from the Water Management department and by a long-term TA focusing on irrigation management. The service provider will also train IMCs, transforming them into WUO, including apex WUO, to establish a more effective and inclusive local governance institutions and to increase local ownership, participation of irrigators, also towards meeting their O&M contributions.

41. It is estimated that approximately 12,500 irrigators will be supported by the project in 125 schemes, comprising of approximately 700 WUOs (assuming 5-6 WUOs of 15-20 irrigators, covering a total of 7 to 10 hectares, per scheme, with schemes of 40 ha area in average, covering a total area of 5,000 ha to be revitalized). as. In some cases about 5 WUOs could form a sector WUOs (for technical coordination and no fee collection) at secondary/main canal level OR could have an apex WUO which could have a role beyond collecting fees for schemes falling under the same hydraulic boundary.

42. The PCU will hire specialized vocational training institutions to train 1,000 youth (at least 6 per scheme) in irrigation asset maintenance and repair and will also procure and supply irrigation asset maintenance tools and equipment (kits) for successful graduates.

Subcomponent 1.3: Enhanced institutional capacity for irrigation development

43. The PCU will engage the services of a consultant to carry out a training needs assessment for DoI as well as to identify training sources. Specialised Service providers will be financed by the programme to come up with the necessary training materials and conduct specialised training services. Topics will include feasibility studies, design, supervision, contract management and Operation and Maintenance.

44. SIRP will hire a consulting company to develop an improved inventory of irrigation schemes nationwide. SIRP will also contract feasibility studies and detailed designs for approximately 2,000 ha of new irrigation schemes to engineering firm, which will be supervised by DoI, with the support of a long-term international TA.

45. Indicative irrigation related policy issues requiring the GoZ's intervention are: (i) clarifying the O&M responsibility and irrigation asset ownership; (ii) transforming IMCs to strong and legally recognized entity; and (iii) water pricing. DoI will contract out key studies to review pertinent legal provisions as well as consulting key actors, such as governmental, irrigators, private service providers and policy makers. It will organize a national workshop to recommend an agreed upon key policy issues the GoZ may put into action.

Component 2 Climate-smart Agriculture and Market Access

46. AGRITEX will lead the implementation of the subcomponent, while contracting different service providers. Private companies that show interest in collaborating with the irrigation schemes will be encouraged to also provide capacity building to farmers, thus ensuring sustainability and good connection to markets. With the support of AGRITEX, EMA, service providers, and off-takers, farmers will take a leading role in prioritizing interventions, through their scheme and village-level structures.

Sub- component 2.1 Enhanced agricultural practices and farmers' organizational capacity

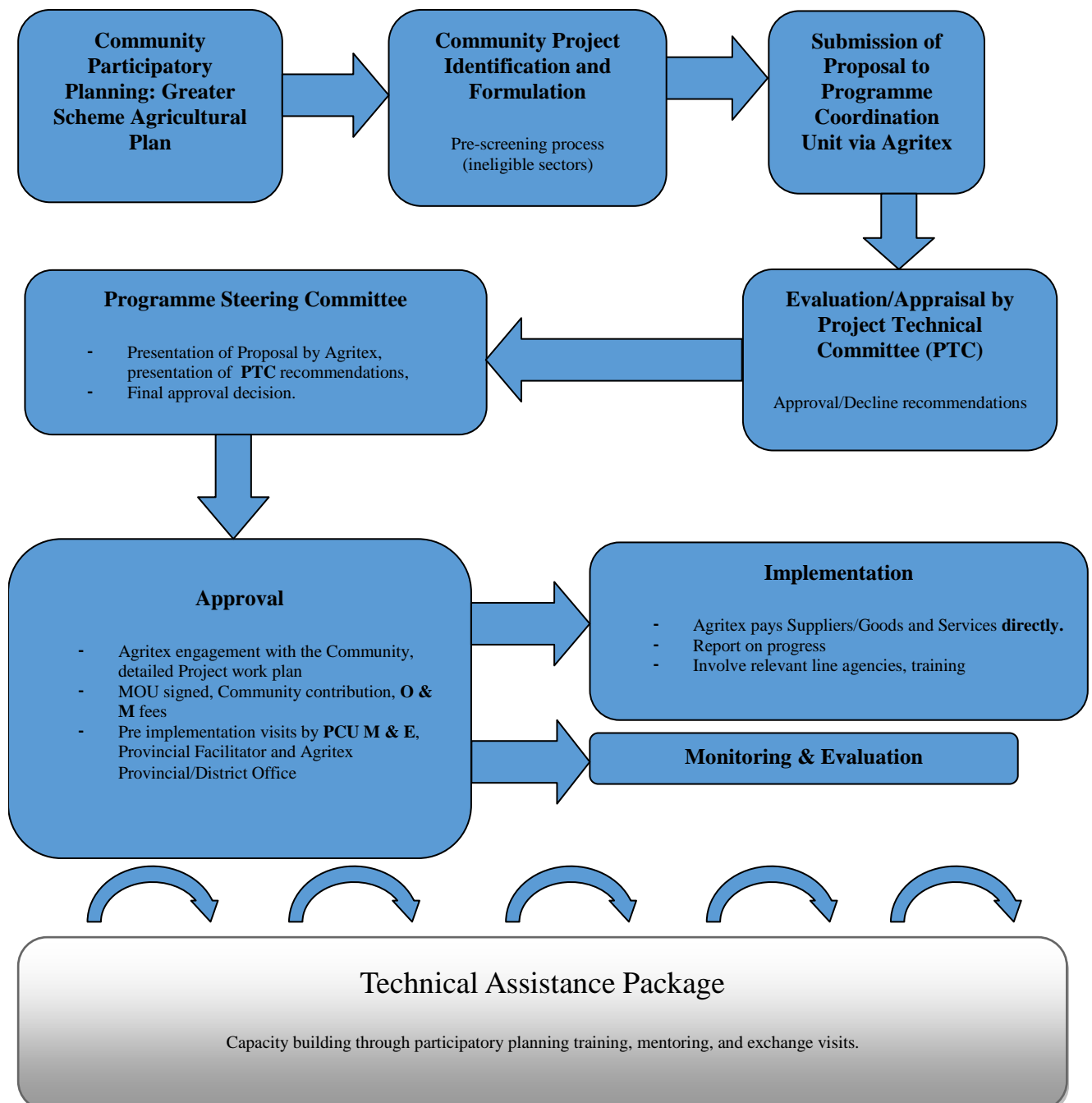
47. The PCU and AGRITEX will hire a Technical Assistant to assist targeted schemes and villages in adjacent rainfed areas to prepare Village Development Committees (VIDCOs) with environmental subcommittees. The TA will also support environmental committee leading a process of NRM planning, starting with a participatory identification and mapping of natural resources and current production systems in the village area.

48. Government departments will work with selected schemes to prepare a Revitalization Plan and a Greater Scheme Agricultural Plan. The PCU will contract technical assistance to help AGRITEX and DoI prepare these plans with targeted communities. The SIRP will organize exchange visits for selected representatives to nearby villages that have successfully implemented natural resources management and good agricultural practices. Based on the results of the exchange visits and the natural resources mapping, AGRITEX will assist communities to identify, plan and formulate and implement income generating projects, which utilise natural resources in a sustainable manner, to be funded under the NRMF.

Natural Resources Management Fund

49. AGRITEX, EMA and Service Providers will assist the participatory planning process for farmers to identify and prioritise income generating interventions that utilise natural resources in a sustainable manner. This process would result in the development of the Greater Scheme Agricultural Plan. AGRITEX/Service Provider will facilitate in the process of selection of the priority project idea and formulation a project proposal with the involvement of the farmers in a participatory manner. Once the proposal is approved by the farmers, one copy will be forwarded to the Provincial Facilitator (PF) through AGRITEX structures. Another copy of the proposal will be submitted to AGRITEX Head Office. The PF would submit the proposal to the PCU for appraisal by the Project Technical Unit (PTC). The unit will give a "Yes or No" assessment result accompanied by detailed recommendations on the proposal. AGRITEX would present the proposal at the PSC meeting and the PC would present PTC recommendations. The PSC would give the final approval and also recommend any additional Technical Assistance if necessary. The PSC would also ensure that the all relevant line agencies are involved in assisting with the implementation.

50. After the proposal has been approved by the PSC, it is included in the Annual Work Plan and Budget for AGRITEX. Projects would be implemented through AGRITEX on the basis of their AWP&B. AGRITEX and the farmers will agree on how the farmers' own contribution would be accounted for, as well as the disbursement of SIRP contribution. There would be no disbursement of SIRP funds to the farmers directly. SIRP funds would be paid directly by AGRITEX to suppliers and the farmers will countersign for the receipt of goods and services. AGRITEX would authorise expenditure according to the AWPB and will account for the funds. A Memorandum of Understanding would be signed between AGRITEX and the farmers elected committee, with detailed activities, clearly defining roles and responsibilities and the obligation of each party. The farmers through AGRITEX officer would be required to submit periodic reports to describe and update on their progress on meeting the work plan objectives. If the community is judged to be non-performing on agreed terms, disbursements would be suspended. The PCU/PF would be allowed to conduct interviews with the beneficiary communities to gather information and monitor progress. Implementation would be a joint responsibility between the farmers, line agencies and relevant private sector providers with AGRITEX taking the lead. The figure below depicts the flow of NRM facility.



51. In order to promote Good Agricultural Practices, SIRP will Implement the Farmer Field Schools (FFS) in Greater Scheme Area, along with Soil and Water conservation activities, and will Implement demonstration plots on irrigation schemes. SIRP will procure tools and material whereas the communities will contribute labour. Specialised TA will be hired by the PCU to work with AGRITEX, and carry out FFS Master Training. These Master Trainers will develop a curriculum based on the FFS methodological approach and train FFS facilitators, at community level, including frontline extension staff. Training of farmers will be carried out by a service provider, in collaboration with AGRITEX local staff, and under supervision from AGRITEX Provincial level, and the PCU. AGRITEX, in coordination with interested off-takers, will facilitate trainings in agronomy and establishment of demonstration plots on irrigation schemes.

52. AGRITEX, DoI, and Economics and Markets, will together create a gender training manual and conduct a gender sensitisation course for their own key staff. SIRP would encourage greater gender sensitivity in the case of selection of committee members and replacement of irrigators. AGRITEX will organize annual forums for women farmers (both irrigators and non-irrigation) and women farmers in leadership positions (in farmer's organisations, management committees and producer organisations). A total of 200 forum sessions will be held.

53. The PCU will engage the services of a nutritionist to develop a training module on basic nutrition education. This will then be included, as appropriate, in the different training modules undertaken under SIRP. AGRITEX will also work with district nutritionist to plan and conduct food fairs and disseminate information to encourage the adoption of improved nutrition practice. AGRITEX will establish nutrition demonstration gardens for each irrigation scheme and the adjacent rainfed area, located at the homestead of a volunteer. The PCU will procure seed, fertilisers, pesticides, and other material support which will be provided for free to the volunteer household. SIRP will include a mechanism for input supply and technical support. Food fairs will be organised by AGRITEX with the assistance of NGOs for the farmers in the targeted areas.

Sub-component 2.2 Market access and rural financial services

54. Regarding rural financial services, the training of farmers in financial literacy will be contracted by the PCU and AGRITEX. A specialised service provider will be recruited to undertake a needs assessment of different population segments and organizations and develop a curriculum for the main trainings and an implementation and roll-out strategy. Another service provider will train farmers, and will work closely with AGRITEX front line extension staff. Local trainers will be trained on the job and through Training of Trainer (TOT) approaches. The PCU will recruit a consultant to carry out an initial stocktaking of existing CBFIs in and around the targeted irrigation schemes, and to prepare promotion plans for each cluster of scheme. The PCU will then contract a specialised service provider to implement this plan, in collaboration with local AGRITEX officers and local leaders. The service provider will also train local leaders, AGRITEX officers and community volunteers in the methodology.

55. Broad-based training in agribusiness development and marketing, will be achieved through short term capacity building of farmers on schemes and adjacent rainfed area. The PCU and AGRITEX will contract a specialised technical service provider to undertake a capacity needs assessment of different target group segments develop a training curriculum and a roll-out strategy. A service provider will conduct a general training on business skills, management best practices and product quality standards demanded by the market will be available to all farmers in the project area. A separate, more in-depth training will be provided on business management and marketing to each scheme's marketing committee. Training of irrigators and farmers will be provided by in collaboration with off-takers so that the activities performed are in agreement with the market requirements.

56. Activities related to Brokering market linkages and information access will be contracted out to a Business Development Service Provider, with ample experience in Zimbabwe, who will work with business groups at irrigation scheme level to engage with the different value chain actors to ensure that farmers produce what the market (local, national or international) demands in terms of quantity, quality and frequency. This will include *Establishment of farmer business* groups and Establishment of value chain platforms, as well as Improve information flow between the different value chain actors. The BDSP will work closely AGRITEX front line extension staff at scheme level, so as to improve their capacity and allow them to provide follow-up assistance.

57. Regarding post-harvest losses management training and low-cost assets, the PCU and AGRITEX will hire a consultant to create, in close coordination with off-taking companies, an inventory of available technologies takers that includes a cost-benefit analysis of the adoption of different technologies proposed. AGRITEX and the PCU will hire a consultant to design multipurpose farmstead or "pack-shed" that could include storage, cold room, gathering place. The farmers will provide labour and some material. The pack-house will be owned by the scheme members and

managed by the scheme marketing and business committee. Equipment will be co-financed by the project and beneficiaries on a matching grant basis.

58. In order to ensure availability of spare parts for a sustainable adoption of the piloted technologies, youth and local artisans from selected schemes will be trained in post-harvest value addition activities such as product handling, storage, and transport. The training will be provided by vocational centres, contracted by SIRP.

59. Rehabilitation of last mile feeder roads connecting the scheme to the main road will be undertaken by District Development Fund (DDF) or private contractor to be supervised by DDF. In particular, the DDF and the PCU will contract Private Sector Providers to undertake the works and will supervise their work.

Sub-component 2.3 Enhanced institutional capacity for market-led production

60. The PCU will procure 21 4WD double cab 125 motorcycles and extension worker kit (one per scheme), laptops, desktop computers, printers, photocopiers, database management software for AGRITEX staff at central, provincial, district and scheme level. The PCU Procurement Specialist together with MAMID Director of Finance would be responsible for drawing up the Procurement Plan for approval by the PSC. The Procurement Plan will be in line with the procedures agreed in the grant agreement.

61. The PCU will engage the services of a consultant to carry out a training needs assessment. The consultant will work closely with the training branch of AGRITEX to identify the training needs as well as training sources for the areas of training identified. The PCU will then hire service providers, will be hired to prepare training material and provide training to approximately 500 AGRITEX staff and other government service providers on a variety of identified courses. Training would adopt training for trainers (TOT) approach. Possible Service Providers to conduct training include: Faculty of Agriculture, Several Agricultural Technical Colleges and Private Sector. Study tours and exchange visits would be organised by AGRITEX in conjunction with PCU.

62. The course is aimed at equipping AGRITEX to be able to train WUOs in scheme organization and management, including aspects of production, planning and marketing. Broad topics to be covered include: water management, agronomy foundations, horticulture, extension methods, soil and water conservation; post-harvest management and value addition, markets and marketing as well as farming as a business.

63. Participatory Methodologies in Scheme Planning and Design: A service provider which mainly an NGO will be best suited to give the training on participatory methodologies. Examples of such NGOs include: SAFIRE, Care International, and Centre for Applied Social Sciences, University of Zimbabwe. Participants for the course will include: AGRITEX, Economics and Markets, EMA, Climate Change Management, DoI, ZINWA, Mechanisation, RDCs and AMA. The course will be held at national level and participants will be drawn from national, provincial and district levels.

64. Training for Transformation: This will be the first training course to be conducted in year 1. The course is designed to engender attitudinal change among service providers. As the basis for participatory development envisaged for the programme the course will help staff to become increasingly client oriented and respond to smallholder irrigators' demands. Participants to the course include: AGRITEX, Economics and Markets, EMA, Climate Change Management, DoI, ZINWA, Mechanisation, RDCs, and AMA. The course will be held at national level and participants will be drawn from all levels. 200 people will attend the 3 day course.

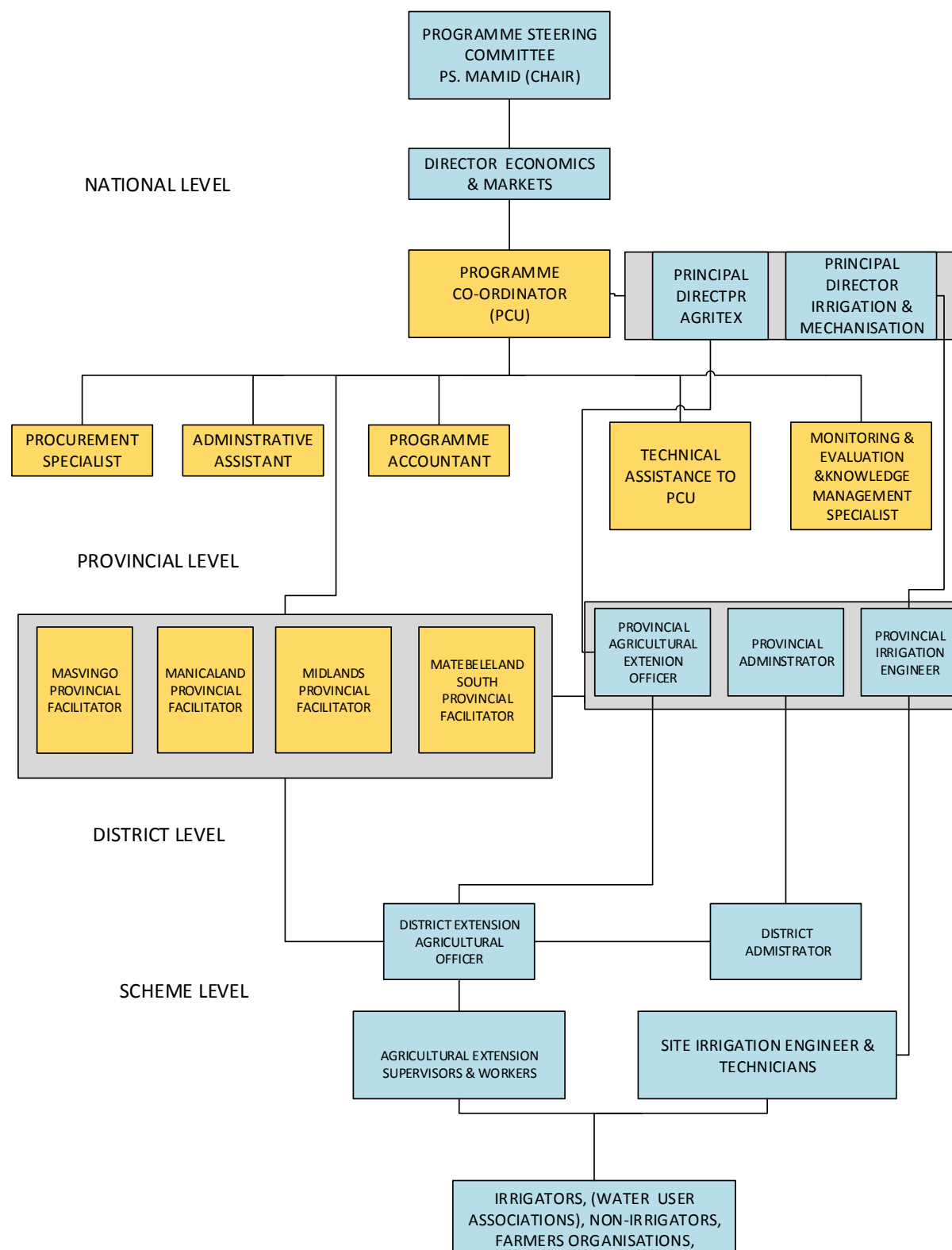
65. Gender sensitisation: The course could be conducted by organisations such as Gender Links; Centre for Applied Social Sciences (CASS), University of Zimbabwe, or a gender consultant. The consultant will develop a gender manual that would be used to train other staff. This will be a 3 day course with participants drawn from AGRITEX, Economics and Markets, EMA, Climate Change Management, DoI, ZINWA, Mechanisation, RDCs, and AMA. The gender sensitisation course will look into the definition of gender, why it is important, review key concepts, access to and control of

resources; practical gender needs and strategic interests; gender division of labour; gender and decision making; gender institutions and their roles; comparison between Women in Development (WID) and Gender and Development (GAD).

66. Environmental Impact Assessment EMA and AGRITEX will take a lead in organising the 3 day course that will draw participants from AGRITEX, Economics and Markets, EMA, Climate Change Management, DoI, ZINWA, Mechanisation, RDCs, and AMA. The course could be conducted by the Department of Geography, University of Zimbabwe or private consulting firms. 50 people are expected to attend the course. Training on EIA will be designed to provide theory and practice. The aim is to give an understanding of EIA in terms of purpose and role of EIA in decision making, key elements of EIA process and undertaking EIA among other things.

67. Finally SIRP will enhance the capacity of AGRITEX AMA and EMA to engage in policy dialogue, and as such champion the integrated approach to irrigation development as applied under SIRP. The support will focus on issues pertaining to natural resources management and market linkages, and how these can be effectively integrated into irrigation development programmes. SIRP will engage technical specialists to assist in developing policy positions, and finance stakeholder dialogue workshops to further fine-tune and disseminate the policy messages.

Annex 1a Organisational Chart



Annex 1b Staffing and vacancy rates in key departments

Department of Irrigation

Dol is headed by a Director who reports to the Principal Director Irrigation and Mechanisation in MAMID. There are three vacant positions for Deputy Directors - Planning and Development, Research and Training, and Operations and Maintenance. Immediately below are four chief Engineers covering (i) Planning, Development, Operations and Maintenance; (ii) Plant and Equipment (vacant); (iii) Training; and (iv) Research and Technology. At provincial level, the department is headed by a Provincial Irrigation Engineer. Dol has three irrigation engineers and twelve technicians per each of the eight provinces. At the time of the assessment, four positions for provincial irrigation engineer were vacant: Matebeleland South, Mashonaland East, Mashonaland Central and Mashonaland West provinces. Dol has a total staff complement of 409 people out of which there are 55 engineers and 173 technicians. The positions for 12 agricultural economists were abolished in 2013.

Table 1: Department of Irrigation staffing level

Post	Establishment	Post filled	Vacant post
Head office			
Director	1	1	0
Deputy director	3	0	3
Engineers	31	27	4
Technicians	87	67	20
Agric Economists	0	3	-3
Administration	21	19	2
Sub Total	145	119	26
Province			
Engineers	32	28	4
Technicians	124	106	23
Agric Economists	0	9	-9
Administration	102	89	13
Subtotal	264	232	31
TOTAL	409	351	58

Source: Dol Human Resources Department: February 2016.

Department of Agriculture Technical and Extension Services (AGRITEX)

The staffing level is adequate for the implementation of SIRP, as shown in the table below:

Table 2: AGRITEX staff establishment and vacancy rate, by Province

	Establishment	Positions filled	Vacant posts
Head Office	76 (41)	71 (40)	5 (1)
Mashonaland East	818 (685)	743 (671)	67 (14)
Mashonaland West	634 (528)	531 (499)	103 (29)
Masvingo	889 (782)	833 (759)	58 (23)
Midlands	870 (751)	773 (727)	97 (24)
Matebeleland South	307 (200)	206 (184)	101 (16)
Matebeleland North	327 (220)	244 (214)	84 (6)
Manicaland	898 (791)	835 (773)	63 (18)
Mashonaland Central	868 (748)	667 (620)	202 (128)
TOTAL	5686 (4746)	4906 (4487)	780 (259)

Source: AGRITEX January 2016 (figures in bracket represent the agricultural technical staff)

Annex 2 Terms of reference for all programme staff

Terms of Reference

Programme Coordination Unit (PCU)

MAMID would be the main executing agency for SIRP therefore the management responsibilities for SIRP would be with the MAMID. However, there would be a need to coordinate implementation of a wide range of activities to be carried out by a number of government line ministries and/or their agencies, as well as other stakeholders; and to ensure that SIRP is fully aligned with government policies and guidelines. A Programme Coordination Unit will be established to assist in the day-to-day management of the programme. The implementation of SIRP will be integrated into the workplans of the staff of the various government departments and agencies.

The PCU will be located at the MAMID head office, in the Department of Economics and Markets with the Programme Coordinator reporting to the Permanent Secretary of MAMID through the Director of Economics and Markets. The Programme Coordinator will work closely with the Principal Directors of AGRITEX and the Principal Director of Mechanisation and Irrigation Development.

PCU Staffing

Nine staff members would be recruited competitively for the duration of the programme.

Programme Coordinator	90 months
Programme Accountant	90 months
Provincial Facilitators (4)	336 person-months
M & E Specialist	90 months
Administrative Assistant	90 months
Procurement Specialist	90 months

The PCU would be provided with two 4-wheel drive vehicles, computers, training equipment plus auxiliary office equipment and consumable. Provision would also be made for associated incremental recurrent costs.

PCU Locations

The PCU will operate from Harare and at the Government offices in the four provinces of Manicaland, Masvingo, Matebeleland South and Midlands. MAMID will provide office space for the PCU and for the Provincial Facilitators.

The Provincial Facilitators will be based in four of the provincial capitals and will be physically located in office space provided by MAMID.

Responsibilities

In broad terms, the responsibilities of the PCU will be to ensure:

- the rapid and efficient commencement of programme activities;
- the development of the implementation capacity of the main implementing agencies, and coordination between them;
- the effective planning and budgeting, management and monitoring of programme implementation and an assessment of the impact of interventions;
- the development of enduring relationships between the private sector and programme beneficiaries;
- effective farmer participation in the identification and implementation of interventions supported by the programme;
- effective access to the programme by the intended beneficiaries of the programme, particularly for disadvantaged groups;
- the use of efficient and transparent methodology in the allocation of public funds;
- the establishment of an effective framework for participation by all stakeholders in smallholder irrigation sector development; and

- the establishment of an effective monitoring and evaluation framework for the programme.

Duties

The PCU will be expected to:

- Organize and manage a series of programme start-up workshops, to inform all stakeholders of programme goals, activities and procedures;
- Support a participatory annual work planning and budgeting process;
- Initiate and expedite the procurement of programme goods and services;
- Support the main implementing agencies in conducting programme activities;
- Establish and maintain effective systems and procedures for financial management;
- Establish and maintain participatory monitoring and evaluation systems, and reporting procedures and practices;
- Develop an appropriate programme training plan and organize training to enhance skills as necessary;
- Act as a secretariat to the PSC, concerning meetings, assembling agenda items related to smallholder irrigation, and following up on decisions;
- Organize studies, surveys and analysis as required by PSC; and
- Collect and analyse data in an effective monitoring and evaluation system to assist in the management of the programme.

Terms of Reference

Programme Coordinator

The Programme Coordinator (PC) will head the Programme Coordination Unit, and as such will have overall responsibility for providing, and managing the provision of, support to the programme facilitators and implementing agencies as required.

The PC will report administratively to the Permanent Secretary, MAMID through the Director of Economics and Markets. At the same time, he/she would relate technically to the Principal Directors of the Departments of AGRITEX and Mechanisation and Irrigation Development. The PC will be based in Harare, with regular travel to and within the programme areas.

Responsibilities

The PC's responsibilities may be split into three sets of activities:

(a) Support to programme coordination

- Prepare guidelines for PSC operation in relation to SIRP implementation;
- Prepare reports and briefs to enable the PSC to review programme implementation;
- Implement the decisions of the PSC;
- Plan and direct consultancies and ad hoc studies as necessary and requested by PSC;
- Ensure the effective coordination of the programme between the different agencies.

(b) Support to programme implementation

- Expedite programme start-up; conduct inception workshops; ensure that all implementers fully understand the programme concepts and approaches; and prepare guidelines for the activities of the implementers of the various components of the programme;
- Assist, expedite and coordinate the Annual Work Planning and Budgeting process at all levels, and ensure that these are developed in a fully participatory manner. Ensure project implementation according to the AWPB and Procurement Plan;
- Ensure full functioning of the project's Monitoring and Evaluation system; Assist, expedite and coordinate the participatory M&E activities, strengthen M&E of key implementing agencies for efficiency and effective M&E on the programme: ensure the development of management information systems, including standardised reporting formats, at national and district levels; organize workshops to review programme progress, policy and future operations; manage the programme mid-term review; design and commission evaluation studies, baseline and impact surveys; and ensure the involvement of programme beneficiaries in the M&E system;
- Ensure accurate knowledge management including information dissemination about project activities;
- Ensure the provision of appropriate capacity-strengthening institutional support to the implementing agencies and programme beneficiaries: with the support of the Private Service Providers, and in collaboration with the training focal points in AGRITEX and DoI, manage the programme's training activities, and undertake training as appropriate;
- Ensure the development of effective financial procedures, and in particular, systems both for the disbursement of, and accounting for, programme funds, and for the effective management of IFAD/OFID resources. Ensure that project progress, audit and other reports are produced and submitted to the appropriate stakeholders on a timely basis;
- Expedite the procurement of goods and equipment, as required;
- Ensure gender mainstreaming and equality in all project activities;
- With the assistance of the Programme Technical Team, ensure that technical designs of project activities are done as per specifications or universal requirements;
- Supervise implementation of activities financed by the project through contracts, implementing partners or farmers;

- Adequate liaison and networking with other key agencies either working in the project area or potentially concerned with project activities, and with other relevant sectoral projects;
- Represent the project at relevant functions and meetings; and
- Perform any other duty relevant to the project as may be assigned by the PSC or PS of the lead agency responsible for the project or his/her designated representative.

(c) Management of PCU

- As head of the PCU, provide effective leadership to the Project Coordination Team members at the national and provincial levels, and ensure that their efforts:
 - Are fully in line with the programme concepts and approaches,
 - Are undertaken in full collaboration with their counterparts from the responsible implementing agencies, and
 - Are fully coordinated with other efforts being undertaken in Zimbabwe.
- Deploy all project staff as appropriate and supervise PCU staff to ensure that they meet their mandated responsibilities;
- Expedite the recruitment of short-term specialist consultancy inputs as appropriate.

Qualifications and experience

Relevant qualifications and a minimum of 15 years experience in agricultural sector, and in particular agribusiness, irrigation engineering, development policy and project management, monitoring and evaluation. Business experience will be an added advantage. Computer literacy and English language skills required. Local language will be desirable but not essential. Commitment to the programme and its participatory approaches would be essential.

Terms of Reference

Provincial Facilitator

The Provincial Facilitator (PF) will report to the Programme Coordinator, and will be based in one of MAMID offices in the province for which he/she would be responsible. PF will supervise the work of key implementing agencies at province, district and scheme level.

Each PF would cover all districts included within the programme in their respective provinces, for the duration of the programme.

In the first year, the PF would cover one district on a full time basis. In the second year, the PF would take on an additional district and concentrate on this new district while still providing back-stopping support to the previous district. In the third, year, back-stopping support would continue in the second district but most of the effort will now go to the new district. In the case of contract extension, from the third year onwards this process would continue until the seventh year. However, where the workload allows, more districts may be taken on in any one year.

Responsibilities

- Facilitate the introduction/enhancement of participatory based planning and resource management processes for irrigation schemes planning within the departments of AGRITEX, Irrigation and mechanisation at provincial, district level and the communities. This would involve playing a leading role in starting up the programme in the district, contributing to inception workshops at district and scheme level; assisting in the selection of priority irrigation schemes; and initiating, and experimenting with, community based planning and implementation;
- Arrange for training course, providing on-the-job training and organising planning and exchange meetings for staff from government agencies and/or IMCs with other organizations and projects/programmes;
- Assist in the establishment of techniques and administrative systems within implementing agencies, for scheme project appraisal, financing, implementation, monitoring and reporting;
- Provide support in the preparations of Annual Work Plans and Budgets, and monitoring and evaluation/reporting systems at scheme and district levels;
- Contribute to training of provincial/district level AGRITEX and DoI staff participatory planning methodologies;
- Provide support to government agencies in contracting and contract supervision;
- Administer the operation and maintenance of the vehicle, computer, photocopier and office equipment supplied through the programme;
- Liaise with technical departments, other organizations, and community institutions, to ensure their understanding for the programme and active participation in the planning process, as well as coordination between SIRP and other relevant projects.

Qualifications and Experience

National of Zimbabwe, with a relevant Bachelor's degree in the field of social sciences, rural development, agriculture or agribusiness; Minimum of 5 years practical experience in working with rural communities in a planning capacity employing participatory methods; Understanding of the specific characteristics of communal areas; Affinity with aspects of institutional development, curriculum development and training courses; Good knowledge of Shona (Ndebele for one of them) and English; Computer literacy; Ability to work in a team, communicate and coordinate with government departments and other agencies on various levels; Experience in the smallholder irrigation sub-sector would be an advantage.

Terms of Reference

Programme Accountant

The Programme Accountant will report to the Programme Coordinator and will work closely with the Director - Finance and Management Services Division, MAMID.

He/she will be responsible for the provision of financial management services to the programme; and training/backstopping support in financial accounting.

Duties

- Assist in establishing the IFAD Special Account with MoFED and Programme Account in the MAMID;
- Familiarise with the proposed accounting manual and ensure its consistency with Government financial management policies and aid agencies' requirements for the programme;
- Establish the financial reporting requirements, formats and frequency in terms of the Financing Agreements;
- Maintain the books of account; provide the accounting function for disbursements into/from the programme account as well as direct payments from the IFAD special account;
- Collate all the forms from all reporting levels to produce one set of accounts for the PSC and the MAMID;
- Ensure the appointment of External Auditors is done and that annual audits are organized and carried out on time.

Bachelors' degree in Accounting or Business/Economics with accounting as one of the majors; Experience in accounting at middle management level or aid-funded project/programme accounting; Computer literacy; English and Shona languages; Commitment to accuracy; Ability to interact at various levels.

Terms of Reference

Procurement Specialist

The Procurement Specialist will report to the Programme Coordinator and will work closely with the Programme Accountant and Director - Finance and Management Services Division, MAMID. H/she will be responsible for coordinating the procurement function based on Government and IFAD guidelines and procedures.

Responsibilities

- Prepare the Procurement Plan for the first year of implementation, based on the annual work plan and budget;
- In collaboration with other members of the PCU and implementing partners, prepare the rolling 18-month procurement plan for works, goods and services required by the project and submit same for approval by the PSC and IFAD along with the AWPB;
- Ensure the preparation and assembly of tender and contract documents for specific procurements according to Government and IFAD guidelines;
- Assist the PCU and other implementing agencies in preparing the necessary technical specifications, and in drafting the tender documents, including the invitations to bid;
- Train the staff implementing the project to become more familiar with GoZ's own procurement procedures, and with the procurement guidelines indicated in the grant agreement;
- Assess the compatibility of GoZ's procurement procedures with IFAD's guidelines for procurement;
- Prepare operating manual for procurement under the project;
- Prepare tender notices and advertisements in appropriate national and international papers and websites as required;
- Participate in relevant tender committee meetings at the Lead Agency and assist with the preparation of committee reports;
- Review and advise on tender evaluation reports prepared by the Districts and other implementing agencies and make necessary follow-up;
- Participate in monitoring visits of the PCU contract monitoring committee;
- Maintain procurement files containing high quality and readily available information for review by supervision missions;
- Maintain the contract register and regularly update the same with monitoring data on progress of all contracts;
- Draw the attention of the PC to potential or actual violation of contractual terms by contractors and service providers for appropriate sanctions;
- Undertake any other duties assigned by the PC.

Qualifications

- Have a Bachelor's degree in Commerce, Public Administration, Law, Accounting or any other related field. A post graduate qualification will be an added advantage;
- Have a minimum of 8 years' experience dealing with procurement of civil works, goods and services, and with the award of contracts for Government/donor funded projects;
- Have experience in preparing tender and contract documents for national and international competitive bidding;
- Have a comprehensive knowledge of Public Procurement Regulations, as well as procurement guidelines for IFAD and the World Bank;
- Be computer literate; be fluent in both English and national language;
- Have good interpersonal and communication skills.

Terms of Reference

Monitoring and Evaluation/Knowledge Management Specialist

The M&E and KM Specialist will serve as the main focal person for all monitoring and evaluation and knowledge management related activities for SIRP. S/he will assist and report to the Programme Coordinator regarding M&E of project activities implemented by the project. The M&E Specialist responsibility is to coordinate and support implementation of M&E for all the activities to be conducted in accordance with the results framework of the programme. S/he will be responsible for coordinating and facilitating the project planning and M&E activities towards a coherent and flexible project data management system.

M&E Tasks

- Lead development of and oversee the review of project level (M&E) plan and associated work plans for each component activity (as reflected in the Results framework);
- Support completion of processes to hire consultant firms for M&E related tasks;
- Establish a Monitoring and Evaluation (M&E) system taking into account the Government monitoring frameworks, IFAD RIMS, the project objectives and the experience from other IFAD supported Projects;
- Introduce the multidimensional poverty assessment tool – MPAT;
- Develop a Management Information System (MIS) for managing data and information for overall monitoring and maintain an M&E database for the programme;
- Support technical work such as reviewing M&E methods, carrying out training needs, designing M&E tools and advising M&E technical assistance;
- Review M&E system, process and procedures of project forms and formats for project activities under the various components;
- In collaboration with members of the PCU, and implementing partners, fine-tune the M&E indicators and the logframe of the project;
- Organize and supervise focused baseline surveys at the beginning of the project and update the project logframe with the revised indicators;
- In collaboration with other members of the PCU, and other implementing partners, coordinate the preparation and revision of the project annual work plan and budget (AWPB);
- Establish implementation targets, monitor implementation processes and performance, and assess outputs and outcomes;
- Facilitate the project's annual review workshops, impact assessment studies, Mid Term Review and completion review; Develop TOR for M&E tools to be carried out for consulting formats (e.g. design of surveys; evaluations (mid-term and final evaluation) etc., using a combination of quantitative and qualitative M&E indicators;
- Collate essential data to be included in quarterly, semi-annual and annual reports;
- Monitor financial and physical progress as well as reporting back to stakeholders to create a better learning environment;
- Organize training on M&E for members of the PCU, implementing partners as required; provide technical backstopping to implementing agencies for preparing the AWPBs and for compliance with reporting requirements; Ensure mentoring and training of programme team partners to foster capacity building on M&E knowledge;
- Improve project performance by providing relevant and well researched information to the PCU, implementing partners and counties on a timely basis;
- Ensure capture of intended impact as well as successes and failures;
- Liaise with the responsible persons for implementing agencies, key ministries and the implementation teams, implementing partners and service providers for effective linkages and information exchange;
- Ensure gender mainstreaming and equality in all project activities;
- Support M&E missions by IFAD;

- Undertake any other duties assigned by the PC.

Knowledge Management responsibilities

- Oversee the development of a KM strategy and plans to ensure systematic, continuous learning, improvement and knowledge sharing;
- Develop and implement processes to ensure that lessons learned and good practice are captured systematically, shared, and used to improve project implementation, including in the development of the AWPB;
- Support advocacy efforts through providing evidence of impact gathered through the M&E system, closely linked to knowledge management and communication activities;
- Provide technical backstopping and guidance to implementing partner staff on KM&L;
- Develop or adapt an internet based and other relevant tools and processes for implementing staff to collect, process/analyse, store and share information and knowledge, and ensure relevant staff have the capacity to use them;
- Ensure that innovative experiences, learning and good practices are captured, synthesized, documented and shared continuously within the project, within the Districts, with in-country partners, IFAD and other regional and international partners, including through a project website, documentation centre, communities of practice, etc.;
- Oversee communication support to awareness raising and sensitisation of project participants, including building understanding of the project's objectives, benefits;
- Coordinate the preparation of the work plan and budget, and progress reports for knowledge management and learning.

Qualifications

- Have a Bachelor's degree in Economics, Irrigation, Agricultural Economics, Mathematics, Statistics, media, communications or a related field from a recognized university. A post graduate diploma/certificate in MIS , KM or M&E will be an added advantage;
- Have 8 years working experience, at least 3 of which must be in M&E in donor-assisted project;
- Full command in M&E related techniques including conducting surveys and PRAs;
- Be computer literate and able to use advanced computer packages for quantitative and qualitative analysis and data base storage;
- Have knowledge and experience on the project cycle related activities and developments in the sector;
- Understanding of specific characteristics of smallholder irrigation in Zimbabwe including the dynamics of community engagement. Good communication skills in English, Ndebele/Shona;
- Have good interpersonal and communication skills.

Terms of Reference

Administrative Assistant

The Programme Administrative Assistant will be responsible for providing administrative assistance in general programme implementation and management and day-to-day liaison with counterparts. He/She will provide comprehensive secretarial and administrative support to the Programme Coordinator (PC), including drafting correspondence, taking of minutes, arranging for travel arrangements and related tasks. The Programme Administrative Assistant carries out his/her functions under the direct supervision of the Programme Coordinator. Specifically, the incumbent will:

- Monitor programme budget and financial expenditures and their conformity to the work-plan; process direct payments and advance requests and prepare programme budget revisions. Liaise with the programme accountant on financial and administrative matters and ensure that all administrative and financial transactions are properly carried out according to the requirements of IFAD. Produce financial reports; communicate with the PC on the financial issues;
- Be responsible for day-to-day programme correspondence, information sharing and filing ensuring that appropriate follow-up actions are taken. Assist in preparing evaluation reports, annual programme reports, and update projects files. Prepare minutes of programme meetings. Prepare all documentation for contract issuance;
- Assist in preparation of IFAD and international experts missions to the region, render logistic support;
- Collect and analyzes data, prepare and update briefs, records and other documents on project implementation and GoZ policy and response. Provide inputs for publication materials and collect information related to the programme;
- Liaise with project counterparts on day-to-day implementation of programme activities;
- Coordinate transport arrangements for PCU staff;
- Perform other duties as determined by the Project Coordinator.

Qualifications

- University degree in public or business administration or other related area;
- At least 5 years of administrative assistance experience, of which preferably experience in providing assistance in project coordination and implementation;
- Fluency in written and spoken English;
- Computer literacy (Microsoft Office, Lotus Notes, and Internet) is essential; Experience Financial Management is regarded as an asset.

Terms of Reference

Nutrition Specialist

In Zimbabwe, malnutrition accounts for 12,000 deaths per annum. According to the Zimbabwe Demographic and Health Survey (2010-11); chronic malnutrition or stunting, affects one in every three children (33%) of the children under the age of five years. According to the Zimbabwe Vulnerability Assessment Committee (2014), the national dietary diversity score is between 5 and 7. Nationally, 0.7% of the children have severe wasting. SIRP seeks to improve food and nutrition security of the target population in the programme.

The purpose of the assignment is to support the mainstreaming of nutrition into SIRP activities with a focus on the following specific activities:

- Provide Technical Assistance to during the diagnostic phase to facilitate the development plan to promote nutrition in particular diversity of food types;
- Develop a training module on nutrition education that will integrated into training sessions in the programme at all levels and will be used by DoI, AGRITEX and WUO;
- Support monitoring system that includes nutrition monitoring and reporting that captures malnutrition;
- Support and guide the implementation of training for mainstreaming nutrition into activities;
- Assist with developing a plan for the setting up of demonstration nutrition gardens;
- Facilitate the setting up of food fairs and demonstration on cooking recipes to be held at each irrigation scheme and its adjacent rainfed are on a rotational basis.

Qualifications

University degree in Nutrition or related fields;

At least 5 years of experience of working in the field of nutrition.

Terms of Reference

International Monitoring and Evaluation Specialist

The International M&E Specialist will work closely and provide backstopping to the local M&E specialist under PCU. S/he will assist and report to the Programme Coordinator regarding M&E of project activities implemented by the project. The International M&E consultant will be required to carry out the following duties:

- Review of the ongoing M&E function, processes and detailed activities within the relevant implementing departments. Identify strengths and weaknesses, particularly gaps in the flow of information;
- Support technical work such as reviewing M&E methods, carrying out training needs, designing M&E tools and advising M&E technical assistance;
- Define the M&E objectives in relation to the SIRP project and develop a strategy for the achievement of these objectives;
- Lead development of and oversee the review of project level (M&E) plan and associated work plans for each component activity (as reflected in the Results framework). Look into quality, volume and frequency of information, match with existing needs and make adjustments;
- Design data entry templates and analysis of various data sets to be used during the project implementation;
- Enhance staff understanding on M&E function through training and mentorship on M&E and application on the job;
- Develop the modern M&E database techniques for the programme - automated/computerised system - to enhance availability, quality and utilisation of information and train staff from implementing agencies on the maintenance of the database;
- Conduct in house meetings to give impetus to the M&E function and provide mentorship to staff on new technologies such as computerised database and MIS;
- Create linkages with M&E sections in other organisations for strong, exchange of information, not only on programme issues but on M&E techniques and matters related to information management;
- Oversee and participate in evaluation and assessments;
- Provide follow up technical assistance where necessary to all Service Providers in data collection, processing and management.

Qualifications

- A second degree in economics or related subject;
- A minimum of 10 years professional experience particularly in the field of monitoring of agricultural and rural development projects financed by multilateral and bilateral donors;
- Fluency in written and spoken English.

Duration: The duration of the consultancy will be for twelve months, split into two periods of 6 months duration each.

Terms of Reference

Water User Organization Specialist

The consultant training would be part of the Programme Coordination Unit (PCU) and would work in close co-operation with the departments of AGRITEX, Irrigation and Mechanisation to develop the water user organization that are legally recognised.

Duties

- Guide the initial development of models, especially for larger schemes, including scheme management structures, laws and by-laws and procedures for decision making and financial management.
- Develop, in close co-operation with the PCU irrigation engineer and facilitators, practical manuals for scheme management training, O&M, processes for scheme upgrading and management transfer.
- Advice on the feedback of lessons learnt to the policy level by the organization of exposure visit, discussion papers and workshops.

The consultant would need to have relevant qualifications in agricultural science or social science, plus minimum 10 years of experience in training and Participatory Irrigation Management which would include programmes for management transfer. English is a requirement.

Terms of Reference

Rural Sociologist

The Rural Sociologist will be based in the PCU and will collaborate and work closely with other experts and team members, to provide strategic and analytical inputs for the implementation of the targeting, gender and social inclusion strategy. Specifically:

- Provide leadership in designing and implementing the participatory processes for the identification, engagement and selection of the irrigation schemes to be rehabilitated;
- Develop and supervise the implementation of the multi-pronged targeting strategy to ensure effectiveness and foster social inclusion, gender equality and effective poverty targeting;
- Develop and supervise the implementation of a forward-looking and transformative gender strategy, detailing, specific gender actions the programme will undertake to promote gender equality and women's empowerment, and engaging with men and local leaders;
- Design instruments for the collection of gender-disaggregated data; that would provide baseline and monitoring data on gender differences in the participation in, and benefits from, programme activities, performance towards the programme strategic objectives on women's economic empowerment, community empowerment and participatory processes;
- Design gender and socio-economic specific studies to be conducted during the programme cycle to gather in-depth qualitative and/or quantitative data, and disseminate lessons learnt/stories/reports at project level, and in knowledge sharing events and products media) on what works, why and how in targeting and gender mainstreaming in SIRP.

Participatory Design

- Review the existing participatory training manuals in view of simplifying and making further improvement;
- Assess present DoI and AGRITEX communication skills, design procedures and experience in participatory design of smallholder irrigation;
- In close co-operation with the relevant AGRITEX and DoI staff, develop practical procedures for farmer participation in design and decision making;
- Design and conduct a training programme for AGRITEX and DoI staff in the procedures mentioned above;
- Develop a practical field manual for design/or update existing training manual, including the use of visual aids, tips for facilitating (large) group discussions and participatory problem analysis/Participatory Rural Appraisal;
- Assist in the development of procedures for sub-contracting the design to competent private sector firms; and
- Develop and supervise the implementation of participatory processes for establishing and strengthening community level institutions (IMC and WUO) to plan, manage and monitor the revitalization of their irrigation assets; identify, negotiate and implement O&M investments; negotiate with the private sector, market actors and other service providers; and federate into stronger secondary and tertiary water user associations for advocacy and economies of scale.

Training

- Take stock of: the latest development in participatory irrigation management; the policy and institutional changes in the formal smallholder irrigation sector in Zimbabwe; the existing skills and capacity of staff in relevant institutions; and the available and relevant training resources in Zimbabwe;

- Identify the training needs (formal and informal) of irrigators, AGRITEX, irrigation and mechanisation staff at scheme, District, Provincial and National levels; as well as appropriate training sources for all required areas of training identified;
- Initiate, co-ordinate and supervise the implementation of the training programme for irrigators, RDC and AGRITEX staff at District, Provincial and national levels;
- Prepare guidelines for the training activities of the implementers of the various components of the programme; run programme inception workshops;
- Organize workshops, aimed at the development of a programme training policy and master plan, at both national and district levels;
- Advise on the feedback of lessons learnt to the policy level by the organization of exposure visit, discussion papers and workshops.

The consultant would need to have relevant qualifications in social science, plus minimum 10 years of experience in training and Participatory Irrigation Management which would include programmes for management transfer. English is a requirement.

Terms of Reference

International Technical Advisor: Agricultural Finance

The international technical advisor for agricultural finance will be hired for 11 man months and will be responsible for providing technical assistance for 1) promotion of Community-Based finance; 2) Broad-based financial literacy training.

Key Responsibilities and Duties of the International Technical Advisor

The responsibilities include (but are not limited to) the following:

- Assess the capacity and track record of technical service providers (TSPs) in promoting and upgrading Community-based finance Institutions (CBFIs) and in providing financial literacy and management training for farmers and their organizations;
- Prepare the technical specifications for recruiting TSPs to conduct an inventory of CBFIs in the project area;
- Prepare technical specifications, contractual arrangements and performance targets for TSPs implementing the CBFI promotion and upgrading activities, and supervise their implementation performance;
- Identify banks and MFIs with track record and interest financing smallholder farmers in and around the targeted irrigation schemes and related value chain actors and invite them to submit Expressions of Interest;
- Based on the EOIs, discuss with each PFI their outreach plans and delivery mechanisms in the project areas with and identify capacity gaps and need for technical assistance (TA);
- Prepare a roster of national and international TA providers with relevant agricultural finance expertise and solicit EOIs;
- Manage the recruitment of specialised regional and national TA for PFIs to mentor PFIs through the implementation of their outreach plans in the project area and to address the identified capacity gaps;
- Closely liaise with other implementation partners, especially in the areas of market linkages and farmer extension to ensure effective coordination and synergies;
- Support the PCO in developing appropriate strategies to inform potential partners of available Programme support under all components;
- Support the review and refinement of the Programme Implementation Manual.

Qualifications for the International Technical Advisor

Minimum Qualifications

- MSc, MBA or MA in economics, banking and finance, agricultural economics, or similar discipline;
- At least 10 years of practical experience in banking, rural microfinance and agricultural finance, of which at least 5 years in developing rural and agricultural products and delivery mechanisms or in managing/implementing related projects;
- Good understanding of agricultural production and related value chains and support services and their linkages to finance;
- Good understanding of institutional strengthening concepts, community-based microfinance, risk management ;
- Good knowledge of innovations, especially in agricultural finance products and services, low-cost delivery mechanisms and risk management;
- Excellent skills in written and spoken English and good computer skills

Terms of Reference

Water Pricing Specialist

Evidence shows that the smallholder irrigation farmers are struggling to clear off water bills with ZINWA and have therefore have accumulated huge arrears. According to the Water Policy, smallholder irrigators are charged the national blend price of US\$ 2 per Ml. However, the farmers consider this tariff to be high. Studies have shown that this would not even cover the O&M costs of delivering water to most smallholder irrigation schemes, let alone capital costs. On the one hand, one of the lessons from the case studies is that while many smallholder irrigation schemes can be shown to be economically viable, the users may not be able to repay full capital costs and remain with sufficient inducement to engage in irrigated agriculture. This calls for the need for partial water subsidy of capital costs. Clearly there is need to provide support to defining water pricing policy in as far as it affects the smallholder irrigators. In addition there is need for clarity on the part of farmers regarding the roles ZINWA and sub catchment councils, who are both billing the same farmers for water.

The duties of the consultant would be to:

- Carry out an analysis of water pricing policy in so far as it affects smallholder irrigation;
- Review similar work that has been done on this topic and built on it;
- Engage smallholder irrigation farmers and the relevant service delivery agencies to investigate their concerns regarding the current water pricing policy; in particular the reasons why the farmers have not been able to settle their bills with ZINWA;
- Seek suggestions on the way forward with regards to solutions to the problems being faced.

On the basis of the outcome of the consultation process the consultant will prepare a policy paper that would be presented at stakeholder workshop. The stakeholder workshop would provide a platform for dialogue for the stakeholders to debate of issues that affect smallholder irrigation. The policy paper could cover detailed analysis of financial aspects of smallholder irrigation, the affordability of full cost recovery, and the need for targeted subsidies.

- The paper would be finalised on the basis of the outcome from the stakeholder workshops and presented to MAMID.
- The paper would provide input for the longer term policy dialogue on water pricing to be financed under SIRP.

Timeframe and Qualification: Work would commence beginning of PY1 for 3 months. A local/regional consultant with 10 years experience in water pricing policy would be hired to conduct the work and will use the stakeholder workshop to identify and discuss issues and come up with options and recommendations.

Terms of Reference

Senior Irrigation Engineer

Background

At the initial stage, a comprehensive, detailed and sound data base and information shall be established for the selected schemes both from previous studies and assessments and through new study-specific data collection, surveys and investigations to fill gaps. A thorough diagnostic analysis of irrigation system diagnosis, involving DoI staff, water users representatives, and irrigation service providers will be carried out to: (a) assess existing operations and level of water control and water service delivery achieved; (b) irrigation service and water charge related fee collection; (c) analyze and prioritize constraints and opportunities; and (d) identify the required changes in operations, financial recovery to ensure sustainable infrastructure improvement to effectively, efficiently, and equitably improve water service delivery and O&M.

The role of the TA: The TA is going to be among the key technical staff supporting the Programme Coordination Unity (PCU). He/she is going to be responsible for to develop the capacity DoI to effectively and timely undertake:

- Project identification & development ranking;
- Preparing TORs for FS & DD and other short-term consultancies;
- Hiring consultants for group of schemes to be studies;
- Capacity building of DoI staff in contract management;
- Reviewing FS/DD at every stages of the project processing cycle;
- Hire contractors & other short-term TAs;
- Capacity building of DoI on supervision of works;
- Training of DoI on capacity building and prepare training materials to irrigators and DoI;
- Training on irrigation planning, FS/DD, contract management, supervision of services and works and operation and maintenance (O&M);
- Provide training of farmer trainers as well as training of trainer (ToT) for DoI and training technical staff;
- Conducting training need assessment, prepare ToRs and select consultants;
- Following up agreed action points of IFAD supervision mission; and
- Support the Programme Coordinator (PC) in all technical matters.

Conduct of Work: Based in the DoI office, the TA will operate from Harare. The assignment will be time based and initially for one (1) year, with the possibility of renewal, subject to work requirements and satisfactory performance.

The TA will report to the PC and will lead the PCU field supervision and provide technical guidance to the Programme Steering Committee (PSC).

He/she will work closely across Government Ministries and provide advice and guidance to SIRP Programme Teams and will establish a close working relationship with the teams of the IFAD and other Development Partners.

Qualification and Experience

The TA should demonstrate the following qualifications and experience:

- A Master's Degree in irrigation engineering, water resources management or related field relevant to the programme;
- At least five years recent experience of working in irrigation infrastructure and service provision projects focusing at sustainability related software aspects such as establishing/strengthening water user groups, irrigated agriculture, social aspects and value-chain linkages;
- Proven and Excellent English oral communication and writing skills;

- Excellent interpersonal skills and Team spirit;
- Experience of projects involving multiple and diverse stakeholders including Governments, private sector, civil society and end users; and
- Computer literacy with proficient knowledge of Microsoft Project packages, Excel, Power Point and Internet.

Contract Arrangement, Reporting/Terms of Payment

Payments to the TA will be made subject to agreed amount, and installment upon submission of monthly progress reports and completion of core reporting responsibilities as deemed necessary (for example: pre-mission PCU progress report)

Duration of Service

- Initially the assignment will be for one (1) year, with the possibility of renewal subject to work requirements and satisfactory performance.

Terms of Reference

Inventory of Existing Formal Smallholder Irrigation Schemes and setting up of Database

Background

The existing Department of Irrigation's inventory of smallholder irrigation schemes has a number of weaknesses in its current state: for instance, it is not always clear what is meant by the various abbreviations and symbols used to describe water supply and irrigation systems, nor what is meant by the terms "command area" or those in the "operational area". Perhaps the most serious weakness of all is that the inventory is unclear about the extent of government/farmer responsibility for management and O&M and status of functionality of individual schemes.

There is need to develop an unambiguous design for a comprehensive inventory; a methodology for capturing the required information; implementation of this; and measures to ensure that the inventory is in future regularly and reliably updated. The inventory will become one of the tools for enhancing irrigation M&E capacity within DoI.

Staffing

The PCU M&E specialist will work with DoI to set up the system. This will involve the head of the M&E Unit of the DoI, with the support of the eight Provincial Irrigation Engineers and all District Agricultural Extension Officers (DAEOs) under the AGRITEX. The anticipated duration of inputs that will be required by each of these staff is shown in the cost estimate below.

Methodology

The work is expected to commence with an initial workshop, at which the problems and opportunities relating to preparing and maintaining the required inventory will be identified and discussed by the intended implementers of the field work: that is, the Provincial Irrigation Engineers and DAEOs (30 people). The workshop will be facilitated by the M&E Specialist, the Director of DoI and the head of the M&E Unit within DoI. Once the requirements have been defined, the workshop will proceed to design a draft methodology, including a draft questionnaire, for verifying and updating the inventory. This is expected to consider the intended use of the inventory, the information required for this purpose, how to arrive at uniformity of approach across districts and provinces, and how to maintain the inventory through the use of existing field staff (Agricultural Extension Supervisors and Agricultural Extension Workers).

Based on the outcome of the workshop, the Head of M&E with the assistance of the M&E specialist would design (a) the final version of a comprehensive scheme questionnaire, together with supporting explanatory notes, (b) guidelines for regular monitoring of existing and proposed irrigation schemes for the purpose of inventory maintenance, and (c) information on the proposed methodology for analysis and use of the data. These will then be copied to all workshop attendees prior to convening a short course (3 days) that would be given by the M&E specialist, the Director of DoI and the Head of M&E. The course will provide classroom and fieldwork – at two or three representative irrigation schemes – for all of the previous workshop attendees, to demonstrate how to gather information for completing the questionnaire, how that information will be analysed and used, and how the system will be maintained in future.

It is expected that much of the production and management information that needs to be gathered to compile the inventory will be acquired by a systematic survey carried out at each scheme by the AEW responsible for the scheme, using one part of the questionnaire. This work will be carried out under direction of the Provincial Engineers, with the support of the DAEO. The PEng will complete a second part of the questionnaire to complete information on scheme infrastructure, and will use enlargements of existing aerial photography mark up (a) the developed command area; and (b) the area actually being regularly used for irrigation, for subsequent measurement and recording. As the existing

inventory is in the form of an MS Excel spreadsheet, it is assumed that the use of this or similar software will be continued in future. If so, the “Pivot Tables” feature contained therein will be a powerful tool in analysis of the inventory.

Provision will be made in the budget to acquire the necessary hardware and software to support an efficient database. The M&E specialist will assist in the set-up of the database and will train staff on its use.

Timeframe

It is expected that activity on this work would commence prior to programme start-up, so that it would be completed by mid PY1, in parallel with screening and selection of the first batch of schemes for upgrading.

Draft Terms of Reference

Smallholder Engagement in Policy Dialogue

Background

One of the major thrusts of Zimbabwe Agricultural Policy Framework is to place priority on farmer-managed and operated smallholder irrigation systems. This requires the WUOs to assume responsibility for O&M of the irrigation system. There are however likely to be a number of policy issues arising out of this strategy: for example, on the need for providing a legal basis for WUOs and/or the need for the WUO to assume formal ownership of scheme assets. It is therefore proposed to provide technical assistance under SIRP for a participatory review of the legal and policy framework for smallholder irrigation.

Objective

The purpose of this activity is to identify the possible need for reforms required to (i) assist smallholders irrigators with legal advice to strategic recommendations, and in particular the appropriate legal status of WUOs, indicating their status vis-a-vis land and water rights; (ii) consider the options for appropriate charges of water supplied to smallholder irrigation schemes; (iii) make recommendations on the above, for considerations by MAMID Senior Management Meeting - the Agricultural Management Committee (AMC) and, if required by the AMC, to prepare draft legislation e.g. for the refinement of the Irrigation Act or the amendment of the Water Act.

Staffing and Inputs

The staff required for this activity would comprise a panel of three to four national consultants, each eminent – academically or professionally – in his or her respective field, which should be related to the policy issues to be considered. Ideally, the composition of the panel would cover all of the following disciplines: (i) Water Resources Management; (ii) Smallholder Irrigation; (iii) Agricultural Economics; and (iv) Rural Sociology.

One of the panel members would be the Coordinator. It is envisaged that a total of eight consultant months would be required, distributed between the members of the panel as required by the Coordinator, over duration of the work. The panel would avail itself of the services of the PCU for secretarial support.

Methodology

The technical assistance would be participatory in approach, making use of stakeholder workshops to identify and discuss issues, options and recommendations. Considerations would include, but not restricted to:

- (i) Any further refinement of water pricing policy for smallholder irrigation;
- (ii) Prospects for providing a legal basis of WUOs and farmers to negotiate contracts with outside parties such as governments and private sector organisations;
- (iii) The need to secure individual land tenure (e.g. by granting long term leases);
- (iv) The need to enable WUOs to assume formal ownership of the assets;
- (v) The need to allow WUOs to deal with non performing members and facilitate internal and external transfer of plots;
- (vi) The need for possible amendment of the Water Act or amendments of the Irrigation Act.

Timeframe

The timeframe for the review of legal and policy framework for the IMCs and their WUOs will take 24 months.

TENTATIVE SKILLS IMPROVEMENT PLAN											
	Component 1: Sustainable Smallholder Irrigation Development	Project Timeline									
	Subcomponent 1.1: Development and management of irrigation scheme assets	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total	Total Cost \$''000	Responsibility
	ACTIVITY										
1	Consultancies										
	Detailed design and supervision for Rehabilitation/Construction (80%)	600	1000	1800	1000	600	-	-	5000	623	DOI/Service Provider
	Detailed design and supervision for Rehabilitation/Construction (15%)	-	240	320	240	-	-	-	800	151	DOI/Service Provider
	Detailed design and supervision for Rehabilitation/Construction (80%)	-	60	80	60	-	-	-	200	66	DOI/Service Provider
	Irrigation Engineer	6	12	12	12	-	-	-	42	521	DOI
	Subtotal									1361	
	Subcomponent 1.2: Improved smallholder irrigation management	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total	Total Cost \$'000	Responsibility
	ACTIVITY										
1	Consultancies										
	Contracting service provider to support WUO strengthening	-	7.5	21	39.5	23	9	-	100	848	DOI
	WUA Specialist	6	12	12	12	-	-	-	42	434	DOI
	Subtotal									1282	
2	Training										
	Training of irrigators and IMC leaders	-	12500	-	-	-	12500	-	25000	795	DOI/WUA Specialist
	Training of IMC leaders and their apex	-	700	-	-	-	700	-	1400	45	DOI/WUA Specialist
	Vocational training for selected youth in irrigation equipment repair & maintenance	-	200	200	200	200	200	-	1000	318	DOI/Service Provider
	Subtotal									1158	
	Subcomponent 1.3: Enhanced institutional capacity for irrigation development	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total	Total Cost \$'000	Responsibility
	ACTIVITY										
1	Consultancies										
	Training needs assessment & identification training sources	1	-	-	-	-	-	-	1	5	DOI/Service Provider

Development of Legal Framework for IMCs and WUAs	4	4	-	-	-	-	-	8	81	DOI/SP
TA on Water Pricing	3	-	-	-	-	-	-	3	24	DOI
Prepare Improved National Irrigation Database	1	-	-	-	-	-	-	1	271	DOI/SP
Prepare Feasibility Studies and Detailed Designs	-	-	200	500	800	500	-	2000	258	DOI/SP
Subtotal									639	
2 Training										
Training and mentorship for DOI staff	50	100	100	100	100	50	-	500	210	DOI/Service Provider
Study Tours	1	-	-	-	1	-	-	2	79	DOI/Service Provider
ToT on Data Collection Processing and Maintenance	8	-	-	-	-	-	-	8	40	DOI/Service Provider
Training on Database Maintenance	1	-	-	-	-	-	-	1	5	DOI/Service Provider
Subtotal									334	
3 Workshops										
Stakeholder Dialogue Workshop on Water Pricing	-	4	3	4	-	-	-	11	57	DOI/Service Provider
Stakeholder Dialogue Workshops on IMCs and WUAs	4	4	3	-	-	-	-	11	56	DOI/Service Provider
Initial Workshop	1	-	-	-	-	-	-	1	1	DOI/Service Provider
Subtotal									114	
Component 2: Climate-smart Agriculture and Market Access										
Subcomponent 2.1: Enhanced agricultural practices and farmers' organizational capacity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total	Total Cost \$'000	Responsibility
ACTIVITY										
1 Consultancies										
Technical Assistance (NRM – Committees)	2	12	10	3	-	-	-	27	69	Agritex/EMA/SP
Technical Assistance (Participatory NR Mapping)	-	12	12	-	-	-	-	24	62	Agritex/EMA/SP
Technical Assistance (Exchange Visits)	-	1	1	-	-	-	-	2	3	Agritex/EMA/SP
Technical Assistance (Participatory Planning)	-	12	12	-	-	-	-	24	37	Agritex/EMA/SP
Engagement of service provider for additional extension support on schemes	6	12	12	24	5	-	-	57	482	Agritex/EMA/SP
Subtotal									653	
2 Training										
Training Committee Members on NRM	-	1280	1280	-	-	-	-	2560	79	Agritex/EMA/SP
Exchange Visits	-	20	20	-	-	-	-	40	21	Agritex/EMA/SP
Training of FFS facilitators	55	100	100	60	20	-	-	335	483	Agritex/EMA/SP
Training of farmers in rainfed areas	1250	2500	5000	2500	1250	-	-	12500	397	Agritex/EMA/SP
Training of irrigation scheme agriculture committees	210	280	280	140	-	-	-	910	800	Agritex/EMA/SP
Training of farmers on irrigation schemes	1250	2500	5000	2500	1250	-	-	12500	397	Agritex/EMA/SP
Field days/Exchange visits	32	60	60	36	12	-	-	200	105	Agritex/EMA/SP
Training for farmers in greater scheme area	1250	2500	5000	2500	1250	-	-	12500	397	Agritex/EMA/SP
Food fairs & cooking/feeding demonstrations	10	20	40	30	25	-	-	125	131	Agritex/EMA/SP

	Facilitating and strengthening women's organisations	8	32	40	40	40	40	-	200	42	Agritex/EMA/SP
	Nutrition education	16	24	72	72	24	24	24	256	135	Agritex/EMA/SP
	Subtotal									2987	
3	Workshops										
	Workshop to Initiate/Revitalise NRM Subcommittees	-	30	30	-	-	-	-	60	123	Agritex/EMA/SP
	Participatory Natural Resource Mapping Workshop	-	30	30	-	-	-	-	60	46	Agritex/EMA/SP
	Participatory Planning Workshop	-	5000	7500	-	-	-	-	12500	386	Agritex/EMA/SP
	Subtotal									555	
	Subcomponent 2.2: Market access and rural financial services	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total	Total Cost \$'000	Responsibility
	ACTIVITY										
1	Consultancies										
	CBFI Baseline	1	-	-	-	-	-	-	1	50	Agritex/EMA/SP
	ISAL upgrading / linkage to formal FI	300	300	300	300	300	-	-	1500	39	Agritex/EMA/SP
	Financial Literacy needs assessment	1	-	-	-	-	-	-	1	20	Agritex/EMA/SP
	Curriculum development / testing	1	-	-	-	-	-	-	1	10	Agritex/EMA/SP
	International TA (Rural Finance)	6	5	-	-	-	-	-	11	89	Agritex/EMA/SP
	Engagement Business Development Service Provider BDSP	42	42	42	26	12	-	-	164	1353	Agritex/EMA/SP
	Research and Material Preparation	1	-	-	-	-	-	-	1	20	Agritex/EMA/SP
	Subtotal									1581	
2	Training										
	ISAL establishment	1200	1200	1200	1200	1200	-	-	6000	312	Agritex/EMA/SP
	Training of local CBFI promoters	400	400	400	-	-	-	-	1200	37	Agritex/EMA/SP
	Training of Trainers	20	20	20	-	-	-	-	60	31	Agritex/EMA/SP
	Implementation for 25000 persons	12500	12500	-	-	-	-	-	25000	759	Agritex/EMA/SP
	Business skills training for irrigated farmers	1250	2500	5000	2500	1250	-	-	12500	390	Agritex/EMA/SP
	Training for scheme level Marketing Committees	125	250	500	250	125	-	-	1250	260	Agritex/EMA/SP
	General business skills training for rainfed farmers	1250	2500	5000	2500	1250	-	-	12500	390	Agritex/EMA/SP
	Training on post harvest management and product quality on scheme and adjacent rainfed area	-	2050	4050	8050	4050	2050	-	20250	643	Agritex/EMA/SP
	Vocational training for selected youths	200	200	200	200	200	-	-	1000	318	Agritex/EMA/SP
	Subtotal									3140	
	Subcomponent 2.3: Enhanced institutional capacity for market-led production	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total	Total Cost \$' 000	Responsibility
	ACTIVITY										
1	Consultancies										
	Training needs assessment and identification of training sources	1	-	-	-	-	-	-	1	5	Agritex/EMA/SP

	Development of Policy Positions	4	4	-	-	-	-	-	8	81	Agritex/EMA/SP
	Subtotal									86	
2	Training										
	Training and mentorship for AGRITEX staff	50	100	100	100	100	-	-	450	188	Agritex/EMA/SP
	Study tours/E xchange Visits	1	-	-	-	1	-	-	2	79	Agritex/EMA/SP
	Subtotal									267	
3	Workshops										
	Stakeholder Dialogue Workshop	-	4	3	4	-	-	-	11	57	Agritex/EMA/SP
	Subtotal									57	
	Component 3: Programme Management	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total	Total Cost \$' 000	Responsibility
	ACTIVITY										
1	Consultancies										
	Baseline Study	0.25	0.25	0.25	0.25	-	-	-	1	206	PCU/SP
	Annual statutory audits	1	1	1	1	1	1	1	7	148	PCU/SP/MAMID
	Mid-Term Review	-	-	1	-	-	-	-	1	52	PCU/SP/MAMID
	Project Completion Report and impact surveys	-	-	-	-	-	-	1	1	56	PCU/SP/MAMID
	Documentation of Best Practices	-	2	2	2	2	2	2	12	64	PCU/SP/MAMID
	Development of SIRP website	1	-	-	-	-	-	-	1	20	PCU/SP
	Radio-aired sensitisation campaigns	1	1	1	1	1	1	-	6	189	PCU/SP/MAMID
	Technical assistance to develop/ operationalise system, produce M&E manual & train users	6	6	-	-	-	-	-	12	121	PCU/SP
	Technical Assistance to support the PCU	12	12	12	12	-	-	-	48	494	PCU
	Subtotal									1350	
2	Training										
	Training of trainers at provincial level	200	-	-	-	-	-	-	200	6	PCU/Agritex/SP
	Field level training on data collection and processing	-	500	-	-	-	-	-	500	15	PCU/Agritex/SP
	Subtotal									21	
3	Workshops										
	National Sensitisation Workshop	1	-	1	-	1	-	1	4	21	PCU/MAMID
	Information Meetings at Province	4	-	-	-	-	-	-	4	20	PCU/Agritex/DOI
	Information Meetings at District	4	4	4	4	-	-	-	16	66	PCU/Agritex
	Information Meetings at Schemes	15	30	50	30	-	-	-	125	39	PCU/Agritex/DOI
	Subtotal									146	

Key: Service Provider (SP)

Appendix 6: Planning, M&E and learning and knowledge management

Planning

1. **Planning cycle.** The main planning tools for SIRP comprise the logframe, M&E framework including its indicators and targets, and the Results Based Annual Workplan and Budget (RB-AWPB). The logframe provides the indicators and targets of the overall project implementation from output over outcome, development objective to impact levels. The RB-AWPB will break up these physical targets by year and attach financial resources (IFAD grant, OFID loan, Government budget) to them. The RB-AWPB shall present financial and physical outputs and outcomes of the project for the given year, and reports on the accumulative achievements. The execution of the RB-AWPB will be monitored along the M&E framework of the project and reported back in regular intervals from quarterly to semi-annuals reports. The cycle of planning, monitoring and reporting is essential for efficient management of the project and for achieving the results as agreed.

2. **Results-Based Annual Work Planning and Budgeting (RB-AWPB) development.** The PCU will draft the RB-AWPB involving each level of programme participants, starting with the primary stakeholders at the scheme and surrounding rainfed level. These will identify the activities according to their needs and priorities through a participatory planning process. These scheme level plans will be reviewed and prioritized, based on the available resources, and compiled into District AWPBs. The District AWPBs will be reviewed by the DAMC and submitted to the respective responsible government department for inclusion into their district budgets. The Provincial facilitators will in turn compile a SIRP specific budget for submission to the PCU. The PCU will review and consolidate the provincial AWPBs based on the programme's overall operational and financial targets and will then produce to the programme-wide AWPB for a given year which would be submitted to the Project Steering Committee (PSC) for review and approval. Finally, the AWPB would be submitted to IFAD, at least 60 days before the commencement of the proceeding programme year, for its review and expression of 'No Objection'. The annual planning and implementation cycle will be aligned with GoZ's planning cycle. The fiscal year goes from January to December. A template in Excel will be made available in the Programme Implementation Manual (PIM) to facilitate the process and reporting.

3. **Annual reviews and planning.** Starting with the preparation of the AWPB for Programme Year 2, there will be a process to review the previous year's performance, generate lessons learned and incorporate the experience in the proceeding year's AWPB. It should summarize the previous year performances and challenges, highlighting the rationale and recommendations for the proposed activities. In addition, it will reflect and document the planning system including the local level planning and the approval processes. In summary, the AWPB would present the programme background, past experience and results (the basis for future plans), the following programme year's plan in summary, what it will cost (the financial summary (including a Procurement Plan) and then details of planned activities. An annotated outline of the AWPB will be provided in the PIM. It will also include a plan for staff capacity development and training, whenever warranted.

4. **Coordination.** Each programme participant would ensure that maximum co-ordination is achieved between the various activities under SIRP at local level. Co-ordination with governmental projects and other relevant on-going projects and programmes, particularly those of the programme's financiers. An efficient co-ordination among partners will lead to synergy effects, meaning that the effects of coordination and cooperation within SIRP will be greater than the simple adding up of effects by individual activities. Henceforth, a consolidated implementation matrix would be prepared annually based on SIRP participants AWPB to ensure synergies and complementarities are identified and exploited and to facilitate field-level coordination of implementation. There would be semi-annual coordination meetings between all IPS along with additional meetings during supervision missions.

Supervision

5. SIRP would be directly supervised by IFAD. Direct supervision would encompass four discrete processes: (i) loan and grant administration; (ii) procurement review; (iii) audit review; and (iv) supervision and implementation support. Direct supervision would be applied as a continuous process which requires on-going communication and engagement with Government and PCU and IP management. Key supervision processes which would be applied are outlined below.

6. **Loan and Grant administration.** Ensuring fiduciary compliance, with focus on: a) Compliance with legal covenants; and b) financial management. Procurement review with focus on: a) the procurement planning and processes; and b) management and monitoring of contracts. Audit review will focus on: a) prior review of the ToR and appointment of the project audit; and b) quality of the project audit.

7. Programme supervision with focus on: a) implementation performance and progress towards project objectives; b) project investments, outputs, outcomes and impact; c) quality of AWPB, M&E and reporting; d) effectiveness of the steering committee, project management, implementing institutions and service providers; e) good governance: transparency and participation; and f) targeting and gender.

8. Implementation support will provide advice for the following aspects: a) efficient achievement of project objectives; b) implementing and mainstreaming new approaches for example the integration of climate resilience as a core element across all IPs and component activities; c) addressing operational issues and problems; and d) generating lessons and articulating best practices.

9. Learning from project interventions with focus on: a) introducing a broad programmatic view of development investments; b) influencing policy on the basis of operational experiences; c) developing climate resilience and mitigation policies and strategies; d) facilitating financial and operational partnerships; e) generating knowledge and lessons; f) feeding operational lessons into new project design; g) creating innovative instruments, investments, pilot activities; and h) enabling portfolio restructuring to improve outcomes and results.

10. The supervision process would guide the programme towards the achievement of strategic objectives and broader poverty reduction outcomes, while ensuring fiduciary compliance and responsiveness to the accountability framework. Several instruments would be applied to influence implementation: on-going policy dialogue with Government; adjustment of annual work plans and budgets; revision of implementation manuals; undertaking of supervision and mid-term review missions, and legal amendments as appropriate.

Results based monitoring and evaluation

11. **Programme M&E.** SIRP's approach to planning, M&E and knowledge management system will be developed with a view of building on the strengths and avoiding the weaknesses of the current government system and the other smallholder irrigation Programmes in Zimbabwe. The framework will be developed to ensure compatibility with the Government of Zimbabwe; particularly the ZimASSET as well as the IFAD policies and tools, such as the IFAD Results and Impact System (RIMS). In this regard, high level outcome indicators for the SIRP have been aligned to the high level impact indicators for the ZimASSET, as the SIRP is seen as a significant intervention that should contribute to the development efforts of the country. The logframe also takes into account RIMS indicators, at impact, outcome and output level.

12. The M&E system is designed to generate comprehensive and reliable information, to improve planning and decision-making for effective managing SIRP towards results and impact. It will be used to inform performance of the SIRP with the PCU having the ultimate responsibility for the proper function of the M&E system for the program. The programme's M&E system is designed to offer comprehensive and reliable information to improve planning and decision-making for results-based management. Results generated from the RIMS indicators are reported back directly to IFAD, once a year. Both, programme and RIMS indicators, at each level will be used to manage the programme and

assess its progress and achievements. The IFAD- RIMS manual and templates will be placed in the Programme Implementation Manual (PIM) for guidance.

13. **Logical framework.** The identification of appropriate indicators and methodologies to measure progress is critical. The SIRP logical framework has been extensively developed with the results hierarchy elaborated along the agreed upon programme components, and reviewed during the final design mission. The key indicators include total area rehabilitated/developed; Area under effective operation and maintenance by WUOs, incremental hectares of crop grown throughout seasons; crop yields; value of crops produced/ marketed; area of land under improved management practices, number of business plans developed, annual household income; proportion of targeted households that are year-round food secure; dietary diversity index; prevalence of stunting in under-fives; dietary diversification, household assets ownership index, percentage of leadership position filled by women, Number of people benefiting from project services, by gender. The list of indicators will be reviewed during project implementation, and can be adjusted.

14. The logical framework will constitute the basis for results-based M&E, and include an initial list of indicators to track progress and achievements. All M&E data, analysis, and reporting would be disaggregated by gender, M&E activities would be based on the IFAD Guide for Project M&E. Recognising that the impact of SIRP depends on a fully integrated implementation of the various components and activities, the system would be participatory and decentralised, and pro-actively involving target groups and implementing partners.

15. **Approach.** Programme M&E are usually outlined along five levels:

- a. Inputs are understood as the financial, human, material resources used to produce outputs through activities, and achieve outcomes and the development objective. This includes expenditures that will be financed, and timing; Data would flow directly from records at different management levels (PCU, programme participants and service providers) and from periodic management reporting. Simple indicators would be monitored quarterly.
- b. Outputs are what the programme delivers in terms of services: number of farmers trained, number of hectares rehabilitated, number of contracts brokered, number of management plans prepared. The nature of information is rather quantitative and can be obtained from the usual reports and record system. Data would flow from records at different management levels.
- c. Outcomes refer to changes that are caused by the outputs including behaviour, skills attitude or knowledge and describe the benefits for participants during or after their involvement in the programme. Qualitative assessments will be combined with quantitative ones; information gathered from household surveys and participatory assessments will complement the data collection, which is usually done for the output level information. The PCU Monitoring and Evaluation officer, Monitoring and Evaluation Officers as well as Extension staff would be responsible for data collection and participatory data analysis. Reporting should be on a quarterly basis and culminate in an exhaustive progress report by the end of each fiscal year.
- d. Development Objective is what the programme aims to achieve as end results based on its activities and investments. The assessment of quantitative and qualitative information is carried out similarly to the outcome level, as described above.
- e. Impact describes the highest level change to which the programme can contribute. It is a consequence of achievement of the development objective. The goal relates to specific national objective (such as reduced stunting). Besides the quantitative information (outreach), qualitative assessments will be important to understand the type and depths of impact. Assessments of the impact on the target group's livelihoods would focus on the related impact indicators such as household incomes, gender equality, poverty status, and changes in the resource base. It would be based on a sample of households/settlements selected in the programme targeted districts that would remain constant during the programme life. These assessments are done before the mid-term and at project completion.

16. **Programme Baseline Study.** A baseline will be designed and carried out at programme start-up in areas pre-identified schemes. Specific baselines will be scheme-specific as per outcome of the selection process. The baseline studies will form the basis for assessing programme effectiveness and results achievement. The household survey shall be repeated at mid-term (PY 3-4) and by programme completion. These repeated measurements will allow obtaining the required data and information for assessing the performance and achievements of the programme over time. Baseline studies include the target group and a control group, and will incorporate the Multi-dimensional Poverty Assessment Tool (MPAT). This will be essential to determine the attribution of results to programme activities. In addition, SIRD will conduct an impact evaluation at end of the programme with a specific focus on gender to inform modifications of interventions for greater impact on women's empowerment.

17. **MPAT** - Multi-Dimensional Poverty Assessment Tool. IFAD has developed a new Multi-Dimensional Poverty Assessment Tool (MPAT), it offers the opportunity to obtain the perception of communities on their development needs and the performance of interventions along 12 livelihoods dimensions. SIRD will apply MPAT for monitoring its performance and impact on rural livelihood applying a more holistic approach than it is usually the case, and will integrate it in its baseline survey.

18. **Responsibilities.** Overall the responsibility for programme M&E activities will rest with the PCU M&E Officer and other programme participant M&E assigned staff. They will be overseen by the PCU M&E Officer while reporting to the PCU Coordinator. The M&E Officers will also be responsible for collecting and analysing data gathered from service providers in each district on the basis of an agreed reporting format and timeframe. A reporting system to track physical/financial performance and emerging impact will be implemented for the programme (PCU).

19. **Reporting.** Three reports will be produced: (i) a quarterly progress report by each IP and service provider; (ii) a semi-annual progress report; and (iii) an annual progress report. The programme logframe includes the draft indicators against which programme performance would be monitored and the sources of data to be used; these indicators would be discussed and agreed at programme start-up. Each programme participant would issue the set of three reports that would be consolidated by the PCU, reviewed and approved by the PSC prior to its submission to IFAD, the Government and co-financiers.

20. **Start-up workshop.** MAMID will organize a SIRD start-up workshop, with the aim of sensitising all potential stakeholders' service providers and beneficiaries regarding programme objectives and scope, roles and responsibilities. The workshop's timing and agenda will be agreed between Government and co-financiers. The objective is to obtain a full buy-in and ownership of SIRD by all stakeholders. The programme design report needs to be disseminated widely from national to community levels, and relevant key persons should be invited to the workshop.

Learning and knowledge management

21. **Learning system.** SIRD learning systems comprise monthly, quarterly, bi-annual and annual review meetings/workshops, capturing information on progress, lessons and finding solutions for implementation constraints at different levels. These review platforms will serve as a learning event, as well as to monitor and influence the process through which results are supposed to be achieved. Minutes/short report from each workshop will capture workshops results and provide feedback that would be factored into the programme's AWPB for the succeeding year, thus closing the circle of participatory, demand-driven planning and implementation. The report will also document how lessons learnt are used in decision-making.

22. **Innovations and lessons learnt.** SIRD would rollout a number of new and innovative approaches in the area of: (a) irrigation schemes feasibility studies; (b) rehabilitation and revitalization of smallholder irrigation schemes; (c) village level natural resources management plans; (d) improved farmers organization and marketing; (e) improved access to markets, and better returns; and (f) better link to financial services, through access to savings and credit.

23. **Communication.** SIRP will provide space for capturing, documenting and disseminating of programmes' lessons and innovations using different technologies. It will involve both internal and external communication. Within the programme, the KM function will closely work with the M&E system to support the capturing, documenting and sharing of information and lessons. The programme will document and distribute proceedings of the internal learning events. Community level learning will be strengthened through the use participatory videos where IMCs document the participatory M&E process. External communication will be equally important for creating visibility and influencing evidence based policy towards participatory small scale irrigation for poverty reduction and climate resilience.

24. **Learning notes** on programme implementation (good practices and lessons), also focusing on smallholder irrigation, would be developed by the PCU and the relevant implementation partners. In addition, the programme would publish a semi-annual newsletter based on good practices and human interest stories, ensuring that information assembled is gender sensitive, and reflects the success stories related to vulnerability reduction and livelihood diversification as a means of risk management.

Appendix 7: Financial management and disbursement arrangements

1. In accordance with IFAD's policies with respect to the use of country systems, Financial Management (FM) arrangements under SIRP will be, to the extent feasible mainstreamed within the Government of the Republic of Zimbabwe (GoZ). An FM assessment of MAMID, the lead implementing agency, was conducted with the objective of providing assurance that it will have sufficiently strong FM systems and controls in place. Adequate FM arrangements would facilitate proper management, control, safeguard and reporting on programme finances to ensure that SIRP funds are used effectively and efficiently for the purpose intended.

2. The assessment noted that whereas the GoZ systems have potential to provide a robust FM environment, they are currently not adequately developed to satisfy IFAD's minimum requirements. The Public Financial Management System (PFMS) in Zimbabwe is currently undergoing review and enhancement, underpinned by strong support and investment by World Bank funding/initiatives. Coupled with ongoing reforms to the Public Finance Management Act, it is expected that these initiatives will bring about improvements in financial reporting, internal controls, fiscal transparency and accountability in government finances.

3. Accordingly, readiness to facilitate complete mainstreaming of SIRP financial management functions is expected only upon implementation of on-going financial management initiatives, including completion of the PFMS project with the grant module of the system fully rolled out and the business intelligence module installed to facilitate reporting. Since this is expected occur within two years at the earliest, FM arrangements will be tailored to complement country approval systems.

Country Issues/Overarching assessment of inherent risk

4. The overall Country fiduciary risk at design is assessed as high. This assessment takes into account the following country level issues:

- i) Since 2013, Zimbabwe has maintained constant score of 2.1 on **Transparency International's Global Corruption Perception Index** (on a scale 0- high risk and 10 - low risk), and ranks 150th out of 167 Countries scored. This is rated as high risk and the SIRP design arrangements have taken into account this fiduciary risk, and proposed appropriate financial management safeguard measures to be put in place at project level;
- ii) Public Expenditure and Financial Accountability (PEFA): There has not been any PEFA assessment on Zimbabwe by the World Bank in the recent years. The World Bank has however conducted a Review on the Observance of Standards and Codes (ROSC) and issued a report dated February 2011. This report highlighted several issues including: (i) the need for updating the legal framework to support implementation of accounting and auditing standards; (ii) weak capacity of the professional accountancy bodies and the Public Accountants and Auditors Board (PAAB); (iii) inadequate practical professional training in some professional bodies; (iv) lack of focus on IFRS and ISA in tertiary educational programs; and (v) the need to improve the degree of compliance with applicable accounting and auditing standards. Implementation of recommended improvements to the legal framework are still under way, with enabling laws still being drafted.
- iii) The government further undertook a Country Integrated Fiduciary Assessment (CIFA) in 2012 with the help of various donors aimed at defining systematic measures towards improving the public financial management system. The report dated July 2012 made recommendations for improvements which cut across all the areas of financial management; accounting and reporting, planning and budgeting, internal controls, auditing. A follow on Public Financial Management Assessment was done by the World Bank and published in May, 2015 indicating remarkable improvements in Public financial management. Recommendations to

further improve public financial management have been made in the following areas:
 (i) improving discipline in budget monitoring; (ii) managing expenditure arrears;
 (iii) strengthening payroll controls; (iv) strengthening internal and external audits; and
 (v) improving the demand side of accountability. There are PFM reform initiatives under the multi-donor trust fund, ZIMREF (Zimbabwe Reconstruction Fund) being implemented to address public financial management challenges. Covered under these initiatives are (i) Public Financial Management Enhancement Project (including strengthening the capacity of Public Sector Accounting Professional in Zimbabwe supported by DFID); (ii) Public Procurement Modernisation Project (including review of the Public Procurement Act and baseline survey of Procurement professionals in the Country); and (iii) Results based Budgeting project supported by the World Bank.

5. Although a mix of the Republic of Zimbabwe's Public Financial Management (PFM) systems in respect of approvals and IFAD guidelines will be used under SIRP, additional mitigation measures have been proposed as part of this assessment to complement the country financial management systems.

Project Specific Assessment and proposed FM arrangements

6. As required by IFAD Financial Management assessment guidelines, the summarized scoring at design is as follows:

	Initial Risk Assessment	Proposed mitigation	Final Risk Assessment
Inherent Risk			
1. TI Index	-	-	H
2. PEFA	-	-	H
Control Risks			
1. Organization and Staffing	H	Par 7	M
2. Budgeting	H	Par 8 - 10	M
3. Funds Flow and Disbursement arrangements	H	Par 11 - 15	M
4. Internal Controls	H	Par 16	M
5. Accounting systems, Policies and Procedures	H	Par 17 - 20	M
6. Reporting and Monitoring	H	Par 21 - 22	M
7. Internal Audit	H	Par 23	M
8. External Audit	M	Par 24 - 26	M
SIRP Fiduciary Risk @ Design	H		M

H/M/L = High Medium and Low risk as per the Guideline Note on undertaking Financial Management Assessment at design

7. The overall fiduciary control risk is assessed as high. The implementation of mitigation measures proposed will partially offset this risk and reduce it to medium. Main financial management risks are related to: (i) weak internal audit systems; (ii) an under developed public financial management systems; (iii) Inadequate staff capacity; and (iv) inadequate external audit coverage.

8. Organization and Staffing: The major source of risk is the inexperience of staff with management of donor funds and particularly IFAD procedures. The operational day-to-day FM functions including budgeting, accounting, funds' flow management, internal control, financial reporting, and ensuring timely external audits will be the responsibility of a dedicated Programme Accountant with the required qualifications and experience who will be recruited and will report to the Programme Coordinator with dotted line of reporting to the Chief Accountant. For each participating Province, accounts staff with appropriate profile will also be assigned by MAMID to perform accounts

functions, supported by staff Assistant accountants for appropriate segregation of duties. The recruited Programme Accountant shall be engaged under a performance based contract. Provisions have been in the SIRP budget to allow for the recruitment of international technical assistance during project start-up to provide hands-on training to all staff involved in the financial management of SIRP, and assist with the establishment of systems and procedures to ensure proper management, control and reporting on project finances.

9. **Budgeting:** Key risks arise from the current top–down budgeting at MAMID, inadequate disclosure of grant funds, and inadequate experience with IFAD budget requirements. MAMID, as a Government ministry, follows the budget preparation guidelines set out in the Public Finance Management Act (2009) and the annual budget guidelines issued by the Ministry of Finance. The overall budget for SIRP will be decided between the Government of Zimbabwe and IFAD and outlined in the Financing Agreement. Whereas the annual budgeting will be done in line with Government's existing budget framework and timetable as part of MAMID's regular budget submission, detailed SIRP Annual Work Plans and Budgets approved by the Steering Committee will be submitted to IFAD for a No Objection. The AWPB, as may be amended during the course the fiscal year, will strictly dictate eligible expenditures for that particular year. The budget line under which IFAD funds will be allocated will be clearly identified and reported upon as part of MAMID budget allocations, to ensure that there are no overlaps or duplication of support to the Ministry.

10. To facilitate proper budget monitoring and control, MAMID will provide budget templates that mirror its code/chart of accounts to all implementing partners. The coding will reflect SIRP project components, sub-components, categories and activities together with funding sources (IFAD, Government and Beneficiaries/Implementing Partners) to enable proper budget monitoring and control.

11. The budgeting process will include the following steps and approvals:

- a) PMU staff together with Provincial and implementing agencies' staff will support the (Participatory Rural Appraisal) PRA exercise that will result in the Development of fully costed Community Action Plans (CAPs).
- b) Since not all the activities in the CAPs can be implemented at the same time, further prioritization of activities will be done at Provincial level. The Provincial project management team will pick from the various CAPs key activities for inclusion in the Provincial AWPB, which then will be submitted upon approval to PMU – MAMID for consolidation.
- c) The consolidated budget will be approved by the SIRP National Steering Committee and later submitted to IFAD for No Objection. As already stated above, the project budget will have a budget line in the Government of Zimbabwe printed budget estimates under the lead agency the *MAMID*.

12. **Funds Flow and Disbursement:** The proceeds of the financing will be used for eligible expenditures as defined in the Financing Agreement and will be in line with the allocations by disbursement category as specified in Schedule II of the Financing Agreement. The key risk identified in this regard relates to the traceability of funds and potential misappropriation. Mitigation of this risk will require that IFAD and OFID funds are kept in dedicated accounts to allow for full traceability at all times.

13. The **flow of funds** chart attached (in **attachment 1**) illustrates how funds will be channelled from the various sources to meet programme expenditures. Three disbursement procedures will be employed: (i) Advance/Replenishment of the Designated Accounts; (ii) Direct Payments directly from the IFAD/OFID Accounts (exclusively for payments over US\$ 100,000); and (iii) Reimbursement of expenditures pre-financed by the Government of Zimbabwe (if any).

14. Two designated accounts denominated in US\$ will be opened in the Reserve Bank of Zimbabwe into which funds disbursed from the IFAD Grant Account and OFID Loan Account will be deposited. Because Government contribution is uniquely in the form of foregone tax revenue a

separate counterpart fund operational account will not be required. The designated accounts will be operated and maintained by the Ministry of Finance in accordance with GoZ procedures and regulations. The disbursement of funds into the Designated Accounts will follow the imprest/replenishment mechanism, whereby an authorized allocation, sufficient to cover six months' worth of expenditure (based on an approved AWPB) shall be advanced and subsequently replenished upon the submission of Withdrawal Application by the Recipient to IFAD. IFAD will be responsible for loan administration on behalf of OFID. The ceiling of the Authorized Allocations shall be specified in the Letter to the Recipient (LTR) which will be transmitted to the GoZ upon signing of the Financing Agreement. The LTR will also include detailed instructions for each of the available disbursement methods.

15. In addition to the Designated Accounts, one operational account, also denominated in US\$, will be opened in a commercial bank mutually acceptable to both the GoZ and IFAD. The day-to-day expenditures incurred by each of the programme's implementing agencies at the national, provincial and district levels will be settled from this account. The operational account will be managed by the PCU.

16. The PCU will have the responsibility of coordinating and ensuring the smooth flow of funds so that funds are available as and when necessary to meet programme financial obligations towards suppliers, service providers and contractors. This will involve: (i) establishing the liquidity requirements of each implementing agency based on the approved AWPB; (ii) preparing and dispatching bank transfer instructions to the Reserve Bank of Zimbabwe to ensure that there is sufficient liquidity in the operational account at all times; (iii) following up on any funds advanced to implementing agencies and ensuring the timely justification thereof; (iv) maintaining the supporting documentation underlying expenditures incurred by the programme in order to prepare Withdrawal Applications for submission to IFAD; and (v) ensuring that both the IFAD and OFID Authorized Allocations are fully accounted for at all times through regular preparation of periodic reconciliation statements for the designated accounts. All movements from the Designated Accounts will require countersignature by the Authorized Representative of the Government of Zimbabwe.

17. To ensure proper implementation of disbursement methods and smooth tracking of funds, MAMID-Dol will ensure that under SIRP:

- a) Training of staff designated to implement SIRP in IFAD disbursement methods as documented in the disbursement handbook.
- b) Release funds to implementing partners in the form of work plan based advances other than general transfers. Each work plan based advance shall be accompanied with a breakdown of activities financed and financial returns should reflect progress on the funded activities.
- c) The chart of accounts will be structured to facilitate recording and reporting of transactions by financier/source of funds, by programme component, expenditure categories and activities. This will facilitate consolidation of reports and traceability of funds without having to open multiple bank accounts.
- d) At implementing partner level, to facilitate proper monitoring of utilisation of financial resources and control commingling of funds at that level, it has been deemed necessary to propose maintaining of separate bank accounts for the grant by each of the implementing partners outside Government operations to which funds will be transferred. A fiduciary assessment will be carried out on the partners that will have been selected.

18. Adherence to the internal control framework will be verified during the annual internal and external audit exercises (see below) and reported to IFAD in the form of an internal audit report and Management letter, in line with IFAD's audit guidelines. Compliance to the internal controls will also be part of the fiduciary checks performed during supervision missions and external Audit.

19. **Accounting Systems, Policies and Procedures:** The policies, guidelines and operational procedures required to support implementation will be consistent with the Government of Zimbabwe's financial procedures (Public Finance Management Act, Procurement Act (Chapter 22:14), Audit Act,

Treasury Instructions and in line with IFAD policies and guidelines. SIRP's internal controls including authorization and approval processes will rely on the Government established accounting and internal control guidelines as documented in the Public Finance Management Act, Treasury instruction and related guidelines. Where inconsistencies are identified between Government and IFAD in the guidelines and procedures, the former will be applicable.

20. The PCU, which will be established within the Department of Economics and Markets of MAMID, will have the overall, day-to-day accounting responsibility. Pending full implementation of PFMIS an off-the shelf accounting suite will be procured at the onset of programme implementation, and installed at the PCU.

21. The chart of accounts (CoA) will be developed in such a way to mirror SIRP's structure in terms of its components, activities, financiers and disbursement categories, and will be developed with a view to facilitate reporting to government and future data migration onto the PFMIS. As required, International TA will be sought to assist with the elaboration of the CoA, set-up of the accounting software, and provide training.

22. **Financial Reporting Arrangements:** The PMU will be required to prepare and submit separate quarterly financial reports to account for activities funded, no later than 60 days after the end of each quarter. The PMU will maintain adequate filing system of all relevant supporting documentation, including returns (in original) with copies of bank statements submitted by programme staff and implementing partners. In line with IFAD's requirements, documentation will be reviewed by supervision missions and audits. The financial reports will be designed to provide relevant information to management, financiers and other stakeholders monitoring the programme's performance. Implementing partners will be required to submit simplified quarterly financial reports to PMU for validation with their replenishment requests.

23. To facilitate timely consolidation, provinces and implementing agencies will be required to submit their financial reports to PMU not later than 45 days after the end of each quarter. Provinces and implementing agencies failing to submit quarterly reports within the required timeframe will not be replenished with additional funding until full compliance has been achieved. Thus the frequency of fund transfers will depend on the timely submission of reports by each implementing entity. Given that the programme accounting system will be off PFMS, financial returns will be provided by the PMU to the Treasury to enable the update the PFMS system. SIRP's internal controls including authorization and approval processes will rely on the Government established accounting and internal control guidelines as documented in the Public Finance Management Act, Treasury instruction and related guidelines.

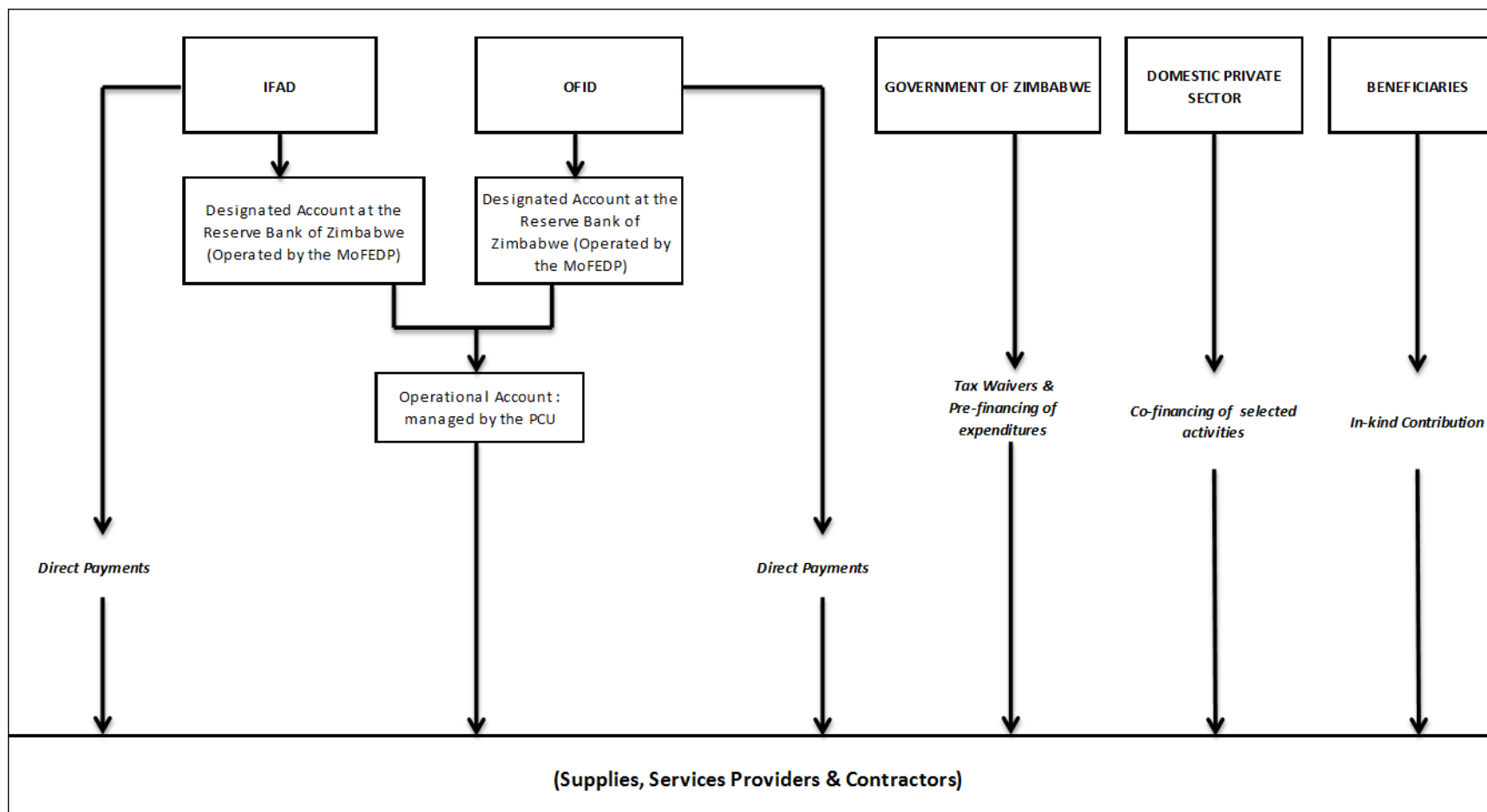
24. **Internal audit:** MAMID's internal audit unit will play a role in ensuring a sound control environment for transaction processing and asset safeguarding. Due to its level of development, the internal audit unit may have limited capacity available to cover SIRP activities as part of its routine oversight functions. As part of start-up, internal audit staff assigned to the programme will be trained in IFAD procedures. Supervision missions will report on the activity of the internal audit with respect to SIRP by reviewing their reports and assessing management's responsiveness to any recommendations formulated as a complementary measure.

25. **External audits:** As provided for in the Government of Zimbabwe's Audit Act, the Auditor General may undertake the external audit of the IFAD grant funds together with the related co-financing and counterpart funding as part of their mandate. This fiduciary assessment, however, noted that whereas the performance of the office has improved in terms of timeliness of completion of audit reports, the office has limited capacities in terms of manpower and equipment. As a consequence, the office is not able to fulfil its mandate and is working with private audit firms to which audit of state enterprises are being contracted. The skills level of staff is just being addressed as most of the staff are just undertaking professional accountancy courses. The potential of the office is expected to be progressively achieved. Assessment of capacity of private firms through the Public Accountants and

Auditors Board indicates availability of in-country capacity to provide audit services to satisfactory level. **Terms of Reference** of the External Audit are included in **Attachment 2** of this Appendix.

26. In compliance with IFAD's General Conditions, the SIRP financial statements, prepared by the PCU, will be audited on an annual basis and the audit report together with the related management letter submitted to IFAD no later than six months after the end of each fiscal year. During the initial years of programme implementation, external audit of the programme will be contracted out to private audit firms whilst IFAD continues to review capacities at the Office of the Auditor General. Appointment of a private audit firm will follow IFAD procurement guidelines and the ToR for the engagement of the audit firm will be subject to No Objection by IFAD.

Attachment 1: Flow of funds



Attachment 2: Sample Terms of Reference for External Audit

The following are the terms of reference (TORs) on the basis of which the lead project agency (LPA) agrees to engage the audit firm ("the auditor") to perform an audit and to report in connection with the agreement with the International Fund for Agricultural Development (IFAD) concerning [title of the project and loan/grant number].

1.1 Responsibilities of the parties to the engagement

The **LPA** refers to the entity that executes the project on behalf of the borrower/recipient and that has signed the agreement with IFAD.

- The **LPA** is responsible for providing financial statements for the activities financed by the financing agreement and for ensuring that these financial statements can be properly reconciled to the **LPA** records and accounts in respect of these services.
- **The LPA** accepts that the ability of the auditor to perform the procedures required by this engagement effectively depends on the **LPA's** providing full and free access to its staff and records and accounts.
- **The LPA** shall provide the auditor with all necessary documentation to perform the assignment properly; in particular, the following information shall be provided to the auditor before the beginning of the assignment:
 - Financing agreement;
 - Annual progress report;
 - Project implementation manual;
 - Financial management manual;
 - Organizational charts along with names and titles of senior managers;
 - Names and qualifications of officers responsible for financial management, accounting and internal audit;
 - Description of information technology facilities and computer systems in use; and
 - Copies of the minutes of negotiations, the project design document, the annual work programme and budget, and the Letter to the Borrower, if available.

"**The auditor**" refers to the auditor who is responsible for performing the agreed procedures as specified in these TORs, and for submitting a report of factual findings to the **LPA**.

The auditor shall provide:

- **A separate opinion on the project financial statements (PFSs).**

Minimum content of the PFSs to be provided by the project:

- Yearly and cumulative statements of sources and application of funds, which should disclose separately IFAD's funds, other donors' funds and beneficiaries' funds;
- Yearly and cumulative SOEs by withdrawal application and category of expenditures;
- Reconciliation between the amounts shown as received by the project and those shown as being disbursed by IFAD should be attached as an annex to the PFSs. As part of that reconciliation, the auditor will indicate the procedure used for disbursement (SA funds, letters of credit, special commitments, reimbursement or direct payment) and indicate whether the expenditure is fully documented or uses the summary of expenditures format;
- Cumulative status of funds by category;
- Reconciliation of SA/DA account statement;
- A statement of comparison between actual expenditures and budget estimates;
- Notes accompanying the PFSs; fixed assets;
- Full disclosure of cash balances; and
- Other statements or disclosures relevant to the project, e.g. financial monitoring reports, credit lines, etc.

- **A separate opinion on the use of the SA/DA.** The auditor is also required to audit the activities of the SA/DA associated with the project, including the initial advance, replenishments, interest that may accrue on the outstanding balances, and the year-end balances. The auditor must form an opinion as to the degree of compliance with IFAD procedures and the balance of the SA/DA at year-end. The audit should examine: (i) the eligibility of withdrawals from the SA/DA during the period under review; (ii) the operation of the SA/DA in accordance with the financing agreement and other instructions provided to the borrower/recipient by IFAD; (iii) the adequacy of internal controls within the project appropriate for this disbursement mechanism; and (iv) the use of correct exchange rate(s) to convert local currency expenditures to the denominated currency of the SA.
- **A separate opinion on withdrawal applications/statements of expenditure/ summary of expenditures (SOEs).** The audit will include a review of SOEs used as the basis for submitting withdrawal applications. The auditor will carry out tests and reviews as necessary and relevant to the circumstances. SOE expenditures will be carefully compared for eligibility with relevant financial agreements and the disbursement letter, with reference to the project design report for guidance when necessary. Where ineligible expenditures are identified as having been included in withdrawal applications and reimbursed, auditors will note these separately. A schedule listing individual SOEs withdrawal applications by reference number and amount should be attached to the PFSs. The total withdrawals under the SOE procedure should be part of the overall reconciliation of IFAD disbursements described above. The auditor's opinion should deal with the adequacy of the procedures used by the project for preparing SOEs and should include a statement that amounts withdrawn from the project account on the basis of such SOEs were used for the purposes intended under the agreement.
- **A separate management letter** addressing the adequacy of the accounting and internal control systems of the programme, including compliance with the IFAD Procurement Guidelines and such other matters as IFAD may notify the LPA to include in the audit.
 - The auditor is requested to comment on:
 - Economy, efficiency and effectiveness in the use of project resources;
 - Achievement of planned project results;
 - Legal and financial obligations and commitments of the project and the extent of compliance or non-compliance thereof;
 - Systems and procedures such as improvements in accounting, information technology or computer systems, and operations that may be under development, on which the auditor's comments are necessary to ensure effective controls; and
 - Other activities on which the auditor may consider it appropriate to report.
- **Auditors shall certify:**
 - Whether the PFSs are drawn up in conformity with internationally accepted accounting standards;
 - Whether the PFSs are accurate and are drawn up from the books of accounts maintained by the project;
 - Whether the provisions of the financing agreement are adhered to;
 - Whether procurement has been undertaken by the project in accordance with applicable procurement procedures and the IFAD Procurement Guidelines;
 - The existence of any significant assets purchased and confirm their existence and use for project purposes;
 - Whether the project has an effective system of financial supervision or internal audit at all levels; and

- Whether the expenditures claimed through SOEs are properly approved, classified and supported by adequate documentation.
- The auditor is a member of the Institute of Registered Auditors of Zimbabwe which in turn is a member of the International Federation of Accountants (IFAC). In the case of supreme audit institutions, these should be members of the International Organization of Supreme Audit Institutions (INTOSAI).

1.2 Subject of the engagement

The subjects of this engagement are the financial statements dated [dd/mm/yyyy] in connection with the agreement for the period covering [dd/mm/yyyy to dd/mm/yyyy]. The information, both financial and non-financial, that is subject to verification by the auditor is all information that makes it possible to verify that the expenditures claimed by the LPA in financial statements have occurred, and are accurate and eligible. Annex 1 to these TORs contains an overview of key information about the agreement and the services concerned.

1.3 Reason for the engagement

The LPA is required to submit to IFAD an audit report produced by an external auditor under article IX of the General Conditions for Agricultural Development Financing.

1.4 Engagement type and objective

This constitutes an engagement to perform specific agreed procedures following the IFAD Guidelines on Project Audits provided to the auditors by the LPA in annex 2 of these TORs. The objective of this audit is for the auditor: - To verify that the expenditures claimed by the LPA in the financial statements for the activities covered by the agreement have occurred ("reality"), are accurate ("exact") and are eligible (i.e. that expenditure has been incurred in accordance with the terms and conditions of the agreement); and - To submit a report of factual findings with regard to the agreed procedures performed.

1.5 Scope of work

1.5.1 The auditor shall undertake this engagement in accordance with these TORs and with:

- International Standards on Auditing (ISAs) to perform agreed procedures regarding financial information as promulgated by IFAC;
- The Code of Ethics for Professional Accountants issued by IFAC. Although the International Standard on Related Services 4400 provides that independence is not a requirement for agreed procedures engagement, IFAD requires that the auditor also complies with the independence requirements of the Code of Ethics for Professional Accountants.
- IFAD Guidelines on Project Audits.

1.5.2 Terms and conditions of the agreement

The auditor verifies that the funds provided by the agreement were spent in accordance with the terms and conditions of the agreement.

1.5.3 Planning, procedures, documentation and evidence

The auditor should plan the work so that an effective audit can be performed. For this purpose, the auditor performs the procedures specified in the IFAD Guidelines on Project Audits and uses the evidence obtained from these procedures as the basis for the report of factual findings. The auditor should document matters that are important in providing evidence to support the report of factual findings, and evidence that the work was carried out in accordance with ISAs and these TORs.

1.6 Reporting

The report on this audit should describe the purpose and the agreed procedures of the engagement in sufficient detail to enable the LPA and IFAD to understand the nature and extent of the procedures performed by the auditor. Use of financial and audit reporting is governed by IFAD rules.

1.7 Other terms

[As necessary]

Annex 1: Information about the subject of the audit [The table below should be completed by the project coordination unit and be attached as annex 1 to the TORs for use by the auditor.]

Information about the subject of the audit	
Reference number and date of the agreement	
Country	
Legal basis for the agreement	
Start date of the agreement	
End date of the agreement	

Annex 2: IFAD Guidelines on Project Audits [To attach]

Appendix 8: Procurement

1. IFAD's General Conditions provide for the use of the Recipient's procurement regulations, provided that they are deemed to be consistent with IFAD's guidelines. This is in line with the various commitments of the international donor community to work towards increasing the use of national systems where they are attuned with international best practice. The IFAD procurement guidelines and handbook require an assessment of national procurement systems as part of project design. The assessment has been carried out in two stages: (i) overarching country assessment; and (ii) project specific assessment.

Overarching Country Assessment

2. The Republic of Zimbabwe's legislative and regulatory framework on procurement is undergoing enhancement. The Public Procurement Act of the Republic of Zimbabwe (1999) and the Procurement Bill 2015 together with the related regulations were reviewed to determine the extent to which they are consistent with IFAD procurement principles and international standards. The review identified inconsistencies in the act, some of which are being addressed in the draft bill that is yet to be presented to Parliament.

3. The assessment concludes that SIRP procurement will follow a hybrid approach, where national procedures shall be used, to the extent that they are consistent with IFAD guidelines and procedures. This position is in line with Section 3 (3)(b) of the Public Procurement Bill, 2015 under application of the act, which states that "To the extent that this act conflicts with an obligation of Zimbabwe under or arising out of any agreement entered into by Zimbabwe with an intergovernmental international financing institution, the requirements of the treaty or agreement shall prevail, but in all other respects the procurement shall be governed by this law".

4. The Public Procurement Act of the Republic of Zimbabwe is being reviewed to enhance the legal framework governing public procurement by aligning it with international best practice. The draft Public Procurement Bill, 2015 provides for the establishment of the Zimbabwe Public Procurement Authority (ZPPA), which will take the lead on public procurement reform. Among the changes to the procurement system being introduced by the bill is a separation of supervisory and implementation roles of the Procurement Board. Complete decentralisation of the procurement process to the level of each public entity is also expected. There are provisions for framework contracts, procurement planning, prohibition of splitting of bids and management of procurement under lots - all aspects that are largely lacking under the current law.

5. The legal and regulatory framework, once passed by the Legislature, will be sound for efficient public procurement. The Public Procurement Bill and Regulations adequately provide for the institutional framework required to support public procurement, the stages of the procurement process, the application of procurement methods, and the conditions for review and auditing. The accompanying procurement guidelines provide a step by step explanations to procuring entities on the conduct of procurement processes. This also separates the technical adjudication committee (ad hoc) and an evaluation committee (procurement committee) which were previously not provided for.

6. The procurement assessment notes that the following will require implementation and follow up to ensure that procurement processes in practice are fully compliant with the legislative and regulatory framework.

- a) Development of Standard Bidding Documents to facilitate standardisation of requirements;
- b) Professionalising the Procurement Units in the procuring entities. Currently most personnel handling procurement aspects have no training in procurement;
- c) Implementing the provision for prohibition of splitting of bids facilitated by use of framework contracts and procurement using lots;

- d) Linking procurement planning to budgeting to maximise advantages of use of procurement plans. Currently procurement plans are made after budget allocation and are not usually followed;
- e) Improving evaluation by ensuring that the constituted evaluation committees comprise of technical personnel in the subject (goods, works and services) being procured and properly specifying the evaluation criteria; and
- f) Increasing awareness of procurement procedures of all staff involved in procurement activities.

Project Specific Assessment

7. A procurement assessment was carried out on MAMID - the lead implementing entity - in accordance with IFAD procurement guidelines and handbook. The overall assessment was partially satisfactory with main findings and recommendations as follows:

8. **Bid registers** were loosely kept and there was no record of bids' receipt. This meant that bids could easily be smuggled beyond the deadlines or be misplaced due to poor record keeping. Under SIRP a system of registering bids and proper procedures for bid closing will be introduced. This will include drawing a line just below the last immediate submission on reaching the deadline.

9. **Bidding Documents:** The conduct of a transparent and successful procurement is dependent on the quality of bidding documents. Currently, Standard Bidding Documents have not been adapted by the Government of Zimbabwe. Procurements that are not guided by standard bidding documents are prone to manipulation. As one of key deliverables, the PCU's procurement specialist will develop standard bidding documents for approval by the Public Procurement Board and eventual adoption by SIRP with potential of scaling out to other procuring entities. On-the-job training should be carried out for SIRP management by the State Procurement Board and or IFAD for the implementation of these documents.

10. **Contact administration** requires strengthening. Improved systems and tools are needed to facilitate monitoring of contractual obligations and taking necessary actions such as invoking penalty clauses before contracts expire. As part of start-up activities contract administration training will be given the importance it deserves and tools such as contract monitoring forms, contract registers, etc., will be introduced.

11. **Procurement planning** requires strengthening. Procurement plans will be submitted annually, reviewed/amended periodically, and will form an integral part of AWPBs. All procurement will be carried out in strict accordance with the approved procurement plan. The Procurement Plan will be prepared by the procurement unit at MAMID/PCU., who will then submit it to the State Procurement Board or the Public Procurement Authority as appropriate for information, and later to IFAD for No Objection as part of the SIRP AWPB.

12. All SIRP NCB and ICB procurements will be carried out and managed centrally at the PCU. Local shopping may be carried out at the provincial level in case bulking opportunities may not be feasible at the PCU. In this regard, Provinces will have to submit their procurement plans for inclusion in the consolidated SIRP procurement plan. Efforts should be made by the Procurement Specialist to ensure that the best contract packaging possible, including consideration of what lots can be bulked in a package for which it is possible to find a supplier or bulking opportunities.

13. **Procurement organisation structure:** SIRP will set up a specific procurement unit managed by procurement specialist who will be recruited competitively and engaged on a performance-based contract. The specialist will technically be responsible to the Programme Coordinator. The Specialist should bring into the Department technical expertise to capacitate procurement staff assigned to the programme.

14. **Evaluation:** Each bid/proposal will be evaluated as provided for in the procurement regulations. An ad hoc tender adjudication committee will be appointed by a designated personnel in consultation with the procurement specialist and the subject specialist. The committee members will be formally

appointed by the PD, or designate and will be required to sign a confidentiality and professional code/declaration. The selection and appointment of members of the evaluation committee will consider technical expertise to facilitate a balanced mix of skills for specialised evaluations

15. **A Tender Committee** will be the overall approval authority as it will approve; (i) all procurement plans; (ii) draft advertisements and other bidding documents; (iii) specific terms and conditions relating to contract amounts, completion periods, stages and conditions of part payments; (iv) all the contracts above US\$ 10,000 (or as shall be specified in the LtR); and (v) variations/amendments of contracts that have been cleared by the Committee.

16. **Prior Review:** In view of the findings of this assessment of the Government of Zimbabwe procurement systems, the recommended IFAD prior review thresholds for SIRP are US\$ 30,000 for goods and services and US\$ 100,000 for works. These thresholds may be reviewed during implementation on the basis evolving risk.

17. **Procurement methods:** Procurement thresholds used are inconsistent with IFAD procurement procedures. The following thresholds currently apply for all procurements (goods, works and services).

Procurement Items	Thresholds (USD)	Procurement method
Goods, Services and Works	Up to 10,000	Competitive bidding by sourcing at least 3 quotations
	10,001 - 500,000	Informal Tenders, advertised in the Government the national newspapers. Prior review of USD 30,000 or as shall be communicated from time to time in the Letter To the Recipient.
	500,000+	Formal Tenders, advertised in the Government Gazette, which runs on a weekly basis – usually on Fridays.
		Special formal Tender, this depends on the nature or urgency of the procurement. Usually specific suppliers or specialised equipment
		Direct Procurement which is authorised by the State Procurement Board

18. Under SIRP thresholds will be as follows:

	Threshold	Procurement Method
	USD	
Goods	Up to 10,000	Request for Quotation (RFQ) using Govt approved list
	>10,000 - 100,000	National Competitive Bidding (NCB)/Formal Tender
	>200,000	International Competitive Bidding (ICB). Prior review by IFAD
Services	Up to 10,000	Least Cost Selection (LCS) - Other methods such as Fixed Budget and Quality Based Selection (QBS) may be used depending on the assignment.
	>10,000 – 20,000	Quality and Cost Based selection (QCBS)
	>20,000 – 50,000	QCBS- Expression of Interest/ Prior review by IFAD for services of value of USD 50,000 and above
	>100,000	QCBS- Expression of Interest/ International advertisement and Prior review by IFAD
Works	Up to 10,000	Request for Quotation (RFQ) using Govt approved list
	>10,000 – 200,000	NCB and prior review for works of USD 100,000 and above
	>1,000,000	ICB and prior review

Annex 1: Draft 18-months procurement plan

Republic of Zimbabwe Smallholder Irrigation Revitalisation Programme Indicative 18 months Procurement Plan											
Contract Packages		Quantity	Unit Cost	Estimated Contract Sum	Procurement Method	Bid documents / TORs	Bidding period Advertisement/ Request for Quotations	Close and Open of Tenders	Bid /Quote evaluation	IFAD's No Objection	Contract finalisation Signature
Goods	1 Vehicles										
	Motorcycles	71	2 100	149 100	NCB	M2	M2	M3	M4	M4	M5
	4X4 double cabin vehicles	29	60 000	1 740 000	NCB	M2	M2	M3	M4	M4	M5
	2 Equipment										
	Equipment for demonstration of post harvest technologies (105 demonstrations)	105	1 500	157 500	NCB	M11	M12	M13	M13	M14	M14
	Starter kits for youth trained (sub component 1.2 & 2.2)	400	100	40 000	NCB	M11	M12	M13	M13	M14	M14
	Equipment for multi purpose centres	30	10 000	300 000	NCB	M11	M12	M13	M13	M14	M14
	Extension worker kits	40	200	8 000	NCB	M2	M2	M3	M4	M4	M5
	Equipment for FFS	80	1 000	80 000	NCB	M11	M12	M13	M13	M14	M14
	Equipment for Demonstration plots	30	2 000	60 000	NCB	M11	M12	M13	M13	M14	M14
	2 Computers ,printers and photocopies										
	Laptops	25	820	20 500	NCB	M2	M2	M3	M4	M4	M5
	Desktops	48	900	43 200	NCB	M2	M2	M3	M4	M4	M5
	Printers	23	800	18 400	NCB	M2	M2	M3	M4	M4	M5
	Photocopiers	21	1 600	33 600	NCB	M2	M2	M3	M4	M4	M5
	3 Software										
	Database management software	2	10 000	20 000	NCB	M2	M2	M3	M4	M4	M5
	Accounting Software	1	10 000	10 000	NCB	M2	M2	M3	M4	M4	M5
	PC Software (Antivirus, word processing, etc...)	1	10 000	10 000	NCB	M2	M2	M3	M4	M4	M5
	Web based data management software	1	20 000	20 000	NCB	M2	M2	M3	M4	M4	M5
	4 Office material and equipment										
	Survey equipment	1	20 000	20 000	NCB	M2	M2	M3	M4	M4	M5
	Office furniture	9	1 600	14 400	NCB	M2	M2	M3	M4	M4	M5
				2 744 700							
Consultancies	1 Irrigation Engineer TA (12 months)	1	504 000	504 000	RFP (Internatio	M2	M2	M3	M4	M4	M5
	2 Feasibility studies for 1600ha (of which detailed design for 1280ha)	1	239 000	239 000	RFP (Internatio	M3	M4	M5	M5	M6	M6
	3 WUA specialist TA (42 months)	1	420 000	420 000	RFP (Internatio	M3	M4	M5	M5	M6	M6
	4 Training needs assessment study (study)	2	5 000	10 000	RFP (National)	M2	M2	M3	M4	M4	M5
	5 TA to develop Legal Framework for IMCs and WUAs (8 months)	1	80 000	80 000	RFP (National)	M6	M6	M7	M7	M8	M8
	6 TA policy dialogue support (Comp. 2.3) (8 months)	1	80 000	80 000	RFP (National)	M6	M6	M7	M7	M8	M8
	7 TA on Water pricing (3 months)	1	18 000	18 000	RFP (National)	M6	M6	M7	M7	M8	M8
	8 TA for Financial Literacy Needs Assessment	1	20 000	20 000	RFP (National)	M2	M2	M3	M4	M4	M5
	9 TA for curriculum development and testing (financial literacy)	1	10 000	10 000	RFP (National)	M3	M4	M5	M5	M6	M6
	10 CBFI Baseline	1	50 000	50 000	RFP (National)	M2	M2	M3	M4	M4	M5
	10 Business Development Service Provides (Comp. 2.2) (164 months)	1	1 312 000	1 312 000	RFP (Internatio	M2	M2	M3	M4	M4	M5
	11 TA for reseach and material preparation for post harvest mgmt. training	1	20 000	20 000	RFP (National)	M2	M2	M3	M4	M4	M5
	12 TA to develop and launch SIRP website	1	20 000	20 000	RFP (National)	M2	M2	M3	M4	M4	M5
	13 TA o develop and operationalise system, produce M&E manual and train users (12 months)	1	10 000	10 000	RFP (National)	M2	M2	M3	M4	M4	M5
	14 Technical Assistance (NRM - Committees) (42 months)	1	2 500	2 500	RFP (National)	M2	M2	M3	M4	M4	M5
	15 Technical Assistance (Participatory NR Mapping) (24 months)	1	60 000	60 000	RFP (National)	M2	M2	M3	M4	M4	M5
	16 Design and Supervision for roads rehabilitation (20 KM)	20	490	9 800	RFP (National)	M10	M11	M13	M13	M14	M14
				2 865 300							
Works	1 Construction of 30 multi purpose centners	30	5 000	150 000	NCB	M10	M11	M13	M13	M14	M14
	2 Irrigation rehabilitation works on 400 ha	400	3 040	1 216 000	ICB	M10	M11	M13	M13	M14	M14
				1 366 000							
	Total			6 976 000							

Legend

LIB Limited International bidding
NCB National Competitive bidding
CS Consulting services
IS International shopping
LS Local shopping
DP Direct purchase
FA Force Account
CPP Community participation in procurement

Appendix 9: Programme cost and financing

Introduction

1. This appendix describes the assumptions underlying the estimation of project costs, and presents the summary cost tables and the financing plan for the Smallholder Irrigation Revitalization Programme (SIRP). Detailed tables are annexed to this appendix.
2. SIRP will be financed over a seven-year period (2017-2023). Costs have been estimated on the basis of prices prevailing at the time of the first design mission in March 2016. COSTAB settings for key parameters used to derive total programme cost estimates are based on information collected during the first design mission.

Main Assumptions

A. Price Contingencies

3. Estimations of local inflation rates are in line with the Reserve Bank of Zimbabwe's projections. Following two years of deflation, rates are forecast to rise to 1.3 per cent per annum in 2017 and to 2 per cent per annum thereafter until 2023. The Zimbabwean dollar was demonetised in 2009. Most freely tradable currencies are now official legal tender and used for all transactions in Zimbabwe. For SIRP all costs (both local and foreign) are valued in United States dollars (US\$). Foreign inflation has been set at 2 per cent for seven years, based on the World Bank's Manufactures Unit Value (MUV) Index²⁸. Foreign Inflation applies to the following expenditure accounts: (i) Civil Works; (ii) Equipment and Material; (iii) Equipment, Goods and Inputs; (iv) Vehicles. Given these forecast trends, a total price contingency of approximately US\$ 1.8 million has been included in the programme costs.

B. Taxes and Duties

4. Taxes and duties were estimated using information provided by the Zimbabwe Revenue Authority. VAT of 15 per cent is imposed on all procured goods and services. Taxes on imported vehicles and motorcycles include an additional 40 per cent import duties and excises. The cost of International technical assistance bears a 10 per cent withholding tax, and income tax is estimated at 25 per cent.

C. Physical Contingencies

5. Contingencies for expected increases in the cost estimates due to changes in quantities or implementation have been set at 5 per cent of base costs budgeted under the Works Expenditure Account.

Table 1: Key Costing Parameters for SIRP

Expenditure Account	Average Local Inflation	Average Foreign Inflation	% FOREX	% Phy. Cont.	% Taxes	% Duties / Taxes
Consultancies	1.8%	2%	-	-	10%	-
Credit, Guarantee Funds	0.0%	0%	-	-	0%	-
Equipment & Material	1.8%	2%	40%	-	15%	-
Goods, Equipment & Inputs	1.8%	2%	30%	-	15%	-
Workshops	1.8%	2%	-	-	15%	-
Training	1.8%	2%	-	-	15%	-
Vehicles	1.8%	2%	30%	-	55%	70%
Works	1.8%	2%	60%	5%	15%	-
Salaries & Allowances	1.8%	2%	-	-	25%	-
Operating Costs	1.8%	2%	-	-	15%	-

²⁸ Measures the price of developing country imports of manufactures in U.S. dollar terms.

Project Costs

6. Programme costs are organized into three components: (i) Sustainable Smallholder Irrigation Development; (ii) Climate Smart Agriculture and Market Access; and (iii) Programme Coordination. A summary breakdown of programme costs by components and their respective sub-components is shown in table 2.

7. Total programme costs to be incurred during the seven-year implementation period, including price and physical contingencies, duties and taxes, are estimated at US\$ 51.27 million. This includes base costs amounting to US\$ 47.7 million and estimated physical and price contingencies in the amount of US\$ 2.6 million (5 per cent of the base costs). Estimated foreign exchange expenditure is about US\$ 13 million (27 per cent of total project costs), whereas duties and taxes amount to US\$ 12.33 million (25 per cent). Investment costs represent 86 per cent of the base costs, with recurrent costs accounting for the remaining 14 per cent. Programme management costs account 9 per cent of total programme costs.

Table 2: Programme Cost Summary by Component (US\$'000)

	Base Cost							Total
	2017	2018	2019	2020	2021	2022	2023	
A. Sustainable Smallholder Irrigation Development								
1. Scheme Selection and Rehabilitation	219	1 583	3 985	7 135	4 262	1 707	22	18 912
2. Improved Smallholder Irrigation Management	126	702	518	864	724	1 054	506	4 493
3. Enhanced Institutional Capacity for Irrigation Development	959	170	136	169	226	122	42	1 823
Subtotal	1 304	2 455	4 639	8 167	5 211	2 883	570	25 228
B. Climate-Smart Agriculture and Market Access								
1. Enhanced Agricultural Practices and Farmers' Organizational Capacity	28	1 123	1 775	2 011	1 020	401	12	6 371
2. Market Access and Rural Financial Services	1 049	1 777	1 785	1 844	1 092	592	-	7 938
3. Enhanced Institutional Capacity for Market-led Production	1 776	466	430	397	337	259	254	3 920
Subtotal	2 854	3 366	3 991	4 052	2 449	1 251	266	18 229
C. Programme Coordination								
1. Programme Management and Coordination	1 106	653	629	585	406	385	476	4 241
Subtotal	1 106	653	629	585	406	385	476	4 241
Total BASELINE COSTS	5 264	6 474	9 259	12 804	8 067	4 519	1 311	47 698
Physical Contingencies	-	69	192	360	224	96	-	942
Price Contingencies								
Inflation								
Local	30	106	262	502	438	341	161	1 840
Foreign	7	29	115	288	233	126	0	797
Subtotal Inflation	37	134	377	790	671	466	161	2 637
Devaluation	-	-	-	-	-	-	-	-
Subtotal Price Contingencies	37	134	377	790	671	466	161	2 637
Total PROJECT COSTS	5 301	6 677	9 628	13 954	8 962	5 082	1 473	51 277
Taxes	1 625	984	1 415	1 967	1 292	757	280	8 300
Foreign Exchange	747	974	2 371	4 299	2 730	1 217	1	12 339

8. Programme costs have been categorised as per IFADs standardised descriptions of disbursement categories²⁹. A summary breakdown of annual costs by expenditure accounts is presented in table 3.

Table 3: Programme Cost Summary by Expenditure Account

	Base Cost							Foreign Exchange	
	2017	2018	2019	2020	2021	2022	2023	Total	% Amount
I. Investment Costs									
A. Consultancies	1 389	1 370	1 532	1 461	613	232	70	6 666	- -
B. Equipment & Materials	241	178	340	673	344	161	3	1 939	7.5 145
C. Goods, Equipment & Inputs	1	591	658	657	432	277	-	2 616	30.0 785
D. Workshops	67	318	389	65	5	-	5	848	- -
E. Training	744	1 797	1 563	1 628	1 045	763	12	7 552	- -
F. Vehicles	2 142	107	95	53	-	-	-	2 396	30.2 724
G. Works	-	1 394	3 883	7 273	4 523	1 936	-	19 008	49.5 9 417
Total Investment Costs	4 583	5 753	8 459	11 808	6 961	3 369	90	41 024	27.0 11 071
II. Recurrent Costs									
A. Salaries & Allowances	341	341	316	314	312	311	381	2 315	- -
B. Operating Costs	340	380	484	682	794	840	840	4 360	- -
Total Recurrent Costs	681	721	800	996	1 106	1 151	1 221	6 675	- -
Total BASELINE COSTS	5 264	6 474	9 259	12 804	8 067	4 519	1 311	47 698	23.2 11 071
Physical Contingencies	-	69	192	360	224	96	-	942	50.0 471
Price Contingencies									
Inflation									
Local	30	106	262	502	438	341	161	1 840	- -
Foreign	7	29	115	288	233	126	0	797	100.0 797
Subtotal Inflation	37	134	377	790	671	466	161	2 637	30.2 797
Devaluation	-	-	-	-	-	-	-	-	- -
Subtotal Price Contingencies	37	134	377	790	671	466	161	2 637	30.2 797
Total PROJECT COSTS	5 301	6 677	9 628	13 954	8 962	5 082	1 473	51 277	24.1 12 339
Taxes	1 625	984	1 415	1 967	1 292	757	260	8 300	- -
Foreign Exchange	747	974	2 371	4 299	2 730	1 217	1	12 339	- -

²⁹ Descriptions of both expenditure and disbursement accounts are aligned with IFAD's standardised category descriptions for loan/grant allocation tables (Schedule II) in Financing Agreements.

Financing Plan

9. SIRD will be financed by the Government of Zimbabwe, programme beneficiaries, IFAD, and pending official confirmation, OFID. IFAD will finance 50 per cent (US\$ 25.5 million) of the programme costs (US\$ 52.3 million) on grant terms (under the Debt Sustainability Framework). The Government will finance taxes and duties (US\$ 7.9 million), representing 15 per cent of total costs³⁰. Beneficiaries will contribute 6 per cent of total project costs, US\$ 2.869 million through financial contributions to the operation and maintenance of rehabilitated infrastructure and matching cash contributions under the Natural Resource Management Facility. It is anticipated that OFID will finance 29 per cent³¹ (US\$ 15 million) of programme costs. OFID financing will cover primarily Civil Works under Sub-components 1.1 (irrigation rehabilitation) and 2.2 (roads).

Table 4: Programme Financing Plan by Component (US\$ '000)

	IFAD		OFID		Beneficiaries		The Government		Total		For. Exch.	Local (Excl. Taxes)		Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%		Amount	%	
A. Sustainable Smallholder Irrigation Development														
1. Scheme Selection and Rehabilitation	3 751	17.8	14 194	67.3	-	-	3 143	14.9	21 088	41.1	9 826	8 118	3 143	
2. Improved Smallholder Irrigation Management	2 292	47.7	-	-	1 831	38.1	681	14.2	4 803	9.4	50	4 072	681	
3. Enhanced Institutional Capacity for Irrigation Development	1 479	78.5	-	-	-	-	404	21.5	1 883	3.7	146	1 334	404	
Subtotal	7 522	27.1	14 194	51.1	1 831	6.6	4 228	15.2	27 774	54.2	10 022	13 524	4 228	
B. Climate-Smart Agriculture and Market Access														
1. Enhanced Agricultural Practices and Farmers' Organizational Capacity	5 728	86.8	-	-	175	2.7	696	10.6	6 599	12.9	192	5 710	696	
2. Market Access and Rural Financial Services	5 929	70.7	806	9.6	863	10.3	787	9.4	8 385	16.4	1 438	5 769	1 179	
3. Enhanced Institutional Capacity for Market-led Production	2 833	69.6	-	-	-	-	1 237	30.4	4 070	7.9	527	2 306	1 237	
Subtotal	14 490	76.0	806	4.2	1 038	5.4	2 721	14.3	19 054	37.2	2 157	13 785	3 112	
C. Programme Coordination														
1. Programme Management and Coordination	3 488	78.4	-	-	-	-	960	21.6	4 448	8.7	160	3 330	960	
Total PROJECT COSTS	25 500	49.7	15 000	29.3	2 869	5.6	7 909	15.4	51 277	100.0	12 339	30 638	8 300	

Table 5: Programme Financing Plan by Expenditure Account (US\$'000)

	IFAD		OFID		Beneficiaries		The Government		Total		For. Exch.	Local (Excl. Taxes)		Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%		Amount	%	
1. Consultancies	5 617	81.1	613	8.9	-	-	692	10.0	6 923	13.5	-	6 231	692	
2. Equipment & Materials	1 892	97.1	-	-	-	-	56	2.9	1 948	3.8	150	1 742	56	
3. Goods, Services & Inputs	2 122	72.2	-	-	690	23.5	127	4.3	2 939	5.7	836	1 689	415	
4. Operating Costs	2 145	45.9	-	-	1 831	39.1	702	15.0	4 678	9.1	-	3 976	702	
5. Salaries & Allowances	1 842	75.0	-	-	-	-	614	25.0	2 456	4.8	-	1 842	614	
6. Workshops	742	85.0	-	-	-	-	131	15.0	873	1.7	-	742	131	
7. Training	6 719	85.0	-	-	-	-	1 186	15.0	7 905	15.4	-	6 719	1 186	
8. Vehicles	1 091	45.0	-	-	-	-	1 336	55.0	2 427	4.7	734	357	1 336	
9. Works	3 329	15.8	14 387	68.1	348	1.6	3 065	14.5	21 129	41.2	10 619	7 340	3 169	
Total PROJECT COSTS	25 500	49.7	15 000	29.3	2 869	5.6	7 909	15.4	51 277	100.0	12 339	30 638	8 300	

10. The Government of Zimbabwe will either waive duties, excises and taxes or directly finance their cost. Beneficiaries and the private sector are expected to finance taxes on their share of investments. The financing of local, foreign and tax expenditure is summarized in table 6.

Table 6: Local/Foreign/Taxes by Financier (US\$'000)

	IFAD		Domestic Private Sector		Domestic Financial Institutions		OFID		Beneficiaries		The Government		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Foreign	4 915	44.9	-	-	-	-	5 741	52.4	292	2.7	0	-	10 949	16.6
II. Local (Excl. Taxes)	20 585	42.4	2 09	0.4	22 800	46.9	4 259	8.8	737	1.5	0	-	48 589	73.6
III. Taxes	-	-	120	1.9	-	-	-	-	374	5.8	5 970	92.4	6 464	9.8
Total Project	25 500	38.6	329	0.5	22 800	34.5	10 000	15.2	1 403	2.1	5 970	9.0	66 001	100.0

³⁰ The estimate of taxes and duties was based on the rates in effect at the time of the design. In conformity with the principle that no taxes or duties would be financed out of the proceeds of the IFAD and OFID financing, any future changes in the rates and/or structures of taxes and duties would apply to the programme.

³¹ If OFID funding does not materialise alternative sources of funding will be sought by the Government of Zimbabwe.

Annex 1: Summary cost tables

Table 1: Components Programme Cost Summary

	(US\$ '000)			(US\$ '000)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
A. Sustainable Smallholder Irrigation Development								
1. Scheme Selection and Rehabilitation	10 195	8 717	18 912	10 195	8 717	18 912	46	40
2. Improved Smallholder Irrigation Management	4 445	48	4 493	4 445	48	4 493	1	9
3. Enhanced Institutional Capacity for Irrigation Development	1 679	144	1 823	1 679	144	1 823	8	4
Subtotal	16 319	8 909	25 228	16 319	8 909	25 228	35	53
B. Climate-Smart Agriculture and Market Access								
1. Enhanced Agricultural Practices and Farmers' Organizational Capacity	6 190	181	6 371	6 190	181	6 371	3	13
2. Market Access and Rural Financial Services	6 632	1 306	7 938	6 632	1 306	7 938	16	17
3. Enhanced Institutional Capacity for Market-led Production	3 403	518	3 920	3 403	518	3 920	13	8
Subtotal	16 224	2 005	18 229	16 224	2 005	18 229	11	38
C. Programme Coordination								
1. Programme Management and Coordination	4 084	157	4 241	4 084	157	4 241	4	9
Subtotal	4 084	157	4 241	4 084	157	4 241	4	9
Total BASELINE COSTS	36 628	11 071	47 698	36 628	11 071	47 698	23	100
Physical Contingencies	471	471	942	471	471	942	50	2
Price Contingencies	1 840	797	2 637	1 840	797	2 637	30	6
Total PROJECT COSTS	38 939	12 339	51 277	38 939	12 339	51 277	24	108

Table 2: Expenditure Accounts Programme Cost Summary

	(US\$ '000)			(US\$ '000)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
I. Investment Costs								
A. Consultancies	6 666	-	6 666	6 666	-	6 666	-	14
B. Equipment & Materials	1 793	145	1 939	1 793	145	1 939	8	4
C. Goods, Equipment & Inputs	1 831	785	2 616	1 831	785	2 616	30	5
D. Workshops	848	-	848	848	-	848	-	2
E. Training	7 552	-	7 552	7 552	-	7 552	-	16
F. Vehicles	1 672	724	2 396	1 672	724	2 396	30	5
G. Works	9 592	9 417	19 008	9 592	9 417	19 008	50	40
Total Investment Costs	29 953	11 071	41 024	29 953	11 071	41 024	27	86
II. Recurrent Costs								
A. Salaries & Allow ances	2 315	-	2 315	2 315	-	2 315	-	5
B. Operating Costs	4 360	-	4 360	4 360	-	4 360	-	9
Total Recurrent Costs	6 675	-	6 675	6 675	-	6 675	-	14
Total BASELINE COSTS	36 628	11 071	47 698	36 628	11 071	47 698	23	100
Physical Contingencies	471	471	942	471	471	942	50	2
Price Contingencies	1 840	797	2 637	1 840	797	2 637	30	6
Total PROJECT COSTS	38 939	12 339	51 277	38 939	12 339	51 277	24	108

Table 3: Expenditure Accounts by Components

	Sustainable Smallholder Irrigation Development			Access			Programme Coordination (US\$ '000)	Total	Physical Contingencies % Amount	
	(US\$ '000)			(US\$ '000)						
	Scheme Selection and Rehabilitation	Improved Smallholder Irrigation Management	Enhanced Institutional Capacity for Irrigation Development	Enhanced Agricultural Practices and Farmers' Organizational Capacity	Market Access and Rural Financial Services	Enhanced Institutional Capacity for Market-led Production				
I. Investment Costs										
A. Consultancies	1 314	1 220	619	623	1 538	85	1 268	6 666	-	-
B. Equipment & Materials	-	-	89	1 575	-	153	122	1 939	-	-
C. Goods, Equipment & Inputs	-	100	-	604	1 912	-	-	2 616	-	-
D. Workshops	-	-	111	540	-	55	142	848	-	-
E. Training	-	1 092	321	2 838	3 024	256	21	7 552	-	-
F. Vehicles	94	60	360	-	-	1 523	360	2 396	-	-
G. Works	17 368	-	-	175	1 465	-	-	19 008	5.0	942
Total Investment Costs	18 776	2 472	1 500	6 354	7 938	2 071	1 912	41 024	2.3	942
II. Recurrent Costs										
A. Salaries & Allow ances	96	-	79	17	-	122	2 001	2 315	-	-
B. Operating Costs	41	2 021	244	-	-	1 728	328	4 360	-	-
Total Recurrent Costs	137	2 021	323	17	-	1 849	2 329	6 675	-	-
Total BASELINE COSTS	18 912	4 493	1 823	6 371	7 938	3 920	4 241	47 698	2.0	942
Physical Contingencies	868	-	-	-	73	-	-	942	-	-
Price Contingencies										
Inflation										
Local	632	308	58	217	279	141	205	1 840	-	-
Foreign	675	2	2	11	95	9	3	797	-	-
Subtotal Inflation	1 307	310	60	228	374	150	208	2 637	-	-
Devaluation	-	-	-	-	-	-	-	-	-	-
Subtotal Price Contingencies	1 307	310	60	228	374	150	208	2 637	2.4	64
Total PROJECT COSTS	21 088	4 803	1 883	6 599	8 385	4 070	4 449	51 277	2.0	1 006
Taxes	3 143	681	404	696	1 179	1 237	960	8 300	1.8	151
Foreign Exchange	9 826	50	146	192	1 438	527	160	12 339	4.1	506

Table 4: Programme Components by Year

	Totals Including Contingencies							
	2017	2018	2019	2020	2021	2022	2023	Total
A. Sustainable Smallholder Irrigation Development								
1. Scheme Selection and Rehabilitation	220	1 684	4 346	7 966	4 860	1 987	24	21 088
2. Improved Smallholder Irrigation Management	127	715	537	914	781	1 160	568	4 803
3. Enhanced Institutional Capacity for Irrigation Development	966	173	141	178	244	134	47	1 883
Subtotal	1 313	2 572	5 025	9 059	5 884	3 281	640	27 774
B. Climate-Smart Agriculture and Market Access								
1. Enhanced Agricultural Practices and Farmers' Organizational Capacity	28	1 142	1 830	2 088	1 074	424	13	6 599
2. Market Access and Rural Financial Services	1 054	1 822	1 873	1 767	1 201	667	-	8 385
3. Enhanced Institutional Capacity for Market-led Production	1 792	476	448	421	364	285	285	4 070
Subtotal	2 875	3 439	4 151	4 276	2 639	1 376	298	19 054
C. Programme Coordination								
1. Programme Management and Coordination	1 114	665	652	619	439	424	535	4 449
Subtotal	1 114	665	652	619	439	424	535	4 449
Total PROJECT COSTS	5 301	6 677	9 828	13 954	8 962	5 082	1 473	51 277

Table 5: Components by Financier

	IFAD		OFID		Beneficiaries		The Government		Total		For. Exch.	Local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%			
A. Sustainable Smallholder Irrigation Development													
1. Scheme Selection and Rehabilitation	3 751	17.8	14 194	67.3	-	-	3 143	14.9	21 088	41.1	9 826	8 118	3 143
2. Improved Smallholder Irrigation Management	2 292	47.7	-	-	1 831	38.1	681	14.2	4 803	9.4	50	4 072	681
3. Enhanced Institutional Capacity for Irrigation Development	1 479	78.5	-	-	-	-	404	21.5	1 883	3.7	146	1 334	404
Subtotal	7 522	27.1	14 194	51.1	1 831	6.6	4 228	15.2	27 774	54.2	10 022	13 524	4 228
B. Climate-Smart Agriculture and Market Access													
1. Enhanced Agricultural Practices and Farmers' Organizational Capacity	5 728	86.8	-	-	175	2.7	696	10.6	6 599	12.9	192	5 710	696
2. Market Access and Rural Financial Services	5 929	70.7	806	9.6	863	10.3	787	9.4	8 385	16.4	1 438	5 769	1 179
3. Enhanced Institutional Capacity for Market-led Production	2 833	69.6	-	-	-	-	1 237	30.4	4 070	7.9	527	2 306	1 237
Subtotal	14 489	76.0	806	4.2	1 038	5.4	2 721	14.3	19 054	37.2	2 157	13 785	3 112
C. Programme Coordination													
1. Programme Management and Coordination	3 489	78.4	-	-	-	-	960	21.6	4 449	8.7	160	3 330	960
Total PROJECT COSTS	25 500	49.7	15 000	29.3	2 869	5.6	7 909	15.4	51 277	100.0	12 339	30 638	8 300

Table 6: Expenditure Accounts by Financier

	IFAD		OFID		Beneficiaries		The Government		Total		For.	Local	Duties &
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Exch.	(Excl. Taxes)	Taxes
I. Investment Costs													
A. Consultancies	5 617	81.1	613	8.9	-	-	692	10.0	6 923	13.5	-	6 231	692
B. Equipment & Materials	1 892	97.1	-	-	-	-	56	2.9	1 948	3.8	150	1 742	56
C. Goods, Equipment & Inputs	2 122	76.8	-	-	515	18.6	127	4.6	2 764	5.4	836	1 514	415
D. Workshops	742	85.0	-	-	-	-	131	15.0	873	1.7	-	742	131
E. Training	6 719	85.0	-	-	-	-	1 186	15.0	7 905	15.4	-	6 719	1 186
F. Vehicles	1 091	45.0	-	-	-	-	1 336	55.0	2 427	4.7	734	357	1 336
G. Works	3 329	15.6	14 387	67.5	523	2.5	3 065	14.4	21 303	41.5	10 619	7 515	3 169
Total Investment Costs	21 512	48.7	15 000	34.0	1 038	2.4	6 593	14.9	44 143	86.1	12 339	24 820	6 985
II. Recurrent Costs													
A. Salaries & Allow ances	1 842	75.0	-	-	-	-	614	25.0	2 456	4.8	-	1 842	614
B. Operating Costs	2 145	45.9	-	-	1 831	39.1	702	15.0	4 678	9.1	-	3 976	702
Total Recurrent Costs	3 987	55.9	-	-	1 831	25.7	1 316	18.4	7 134	13.9	-	5 818	1 316
Total PROJECT COSTS	25 500	49.7	15 000	29.3	2 869	5.6	7 909	15.4	51 277	100.0	12 339	30 638	8 300

Table 7: Disbursement Accounts by Financiers

	IFAD		OFID		Beneficiaries		The Government		Total		For.	Local	Duties &
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Exch.	(Excl. Taxes)	Taxes
1. Consultancies	5 617	81.1	613	8.9	-	-	692	10.0	6 923	13.5	-	6 231	692
2. Equipment & Materials	1 892	97.1	-	-	-	-	56	2.9	1 948	3.8	150	1 742	56
3. Goods, Services & Inputs	2 122	72.2	-	-	690	23.5	127	4.3	2 939	5.7	836	1 689	415
4. Operating Costs	2 145	45.9	-	-	1 831	39.1	702	15.0	4 678	9.1	-	3 976	702
5. Salaries & Allow ances	1 842	75.0	-	-	-	-	614	25.0	2 456	4.8	-	1 842	614
6. Workshops	742	85.0	-	-	-	-	131	15.0	873	1.7	-	742	131
7. Training	6 719	85.0	-	-	-	-	1 186	15.0	7 905	15.4	-	6 719	1 186
8. Vehicles	1 091	45.0	-	-	-	-	1 336	55.0	2 427	4.7	734	357	1 336
9. Works	3 329	15.8	14 387	68.1	348	1.6	3 065	14.5	21 128	41.2	10 619	7 340	3 169
Total PROJECT COSTS	25 500	49.7	15 000	29.3	2 869	5.6	7 909	15.4	51 277	100.0	12 339	30 638	8 300

Table 8: Local/Foreign/Taxes by Financiers

	IFAD		OFID		Beneficiaries		The Government		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Foreign	3 830	31.0	8 507	68.9	2	-	-0	-	12 339	24.1
II. Local (Excl. Taxes)	21 670	70.7	6 493	21.2	2 476	8.1	0	-	30 638	59.8
III. Taxes	-	-	-	-	392	4.7	7 909	95.3	8 300	16.2
Total Project	25 500	49.7	15 000	29.3	2 869	5.6	7 909	15.4	51 277	100.0

Annex 2: Detailed cost tables

Table 1.1: Scheme Selection and Rehabilitation

	Unit	Quantities								Unit Cost (US\$)	Totals Including Contingencies (US\$ '000)							
		2017	2018	2019	2020	2021	2022	2023	Total		2017	2018	2019	2020	2021	2022	2023	Total
I. Investment Costs																		
A. Feasibility studies, detailed design, supervision and rehabilitation works																		
1. Feasibility studies, detailed design and supervision																		
Detailed design and supervision for Rehabilitation/Construction (80%) /a	Ha	600	1 000	1 800	1 000	600	-	-	5 000	120	72	122	224	127	78	-	-	623
Detailed design and supervision for Rehabilitation/Construction (15%)	Ha	-	240	320	240	-	-	-	800	182	-	45	60	46	-	-	-	151
Detailed design and supervision for Rehabilitation/Construction (5%)	Ha	-	-	60	80	60	-	-	200	312	-	-	19	26	20	-	-	66
Subtotal											72	167	304	200	98	-	-	841
2. Irrigation scheme rehabilitation																		
Rehabilitation/construction of existing scheme (80%)	Ha	-	400	800	1 600	800	400	-	4 000	3.040	-	1 310	2 669	5 445	2 777	1 416	-	13 618
Mix of rehabilitation and expansion of existing scheme (15%)	Ha	-	-	240	320	240	-	-	800	4.555	-	-	1 200	1 632	1 248	-	-	4 080
Coverstion to solar system and rehabilitation of existing scheme (about 3 schemes) (5%)	Ha	-	-	-	60	80	60	-	200	7.820	-	-	-	525	714	547	-	1 786
Subtotal											-	1 310	3 869	7 602	4 740	1 963	-	19 484
3. Vehicles and motorcycles irrigation technicians																		
Motorbikes for irrigation technicians	Unit	-	16	-	-	-	-	-	16	2.100	-	35	-	-	-	-	-	35
4X4 Vehicles (Double Cab) /b	Unit	1	-	-	-	-	-	-	1	60.000	61	-	-	-	-	-	-	61
Subtotal											61	35	-	-	-	-	-	95
4. Technical assistance																		
Irrigation Engineer	Person month	6	12	12	12	-	-	-	42	12.000	72	147	149	152	-	-	-	521
Total Investment Costs											205	1 658	4 322	7 954	4 838	1 963	-	20 941
II. Recurrent Costs																		
A. Operation and Maintenance																		
Vehicle O&M/c	Lumpsum	1	1	1	1	1	1	1	7	5.800	6	6	6	6	6	7	43	
Motorcycle O&M	Lumpsum	-	16	16	16	16	16	16	96	1.000	-	16	17	17	17	18	18	103
Total Recurrent Costs											6	22	23	23	24	24	24	146
Total											211	1 680	4 345	7 978	4 861	1 987	24	21 086

/a Of the 5000 ha that will undergo feasibility studies only 4000 ha will go through detailed design and supervision

/b Vehicle for TA to be transferred to the PCU in year 5

/c includes fuel insurance and routine maintenance

Table 1.2 : Improved Smallholder Irrigation Management

	Unit	Quantities							Unit Cost (US\$)	Totals Including Contingencies (US\$ '000)								
		2017	2018	2019	2020	2021	2022	2023		Total	2017	2018	2019	2020	2021	2022	2023	Total
I. Investment Costs																		
A. Training of Irrigation water users																		
Contracting service provider to support WUG strengthening /a	Person month	-	7.5	21	39.5	23	9	-	100	8.000	-	61	174	334	199	79	-	848
Training of irrigators and IMC leaders	Participant	-	12 500	-	-	-	12 500	-	25 000	30	-	382	-	-	-	413	-	795
Training of IMC leaders and their apex	Participant	-	700	-	-	-	700	-	1 400	30	-	21	-	-	-	23	-	45
Subtotal											-	465	174	334	199	515	-	1 687
B. Training and equipment for youth to engage in irrigation maintenance and repair																		
Vocational training for selected youth in irrigation equipment repair and maintenance	Participant	-	200	200	200	200	200	-	1 000	300	-	61	62	63	65	66	-	318
Provision of starter kit for youth trained in irrigation equipment repair and maintenance /b	Set	-	200	200	200	200	200	-	1 000	100	-	20	21	21	22	22	-	106
Subtotal											-	82	83	85	86	88	-	424
C. Vehicles																		
4X4 Vehicles (Double Cab) /c	Unit	1	-	-	-	-	-	-	1	60.000	61	-	-	-	-	-	-	61
D. Technical Assistance																		
WUA Sepecialist	Person month	6	12	12	12	-	-	-	42	10.000	60	122	124	127	-	-	-	434
Total Investment Costs											121	669	382	546	285	603	-	2 606
II. Recurrent Costs																		
A. Operation and Maintenance																		
Vehicle O&M	Lumpsum	1	1	1	1	1	1	1	7	5.800	6	6	6	6	6	6	7	43
Beneficiary contribution to O&M costs of scheme infrastructure /d	Ha	-	400	1 440	3 420	4 540	5 000	5 000	19 800	100	-	41	149	362	490	550	561	2 154
Total Recurrent Costs											6	47	155	368	496	557	568	2 197
Total											127	715	537	914	781	1 160	568	4 803

/a one person month per scheme (each scheme = 40ha)

/b starter kit including tools and materials w ill be provided to youth trained

/c Vehicle for TA to be transferred to PCU in year 5

/d Farmers on schemes will be required to contribute US\$100/ha per year into and O&M fund in order to be eligible to participate in the programme

Table 1.3: Enhanced Institutional Capacity for Irrigation Development

	Unit	Quantities								Unit Cost (US\$)	Totals Including Contingencies (US\$ '000)							
		2017	2018	2019	2020	2021	2022	2023	Total		2017	2018	2019	2020	2021	2022	2023	Total
I. Investment Costs																		
A. Provision of vehicles, equipment and materials to the DOI																		
4X4 Vehicles (Double Cab) /a	Unit	6	-	-	-	-	-	-	6	60.000	363	-	-	-	-	-	-	363
Laptops /b	Unit	8	-	-	8	-	-	-	16	820	7	-	-	7	-	-	-	14
Desktop Computers /c	Unit	8	-	-	-	8	-	-	16	1.200	10	-	-	-	10	-	-	20
Printers /d	Unit	5	-	-	-	-	-	-	5	1.000	5	-	-	-	-	-	-	5
Photocopiers /e	Unit	6	-	-	-	-	-	-	6	2.000	12	-	-	-	-	-	-	12
Database management software	Unit	1	-	-	-	-	-	-	1	10.000	10	-	-	-	-	-	-	10
PC Software /f	Lumpsum	1	-	-	-	-	-	-	1	10.000	10	-	-	-	-	-	-	10
Survey Equipment /g	Lumpsum	1	-	-	-	-	-	-	1	20.000	20	-	-	-	-	-	-	20
Subtotal											437	-	-	7	10	-	-	454
B. Enhancing the capacity to provide irrigation-related services																		
Training needs assessment and identification of training sources	Study	1	-	-	-	-	-	-	1	5.000	5	-	-	-	-	-	-	5
Training and mentorship for DOI staff /h	Lumpsum	50	100	100	100	100	50	-	500	400	20	41	41	42	43	22	-	210
Study tours	Lumpsum	1	-	-	-	1	-	-	2	38.000	38	-	-	-	41	-	-	79
Subtotal											63	41	41	42	84	22	-	294
C. Enhancing the capacity of DOI to engage in policy dialogue																		
Technical assistance to develop Legal Framework for IMCs and WUAs /i	Person month	4	4	-	-	-	-	-	8	10.000	40	41	-	-	-	-	-	81
Stakeholder Dialogue Workshop on Water Pricing	Workshop	-	4	3	4	-	-	-	11	5.000	-	20	16	21	-	-	-	57
Stakeholder Dialogue Workshops on IMCs and WUAs	Workshop	4	4	3	-	-	-	-	11	5.000	20	20	16	-	-	-	-	56
TA on Water Pricing /j	Person month	3	-	-	-	-	-	-	3	8.000	24	-	-	-	-	-	-	24
Subtotal											84	82	31	21	-	-	-	218
D. Irrigation scheme database/inventory & Feasibility studies for new irrigation schemes																		
Initial Workshop /k	Workshop	1	-	-	-	-	-	-	1	1.000	1	-	-	-	-	-	-	1
ToT on Data Collection Processing and Maintenance /l	Course	8	-	-	-	-	-	-	8	5.000	40	-	-	-	-	-	-	40
Training on Database Maintenance	Course	1	-	-	-	-	-	-	1	5.000	5	-	-	-	-	-	-	5
Prepare Improved National Irrigation Database	Lumpsum	1	-	-	-	-	-	-	1	270.000	271	-	-	-	-	-	-	271
Prepare Feasibility Studies and Detailed Designs /m	Ha	-	-	200	500	800	500	-	2 000	120	-	-	25	63	104	66	-	258
Subtotal											318	-	25	63	104	66	-	576
Total Investment Costs											903	122	98	134	198	88	-	1 543
II. Recurrent Costs																		
A. Allowances for Agritex/DOI/MAMID staff head office	Person Day	10	40	40	40	40	40	40	250	55	1	2	2	2	2	2	2	15
B. Allowances for Province Agritex/DOI/other govt	Person Day	40	90	90	90	90	90	90	580	55	2	5	5	5	5	5	6	34
C. Allowances for Government Staff (for Participatory Management and effective irrigation design)	Person Day	30	-	-	-	-	-	-	30	55	2	-	-	-	-	-	-	2
D. Allowances for Head Office Staff /n	Person Day	150	150	-	-	-	-	-	300	55	8	8	-	-	-	-	-	17
E. Allowance for Gov. Staff in Field /o	Person Day	280	-	-	-	-	-	-	280	55	15	-	-	-	-	-	-	15
F. Vehicle O&M/p	Lumpsum	6	6	6	6	6	6	6	42	5.800	35	35	36	37	38	38	39	258
Total Recurrent Costs											63	51	44	44	45	46	47	341
Total											966	173	141	178	244	134	47	1 884

- ia 1 Vehicle per Province and 2 Vehicles at HQ
- ib 4 HQ and 4 and Province - Replacement in year 4
- ic 4 HQ and 4 and Province - Replacement in year 5
- id 1 HQ, 4 at Provinces
- ie 2 HQ, 4 at Provinces
- if Various general software packages for DOI computers
- ig For carrying out designs
- ih 250 DOI staff each benefit from 2 two week training involving field work
- ii TA (4 experts - agric & rural development/economist/irrigation policy formulation/legislation)
- ij TA to prepare water pricing review
- ik internal one day workshop
- il TA training in 4 provinces
- im This will be contracted to service provider
- in For irrigation scheme identification, feasibility studies and database/Inventory
- io For irrigation scheme database and inventory
- ip includes fuel, insurance and routine maintenance costs

Table 2.1 : Enhanced Agricultural Practices and Farmers' Organisational Capacity

	Unit	Quantities								Unit Cost (US\$)	Totals Including Contingencies (US\$ '000)							
		2017	2018	2019	2020	2021	2022	2023	Total		2017	2018	2019	2020	2021	2022	2023	Total
I. Investment Costs																		
A. Participatory Natural Resource Mapping																		
Workshop to Initiate/Revitalise NRM Subcommittees /a	Workshop	-	30	30	-	-	-	-	60	2.000	-	61	62	-	-	-	-	123
Training Committee Members on NRM /b	Participant	-	1 280	1 280	-	-	-	-	2 560	30	-	39	40	-	-	-	-	79
Technical Assistance (NRM - Committees) /c	Person month	2	12	10	3	-	-	-	27	2.500	5	31	26	8	-	-	-	69
Participatory Natural Resource Mapping Workshop /d	Workshop	-	30	30	-	-	-	-	60	750	-	23	23	-	-	-	-	46
Technical Assistance (Participatory NR Mapping) /e	Person month	-	12	12	-	-	-	-	24	2.500	-	31	31	-	-	-	-	62
Subtotal											5	184	182	8	-	-	-	380
B. Participatory Planning, Monitoring and Evaluation																		
Exchange Visits	Visit	-	20	20	-	-	-	-	40	500	-	10	10	-	-	-	-	21
Technical Assistance (Exchange Visits)	Person month	-	1	1	-	-	-	-	2	1.500	-	2	2	-	-	-	-	3
Participatory Planning Workshop	Participant	-	5 000	7 500	-	-	-	-	12 500	30	-	153	233	-	-	-	-	386
Technical Assistance (Participatory Planning)	Person month	-	12	12	-	-	-	-	24	1.500	-	18	19	-	-	-	-	37
Subtotal											-	183	264	-	-	-	-	447
C. Farmer Field Schools (FFS) and trainings on rainfed areas																		
Establishment and equipment of FFS	FFS	-	55	100	100	60	20	-	335	1.000	-	56	104	106	65	22	-	354
Training of FFS facilitators	Participant	-	55	100	100	60	20	-	335	1.370	-	77	142	145	89	30	-	483
Training of farmers in rainfed areas	Participant	-	1 250	2 500	5 000	2 500	1 250	-	12 500	30	-	38	78	159	81	41	-	397
Subtotal											-	171	324	410	235	94	-	1 234
D. Demonstration plots and training on irrigation schemes																		
Establishment and equipment for demonstration plots	Plot	-	30	40	40	20	-	-	130	2.000	-	61	83	85	43	-	-	273
Training of irrigation scheme agriculture committees	Participant	-	210	280	280	140	-	-	910	840	-	180	244	249	127	-	-	800
Training of farmers on irrigation schemes	Participant	-	1 250	2 500	5 000	2 500	1 250	-	12 500	30	-	38	78	159	81	41	-	397
Engagement of service provider for additional extension support on schemes	Person month	-	6	12	24	10	5	-	57	8.000	-	49	100	203	86	44	-	482
Field days/Exchange visits	Visit	-	32	60	60	36	12	-	200	500	-	16	31	32	19	7	-	105
Subtotal											-	345	536	728	357	92	-	2 057
E. Natural Resource Management Facility /f																		
Training for farmers in greater scheme area	Participant	-	1 250	2 500	5 000	2 500	1 250	-	12 500	30	-	38	78	159	81	41	-	397
Natural Resource Management Facility /g	Lumpsum	-	0.1	0.2	0.4	0.2	0.1	-	1	1.575.000	-	158	315	630	315	158	-	1 575
Cash Contribution of NRMF beneficiaries	Lumpsum	-	0.1	0.2	0.4	0.2	0.1	-	1	175.000	-	18	35	70	35	18	-	175
Subtotal											-	213	428	859	431	216	-	2 147
F. Promotion of diversified nutrition																		
Food fairs & cooking/feeding demonstrations	Unit	10	20	40	30	25	-	-	125	1.000	10	20	41	32	27	-	-	131
Demonstrations of nutrition gardens /h	Set	10	20	40	30	25	-	-	125	70	1	1	3	2	2	-	-	9
Facilitating and strengthening w omens' organisations /i	Session	8	32	40	40	40	40	-	200	200	2	7	8	8	9	9	-	42
Nutrition education	Session	16	24	72	72	24	24	24	256	500	8	12	37	38	13	13	13	135
Subtotal											20	41	90	81	50	22	13	318
Total Investment Costs											25	1 137	1 824	2 085	1 073	424	13	6 582
II. Recurrent Costs																		
A. FFS and training on rainfed areas																		
Allow ances for master trainers providing training and follow up for FFS facilitators	Person Day	50	90	90	55	15	-	-	300	55	3	5	5	3	1	-	-	17
Total Recurrent Costs											3	5	5	3	1	-	-	17
Total											28	1 142	1 830	2 088	1 074	424	13	6 599

- 1a 1 per scheme cluster
- 1b 1 per scheme cluster
- 1c senior-level national TA / medium-level international TA
- 1d 1 per scheme cluster
- 1e senior-level national TA / medium-level international TA
- 1f Per Village
- 1g Per Village
- 1h Assuming 100 members per village participating; 50 villages; each member contributing 10 days
- 1i Volunteers will be provided with materials and inputs to set up garden
- 1j Training of women's groups on leadership, group dynamics, collective marketing, etc. (per block)

Table 2.2: Table 2.2. Market Access and Rural Financial Services

	Unit	Quantities								Unit Cost (US\$)	Totals Including Contingencies (US\$ '000)							
		2017	2018	2019	2020	2021	2022	2023	Total		2017	2018	2019	2020	2021	2022	2023	Total
I. Investment Costs																		
A. Rural Financial Services																		
1. CBFI Development																		
CBFI Baseline	Lumpsum	1	-	-	-	-	-	-	1	50,000	50	-	-	-	-	-	-	50
ISAL establishment /a	Lumpsum	1 200	1 200	1 200	1 200	1 200	-	-	6 000	50	60	61	62	63	65	-	-	312
ISAL upgrading / linkage to formal FI/b	Lumpsum	300	300	300	300	300	-	-	1 500	25	8	8	8	8	8	-	-	39
Training of local CBMFI promoters	Participant	400	400	400	-	-	-	-	1 200	30	12	12	12	-	-	-	-	37
Subtotal											130	81	82	71	73	-	-	438
2. Financial Literacy Training																		
Financial Literacy needs assessment	Lumpsum	1	-	-	-	-	-	-	1	20,000	20	-	-	-	-	-	-	20
Curriculum development / testing	Lumpsum	1	-	-	-	-	-	-	1	10,000	10	-	-	-	-	-	-	10
Training of Trainers	Course	20	20	20	-	-	-	-	60	500	10	10	10	-	-	-	-	31
Implementation for 25000 persons	Participant	12 500	12 500	-	-	-	-	-	25 000	30	377	382	-	-	-	-	-	759
Subtotal											417	392	10	-	-	-	-	820
3. Technical Assistance																		
International TA (Rural Finance)	Person month	6	5	-	-	-	-	-	11	8,000	48	41	-	-	-	-	-	89
Subtotal											596	514	93	71	73	-	-	1 347
B. Broad based training in agribusiness development and marketing																		
1. Training for farmers on irrigation schemes and adjacent rainfed areas																		
Business skills training for irrigated farmers	Participant	1 250	2 500	5 000	2 500	1 250	-	-	12 500	30	38	76	156	79	40	-	-	390
Training for scheme level Marketing Committees	Participant	125	250	500	250	125	-	-	1 250	200	25	51	104	53	27	-	-	260
General business skills training for rainfed farmers	Participant	1 250	2 500	5 000	2 500	1 250	-	-	12 500	30	38	76	156	79	40	-	-	390
Subtotal											101	204	415	212	108	-	-	1 039
2. Technical Assistance																		
Engagement of Business Development Service Provider (BDSF) /c	Person month	42	42	42	26	12	-	-	164	8,000	338	342	349	220	104	-	-	1 353
Subtotal											438	546	764	432	212	-	-	2 391
C. Post harvest management training and low cost assets																		
1. Needs assessment and training																		
Research and Material Preparation /d	Lumpsum	1	-	-	-	-	-	-	1	20,000	20	-	-	-	-	-	-	20
Training on post harvest management and product quality on scheme and adjacent rainfed area	Participant	-	2 050	4 050	8 050	4 050	2 050	-	20 250	30	-	63	126	256	131	68	-	643
Subtotal											20	63	126	256	131	68	-	663
2. Demonstration of post-harvest technologies																		
On-farm demonstration of post harvest technologies on schemes	Unit	-	30	30	30	20	15	-	125	2,000	-	61	63	64	43	33	-	264
On-farm demonstration of post-harvest technologies in rainfed areas	Unit	-	75	75	75	50	37	-	312	1,000	-	77	78	80	54	41	-	330
Subtotal											-	138	141	144	98	74	-	594
3. Multipurpose post-harvest management centre																		
Construction of multipurpose post harvest centre	Unit	-	30	30	30	20	15	-	125	5,000	-	162	165	168	114	87	-	696
Equipment for multipurpose post harvest center	Unit	-	30	30	30	20	15	-	125	10,000	-	307	313	319	217	166	-	1 321
Subtotal											-	468	477	487	331	253	-	2

la per member

lb per member

lc To provide training, mentoring, establishment of contractual and non contractual market linkages, access to information and post harvest management training and

ld This will include an Agri-industry Market survey/Market feasibility and competitiveness study

le 2 youths per scheme will be trained

lf starter kit including tools and materials will be provided to youth trained

Table 2.3 Enhanced Institutional Capacity for Market-led Production

	Unit	2017	2018	2019	2020	2021	2022	2023	Total	Unit Cost (US\$)	2017	2018	2019	2020	2021	2022	2023	Total
I. Investment Costs																		
A. Provision of vehicles, equipment and materials to AGRITEX																		
4X4 Vehicles (Double Cab) /a	Unit	21	-	-	-	-	-	-	21	60.000	1 272	-	-	-	-	-	-	1 272
Motorcycles /b	Unit	20	35	45	25	-	-	-	125	2.100	42	76	99	56	-	-	-	273
Laptops /c	Unit	8	-	-	8	-	-	-	16	820	7	-	-	7	-	-	-	14
Desktop Computers /d	Unit	32	-	-	-	-	-	-	32	1.200	39	-	-	-	-	-	-	39
Printers /e	Unit	10	4	4	4	-	-	-	22	1.000	10	4	4	4	-	-	-	23
Photocopiers /f	Unit	10	4	4	4	-	-	-	22	2.000	20	8	8	9	-	-	-	45
Database management software	Unit	1	-	-	-	-	-	-	1	10.000	10	-	-	-	-	-	-	10
Extension Worker Kits /g	Set	15	25	50	35	-	-	-	125	200	3	5	10	7	-	-	-	26
Subtotal											1 403	93	122	83	-	-	-	1 701
B. Enhancing the capacity of AGRITEX and others to provide quality service delivery																		
Training needs assessment and identification of training sources	Study	1	-	-	-	-	-	-	1	5.000	5	-	-	-	-	-	-	5
Training and mentorship for AGRITEX staff /h	Lumpsum	50	100	100	100	100	-	-	450	400	20	41	41	42	43	-	-	188
Study tours/Exchange Visits	Lumpsum	1	-	-	-	1	-	-	2	38.000	38	-	-	-	41	-	-	79
Subtotal											63	41	41	42	84	-	-	272
C. Enhancing the capacity of AGRITEX to engage in policy dialogue																		
Development of Policy Positions	Person month	4	4	-	-	-	-	-	8	10.000	40	41	-	-	-	-	-	81
Stakeholder Dialogue Workshop	Workshop	-	4	3	4	-	-	-	11	5.000	-	20	16	21	-	-	-	57
Subtotal											40	61	16	21	-	-	-	138
Total Investment Costs											1 506	195	179	147	84	-	-	2 111
II. Recurrent Costs																		
Allow ances for Agritex/DO/MAMID staff head office	Person Day	10	40	40	40	40	40	40	250	55	1	2	2	2	2	2	2	15
Allow ances District Agritex/RDC/and others	Person Day	90	180	180	180	180	180	85	1 075	55	5	10	10	10	11	11	5	63
Allow ance for Gov. Staff for database and inventory	Person Day	300	300	-	-	-	-	-	600	55	17	17	-	-	-	-	-	33
Allow ances for Head Office Staff database and inventory	Person Day	288	-	-	-	-	-	-	288	55	16	-	-	-	-	-	-	16
Vehicle O&M/i	Lumpsum	21	21	21	21	21	21	21	147	5.800	122	124	126	129	131	134	137	904
Motorcycle O&M/j	Lumpsum	125	125	125	125	125	125	125	875	1.000	126	127	130	132	135	138	140	928
Total Recurrent Costs											286	281	269	274	279	285	285	1 959
Total											1 792	476	448	421	364	285	285	4 070

- la 1 Vehicle per Province + 1 Vehicle at HQ + 1 Vehicle per district
- lb For AEW on each irrigation scheme
- lc 4 HQ, 4 at Provinces - Replacement in year 4
- ld 16 District, 4 HQ; 4 Province
- le 2 HQ and 4 Province, 16 districts
- lf 2 HQ ; 4 province; 16 districts
- lg PCU 125 kits for each EW /scheme (contains farm management handbook, GPS set, moisture set ,rain gauge a
- lh 250 AGRITEX staff each benefit from 2 tw o week training involving field w ork
- li includes fuel, insurance and routine maintenance costs
- lj includes insurance, fuel and maintenance

Table 3 Programme Coordination

		Quantities								Unit Cost	Totals Including Contingencies (US\$ '000)							
Unit		2017	2018	2019	2020	2021	2022	2023	Total	(US\$)	2017	2018	2019	2020	2021	2022	2023	Total
I. Investment Costs																		
A. Studies																		
Baseline Study	Study	0.25	0.25	0.25	0.25	-	-	-	1	200.000	50	51	52	53	-	-	-	206
Annual statutory audits /a	Study	1	1	1	1	1	1	1	7	20.000	20	20	21	21	22	22	22	148
Mid-Term Review	Study	-	-	1	-	-	-	-	1	50.000	-	-	52	-	-	-	-	52
Project Completion Report and impact surveys	Study	-	-	-	-	-	-	1	1	50.000	-	-	-	-	-	-	56	56
Subtotal											70	71	124	74	22	22	79	463
B. Knowledge management and communications																		
Documentation of Best Practices	Study	-	2	2	2	2	2	2	12	5.000	-	10	10	11	11	11	11	64
Development of SIRP website	Study	1	-	-	-	-	-	-	1	20.000	20	-	-	-	-	-	-	20
Radio-aided sensitisation campaigns /b	Lumpsum	1	1	1	1	1	1	-	6	30.000	30	31	31	32	32	33	-	189
Promotional Material	Lumpsum	1	1	1	1	1	1	1	7	3.000	3	3	3	3	3	3	3	22
Subtotal											53	44	45	46	46	47	15	296
C. Equipment and Material for the PCU																		
Office Furniture /c	Set	9	-	-	-	-	-	-	9	1.600	15	-	-	-	-	-	-	15
Laptops /d	Unit	9	-	-	9	-	-	-	18	820	7	-	-	8	-	-	-	15
Printers /e	Unit	8	-	-	-	-	-	-	8	800	6	-	-	-	-	-	-	6
Presentation Kits /f	Unit	5	-	-	-	-	-	-	5	600	3	-	-	-	-	-	-	3
Desktop computers /g	Unit	9	-	-	-	9	-	-	18	900	8	-	-	-	9	-	-	17
Accounting Software	Unit	1	-	-	-	-	-	-	1	10.000	10	-	-	-	-	-	-	10
4X4 Vehicles /h	Unit	6	-	-	-	-	-	-	6	60.000	363	-	-	-	-	-	-	363
Photocopiers /i	Unit	5	-	-	-	5	-	-	10	1.600	8	-	-	-	9	-	-	17
Subtotal											421	-	-	8	17	-	-	446
D. Workshops and Information Meetings																		
National Sensitisation Workshop /j	Workshop	1	-	1	-	1	-	1	4	5.000	5	-	5	-	5	-	6	21
Information Meetings at Province /k	Workshop	4	-	-	-	-	-	-	4	5.000	20	-	-	-	-	-	-	20
Information Meetings at District /l	Workshop	4	4	4	4	-	-	-	16	4.000	16	16	17	17	-	-	-	66
Information Meetings at Schemes	Workshop	15	30	50	30	-	-	-	125	300	5	9	16	10	-	-	-	39
Subtotal											46	25	37	26	5	-	6	146
E. Strengthening M&Efunction of key departments in MAMID																		
Web-based database management software	Unit	1	-	-	-	-	-	-	1	20.000	20	-	-	-	-	-	-	20
Technical assistance to develop and operationalise system, produce M&E manual and train users	Person month	6	6	-	-	-	-	-	12	10.000	60	61	-	-	-	-	-	121
Training of trainers at provincial level /m	Participant	200	-	-	-	-	-	-	200	30	6	-	-	-	-	-	-	6
Field level training on data collection and processing /n	Participant	-	500	-	-	-	-	-	500	30	-	15	-	-	-	-	-	15
Subtotal											87	76	-	-	-	-	-	163
F. Technical Assistance																		
Technical Assistance to support the PCU /o	Person month	12	12	12	12	-	-	-	48	10.000	121	122	124	127	-	-	-	494
Total Investment Costs											798	339	331	281	91	69	99	2 008
II. Recurrent Costs																		
A. Operation and Maintenance																		
Vehicle O&M/p	Lumpsum	6	6	6	6	6	6	6	42	5.800	35	35	36	37	38	38	39	258
Other Administrative overheads /q	Lumpsum	12	12	12	12	12	12	12	84	1.000	12	12	12	13	13	13	13	89
Subtotal											47	48	49	50	51	52	53	347
B. PCU Staff salaries and allowances /r																		
Programme Coordinator	Person month	12	12	12	12	12	12	18	90	3.000	36	37	37	38	39	40	61	287
M&E and KM Specialist	Person month	12	12	12	12	12	12	18	90	2.400	29	29	30	30	31	32	49	230
Programme Accountant	Person month	12	12	12	12	12	12	18	90	2.400	29	29	30	30	31	32	49	230
Procurement Specialist	Person month	12	12	12	12	12	12	18	90	2.400	29	29	30	30	31	32	49	230
Provincial Facilitators	Person month	48	48	48	48	48	48	48	336	2.000	97	98	100	102	104	106	108	713
Administrative Assistant	Person month	12	12	12	12	12	12	18	90	1.500	18	18	19	19	19	20	30	144
Drivers	Person month	24	24	24	24	24	24	24	168	600	14	15	15	15	16	16	16	107
PCU Allow ances	Person Day	40	100	100	100	100	100	200	740	55	2	6	6	6	6	6	12	44
Provincial Facilitators Allow ances	Person Day	350	350	350	350	350	350	350	2 450	55	19	20	20	20	21	21	22	143
Subtotal											274	281	286	292	297	303	394	2 127
Total Recurrent Costs											321	329	334	341	348	355	447	2 475
Total											1 118	668	665	622	439	424	546	4 483

- ia Engagement of private audit firm
- ib Jingles to be developed and aired on national radio to raise awareness about SIRP
- ic PCU 4 suite /PF and 6 suite PCU
- id PCU 5 laptops & PF 4 laptops
- ie PCU 4 printers PF and 4 printers PCU
- if 1 for PCU and 4 Provincial facilitator
- ig PCU 5 computers 4 for PF replacements in Y5
- ih PCU vehicles/2PCU/4PF
- ii PCU - 1 PCU/4 PF plus replacement in yr 5
- ij 50 people for 1 day workshop
- ik 50 people for 1 day workshop/4 provinces
- il 50 people for 1 day workshop /district
- im three day training at each province for 50 participants
- in one day field level training 4 participants per province
- io support on financial management, procurement, monitoring and evaluation, project management, knowledge management, communication
- ip Includes fuel, insurance and routine maintenance
- iq Includes office supplies, internet costs, telephone etc..
- ir PCU salaries include allocation for winding up period between project completion and closure

Appendix 10: Economic and Financial Analysis

I. Introduction

- The overall goal of the Smallholder Irrigation Revitalization Programme (SIRP) is that rural households in targeted programme districts achieve food and nutrition security and are resilient to climate change effects and economic shocks. The programme's objective is that households in SIRP supported schemes and adjacent rainfed areas sustainably increase their incomes. This will be achieved by rehabilitating and/or expanding targeted irrigation schemes and supporting these and their surrounding rainfed areas to increase productivity, production and income, as well as improving access to agricultural markets and financial services.
- The target area is located in the Natural Regions III, IV and V in the provinces of Manicaland, Masvingo, Matabeleland South, and Midlands. The selection of irrigation schemes for rehabilitation will occur during project implementation. Selection criteria were formulated so as to prioritize areas that optimize a combination of bio-physical, socio-economic and institutional aspects, in order to achieve economies of scale and scope, and maximize efficiency, effectiveness and large scale impacts. Key programme data regarding costs and anticipated outreach and outcomes are presented in table 1 below.

Table 1: Project Costs and Indicators for Log-Frame

PROJECT COSTS AND INDICATORS FOR LOGFRAME					
TOTAL PROJECT COSTS (in million USD)		51.28	Base costs	47.698	PMU 4.449
Beneficiaries	125 000 People	25 000 Households			
Cost per beneficiary	410 USD x person		2 051 USD x HH	Adoption rates	75% and 85%
Components and Cost	USD Millions	Outcomes and Indicators			
<u>Sustainable Smallholder Irrigation Development</u>	27.7	1. Irrigation schemes fully operational	a. 5,000 ha of irrigation schemes under effective operation and maintenance by WUAs		
<u>Climate Smart Agriculture and Market Access</u>	20	1. Increased Adoption of Improved technologies and practices 2. Environmental aspects; 3. Farmers benefitting from improved access to markets 4. women empowered in project supported structures	1. Improved agricultural production: Yield increases of main crops 2. 9,000 ha of land under improved management practices 3. 18-fold increase in gross total value of marketed commodities per year on supported irrigation schemes		
<u>Programme Coordination</u>	4.5	Programme Coordination	1. Effective/efficient programme management		

II. Beneficiaries

- The primary beneficiaries of the programme will be 25,000 small scale poor rural households (equivalent to 125,000 people), of whom 12,500 households with an average landholding of 0.4 ha in the irrigation schemes, and 12,500 relying on rainfed agriculture and livestock with an average landholding of 1 ha within the greater scheme areas. The programme will train at least 500 extension service providers from Government departments and other organizations and create off-farm employment opportunities for approximately 2,000 youths. SIRP will implement an inclusive targeting strategy with an objective of ensuring that the benefits of the programme are distributed to a large number of smallholder poor farmers, and vulnerable members of the communities, women and the youth, directly or indirectly.

III. Expected Project Benefits

- SIRP's main quantifiable benefits are (i) the increase in productivity and production that will result from investments on both irrigated and rainfed plots; (ii) improved market access leading to increased farm profitability; (iii) reduced post-harvest losses thanks to the introduction of post-harvest technologies and training in post-harvest handling; (iv) increased off-farm income through promotion of income generating activities in the greater scheme area.

5. SIRP will have significant economic and social benefits in the areas where project-supported irrigation schemes are located. In addition to the direct benefits mentioned above, SIRP is likely to generate a range of indirect benefits, such as job creation, increased market participation and food availability, improved social equity, improvement in environmental sustainability, capacity development, institutional strengthening, and policy changes. Given the uncertainty and difficulty in accurately assessing such indirect benefits and costs, neither positive nor negative externalities are considered in this analysis.

IV. Financial Analysis

A. Objectives

6. The objectives of the financial analysis are to: (i) determine the extent to which participation in the proposed project activities will be financially viable for the target group; (ii) estimate the impact of programme activities on family labour, income and cash flow; (iii) calculate incremental production that would result from programme activities; and (iv) provide a basis for the economic analysis of the programme.

B. Approach

7. This analysis is based on estimates of quantifiable incremental benefits that will accrue from SIRP's investments in the rehabilitation of infrastructure on selected schemes and the promotion of good agricultural practices and agribusiness development on the schemes as well as in the surrounding/adjacent rainfed areas.

8. Representative crop budgets based on available data on physical inputs/outputs, prices and related variables, were developed to estimate "with" and "without" project crop gross margins per hectare. Based on prevailing farming practices, four representative farm models have been developed that reflect the main types of SIRP interventions at the farm level. Two activity models were developed to represent potential income generating activities that SIRP would support at the household/group level in the greater scheme areas. Basic discounted cash-flow analysis was then employed to compare incremental costs and returns and assess the financial profitability and sustainability of the proposed interventions.

9. The data underlying the "with" and "without" project situations as regards: cropping patterns, crop yields, input use were obtained from the Department of Agricultural Technical and Extension Services (AGRITEX) of the Ministry of Agriculture, Mechanization, and Irrigation Development (MAMID). Data on market input/output prices were obtained from Zimbabwe's Agricultural Marketing Authority (AMA). To the extent possible, data was validated with (i) farmers and other value chain actors during fieldwork that took place during project design in March and May 2016; and (ii) available data from on-going and closed projects of a similar nature to SIRP.

C. Assumptions

10. For both irrigated and rainfed crops, assumptions underlying the "without-project" in terms of productivity and profitability imply suboptimal access to and application of inputs, poor soil conditions, substandard farm management and poor post-harvest handling, and inadequate service delivery.

11. Not all targeted households will be willing and/or capable of profiting from SIRP. An adoption rate of 85 per cent on irrigated plots and 75 per cent on rainfed plots was assumed (see table 3).

12. The analysis considers a static "without" project situation, potentially underestimating incremental benefits given the negative historical performance of smallholder irrigation schemes in the project area.

13. Full project development is assumed in year 3. The calculation of incremental benefits takes into account both the projected project implementation timeline and the phasing-in of beneficiaries and on-farm production and productivity benefits.

14. Households provide 60 per cent of their own farm labour requirements and hire the remaining 40%. Under the Natural Resource Management Facility, beneficiaries will be expected to contribute 10% of the initial investment and take on full responsibility for the operation and maintenance costs. At the scheme level, farmers will be required to set aside sufficient funds for the operation and maintenance of irrigation infrastructure and commit to an arrears settlement plan with creditors, namely ZESA and ZINWA. These farm level costs are fully considered in the analysis.

15. Earnings before interest, tax and amortisation (EBITA) is used as an indicator of profitability at the farm level. The currency used in the economic analysis is the U.S. Dollar, as this is the main currency used in Zimbabwe at present.

D. Crop Models

16. Ten crop models thought to be representative of the typical cropping patterns in the programme area were produced: (i) rainfed maize; (ii) rainfed sorghum; (iii) rainfed groundnuts; (iv) rainfed cowpeas/maize intercropped; (v) rainfed citrus/cowpeas/maize intercropped; (vi) rainfed woodlot/maize/cowpea intercropped; (vii) irrigated maize; (ix) irrigated tomatoes; and (x) irrigated beans. Sugar beans and tomato are used as proxies for horticultural crops and crops that might be suitable for contract farming in general. Citrus and Woodlots represent potential environmentally friendly income generating crops that could be promoted in the rainfed areas under component 2. Detailed Crop Budgets are found in annex 1.

17. Table 2 shows the “with” and “without” project projections as regards yields, income, production costs, and labour for the six representative crops on a per hectare basis.

Table 2: Crop budgets

Crop	Yield (kg)		Net Income (before family labour costs)		WP Incr. Prod. Costs (US\$)	WP Incr. Income (US\$)	Labour (man days)		NPV @ 10% (US\$)
	WOP	WP	WOP	WP			WOP	WP	
Maize (Rain-fed)	500	1 000	(10)	6	223	11	12	14	(71)
Sorghum (Rain-fed)	700	1 400	154	360	257	205	10	11	621
Groundnuts (Rain fed)	600	1 000	108	187	261	187	24	32	252
Maize/Cowpea intercrop	-	-	241	447	402	447	72	73	393
Maize/cowpea/citrus intercrop	-	-	-	2 253	2 085	2 253	-	161	7 915
Maize/cowpea/woodlot intercrop	-	-	-	1 061	578	1 061	-	161	3 149
Maize (irrigated)	2 000	5 000	(398)	(75)	1 014	293	22	33	(157)
Tomato (irrigated)	10 000	30 000	2 015	10 796	2 077	8 673	207	243	29 891
Sugar beans (irrigated)	1 000	1 750	81	1 061	500	1 061	76	88	2 743
Goat rearing (heads)	-	60	-	1 154	1 520	880	-	137	3 695
Beekeeping	-	240	-	1 207	458	982	-	45	3 223

WP = with project at full development

E. Farm and Activity Models

18. Four farm models were developed to reflect the main types of SIRP interventions at the farm level: (i) Farms 1 & 2 (9,000ha) represent the rainfed areas, with Farm 2 representing the more arid project areas, and Farm 1 those with more rainfall. Both Farms 1 & 2 include the installation and maintenance of a rooftop water harvesting unit, which should provide households with water required for supplementary irrigation during early years of tree development; (ii) Farm 3 (4,200 ha) corresponds to those plots that will benefit from rehabilitation; and (iii) Farm 4 (800ha) accounts for expansion of irrigated area. Two activity models (beekeeping [1,000 HH] and goat rearing [1,500HH]) were developed to represent income generating activities that will be promoted by the programme.

19. On irrigated plots, an increase in cropping intensity from 100 per cent to 175 per cent is expected. Increased cropping intensity is also expected on rainfed plots as a result of increased intercropping. Table 3 below shows the cropping patterns utilised in the “with” and “without” project scenarios for each Farm model. The phasing-in of household participation in SIRP taking into account the adoption rates is presented in table 4 that follows.

Table 3: Cropping Patterns

SIRP (CROPPING PATTERNS)		Without Project	With Project						
	Unit	1 to 20	1	2	3	4	5	6	7 to 20
Farm 1 - Rainfed Farm (NR III & IV)									
Cropping intensity	%	100%	100%	100%	100%	100%	100%	100%	100%
Maize	ha	0.40	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Maize/Cowpea intercrop/a	ha	0.10	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Maize/cowpea/citrus intercrop/a	ha	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Sorghum	ha	0.25	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Groundnuts	ha	0.25	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Cropped Area	ha	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Plot Area	ha	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Farm 2 - Rainfed Farm (NR IV & V)									
Cropping intensity	%	100%	100%	100%	100%	100%	100%	100%	100%
Maize	ha	0.40	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Maize/Cowpea intercrop/a	ha	0.10	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Maize/cowpea/woodlot intercrop/a	ha	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Sorghum	ha	0.25	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Groundnuts	ha	0.25	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Total Cropped Area	ha	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Plot Area	ha	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Farm 3 - Irrigated/Irrigated Rev									
Cropping intensity	%	100%	175%	175%	175%	175%	175%	175%	175%
Maize (irrigated)	ha	0.20	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Sugarbeans (irrigated)	ha	0.10	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Tomato (irrigated)	ha	0.10	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Total Cropped Area	ha	0.40	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Total Plot Area	ha	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Farm 4 - Rainfed/Irrigated									
Cropping intensity	%	100%	175%	175%	175%	175%	175%	175%	175%
Maize	ha	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maize/Cowpea intercrop/a	ha	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sorghum	ha	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Groundnuts	ha	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maize (irrigated)	ha	0.00	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Tomato (irrigated)	ha	0.00	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Sugarbeans (irrigated)	ha	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Total Cropped Area	ha	0.40	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Total Plot Area	ha	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

a/ with intercropping land use goes above 100%

Table 4: Cropping Patterns

	Target HH	Target ha	Project Year							Total
			Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	
FARM 1 NR III & IV Improved rainfed (1ha)	4 000	4 000								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	75%	75%	0%	8%	15%	30%	15%	8%	0%	75%
no. of HH	3 000		-	300	600	1 200	600	300	-	3 000
cumulative no. of HH			-	300	900	2 100	2 700	3 000	3 000	
no. of ha		3 000	-	300	600	1 200	600	300	-	3 000
cumulative no. of ha			-	300	900	2 100	2 700	3 000	3 000	
FARM 2 NR IV & V Improved rainfed (1ha)	6 000	5 000								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	75%	75%	0%	8%	15%	30%	15%	8%	0%	75%
no. of HH	4 500		-	450	900	1 800	900	450	-	4 500
cumulative no. of HH			-	450	1 350	3 150	4 050	4 500	4 500	
no of ha		3 750	-	375	750	1 500	750	375	-	3 750
cumulative no of ha			-	375	1 125	2 625	3 375	3 750	3 750	
FARM 3 Irrigation Rehabilitation (0.4ha)	10 500	4 200								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	85%	85%	0%	9%	17%	34%	17%	9%	0%	85%
no. of HH	8 925		-	893	1 785	3 570	1 785	893	-	8 925
cumulative no. of HH			-	893	2 678	6 248	8 033	8 925	8 925	
no of ha		3 570	-	357	714	1 428	714	357	-	3 570
cumulative no of ha			-	357	1 071	2 499	3 213	3 570	3 570	
FARM 4 Irrigation Expansion/c	2 000	800								
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	85%	85%	0%	9%	17%	34%	17%	9%	0%	85%
no. of HH	1 700		-	170	1 785	3 570	1 785	893	-	8 203
cumulative no. of HH			-	170	1 955	5 525	7 310	8 203	8 203	
no of ha		3 570	-	68	136	272	136	68	-	680
cumulative no of ha			-	68	204	476	612	680	680	
Activity Model Beekeeping (6 hives)	1 000									
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	65%	65%	0%	7%	13%	26%	13%	7%	0%	65%
no. of HH	650		-	65	130	260	130	65	-	650
cumulative no. of HH			-	65	195	455	585	650	650	
Activity Model Goat Rearing (50 Goats)	1 500									
coverage rate			0%	10%	20%	40%	20%	10%	0%	100%
adoption rate	65%	65%	0%	7%	13%	26%	13%	7%	0%	65%
no. of HH	975		-	98	195	390	195	98	-	975
cumulative no. of HH			-	98	293	683	878	975	975	
Totals										
Total Number of HH	25 000.00			1 675	4 795	9 590	4 795	2 398	-	
total Number of ha				1 100	2 200	4 400	2 200	1 100		
Total Cumulative HH				1 675	6 470	16 060	20 855	23 253		
Total Cumulative ha				1 100	3 300	7 700	9 900	11 000		-

20. Table 5 summarizes the expected annual incremental benefits for each of the farm models. While all have a positive NPV, it is without surprise that highest net-benefits are derived from irrigated cultivation.

Table 5: Farm Models' Incremental Benefits

Crop/Farm Models	WOP	Financial Analysis: Incremental Benefits/a (US\$)										NPV (USD)		FIRR
		PY1	PY2	PY3	PY4	PY5	PY6	PY7	Y8	Y9	Y10-20	@ 10%		
FARM 1 NR III & IV Improved rainfed (1ha)	86	(78)	(19)	139	145	296	697	690	690	686	686	3 551	115%	
FARM 2 NR IV & V Improved rainfed (1ha)	51	(106)	(9)	211	220	368	339	332	330	326	323	1 981	108%	
FARM 3 Irrigation Rehabilitation (0.4ha)	130	370	1 464	3 216	3 363	3 363	3 363	3 363	3 363	3 363	3 363	24 229		
FARM 4 Irrigation Expansion/c	25	540	475	1 569	3 321	3 468	3 468	3 468	3 468	3 468	3 468	22 864		
Activity Model Beekeeping (6 hives)	-	(617)	489	727	849	967	933	1 207	1 209	1 207	1 209	7 121	106%	
Activity Model Goat Rearing (60 Goats)	-	(460)	(109)	45	220	755	1 035	1 035	1 264	1 154	1 074	5 476	56%	
a/befor family labour costs														

V. Economic Analysis

A. Objectives

21. The objectives of the economic analysis are (i) to determine whether the expected economic benefits of the proposed programme sufficiently justify the use of scarce resources that would be required; and (ii) evaluate the expected contribution of the proposed programme on the economic development of Zimbabwe as a whole.

B. Approach and Key Assumptions

22. The analysis is based on estimates of incremental benefits associated to investments in the rehabilitation of infrastructure on selected schemes and the promotion of good agricultural practices and agribusiness development on the irrigation schemes and in the surrounding/adjacent rainfed areas. The following factors underlie this economic analysis:

- A Social Discount Rate of 10 per cent was chosen for the evaluation of this investment project. This was based on a consultation of the long term deposit rates and government bond returns in Zimbabwe.
- A 20 year investment period is used for the analysis.
- Economic investment and recurrent costs are net of duties, taxes and price contingencies. All direct costs to the incremental production, such as farm inputs, operation and maintenance of irrigation infrastructure and equipment and labour are fully included. Total Economic costs are calculated as US\$ 40.7 million of which recurrent costs account for US\$ 5.4 million.
- All market prices used in the financial analysis were corrected by eliminating the effects of indirect taxes and/or subsidies. In practical terms, this implied that for the economic analysis market prices were converted into shadow prices using appropriate conversion factors. Because the national planning authority did not make available the conversion factors at the time of the first design mission, these were calculated for:
 - **Labour.** Unemployment rate was last estimated at 95 per cent (2009) by the CIA Fact book³². The same source acknowledges that under present conditions this number is impossible to be estimated. The shadow wage (SW) was then determined as $SW = (1 - 95 \text{ per cent}) * \text{wage}$.
 - **Traded and Tradable goods.** For all tradable outputs and inputs, border prices have been calculated by adding or deducting the corresponding export taxes or import duties. Economic prices are reached by multiplying the border prices by the Standard Conversion Factor ($SCF = \text{Shadow Exchange Rate (SER)} / \text{Official Exchange Rate (OER)}$), which in this case is one as we assume there are no restrictions to the flow of US Dollars in Zimbabwe.
 - **Non-tradable goods.** Market prices were used as shadow prices for non-tradable goods and services as there are no major indications that a significant market-distortion (i.e. monopoly, rationing policies, etc.) is affecting these goods.
- **Consideration of Externalities.** Small-scale irrigation projects can bring a number of direct and indirect benefits. These can be associated to: increases in the value and volume of production such as raises in incomes, improved food security and nutrition, increase in household assets and savings, reduced vulnerability to shocks; generation of positive economic externalities such as job creation, increased market participation and food availability, improved social equity; improvement in environmental sustainability through adequate water and soil conservation practices (e.g. soil cover, gains in irrigation efficiency, improved drainage); capacity development, institutional strengthening, and policy changes. Some changes, such as environmental impacts can constitute a benefit but also a risk to the water users' group or to the population downstream irrigation schemes. These will be the subject of environmental assessment studies conducted prior to interventions. Due to quantification issues, neither positive nor negative externalities were quantified and included in the model.

³² Central Intelligence Agency. (2016). Zimbabwe. In The World Factbook. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/zi.html>

C. Economic Profitability Indicators

23. Given the above assumptions, the base case economic internal rate of return (EIRR) for SIRP is estimated at 22 per cent. The benefit/cost ratio is estimated at 1.98, and the payback period is 7.6 years. The Net Present Value is estimated at US\$ 30.77 million.

Table 6: Economic Profitability Indicators

Economic Net Present Value (USD) @ 10%	30 776 761
Economic Internal Rate of Return (EIRR)	22.0%
NPV benefits (USD)	60 114 163
NPV costs (USD)	30 353 622
b/c ratio	1.98
Payback period	7.6 years

D. Sensitivity Analysis

24. The key risks to the success of SIRP implementation have been identified and analysed in the main report of this project design document. A sensitivity analysis was conducted on the EIRR and ENPV to determine the effect that reduced project benefits, increased project costs, or a lag in benefits could have on the economic viability of the investment (table 7).

Table 7: Sensitivity Analysis

Base scenario:	Change	IRR	NPV
	0%	22.0%	30 776 761
Project benefits	-10%	20.1%	24 765 344
Project benefits	-20%	18.0%	18 753 928
Project benefits	-50%	10.4%	719 679
Project benefits	10%	23.8%	36 788 177
Project benefits	20%	25.6%	42 799 593
Project costs	10%	20.2%	27 843 020
Project costs	20%	18.7%	24 909 280
Project costs	50%	14.9%	16 108 059
1 year lag in ben.		18.6%	23 529 688
2 years lag in ben.		16.0%	16 941 440

25. The analysis indicates that the programme's profitability is robust in the sense that its main economic profitability indicators do not change significantly in response to changes in the expected benefits or costs. The EIRR remains acceptable in all analysed scenarios. Switching values were calculated for incremental benefits and incremental costs (table 8). Benefits would have to be reduced by 51 per cent, or cost increased by 113 per cent for SIRP to become economically unviable. Such variations in costs and benefits are unlikely to occur during implementation of SIRP.

Table 8: Switching Values

Switching Values:	
Incremental Benefits:	-51%
Incremental Costs:	113%

E. Conclusions and Recommendations

26. The proposed SIRP investment shows robust financial results both at crop and farm level, demonstrating clear incentives for farmers to participate and financial sustainability for the irrigation scheme. Economic net benefits are also evident and robust.

27. Although the results of this analysis are convincing and robust, attention should be given to the possible detrimental effects of this intervention. Changes introduced by the project may: (i) increase the number and diversity of stakeholders and introduce risks of exacerbating inequality and elite capture of benefits; (ii) increase, sometimes perishable, surplus which will require finding new marketing channels; (iii) require improved technical, financial and water management skills and

capacities implying that investments in construction and equipment for irrigation are matched with effective technical assistance services and efforts in institutional strengthening and policy analysis.

28. Further research should be carried out on the marketing side to effectively assert the prices being practiced in the different region the programme is targeting. For the moment the model relies on generic prices supplied by AGRITEX, as the specific irrigation schemes being targeted were not yet determined.

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Table 1: Financial and Economic Prices

Description		Unit	Financial Prices: US\$	Economic Prices: US\$
Outputs	Crops			
	Maize grain	Kg	0.39	0.25
	Sorghum grain	Kg	0.55	0.37
	Groundnuts	Kg	0.60	0.41
	Tomatoes	Kg	0.50	0.33
	Beans	Kg	1.50	1.13
	Honey			
	Grade 1	Kg	9.00	7.10
	Grade 2	Kg	6.00	4.71
	Grade 3	Kg	3.00	2.32
	Goat	Kg	40.00	31.78
	Adult Ram	Kg	500.00	397.94
	Chillies	Kg	1.50	1.13
	Cowpeas	Kg	0.75	0.53
	Firewood	m3	30.00	30.00
	Oranges	Kg	0.80	0.57
Inputs (Seed, Fertiliser & Chemicals)				
	Sorghum Seed	Kg	0.75	0.53
	Tomato Seed	g	0.24	0.13
	Bean Seed	Kg	3.50	2.72
	Maize Seed	Kg	2.20	1.69
	Groundnut Seed	Kg	0.60	0.41
	Groundnut Seed treatment	Kg	5.00	4.30
	Cowpea Seed	Kg	0.80	0.63
	Orange Seedling	unit	5.00	4.30
	Tree seedlings	unit	5.00	4.30
	Animal manure	t	5.00	5.00
	Compound D	Kg	0.65	0.50
	Compound L	kg	0.73	0.57
	Compound S	kg	0.80	0.63
	Ammonium Nitrate	Kg	0.70	0.54
	Gypsum	kg	0.16	0.07
	Agricultural Lime	Kg	0.68	0.52
	Carbaryl	kg	13.00	11.29
	Endosulfan	l	9.00	7.80
	Alachlor	l	8.00	6.92
	Dual	l	15.50	13.48
	Gramoxone	l	8.20	8.20
	Molasses	l	5.00	4.30
	Athrazine	kg	6.00	5.17
	Superphosphate	kg	0.90	0.72
	Potassium	kg	0.76	0.59
	Gesagard	l	10.00	8.67
	Metalochlor	l	13.00	11.29
	Monocrotophos	l	12.00	10.42
	Trichlorofon 95	l	16.00	13.91
	Copper Oxychloride	kg	9.00	7.80
	Dithane	kg	14.00	12.17
	Thiram	kg	19.13	16.65
	Mancozeb	l	8.50	7.36
	Dimethoate	l	18.00	15.66
	Wettable Sulphur	l	6.00	6.00
	Hostathion	l	12.00	12.00
Other:	Tractor Ploughing dry rate	ha	65.00	65.00
	Tractor harrowing dry rate	ha	45.00	45.00
	Overalls	unit	40.00	40.00
	Gloves	unit	10.00	10.00
	Smokers (standard size)	unit	10.00	10.00
	Bee brushes	unit	3.00	3.00
	Hive tools	unit	3.00	3.00
	Beeswax	unit	0.10	0.10
	Propolis	unit	5.00	5.00
	Honey jars	unit	0.30	0.30
	buckets	unit	10.00	10.00
	Honey strainer	unit	40.00	40.00
	settling tanks	unit	40.00	40.00
	Honey gates	unit	2.00	2.00
	Honey heaters	unit	20.00	20.00
	table knives	unit	8.00	8.00
	Movable Tob bar hives	unit	40.00	40.00
	catch boxes (top bars)	unit	2.00	2.00
	sugar-white for winter feeding	kg	1.80	1.80
	Oxen rental	pair/day	20.00	20.00
	Fuel	l	1.00	1.00
	Goat Pen	unit	80.00	80.00
	Buck Housing	unit	50.00	50.00
	Lucerne Feed (Goats, Kids & Buck)	head	5.00	5.00
	Vet care	head	7.00	7.00
	Rooftop water harvesting unit	l	100.00	100.00
	Transport Tomato	ton	25.00	25.00
	Transportation (inputs & outputs)	ton	50.00	50.00
	50 Kg Bags	unit	0.50	0.50
	Packing Boxes, 15 kg	unit	0.00	0.00
	Trellising wire	kg	0.50	0.50
	String	kg	7.00	7.00
	Twine	kg	7.00	7.00
Labour	Family labour (Share)	%	60%	-
	Hired labour (share)	%	40%	-
	Labour	manday	5.00	0.03

Table 2: Maize Yields and Inputs (per ha)

YIELDS AND INPUTS			WITHO UT	WITH PROJECT						
ITEMS	UNIT	PRICE	1	1	2	3 to 20	4	5	6	7 to 20
Main production										200%
Maize	kg		500	667	833	1 000	1 000	1 000	1 000	1 000
Post Harvest Losses	%		30%	20%	10%	5%	5%	5%	5%	5%
Maize grain	kg	0.39	350	533.3	750.0	950.0	950.0	950.0	950.0	950.0
Investment Costs										
Operating inputs										
Maize Seed	kg	2.20	4.6	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Fertilizer:										
Compound D	kg	0.65	6.3	37.8	37.8	37.8	37.8	37.8	37.8	37.8
Ammonium Nitrate	kg	0.70	6.3	37.8	37.8	37.8	37.8	37.8	37.8	37.8
Agricultural Lime	kg	0.68	0.0	27.0	22.5	27.0	27.0	27.0	27.0	27.0
Chemicals:										
<i>Insecticide:</i>										
Alachlor	l	8.00	0.0	1.6	1.9	2.3	2.3	2.3	2.3	2.3
Dual	l	15.50	0.0	2.2	2.7	3.3	3.3	3.3	3.3	3.3
Gramoxone	l	8.20	0.0	1.4	1.7	2.1	2.1	2.1	2.1	2.1
<i>Herbicides:</i>										
Endosulfan	kg	9.00	0.0	1.3	1.7	2.0	2.0	2.0	2.0	2.0
Oxen Rental	pair day	20.00	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Packaging										
50 Kg Bags	no.	0.50	10.0	13.3	16.7	20.0	20.0	20.0	20.0	20.0
Twine	kg	7.00	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Transportation (inputs & outputs)	ton	50	0.4	0.6	0.8	1.1	1.1	1.1	1.1	1.1
Labour										
Pre-Harvest	pers. day	5	11	10.6	10.6	10.6	10.6	10.6	10.6	11
Harvest and Post-Harvest	pers. day	5	2	2	3	3	3	3	3	3
Irrigation	pers. day	5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Sub-total labour</i>			12	12.9	13.4	14.0	14.0	14.0	14.0	14.0
Hired Labour	pers. day	5	5	5	5	6	6	6	6	6
Family labour (F)	pers. day	5	7	8	8	8	8	8	8	8

Table 3: Maize Financial Budget

FINANCIAL BUDGET	WITHOUT PROJECT			WITH PROJECT						
ITEMS			1	1.0	2.0	3.0	4.0	5.0	6.0	7.0
Main production revenue										
Post Harvest Maize			137	208.0	292.5	370.5	370.5	370.5	370.5	370.5
<i>Total revenue</i>			137	208.0	292.5	370.5	370.5	370.5	370.5	370.5
Investment Costs										
Operating inputs										
Seeds			10	20.2	20.2	20.2	20.2	20.2	20.2	20.2
Fertilizer:										
Compound D			4	24.5	24.5	24.5	24.5	24.5	24.5	24.5
Ammonium Nitrate			4	26.5	26.5	26.5	26.5	26.5	26.5	26.5
Agric. Lime .25t			0	18.4	15.3	18.4	18.4	18.4	18.4	18.4
Animal manure			0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals:										
Insecticide:										
Alachlor 43EC			0	12.4	15.6	18.7	18.7	18.7	18.7	18.7
Dual			0	33.6	42.0	50.4	50.4	50.4	50.4	50.4
Gramoxone			0	11.2	14.0	16.8	16.8	16.8	16.8	16.8
Herbicides:										
Endosulfan 35MO			0.0	11.9	14.9	17.8	17.8	17.8	17.8	17.8
Oxen Rental			80	80.0	80.0	80.0	80.0	80.0	80.0	80.0
Packaging										
Bags			5	6.7	8.3	10.0	10.0	10.0	10.0	10.0
Twine			0	0.3	0.5	0.6	0.6	0.6	0.6	0.6
Transportation (inputs & outputs)			18	31.8	42.4	52.6	52.6	52.6	52.6	52.6
<i>Subtotal operating costs:</i>			122	277	304	336	336	336	336	336
Labour										
Pre-Harvest			53	53	53	53	53	53	53	53
Harvest and Post-Harvest			9	11	14	17	17	17	17	17
Irrigation			0	0	0	0	0	0	0	0
Hired labour costs			25	26	27	28	28	28	28	28
Family labour costs			37	38.6	40.3	42.0	42.0	42.0	42.0	42.0
<i>Sub-total labour costs</i>			61	64.3	67.1	70.0	70.0	70.0	70.0	70.0
<i>Total production costs</i>			183	342	371	406	406	406	406	406
Income (after labour costs)			(47)	(133.8)	(78.8)	(36.0)	(36.0)	(36.0)	(36.0)	(36.0)
Incremental net income				(86.9)	(31.9)	10.9	10.9	10.9	10.9	10.9
Income (before family labour costs)			(10)	(95.2)	(38.5)	6.0	6.0	6.0	6.0	6.0

Table 4: Maize/Cowpea Yields and Inputs

YIELDS AND INPUTS			WITHOUT PROJECT	WITH PROJECT						
ITEMS	UNIT	PRICE	1	1	2	3 to 20	4	5	6	7 to 20
Main production										200%
Maize	kg		600	733	800	933	1 000	1 000	1 000	1 000
Cowpea	kg		600	733	800	933	1 000	1 000	1 000	1 000
Post Harvest Losses	%		30%	20%	10%	5%	5%	5%	5%	5%
Maize grain	kg	0.39	420	587	720	887	950	950	950	950
Cowpeas	kg	0.75	420	587	720	887	950	950	950	950
Operating inputs										
Maize Seed	kg	2.20	5.5	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Cowpea Seed	kg	0.80	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Fertilizer:										
Compound D	kg	0.65	10.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
Ammonium Nitrate	kg	0.70	5.0	37.8	37.8	37.8	37.8	37.8	37.8	37.8
Agricultural Lime	kg	0.68	0.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
Chemicals:										
<i>Insecticide:</i>										
Alachlor	l	8.00	0.0	1.7	1.9	2.2	2.3	2.3	2.3	2.3
Thiram	kg	19.13	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Carbaryl	kg	13.00	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Dual	l	15.50	0.0	2.4	2.6	3.0	3.3	3.3	3.3	3.3
Gramoxone	l	8.20	0.0	1.5	1.6	1.9	2.1	2.1	2.1	2.1
<i>Herbicides:</i>										
Endosulfan	kg	9.00	0.0	1.5	1.6	1.8	2.0	2.0	2.0	2.0
Oxen Rental	pair day	20.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Packaging										
50 Kg Bags	no.	0.50	12.0	23.5	28.8	35.5	38.0	38.0	38.0	38.0
Twine	kg	7.00	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Transportation (inputs & outputs)	ton	50	0.4	1.3	1.6	1.9	2.0	2.0	2.0	2.0
Labour										
Pre-Harvest	pers. day	5	40	40	40	40	40	40	40	40
Harvest and Post-Harvest	pers. day	5	32	32	32	33	33	33	33	33
Sub-total labour			72	72.3	72.6	73.0	73.3	73.3	73.3	73.3
Hired Labour	pers. day	5	29	29	29	29	29	29	29	29
Family labour (F)	pers. day	5	43	43	44	44	44	44	44	44

Table 5: Maize/Cowpea Financial Budget

FINANCIAL BUDGET		WITHOUT PROJECT	WITH PROJECT						
ITEMS		1	1.0	2.0	3.0	4.0	5.0	6.0	7.0
Main production revenue									
Post Harvest Maize		164	228.8	280.8	345.8	370.5	370.5	370.5	370.5
Post Harvest Cowpea		315	440	440	665	665	713	713	713
Total revenue		479	669	721	1 011	1 036	1 083	1 083	1 083
Operating inputs									
Maize Seed		12	20.2	20.2	20.2	20.2	20.2	20.2	20.2
Cowpea Seed		4	50	100	100	100	100	100	100
Fertilizer:									
Compound D		6	48.6	48.6	48.6	48.6	48.6	48.6	48.6
Ammonium Nitrate		4	26.5	26.5	26.5	26.5	26.5	26.5	26.5
Agric. Lime .25t		0	18.4	18.4	18.4	18.4	18.4	18.4	18.4
Animal manure		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals:									
<i>Insecticide:</i>									
Alachlor 43EC		0	13.7	14.9	17.4	18.7	18.7	18.7	18.7
Thiram		0	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Carbaryl		0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Dual		0	36.9	40.3	47.0	47.0	50.4	50.4	50.4
Gramoxone		0	12.3	13.4	15.7	16.8	16.8	16.8	16.8
<i>Herbicides:</i>									
Endosulfan 35MO		0.0	13.1	14.3	16.6	17.8	17.8	17.8	17.8
Oxen Rental		40	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Packaging									
Bags		6	11.7	14.4	17.7	19.0	19.0	19.0	19.0
Twine		0	0.4	0.5	0.6	0.6	0.6	0.6	0.6
Transportation (inputs & outputs)		22	65.7	79.0	95.7	102.0	102.0	102.0	102.0
<i>Subtotal operating costs:</i>		94	368	441	475	486	489	489	489
Labour									
Pre-Harvest		201	201	201	201	201	201	201	201
Harvest and Post-Harvest		158	161	162	164	165	165	165	165
Hired labour costs		144	145	145	146	147	147	147	147
Family labour costs		216	217.0	217.7	219.1	219.8	219.8	219.8	219.8
Sub-total labour costs		359	361.7	362.8	365.1	366.3	366.3	366.3	366.3
Total production costs		453	730	804	840	852	856	856	856
Income (after labour costs)		25	(60.7)	(82.9)	170.9	183.3	227.4	227.4	227.4
Incremental net income			(86.0)	(108.2)	145.6	158.0	202.1	202.1	202.1
Income (before family labour costs)		241	156.3	134.8	390.0	403.0	447.2	447.2	447.2

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Appendix 10: Economic and Financial Analysis

Table 6: Citrus/Maize/Cowpeas Yields and Inputs

YIELDS AND INPUTS		70	WITHOUT PROJECT		WITH PROJECT									
ITEMS		UNIT	PRICE	1 to 25	1	2	3	4	5	6	7	8	9	10 to 20
Main production														
Oranges		kg		-	-	-	500	1 125	2 250	4 500	4 500	4 500	4 500	4 500
Cowpeas		kg		-	667	883	800	600	500	400	400	400	400	400
Maize Grain		kg		-	667	883	800	600	500	400	400	400	400	400
Post Harvest Losses					30%	20%	10%	5%	5%	5%	5%	5%	5%	5%
Oranges		kg	0.8		0	0	450	1 069	2 138	4 275	4 275	4 275	4 275	4 275
Cowpeas		kg	0.8		467	706	720	570	475	380	380	380	380	380
Maize Grain		kg	0.4		467	706	720	570	475	380	380	380	380	380
Investment Costs														
Rooftop water harvesting unit			100.0	-	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Variable Costs														
Maize Seed			2.2		9.2	9.2	9.2	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Cowpea Seed			0.8		50.0	50.0	50.0	40.0	40.0	25.0	25.0	25.0	25.0	25.0
Orange Seedling		number	5.0	-	100.0									
Fertilizer & Chemicals														
Compound D		kg	0.6	-	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0
Superphosphate		kg	0.9	-	-	-	-	-	-	157.5	157.5	157.5	157.5	157.5
Potassium		kg	0.8	-	-	-	-	-	-	53.2	53.2	87.5	87.5	105.0
Ammonium Nitrate		kg	0.7	-	48	48	48	48	48	48	48	48	48	48
Dimethoate		l	18.0	-	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Agricultural Lime		kg	0.7	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Copper Oxychloride		l	9.0	-	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Trichlorofon 95		l	16.0	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Oxen Rental			20.0	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Labour														
Pre-harvest		man days	5.0	-	20	24	30	40	50	60	60	60	60	60
Harvest and Post Harvest		man days	5.0	-	40	40	60	70	90	100	100	100	100	100
Transportation (in/out)		ton	5.0	-	0.10	0.10	0.10	0.10	0.30	0.40	0.50	0.60	0.70	0.80
Sub-total labour					60.10	64.10	90.10	110.10	140.30	160.40	160.50	160.60	160.70	160.80
Skilled (paid) labour		0.40	5.00	-	24.04	25.64	36.04	44.04	56.12	64.16	64.20	64.24	64.28	64.32
Family labour		0.60	5.00	-	36.06	38.46	54.06	66.06	84.18	96.24	96.30	96.36	96.42	96.48

Table 7: Citrus/Maize/Cowpeas Financial Budget

FINANCIAL BUDGET		WITHOUT PROJECT	WITH PROJECT									
ITEMS		1	1	2	3	4	5	6	7	8	9	10 to 20
Main production revenue												
Oranges		-	-	-	360	855	1 710	3 420	3 420	3 420	3 420	3 420
Cow pea		-	350.18	530	540	428	356	285	285	285	285	285
Maize		-	182.09	275	281	222	185	148	148	148	148	148
<i>Total revenue</i>		-	532.27	805	1 181	1 505	2 252	3 853	3 853	3 853	3 853	3 853
Investment Costs												
Rooftop water harvesting unit		-	100.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Variable Costs												
Maize Seed			20.24	20.24	20.24	15.40	11.00	11.00	11.00	11.00	11.00	11.00
Cowpea Seed			40.00	40.00	40.00	32.00	32.00	20.00	20.00	20.00	20.00	20.00
Orange Seedling			500.00	-	-	-	-	-	-	-	-	-
Fertilizer & Chemicals												
Compound D			97.20	97.20	97.20	97.20	97.20	97.20	97.20	97.20	97.20	97.20
Superphosphate		-	-	-	-	-	-	141.75	141.75	141.75	141.75	141.75
Potassium		-	-	-	-	-	-	40.43	40.43	66.50	66.50	79.80
Ammonium Nitrate			33.46	33.46	33.46	33.46	33.46	33.46	33.46	33.46	33.46	33.46
Animal Manure			-	-	-	-	-	-	-	-	-	-
Dimethoate			5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40
Agricultural Lime			0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Copper Oxychloride			3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Trichlorofon 95			32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
Oxen Rental			40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Labour												
Pre-harvest			100.00	120.00	150.00	200.00	250.00	300.00	300.00	300.00	300.00	300.00
Harvest and Post Harvest			200.00	200.00	300.00	350.00	450.00	500.00	500.00	500.00	500.00	500.00
Transportation (in/out)		-	0.50	0.50	0.50	0.50	1.50	2.00	2.50	3.00	3.50	4.00
Skilled (paid) labour costs			120.20	128.20	180.20	220.20	280.60	320.80	321.00	321.20	321.40	321.60
Family labour costs			180.30	192.30	270.30	330.30	420.90	481.20	481.50	481.80	482.10	482.40
<i>Sub-total labour costs</i>												
<i>Total production costs</i>			1 473.58	923.58	1 183.58	1 370.74	1 668.34	2 039.52	2 040.52	2 067.59	2 068.59	2 082.89
Income			(941.31)	(118.28)	(2.78)	134.06	583.16	1 813.68	1 812.68	1 785.61	1 784.61	1 770.31
Incremental net income			(941.31)	(118.28)	(2.78)	134.06	583.16	1 813.68	1 812.68	1 785.61	1 784.61	1 770.31
Income before family labour costs			(761.01)	74.02	267.52	464.36	1 004.06	2 294.88	2 294.18	2 267.41	2 266.71	2 252.71

Table 8: Woodlot/Maize/Cowpea Yields and Inputs

YIELDS AND INPUTS		70	WITHOUT PROJECT	WITH PROJECT									
ITEMS	UNIT	PRICE	1 to 25	1	2	3	4	5	6	7	8	9	10 to 20
Main production													
Firewood	m ³	-	-	-	-	20.00	40.00	60.00	60.00	60.00	60.00	60.00	60.00
Cowpeas	kg	-	-	667	883	800	600	500	400	400	400	400	400
Maize Grain	kg	-	-	667	883	800	600	500	400	400	400	400	400
Post Harvest Losses				30%	20%	10%	5%	5%	5%	5%	5%	5%	5%
Firewood	m ³	30.0	-	0	0	20	40	60	60	60	60	60	60
Cowpeas	kg	0.8	-	467	706	720	570	475	380	380	380	380	380
Maize Grain	kg	0.4	-	467	706	720	570	475	380	380	380	380	380
Investment Costs													
Rooftop water harvesting unit	unit	100.0	-	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Variable Costs													
Maize Seed	kg	2.2	-	9.2	9.2	9.2	7.0	5.0	5.0	5.0	5.0	5.0	5.0
Cowpea Seed	kg	0.8	-	50.0	50.0	50.0	40.0	40.0	25.0	25.0	25.0	25.0	25.0
Tree seedlings	number	5.0	-	150	50.00			50	50	50	50	50	50
Fertilizer & Chemicals													
Compound D	kg	0.6	-	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0
Superphosphate	kg	0.9	-	-	-	157.5	157.5	157.5	157.5	157.5	157.5	157.5	157.5
Potassium	kg	0.8	-	-	-	53.2	53.2	53.2	53.2	53.2	87.5	87.5	105.0
Ammonium Nitrate	kg	0.7	-	48	48	48	48	48	48	48	48	48	48
Gramoxone	l	8.2	-	2	2	2	2	2	2	2	2	2	2
Dimethoate	l	18.0	-	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Agricultural Lime	kg	0.7	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Copper Oxychloride	l	9.0	-	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Trichlorofon 95	l	16.0	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Oxen Rental		20.0	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Labour													
Pre-harvest	man days	0.0	-	20	24	30	40	50	60	60	60	60	60
Harvest and Post Harvest	man days	0.0	-	40	40	60	70	90	100	100	100	100	100
Transportation (inputs & outputs)	ton	50	-	0.10	0.10	0.10	0.10	0.30	0.40	0.50	0.60	0.70	0.80
Sub-total labour				60.10	64.10	90.10	110.10	140.30	160.40	160.50	160.60	160.70	160.80
Skilled (paid) labour	0.40	5.00	-	24.04	25.64	36.04	44.04	56.12	64.16	64.20	64.24	64.28	64.32
Family labour	0.60	5.00	-	36.06	38.46	54.06	66.06	84.18	96.24	96.30	96.36	96.42	96.48

Table 9: Woodlot/Maize/Cowpea Financial Budget

FINANCIAL BUDGET		WITHOUT PROJECT		WITH PROJECT									
ITEMS			1	1	2	3	4	5	6	7	8	9	10 to 20
Main production revenue													
Oranges		-	-	-	-	600.00	1 200.00	1 800.00	1 800.00	1 800.00	1 800.00	1 800.00	1 800.00
Cow pea		-	350.18	529.80	540.00	427.50	356.25	285.00	285.00	285.00	285.00	285.00	285.00
Maize		-	182.09	275.50	280.80	222.30	185.25	148.20	148.20	148.20	148.20	148.20	148.20
Total revenue		-	532.27	805.30	1 420.80	1 849.80	2 341.50	2 233.20	2 233.20	2 233.20	2 233.20	2 233.20	2 233.20
Investment Costs													
Rooftop water harvesting unit		-	100.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Variable Costs													
Maize Seed		-	20.24	20.24	20.24	15.40	11.00	11.00	11.00	11.00	11.00	11.00	11.00
Cowpea Seed		-	40.00	40.00	40.00	32.00	32.00	20.00	20.00	20.00	20.00	20.00	20.00
Orange Seedling		-	750.00	250.00	-	-	250.00	250.00	250.00	250.00	250.00	250.00	250.00
Fertilizer & Chemicals													
Compound D		-	162.00	162.00	162.00	162.00	162.00	162.00	162.00	162.00	162.00	162.00	162.00
Superphosphate		-	-	-	141.75	141.75	141.75	141.75	141.75	141.75	141.75	141.75	141.75
Potassium		-	-	-	40.43	40.43	40.43	40.43	40.43	40.43	66.50	66.50	79.80
Ammonium Nitrate		-	33.46	33.46	33.46	33.46	33.46	33.46	33.46	33.46	33.46	33.46	33.46
Animal Manure		-	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40
Dimethoate		-	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40
Agricultural Lime		-	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Copper Oxychloride		-	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Trichlorofon 95		-	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
Oxen Rental		-	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Labour													
Pre-harvest		-	0.60	0.72	0.90	1.20	1.50	1.80	1.80	1.80	1.80	1.80	1.80
Harvest and Post Harvest		-	1.20	1.20	1.80	2.10	2.70	3.00	3.00	3.00	3.00	3.00	3.00
Transportation (in/out)		-	5.00	5.00	5.00	5.00	15.00	20.00	25.00	30.00	35.00	40.00	40.00
Skilled (paid) labour costs		-	120.20	128.20	180.20	220.20	280.60	320.80	321.00	321.20	321.40	321.60	321.60
Family labour costs		-	180.30	192.30	270.30	330.30	420.90	481.20	481.50	481.80	482.10	482.40	482.40
Sub-total labour costs		-											
Sub-total production costs		-	1 511.08	941.20	1 004.16	1 091.92	1 499.42	1 593.52	1 599.02	1 630.59	1 636.09	1 654.89	1 654.89
Total production costs		-	(978.81)	(135.90)	416.64	757.88	842.08	639.68	634.18	602.61	597.11	578.31	578.31
Incremental net income		-	(978.81)	(135.90)	416.64	757.88	842.08	639.68	634.18	602.61	597.11	578.31	578.31
Income before family labour costs		-	(798.51)	56.40	686.94	1 088.18	1 262.98	1 120.88	1 115.68	1 084.41	1 079.21	1 060.71	1 060.71

Table 10: Sorghum Yields and Inputs

YIELDS AND INPUTS			WITHOUT PROJECT	WITH PROJECT						
ITEMS	UNIT	PRICE	1 to 20	1	2	3	4	5	6	7 to 20
Main production										200%
Sorghum	kg		700	933	1 167	1 400	1 200	1 400	1 400	1 400
Post Harvest Losses	%		30%	20%	10%	5%	5%	5%	5%	5%
Sorghum grain	kg	0.55	490	746.7	1 050.0	1 330.0	950.0	1 330.0	1 330.0	1 330.0
Investment Costs										
Operating inputs										
Sorghum Seed	kg	0.75	1.8	2.3	2.9	3.5	3.0	3.5	3.5	3.5
Fertilizer:										
Compound D	kg	0.65	18	70	88	105	90	105	105	105
Ammonium Nitrate	kg	0.70	12	47	58	70	60	70	70	70
Agricultural Lime	kg	0.68	0	58	73	88	75	88	88	88
Animal manure	kg									
Chemicals:										
<i>Insecticide:</i>										
Endosulfan	l	9.00	0.0	0.4	0.4	0.5	0.5	0.5	0.5	0.5
Carbaryl	l	13.00	0.0	0.2	0.3	0.4	0.3	0.4	0.4	0.4
Molasses	l	5.00	0.0	2.3	2.9	3.5	3.0	3.5	3.5	3.5
<i>Herbicides:</i>										
Athrazine	kg	6.00	0.0	0.6	0.7	0.9	0.8	0.9	0.9	0.9
Alachlor		8.00	0.0	0.4	0.5	0.6	0.5	0.6	0.6	0.6
Oxen Rental	pair day	20.00	2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Tractor Rental (Ploughing and Harrowing)	ha	110.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel	l	1.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation										
Irrigation (Water)	ha	0.03	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation (Power)	month	20.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation (Maintenance)	month	10.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Packaging										
50 Kg Bags	no.	0.50	14	18.7	23.3	28.0	24.0	28.0	28.0	28.0
Twine	kg	7.00	0.05	0.07	0.10	0.12	0.09	0.12	0.12	0.12
Transportation (inputs & outputs)	ton	50.00	0.5	0.9	1.3	1.6	1.2	1.6	1.6	1.6
Labour										
Pre-Harvest	pers. day	5	10	10	10	10	10	10	10	10
Harvest and Post-Harvest	pers. day	5	0.06	0.06	0.08	0.11	0.08	0.11	0.11	0.11
Irrigation	pers. day	5	0	0	0	0	0	0	0	0
Sub-total labour			10	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Hired Labour	pers. day	5	4	4	4	4	4	4	4	4
Family labour (F)	pers. day	5	6	6	6	6	6	6	6	6

Table 11: Sorghum Financial Budget

FINANCIAL BUDGET		WITHOUT PROJECT	WITH PROJECT						
ITEMS		1	1.0	2.0	3 to 20	4.0	5.0	6.0	7.0
Main production revenue									
Post Harvest Sorghum		270	410.7	577.5	731.5	522.5	731.5	731.5	731.5
Total revenue		270	410.7	577.5	731.5	522.5	731.5	731.5	731.5
Investment Costs									
Sub-total investment costs:		0	0	0	0	0	0	0	0
Operating inputs									
Seeds		1	1.8	2.2	2.6	2.3	2.6	2.6	2.6
Fertilizer:									
Compound D		11	45.4	56.7	68.0	58.3	68.0	68.0	68.0
Ammonium Nitrate		8	32.7	40.8	49.0	42.0	49.0	49.0	49.0
Agric. Lime .25t		0	39.7	49.6	59.5	51.0	59.5	59.5	59.5
Animal manure		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals:									
Insecticide:									
Endosulfan 35EC		0	3.2	3.9	4.7	4.1	4.7	4.7	4.7
Cabaryl 85WP		0	3.0	3.8	4.6	3.9	4.6	4.6	4.6
Molasses		0	11.7	14.6	17.5	15.0	17.5	17.5	17.5
Herbicides:									
Alatrazine 80WP		0.0	3.5	4.4	5.3	4.5	5.3	5.3	5.3
Alachlor		0.0	3.3	4.1	4.9	4.2	4.9	4.9	4.9
Oxen Rental		40	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Tractor Rental		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation									
Irrigation (Water)		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation (Power)		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation (Maintenance)		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Packaging									
Bags		7	9.3	11.7	14.0	12.0	14.0	14.0	14.0
Twine		0	0.5	0.7	0.9	0.6	0.9	0.9	0.9
Transportation (inputs & outputs)		26	46.1	63.4	79.6	58.8	79.6	79.6	79.6
Subtotal operating costs:		94	240	296	351	297	351	351	351
Labour									
Pre-Harvest		52	52	52	52	52	52	52	52
Harvest and Post-Harvest		0	0	0	1	0	1	1	1
Irrigation		0	0	0	0	0	0	0	0
Hired labour costs		21	21	21	21	21	21	21	21
Family labour costs		31	31.4	31.5	31.5	31.5	31.5	31.5	31.5
Sub-total labour costs		52	52.3	52.5	52.6	52.4	52.6	52.6	52.6
Total production costs		146	292	348	403	349	403	403	403
Income (after labour costs)		123	118.4	229.2	328.3	173.5	328.3	328.3	328.3
Incremental net income			(4.7)	106.1	205.3	50.4	205.3	205.3	205.3
Income (before labour costs)		154	149.8	260.7	359.9	204.9	359.9	359.9	359.9

Table 12: Groundnuts Yields and Inputs

YIELDS AND INPUTS			WITHOUT PROJECT	WITH PROJECT		
ITEMS	UNIT	PRICE	1	1	2	3 to 20
Main production						
Groundnuts	kg		600	800	1 000	1 000
Post Harvest Losses	%		30%	20%	10%	5%
Groundnuts	kg	0.60	420	640.0	900.0	950.0
Operating inputs						
Groundnut Seed	kg	0.60	20.0	26.7	33.3	33.3
Groundnut Seed treatment		5.00	0.2	0	0	0
Fertilizer:						
Compound L	kg	0.73	20.0	80.0	100.0	100.0
Gypsum	kg	0.16	26.7	106.7	133.3	133.3
Agricultural Lime	kg	0.68	0.0	80.0	100.0	100.0
Chemicals:						
<i>Herbicide:</i>						
Gesagard	l	10.00	0.0	0.8	1.0	1.0
Metalochlor	l	13.00	0.0	0.5	0.7	0.7
<i>Insecticide:</i>						
Monocrotophos	l	12.00	0.0	0.3	0.4	0.4
Oxen Rental	pair day	20.00	2	2.0	2.0	2.0
Tractor Rental (Ploughing and Harrowing)	ha	110.00	0	0.0	0.0	0.0
Fuel	l	1.00	0	0.0	0.0	0.0
Irrigation:						
Irrigation (Water)	ha	0.03	0	0.0	0.0	0.0
Irrigation (Power)	month	20.00	0	0.0	0.0	0.0
Irrigation (Maintenance)	month	10.00	0	0.0	0.0	0.0
Packaging:						
50 Kg Bags	no.	0.50	12	16.0	20.0	20.0
Twine	kg	7.00	0.0	0.0	0.0	0.0
Transportation (inputs & outputs)	ton	50.00	0.5	0.9	1.2	1.3
Labour:						
Pre-Harvest	pers. day	5	13	13	13	13
Harvest and Post-Harvest	pers. day	5	11	15	19	19
Irrigation	pers. day	5	0	0.0	0.0	0.0
Sub-total labour			24	27.9	31.6	31.6
Hired Labour	pers. day	5	10	11	13	13
Family labour (F)	pers. day	5	14	17	19	19

Table 13: Groundnuts Financial Budget

FINANCIAL BUDGET		WITHOUT PROJECT	WITH PROJECT
ITEMS		1	1.0 2.0 3 to 20
Main production revenue			
Post Harvest Groundnuts		252	384.0 540.0 570.0
<i>Total revenue</i>		252	384.0 540.0 570.0
Operating inputs			
Seeds		12	16.0 20.0 20.0
Seed treatment			
Fertilizer:			
Compound L		15	58 73 73
Gypsum		0	17 21 21
Agricultural Lime		0	54 68 68
Chemicals:		0	
<i>Herbicide:</i>			
Gesagard 500 FW		0	8 10 10
Metolochlor		0	7 9 9
<i>Insecticide:</i>			
Monocrotophos 40 EC		0	4 5 5
Oxen Rental		40	40 40 40
Tractor Rental		0	0 0 0
Fuel		0	0 0 0
Irrigation			
Irrigation (Water)		0	0 0 0
Irrigation (Power)		0	0 0 0
Irrigation (Maintenance)		0	0 0 0
Packaging			
Bags		6	8 10 10
Twine		0	0 0 0
Transportation (inputs & outputs)		23	45 62 64
<i>Subtotal operating costs:</i>		96	258 317 320
Labour			
Pre-Harvest		65	65 65 65
Harvest and Post-Harvest		56	74 93 93
Irrigation		0	0 0 0
Hired labour costs		48	56 63 63
Family labour costs		72	83.6 94.7 94.7
<i>Sub-total labour costs</i>		121	139.3 157.9 157.9
<i>Total production costs</i>		217	397 475 478
Income (after labour costs)		35	(13.3) 64.6 92.1
Incremental net income			(48.6) 29.3 56.8
Income (before labour costs)		108	70.3 159.4 186.9

Table 14: Irrigated Maize Yields and Inputs

YIELDS AND INPUTS			WITHOUT PROJECT	WITH PROJECT						
ITEMS	UNIT	PRICE	1	1	2	3 to 20	4	5	6	7 to 20
Main production										250%
Maize	kg		2 000	3 000	4 000	5 000	5 000	5 000	5 000	5 000
Post Harvest Losses	%		30%	20%	10%	5%	5%	5%	5%	5%
Maize grain	kg	0.39	1 400	2 400.0	3 600.0	4 750.0	4 750.0	4 750.0	4 750.0	4 750.0
Operating inputs										
Maize Seed	kg	2.20	18.3	46	46	46	46	46	46	45.8
Fertilizer:										
Compound D	kg	0.65	75.6	113.4	151.2	189.0	189.0	189.0	189.0	189.0
Ammonium Nitrate	kg	0.70	75.6	113.4	151.2	189.0	189.0	189.0	189.0	189.0
Agricultural Lime	kg	0.68	54.0	135	135	135	135	135	135	135.0
Animal manure	kg	5.00								
Chemicals:										
Insecticide:										
Alachlor	l	8.00	4.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Dual	l	15.50	6.5	16.3	16.3	16.3	16.3	16.3	16.3	16.3
Gramoxone	l	8.20	4.1	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Herbicides:										
Endosulfan	kg	9.00	4.0	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Oxen Rental	pair day	20.00	2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Tractor Rental (Ploughing and Harrowing)	ha	110.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel	l	1.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation										
Irrigation (Water)	m3	0.03	2 400	6 000.0	6 000.0	6 000.0	6 000.0	6 000.0	6 000.0	6 000.0
Irrigation (Power)	month	20.00	12	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Irrigation (Maintenance)	month	10.00	6	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Bills Arrears Clearance (2 years)	2 years	624.00		0.3	0.3	0.3	0.0	0.0	0.0	0.0
Packaging										
50 Kg Bags	no.	0.50	40	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Twine	kg	7.00	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Transportation (inputs & outputs)	ton	50	1.6	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Labour										
Pre-Harvest	pers. day	5	11	10.6	10.6	10.6	10.6	10.6	10.6	11
Harvest and Post-Harvest	pers. day	5	7	17.2	17.2	17.2	17.2	17.2	17.2	17
Irrigation	pers. day	5	5	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Sub-total labour			22	32.7	32.7	32.7	32.7	32.7	32.7	32.7
Hired Labour	pers. day	5	9	13.1	13.1	13.1	13.1	13.1	13.1	13
Family labour (F)	pers. day	5	13	19.6	19.6	19.6	19.6	19.6	19.6	20

Table 15: Irrigated Maize Financial budget

FINANCIAL BUDGET		WITHOUT PROJECT	WITH PROJECT						
ITEMS		1	1.0	2.0	3 to 20	4.0	5.0	6.0	7.0
Main production revenue					3 to 20				
Post Harvest Maize		546	936.0	1 404.0	1 852.5	1 852.5	1 852.5	1 852.5	1 852.5
Total revenue		546	936.0	1 404.0	1 852.5	1 852.5	1 852.5	1 852.5	1 852.5
Operating inputs									
Seeds		40	100.8	100.8	100.8	100.8	100.8	100.8	100.8
Fertilizer:									
Compound D		49	73.5	98.0	122.5	122.5	122.5	122.5	122.5
Ammonium Nitrate		53	79.4	105.8	132.3	132.3	132.3	132.3	132.3
Agric. Lime 25t		37	91.8	91.8	91.8	91.8	91.8	91.8	91.8
Animal manure		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals:									
Insecticide:									
Alachlor 43EC		37	93.3	93.3	93.3	93.3	93.3	93.3	93.3
Dual		101	251.9	251.9	251.9	251.9	251.9	251.9	251.9
Gramoxone		34	84.1	84.1	84.1	84.1	84.1	84.1	84.1
Herbicides:									
Endosulfan 35MO		35.6	89.1	89.1	89.1	89.1	89.1	89.1	89.1
Oxen Rental		40	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Tractor Rental		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation									
Irrigation (Water)		72	180.0	180.0	180.0	180.0	180.0	180.0	180.0
Irrigation (Power)		240	240.0	240.0	240.0	240.0	240.0	240.0	240.0
Irrigation (Maintenance)		60	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Bills Arrears Clearance (2 years)		0	205.9	205.9	205.9	0.0	0.0	0.0	0.0
Packaging									
Bags		20	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Twine		1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Transportation (inputs & outputs)		80	263.2	263.2	263.2	263.2	263.2	263.2	263.2
Subtotal operating costs:		899	1 966	2 017	2 068	1 862	1 862	1 862	1 862
Labour									
Pre-Harvest		53	53	53	53	53	53	53	53
Harvest and Post-Harvest		34	86	86	86	86	86	86	86
Irrigation		25	25	25	25	25	25	25	25
Hired labour costs		45	65	65	65	65	65	65	65
Family labour costs		67	98.2	98.2	98.2	98.2	98.2	98.2	98.2
Sub-total labour costs		112	163.6	163.6	163.6	163.6	163.6	163.6	163.6
Total production costs		1 012	2 130	2 181	2 231	2 026	2 026	2 026	2 026
Income (after labour costs)		(466)	(1 193.6)	(776.5)	(379.0)	(173.1)	(173.1)	(173.1)	(173.1)
Incremental net income			(728.0)	(310.9)	86.6	292.5	292.5	292.5	292.5
Income (before labour costs)		(398)	(1 095.4)	(678.4)	(280.8)	(74.9)	(74.9)	(74.9)	(74.9)

Table 16: Tomato Yields and Inputs

YIELDS AND INPUTS			WITHOUT PROJECT	WITH PROJECT						
ITEMS	UNIT	PRICE	1	1	2	3 to 20	4	5	6	7 to 20
Main production										300%
Tomatoes	kg		10 000	15 000	20 000	30 000	30 000	30 000	30 000	30 000
Post Harvest Losses	%		30%	20%	10%	5%	5%	5%	5%	5%
Tomatoes	kg	0.50	7 000	12 000.0	18 000.0	28 500.0	28 500.0	28 500.0	28 500.0	28 500.0
Operating inputs										
Tomato Seed	kg	0.24	30.0	90	90	90	90	90	90	90.0
Fertilizer:										
Compound S	kg	0.80	200.0	600	600	600	600	600	600	600.0
Ammonium Nitrate	kg	0.70	40.0	120	120	120	120	120	120	120.0
Agricultural Lime	kg	0.68	60.0	180	180	180	180	180	180	180.0
Animal manure	kg	5.00								
Chemicals:										
<i>Insecticide:</i>										
Mancozeb	l	8.50	0.2	1	1	1	1	1	1	0.6
Dimethoate	l	18.00	0.6	2	2	2	2	2	2	1.8
<i>Fungicides:</i>										
Wetttable Sulphur	kg	6.00	0.4	1	1	1	1	1	1	1.2
Hostathion	kg	12.00	0.3	1	1	1	1	1	1	0.9
Oxen Rental	pair day	20.00	2	2	2	2	2	2	2	2.0
Tractor Rental (Ploughing and Harrowing)	ha	110.00	0	0	0	0	0	0	0	0.0
Fuel (Ploughing and Harrowing)	l		0	0	0	0	0	0	0	0.0
Irrigation										
Irrigation (Water)	ha	0.03	2 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Irrigation (Power)	month	20.00	12	12	12	12	12	12	12	12.0
Irrigation (Maintenance)	month	10.00	6	12	12	12	12	12	12	12.0
Bills Arrears Clearance	2 years	600.00	0	0	0	0				
Packaging										
Packing Boxes, 15 kg	no.	0.00	667	2 000	2 000	2 000	2 000	2 000	2 000	2 000
Twine	kg	7.00	7.0	21	21	21	21	21	21	21.0
Trellising wire	kg	0.50	140.0	420	420	420	420	420	420	420.0
Transportation (inputs & outputs)	ton	50.00	7.3	29	29	29	29	29	29	29.4
Labour										
Pre-Harvest	pers. day	5	184	184	184	184	184	184	184	184
Harvest and Post-Harvest	pers. day	5	18	54	54	54	54	54	54	54
Irrigation	pers. day	5	5	5	5	5	5	5	5	5.0
Sub-total labour			207	243.0	243.0	243.0	243.0	243.0	243.0	243.0
Hired Labour	pers. day	5	83	97	97	97	97	97	97	97
Family labour (F)	pers. day	5	124	146	146	146	146	146	146	146

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Table 17: Tomato Financial Budget

FINANCIAL BUDGET		WITHOUT PROJECT				WITH PROJECT			
ITEMS		1	1.0	2.0	3 to 20	4.0	5.0	6.0	7.0
Main production revenue									
Tomatoes		3 500	6 000.0	9 000.0	14 250.0	14 250.0	14 250.0	14 250.0	14 250.0
Total revenue		3 500	6 000.0	9 000.0	14 250.0	14 250.0	14 250.0	14 250.0	14 250.0
Operating inputs									
Seeds		7	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Fertilizer:									
Compound S		160	480.0	480.0	480.0	480.0	480.0	480.0	480.0
Ammonium Nitrate		28	84.0	84.0	84.0	84.0	84.0	84.0	84.0
Agric. Lime		41	122.4	122.4	122.4	122.4	122.4	122.4	122.4
Animal manure		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals:									
Insecticide:									
Mancozeb		2	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Dimethoate 40 EC		11	32.4	32.4	32.4	32.4	32.4	32.4	32.4
Fungicides:		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetttable Sulphur		2	7	7	7	7	7	7	7
Hostathion		3.6	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Oxen Rental		40	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Tractor Rental		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation									
Irrigation (Water)		60	180.0	180.0	180.0	180.0	180.0	180.0	180.0
Irrigation (Power)		240	240.0	240.0	240.0	240.0	240.0	240.0	240.0
Irrigation (Maintenance)		60	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Bills Arrears Clearance		0	198.0	198.0	198.0				
Packaging									
Bags		3	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Twine		49	147.0	147.0	147.0	147.0	147.0	147.0	147.0
Transportation (inputs & outputs)		365	1 470.0	1 470.0	1 470.0	1 470.0	1 470.0	1 470.0	1 470.0
<i>Subtotal operating costs:</i>		1 071	3 167	3 167	3 167	2 969	2 969	2 969	2 969
Labour									
Pre-Harvest		920	920	920	920	920	920	920	920
Harvest and Post-Harvest		90	270	270	270	270	270	270	270
Irrigation		25	25	25	25	25	25	25	25
Hired labour costs		414	486	486	486	486	486	486	486
Family labour costs		621	729.0	729.0	729.0	729.0	729.0	729.0	729.0
Sub-total labour costs		1 035	1 215.0	1 215.0	1 215.0	1 215.0	1 215.0	1 215.0	1 215.0
Total production costs		2 106	4 382	4 382	4 382	4 184	4 184	4 184	4 184
Income (after labour costs)		1 394	1 618.5	4 618.5	9 868.5	10 066.5	10 066.5	10 066.5	10 066.5
Incremental net income			224.7	3 224.7	8 474.7	8 672.7	8 672.7	8 672.7	8 672.7
Income (before labour costs)		2 015	2 347.5	5 347.5	10 597.5	10 795.5	10 795.5	10 795.5	10 795.5

Table 18: Sugar beans Yields and Inputs

YIELDS AND INPUTS			WITHOUT PROJECT	WITH PROJECT						
ITEMS	UNIT	PRICE	1	1	2	3 to 20	4	5	6	7 to 20
Main production										175%
Sugar Beans	kg		1 000	1 250	1 500	1 750	1 750	1 750	1 750	1 750
Post Harvest Losses	%		30%	20%	10%	5%	5%	5%	5%	5%
Beans	kg	1.50	700	1 000.0	1 350.0	1 662.5	1 662.5	1 662.5	1 662.5	1 662.5
Investment Costs										
Irrigation										
Irrigation (Rehabilitation)	amount	1 312.00	0	0	0	0	0	0	0	0.0
Operating inputs										
Bean Seed	kg	3.50	45	79	79	79	79	79	79	79
Fertilizer:										
Compound S	kg	0.80	125	219	219	219	219	219	219	219
Ammonium Nitrate	kg	0.70	50	88	88	88	88	88	88	88
Thiram	kg	19.13	0.1	0	0	0	0	0	0	0.2
Animal manure	kg	5.00								
Chemicals:										
Insecticide:										
Carbaryl	l	13.00	1.0	2	2	2	2	2	2	1.8
Endosulfan	l	9.00	0.5	1	1	1	1	1	1	0.9
Fungicides:										
Copper Oxychloride	kg	9.00	1.00	2	2	2	2	2	2	1.75
Dithane	kg	14.00	0.5	1	1	1	1	1	1	0.9
Oxen Rental	pair day	20.00	2	2	2	2	2	2	2	2.0
Tractor Rental (Ploughing and Harrowing)	ha	110.00	0	0	0	0	0	0	0	0.0
Fuel	l	1.00	0	0	0	0	0	0	0	0.0
Irrigation										
Irrigation (Water)	ha	0.03	3 429	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Irrigation (Power)	month	20.00	12	12	12	12	12	12	12	12.0
Irrigation (Maintenance)	month	10.00	6	12	12	12	12	12	12	12.0
Bills Arrears Clearance (2 years)	LS	686.00	-	0.33	0.33	0.33				
Packaging										
50 Kg Bags	no.	0.50	20	35	35	35	35	35	35	35.0
Twine	kg	7.00	0.2	0	0	0	0	0	0	0.4
Transportation (inputs & outputs)	ton	50.00	0.9	2	2	2	2	2	2	2.0
Labour										
Pre-Harvest	pers. day	5	55	55	55	55	55	55	55	55
Harvest and Post-Harvest	pers. day	5	16	28	28	28	28	28	28	28
Irrigation	pers. day	5	5	5	5	5	5	5	5	5.0
Sub-total labour			76	88.0	88.0	88.0	88.0	88.0	88.0	88.0
Hired Labour	pers. day	5	30	35	35	35	35	35	35	35
Family labour (F)	pers. day	5	46	53	53	53	53	53	53	53

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Table 19: Sugar beans Financial Budget

FINANCIAL BUDGET				WITHOUT PROJECT		WITH PROJECT				
ITEMS			1	1.0	2.0	3 to 20	4.0	5.0	6.0	7.0
Main production revenue										
Common Beans			1 050	1 500.0	2 025.0	2 493.8	2 493.8	2 493.8	2 493.8	2 493.8
Total revenue			1 050	1 500.0	2 025.0	2 493.8	2 493.8	2 493.8	2 493.8	2 493.8
Investment Costs										
Irrigation										
Irrigation (Rehabilitation)			0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-total investment costs:			0	0	0	0	0	0	0	0
Operating inputs										
Seeds			158	275.6	275.6	275.6	275.6	275.6	275.6	275.6
Fertilizer:										
Compound S			100	175.0	175.0	175.0	175.0	175.0	175.0	175.0
Ammonium Nitrate			35	61.3	61.3	61.3	61.3	61.3	61.3	61.3
Thiram 80WP			2	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Animal manure			0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals:										
Insecticide:										
Carbaryl 85WP			13	22.8	22.8	22.8	22.8	22.8	22.8	22.8
Endosulfan 35MO			5	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Fungicides:			0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Copper Oxychloride										
Dithane M45			7.0	12.3	12.3	12.3	12.3	12.3	12.3	12.3
Oxen Rental			40	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Tractor Rental			0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel			0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigation										
Irrigation (Water)			103	180.0	180.0	180.0	180.0	180.0	180.0	180.0
Irrigation (Power)			240	240.0	240.0	240.0	240.0	240.0	240.0	240.0
Irrigation (Maintenance)			60	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Bills Arrears Clearance			0	226.4	226.4	226.4	0.0	0.0	0.0	0.0
Packaging										
Bags			10	17.5	17.5	17.5	17.5	17.5	17.5	17.5
Twine			1	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Transportation (inputs & outputs)			44	98.4	98.4	98.4	98.4	98.4	98.4	98.4
Subtotal operating costs:			817	1 483	1 483	1 483	1 256	1 256	1 256	1 256
Labour										
Pre-Harvest			275	275	275	275	275	275	275	275
Harvest and Post-Harvest			80	140	140	140	140	140	140	140
Irrigation			25	25	25	25	25	25	25	25
Hired labour costs			152	176	176	176	176	176	176	176
Family labour costs			228	264.0	264.0	264.0	264.0	264.0	264.0	264.0
Sub-total labour costs			380	440.0	440.0	440.0	440.0	440.0	440.0	440.0
Total production costs			1 197	1 923	1 923	1 923	1 696	1 696	1 696	1 696
Income (after labour costs)			(147)	(422.9)	102.1	570.9	797.3	797.3	797.3	797.3
Incremental net income				(275.9)	249.1	717.8	944.2	944.2	944.2	944.2
Income (before labour costs)			81	(158.9)	366.1	834.9	1 061.3	1 061.3	1 061.3	1 061.3

Table 20: Farm 1 Financial Budget

FARM 1 (NR III - Improved Rainfed Farming)																						
Financial Budget (USD)																						
Items	Unit	Without Y1-20	With Project																			
			Y1	Y2	Y3	Y4	Y5	Y 6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Value of production	USD	232.9	462.4	609.5	825.3	882.1	1122.4	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9	1522.9
Maize	USD	54.6	41.6	58.5	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1
Sorghum	USD	67.4	82.1	115.5	146.3	104.5	146.3	146.3	146.3	146.3	146.3	146.3	146.3	146.3	146.3	146.3	146.3	146.3	146.3	146.3	146.3	146.3
Groundnut	USD	63.0	38.4	54.0	57.0	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4
Maize/Cowpea	USD	47.9	167.2	180.2	252.7	258.9	270.8	270.8	270.8	270.8	270.8	270.8	270.8	270.8	270.8	270.8	270.8	270.8	270.8	270.8	270.8	270.8
Maize/Cowpea/Oranges	USD	0.0	133.1	201.3	295.2	376.2	562.9	963.3	963.3	963.3	963.3	963.3	963.3	963.3	963.3	963.3	963.3	963.3	963.3	963.3	963.3	963.3
Total production costs/a	USD	147.2	455.1	542.4	600.8	651.0	740.4	740.6	747.3	747.5	751.0	751.3	751.3	751.3	751.3	751.3	751.0	751.0	751.0	751.0	751.0	751.0
Maize	USD	58.6	60.6	66.2	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9
Sorghum	USD	28.8	52.2	63.4	74.3	63.5	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3
Groundnut	USD	36.1	31.4	38.1	38.3	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7
Maize/Cowpea	USD	23.8	128.1	146.5	155.2	158.1	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0
Maize/Cowpea/Oranges	USD	0.0	182.8	228.3	260.1	311.9	389.6	389.8	396.4	396.6	400.1	400.5	400.5	400.5	400.5	400.5	400.1	400.1	400.1	400.1	400.1	400.1
Net Income		85.7	7.3	67.1	224.5	231.0	382.0	782.3	775.6	775.4	771.9	771.5	771.5	771.5	771.5	771.5	771.9	771.9	771.9	771.9	771.9	771.9
Incremental			-78.4	-18.6	138.8	145.4	296.4	696.6	689.9	689.7	686.2	685.9	685.9	685.9	685.9	685.9	686.2	686.2	686.2	686.2	686.2	686.2
/a before family labour	NPV @10%	3551																				
	IRR @ 10%	115%																				

Table 21: Farm 2 Financial Budget

FARM 1 (NR IV & V - Improved Rainfed Farming)																						
Financial Budget (USD)																						
Items	Unit	Without Y1-20	With Project																			
			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Value of production	USD	197.9	404.6	539.3	793.2	879.5	1047.5	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4	1020.4
Maize	USD	46.4	35.4	49.7	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0
Sorghum	USD	57.3	69.8	98.2	124.4	88.8	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4
Groundnut	USD	53.6	32.6	45.9	48.5	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1
Maize/Cowpea	USD	40.7	133.8	144.2	202.2	207.1	216.6	216.6	216.6	216.6	216.6	216.6	216.6	216.6	216.6	216.6	216.6	216.6	216.6	216.6	216.6	216.6
Maize/Cowpea/Woodlots	USD	0.0	133.1	201.3	355.2	462.5	585.4	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3
Total production costs/a	USD	147.2	459.5	497.6	531.1	608.8	628.9	630.2	638.0	639.3	644.0	646.6	646.6	646.6	646.6	646.6	644.0	644.0	644.0	644.0	644.0	644.0
Maize	USD	58.6	60.6	66.2	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9
Sorghum	USD	28.8	52.2	63.4	74.3	63.5	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3	74.3
Groundnut	USD	36.1	31.4	38.1	38.3	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7	44.7
Maize/Cowpea	USD	23.8	128.1	146.5	155.2	158.1	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0	159.0
Maize/Cowpea/Woodlots	USD	0.0	187.2	183.5	190.4	269.6	278.1	279.4	287.2	288.5	293.1	295.7	295.7	295.7	295.7	293.1	293.1	293.1	293.1	293.1	293.1	293.1
Net Income		50.7	-54.9	41.7	262.0	270.7	418.5	390.2	382.4	381.1	376.4	373.8	373.8	373.8	373.8	373.8	376.4	376.4	376.4	376.4	376.4	376.4
Incremental			-105.6	-9.0	211.3	220.0	367.8	339.4	331.6	330.3	325.7	323.1	323.1	323.1	323.1	323.1	325.7	325.7	325.7	325.7	325.7	325.7
a before family labour	NPV @10%	1981																				
	IRR @ 10%	108%																				

Table 22: Farm 3 Financial Budget

FARM 3 (Irrigation Rehabilitation)																							
Financial Budget (USD)																							
Items	Unit	Without	With Project																				
			Y1-20	Y1	Y2	Y3	Y4	Y5	Y 6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Value of production	USD	564.2	2315.4	3416.9	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3
Maize (Irrigated)	USD	109.2	140.4	210.6	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9	277.9
Sugarbeans (Irrigated)	USD	105.0	375.0	506.3	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4	623.4
Tomatoes	USD	350.0	1800.0	2700.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0	4275.0
Total production costs/a	USD	434.3	1815.2	1822.8	1830.5	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6	1683.6
Maize (Irrigated)	USD	188.9	304.7	312.4	320.0	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1	289.1
Sugarbeans (Irrigated)	USD	96.9	414.7	414.7	414.7	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1	358.1
Tomatoes	USD	148.5	1095.8	1095.8	1095.8	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4	1036.4
Net Income		129.9	500.2	1594.0	3345.8	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7
Incremental			370.3	1464.1	3215.9	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8	3362.8
/a before family labour		NPV @10%	24229																				
		IRR @ 10%	#NUM!																				

Table 23: Farm 4 Financial Budget

FARM 4 Irrigation Expansion (0.4 hectares)		Financial Budget (USD)																				
Items	Unit	Without Y1-20	With Project																			
			Y1	Y2	Y3	Y4	Y5	Y 6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20
Value of production	USD	88.2	1394.4	2315.4	3416.9	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3	5176.3
Maize	USD	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maize/Cowpea intercrop/a	USD	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sorghum	USD	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Groundnuts	USD	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maize (irrigated)	USD	-	82	140	211	278	278	278	278	278	278	278	278	278	278	278	278	278	278	278	278	278
Tomato (irrigated)	USD	-	1 050	1 800	2 700	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275	4 275
Sugarbeans (irrigated)	USD	-	263	375	506	623	623	623	623	623	623	623	623	623	623	623	623	623	623	623	623	623
Total production costs/a	USD	63	829	1 815	1 823	1 830	1 684	1 684	1 684	1 684	1 684	1 684	1 684	1 684	1 684	1 684	1 684	1 684	1 684	1 684	1 684	1 684
Maize	USD	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maize/Cowpea intercrop/a	USD	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sorghum	USD	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Groundnuts	USD	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maize (irrigated)	USD	-	142	305	312	320	289	289	289	289	289	289	289	289	289	289	289	289	289	289	289	289
Tomato (irrigated)	USD	-	446	1 096	1 096	1 096	1 036	1 036	1 036	1 036	1 036	1 036	1 036	1 036	1 036	1 036	1 036	1 036	1 036	1 036	1 036	1 036
Sugarbeans (irrigated)	USD	-	242	415	415	415	358	358	358	358	358	358	358	358	358	358	358	358	358	358	358	358
Net Income		24.7	565.0	500.2	1594.0	3345.8	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7	3492.7
Incremental			540.2	475.5	1569.3	3321.1	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0	3468.0
/a before family labour		NPV@10%	22864																			
		IRR @ 10%	#NUM!																			

Table 24: Beekeeping Yields and Inputs

PRODUCTION AND INPUTS			Year										
ITEMS	UNIT	PRICE	0	1	2	3	4	5	6	7	8	9	10
Main production													
Honey	kg	-	120	160	180	200	220	240	240	240	240	240	240
Grade 1	kg	9	24	32	36	40	44	48	48	48	48	48	48
Grade 2	kg	6	72	96	108	120	132	144	144	144	144	144	144
Grade 3	kg	3	24	32	36	40	44	48	48	48	48	48	48
Investment Costs													
Movable Tob bar hives	unit	40	6	-	-	-	-	-	-	-	-	-	-
Overalls	unit	40	2	-	-	-	-	2	-	-	-	-	-
Gloves	unit	10	2	-	-	-	-	2	-	-	-	-	-
Smokers (standard size)	set	10	1	-	-	-	-	1	-	-	-	-	-
Bee brushes	unit	3	1	-	-	-	-	1	-	-	-	-	-
Hive tools	set	3	1	-	-	-	-	1	-	-	-	-	-
Beeswax	kg	0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Propolis	unit	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Honey jars	unit	0	400	400	400	400	400	400	400	400	400	400	400
buckets	unit	10	1	1	1	1	1	1	1	1	1	1	1
Honey strainer	unit	40	1	-	-	-	-	-	-	-	-	-	-
settling tanks	unit	40	1	-	-	-	-	1	-	-	-	-	-
Honey gates	unit	2	1	-	1	-	1	-	1	-	1	-	1
Honey heaters	unit	20	1	-	-	-	-	1	-	-	-	-	-
table knives	unit	8	1	-	-	-	-	1	-	-	-	-	-
catch boxes (top bars)	unit	2	1	-	-	-	-	1	-	-	-	-	-
sugar-white for winter feeding	kg	2	10	10	10	10	10	10	10	10	10	10	10
Operating Costs													
Transport (in/out)	LS												
Labour (1 hour/day)	day	5.00	45	45	45	45	45	45	45	45	45	45	45
Sub-total labour			45	45	45	45	45	45	45	45	45	45	45
Skilled (paid) labour			-	-	-	-	-	-	-	-	-	-	-
Family labour			45	45	45	45	45	45	45	45	45	45	45

Table 25: Beekeeping Financial Budget

FINANCIAL BUDGET			WITH PROJECT									
ITEMS		0	1	2	3	4	5	6	7	8	9	10
Main production												
Honey												
Grade 1		-	216	288	324	360	396	432	432	432	432	432
Grade 2		-	432	576	648	720	792	864	864	864	864	864
Grade 3		-	72	96	108	120	132	144	144	144	144	144
Honey Sales		-	720	960	1 080	1 200	1 320	1 440	1 440	1 440	1 440	1 440
Investment Costs												
Movable Tob bar hives		240	-	-	-	-	-	-	-	-	-	-
Equipment												
Overalls		80	-	-	-	-	80	-	-	-	-	-
Gloves		20	-	-	-	-	20	-	-	-	-	-
Smokers (standard size)		10	-	-	-	-	10	-	-	-	-	-
Bee brushes		3	-	-	-	-	3	-	-	-	-	-
Hive tools		3	-	-	-	-	3	-	-	-	-	-
Beeswax		0	0	0	0	0	0	0	0	0	0	0
Propolis		1	1	1	1	1	1	1	1	1	1	1
Honey jars		120	120	120	120	120	120	120	120	120	120	120
buckets		10	10	10	10	10	10	10	10	10	10	10
Honey strainer		40	-	-	-	-	-	-	-	-	-	-
settling tanks		40	-	-	-	-	40	-	-	-	-	-
Honey gates		2	-	2	-	2	-	2	-	2	-	2
Honey heaters		20	-	-	-	-	-	-	-	-	-	-
table knives		8	-	-	-	-	-	-	-	-	-	-
catch boxes (top bars)		2	-	-	-	-	-	-	-	-	-	-
sugar-white for winter feeding		18	100	100	100	100	100	100	100	100	100	100
Operating Costs												
Labour (1 hour/day)		225	225	225	225	225	225	225	225	225	225	225
Total production costs		842	456	458	456	458	612	458	456	458	456	458
Income (after labour costs)		(842)	264	502	624	742	708	982	984	982	984	982
Incremental net income			264	502	624	742	708	982	984	982	984	982
Income (before labour costs)		(617)	489	727	849	967	933	1 207	1 209	1 207	1 209	1 207

Table 26: Goat Rearing Yields and Inputs

PRODUCTION AND INPUTS				Year																			
ITEMS	UNIT	PRICE	WOP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Main production																							
Goat	head	40	-	-	4	10	20	40	50	50	60	60	60	60	60	60	60	60	60	60	60	60	60
Investment Costs																							
Goat	unit	40	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adult Ram	unit	500	-	0.10	-	-	-	-	-	-	0.10	-	-	-	-	-	-	-	0.10	-	-	-	-
Goat Pen	unit	80	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Buck Housing	unit	50	-	0																			
Lucerne Feed (Goats, Kids & Buck)	head	5	-	5	5	11	21	41	51	51	61	61	61	61	61	61	61	61	61	61	61	61	61
Vet care	head	7	-	2	4	10	20	40	50	50	60	60	60	60	60	60	60	60	60	60	60	60	60
Operating Costs																							
Transportation (inputs & outputs)	ton	50	-	0.10	0.20	0.50	0.50	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Repair and maintenance	LS	10		-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Labour (3 hour/day)	day	5	-	69	69	69	100	100	100	100	100	137	137	137	137	137	137	137	137	137	137	137	137
Sub-total labour																							
			-	69	69	69	100	100	100	100	100	137	137	137	137	137	137	137	137	137	137	137	137
Skilled (paid) labour																							
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Family labour																							
			-	69	69	69	100	100	100	100	100	137	137	137	137	137	137	137	137	137	137	137	137

Table 27: Goat Rearing Financial Budget

FINANCIAL BUDGET				WITH PROJECT																			
ITEMS			WOP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Main production																							
Goat	-	-	160	400	800	1 600	2 000	2 000	2 400	2 400	2 400	2 400	2 400	2 400	2 400	2 400	2 400	2 400	2 400	2 400	2 400	2 400	2 400
Investment Costs																							
Goat	-	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adult Ram	-	50	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-	50	-	-	-	-	-
Goat Pen	-	80	-	-	-	-	-	-	-	-	-	80	-	-	-	-	-	-	-	-	-	-	-
Feed	-	25	25	55	105	205	255	255	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305
Vet Care	-	15	28	70	140	280	350	350	421	420	420	420	420	420	420	420	420	420	421	420	420	420	420
Operating Costs																							
Transportation (inputs & outputs)			5	10	25	25	50	50	50	50	100	100	100	100	100	100	100	100	100	100	100	100	100
Repair and maintenance			-	-	-	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Labour (3 hour/day)	-	343	343	343	500	500	500	500	500	685	685	685	685	685	685	685	685	685	685	685	685	685	685
Total production costs	-	597	406	493	780	1 045	1 165	1 165	1 336	1 520	1 600	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 571	1 520	1 520	1 520	1 520
Family Labour cost			137	137	137	200	200	200	200	200	274	274	274	274	274	274	274	274	274	274	274	274	274
Income (after labour costs)			-	(597)	(246)	(93)	20	555	835	835	1 064	880	880	880	880	880	880	880	829	880	880	880	880
Incremental net income				(597)	(246)	(93)	20	555	835	835	1 064	880	880	880	880	880	880	880	829	880	880	880	880
Income (before labour costs)			-	(460)	(109)	45	220	755	1 035	1 035	1 264	1 154	1 074	1 154	1 154	1 154	1 154	1 154	1 103	1 154	1 154	1 154	1 154

Table 28: Project Economic Costs

Republic of Zimbabwe Smallholder Irrigation Revitalisation Programme Project Components by Year -- Totals Including Contingencies Economic Costs (US\$ '000)								
Economic Costs								
	2017	2018	2019	2020	2021	2022	2023	Total
A. Sustainable Smallholder Irrigation Development								
1. Scheme Selection and Rehabilitation	170	1 398	3 558	6 368	3 802	1 521	17	16 832
2. Improved Smallholder Irrigation Management	86	606	455	756	624	899	430	3 856
3. Enhanced Institutional Capacity for Irrigation Development	685	145	116	146	196	106	35	1 429
Subtotal	941	2 148	4 128	7 269	4 622	2 526	482	22 117
B. Climate-Smart Agriculture and Market Access								
1. Enhanced Agricultural Practices and Farmers' Organizational Capacity	24	964	1 564	1 873	918	376	10	5 728
2. Market Access and Rural Financial Services	916	1 536	1 548	1 426	948	513	-	6 886
3. Enhanced Institutional Capacity for Market-led Production	989	366	327	315	285	219	215	2 715
Subtotal	1 928	2 866	3 439	3 614	2 151	1 108	225	15 330
C. Programme Coordination								
1. Programme Management and Coordination	784	542	520	481	321	303	373	3 324
Subtotal	784	542	520	481	321	303	373	3 324
Total PROJECT COSTS	3 653	5 556	8 087	11 364	7 094	3 937	1 080	40 771
		5 522	7 965	11 073	6 708	3 512	655	39 088

Appendix 11: Outline of the programme implementation manual

I. Introduction

1. Presentation of the SIRP Project
2. Objective of the Project
3. Description of the Project Components
4. Cost and financing
5. Organization and management
6. Institutional and Implementation arrangements
7. Organizational charts

II. Administrative Procedures

1. Human Resources management
2. Correspondence and Communication Organization
3. Logistics
4. Asset and stock management

III. Financial and Disbursements Procedures

1. Financial Arrangements and Flow of funds
2. IFAD Disbursements procedures
3. SIRP Disbursements procedures
4. Accounting system and procedures
5. Planning and budgeting

IV. Procurement Procedures

1. IFAD basic procurement principles
2. National rules and regulations
3. Main methods of procurement for goods and works
4. Main methods of selection of consultants & services providers
5. Specific procurement arrangements

V. Monitoring & Evaluation Procedures

1. Planning of M&E
2. AWPB Preparation, including annual targets (RIMS+MPAT)
3. Follow-up of outputs
4. Evaluation of results
5. Evaluation of Impact
6. Elaboration of progress reports

Annexes

- Annex 1: Annual Work Plan and Budget for Year 1 in IFAD format
Annex 2: Procurement Plan for first 18 months in IFAD format
Annex 3: Organizational Chart of SIRP PCU
Annex 4: TOR of key Project Staff
Annex 5: Flow of Funds chart
Annex 6: TOR for Auditors,
Annex 7: Baseline Survey
Annex 8: Monitoring & Evaluation Matrix
Annex 9: Reporting formats

Appendix 12: Compliance with IFAD policies

Overview

1. This appendix compares SIRP with IFAD's policies, notably the Strategic Framework 2016-2025. Compliance with the Social, Environmental and Climate Assessment Procedures (SECAP) is documented in the SECAP Review Note, attached to this document.

IFAD's Strategic Framework 2016-2025

2. The overarching Goal of the draft IFAD Strategic Framework 2016-2025 is to 'enable rural households and communities to gain increasingly remunerative, sustainable and resilient livelihoods that help them permanently move out of poverty and food insecurity'. The Framework strives to enable rural people to sustainably attain adequate capabilities, assets, incomes and levels of food security that allow them to ride out economic downturns. To achieve the goal of its Strategic Framework, IFAD will focus on the realization of three interlinked and mutually reinforcing strategic objectives that have been conceived with a view to address sustainable development in all its three dimensions –social, economic and environmental. The Strategic Objectives include:

- **Strategic Objective 1: Increase poor rural peoples' productive capacities.** This aims at investing in rural people, especially the most vulnerable, to improve their skills to become more productive farmers, fishers, or artisans. IFAD will continue to support rural capacity building through its Programme of loans, grants and policy dialogue;
- **Strategic Objective 2: Increase poor rural peoples' access to markets** – This Strategic Objective aims at increasing poor rural peoples' access to and integration in markets for goods, services and wage labour both in agriculture and in non-farm activities on a sustainable and profitable basis;
- **Strategic Objective 3: Strengthen the environmental sustainability and climate resilience of poor rural peoples' economic activities** – The Strategic Objective aims at strengthening rural people's ability to be able to adequately take care of the environment in which they live while, at the same time, benefiting from it. IFAD's work towards this Strategic Objective will be guided by its Policy on Environment and Natural Resource Management, Climate Change Strategy, the 10-point Climate Mainstreaming Plan, and the Social, Environmental and Climate Assessment Procedures.

3. SIRP is aligned with all three Strategic Objectives. In terms of target population, the primary beneficiaries of the programme are 20,000 small scale poor rural households, of whom 10,000 households in the irrigation schemes, and 10,000 households relying on rainfed agriculture, animal production and income generating enterprises in the greater scheme areas. The programme will increase poor rural people's productive capacities (SO1) by providing them with access to irrigation water, training on irrigated agricultural practices, and training on good agricultural practices for farmers in rainfed areas. The programme will increase target beneficiaries' access to markets (SO2) by providing broad-based training in agribusiness development and marketing, by brokering market linkages and by providing low-cost post-harvest training and assets. Finally, the programme will strengthen the environmental sustainability and climate resilience of target beneficiaries' economic activities (SO3), by promoting community-based natural resources management, and by making them less dependent on climatic variability.

Other IFAD policies

Policy	Programme Response
<ul style="list-style-type: none"> • Targeting policy • Gender and women's empowerment policy 	<ul style="list-style-type: none"> • SIRP will target productive poor smallholders that are currently engaging in irrigation as well as poor and vulnerable smallholders engaged in rainfed farming in the greater scheme areas around targeted irrigation schemes. The programme will further target at least 2,000 youth who will be involved in production, aggregation, marketing, service provision and build small and medium-scale businesses along the irrigation value chain. Women (heads of households, wives and young women) will account for at least 30 per cent of the target, in line with their participation in irrigated agriculture.
<ul style="list-style-type: none"> • Rural finance policy 	<ul style="list-style-type: none"> • SIRP will support a number of demand-driven and innovative approaches to rural financial services, including (i) strengthening financial literacy and community-based microfinance; (ii) technical assistance to selected financial service providers to strengthen their capacity to service smallholder farmers; and (iii) encourage risk-sharing through a partial guarantee facility for selected financial service providers.
<ul style="list-style-type: none"> • Improving Access to Land and Tenure Security 	<ul style="list-style-type: none"> • SIRP will mainly engage in existing schemes and the rainfed areas surrounding these schemes. In engaging in these schemes, SIRP follows national priorities to support poor smallholder farmers and follows the "do-no-harm" principle, ensuring that no vulnerable groups are negatively affected and avoiding elite capture. SIRP will support community-based natural resources management, empowering rainfed farmers to manage their land resources in a sustainable way, and identifying income-generating opportunities for landless youth. All interventions under SIRP will be subject to Free, Prior and Informed Consent.
<ul style="list-style-type: none"> • Environment and climate change 	<ul style="list-style-type: none"> • See SECAP Review Note
<ul style="list-style-type: none"> • Knowledge management 	<ul style="list-style-type: none"> • The Learning and Knowledge Management (L&KM) function will facilitate learning and adaptation for improved performance. Capturing, documenting lessons and innovations through thematic studies and disseminating them through different media, will be an integral part of the L&KM function to enable sharing of information with different stakeholders.

Appendix 13: Contents of the Project Life File

Country strategy

- Country Strategy Note (approved PMD March 2016) to be presented at the IFAD Executive Board of September 2016

Mission documents

- Terms of Reference for first design mission (March-April 2016)
- Aide Memoire of first design mission
- Terms of Reference for final design mission (May-June 2016)
- Aide Memoire of the final design mission
- Programme design report –drafts for QE and QA reviews

Working papers (as prepared by the technical mission of October 2015)

- Agribusiness in Zimbabwe
- Irrigation in Zimbabwe
- Smallholder irrigation institutions
- Environment and climate change assessment
- Access to markets
- COSTAB file
- Economic and Financial Analysis Excel files

Environmental and social safeguards

- SECAP Review Note (Appendix 14 to programme design report)

Review documents

- OSC issues paper
- OSC minutes
- Minutes of CPMT review of draft concept note (November 2015)
- Minutes of CPMT review of first draft design report (May 2016)
- Panel report of Quality Enhancement review
- Minutes of CPMT review of second draft design report (June 2016)
- Minutes of Quality Assessment review

Reference documents

- Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZimASSET), October 2013
- Zimbabwe draft National Irrigation and Mechanisation Policy, September 2014
- SIRP Implementation Framework, MAMID, January 2016
- Assessment of the Zimbabwe Public Finance Management system for investment lending projects, World Bank, May 2015
- Alterra review on determinants of productivity and sustainability in irrigation schemes for smallholders, May 2013
- Performance Assessment of Irrigation and Drainage - ICID 2005
- Crop budget from AGRITEX, June 2016
- Department of irrigation national database of irrigation schemes
- Zimbabwe Comprehensive Africa Agriculture Development Programme (CAADP) Compact, November 2013
- Draft Zimbabwe Agriculture Investment Plan (ZAIP), January 2014
- Draft Irrigation and Mechanisation policy, September 2014

Appendix 14: SECAP review note

Social, Environmental, and Climate Assessment Procedures (SECAP) Review Note on Zimbabwe Smallholder Irrigation Revitalization Programme

I. Major landscape characteristics and issues

A. Socio-cultural context (*see Appendices 1 and 2 of the PDR for further details*)

1. Zimbabwe's population is estimated at 14.6 million people (2014) and projected to grow to reach 20.3 million people in 2020. The population living below income poverty line is estimated at 72.3 per cent with a multidimensional poverty index of 29.3 per cent. This is a significant deterioration from 2006 when 42.4 per cent of the population lived in extreme poverty. The 2015 Zimbabwe Poverty Atlas shows widespread poverty in rural areas where 76 per cent of people live below the poverty line. Poverty levels vary across districts and wards, with poverty prevalence rates reaching 85.7 per cent in Matabeleland North, and above 80 per cent in several rural districts of other provinces. However, while most development parameters indicated a downward trend when the country faced an extended period of hyperinflation, political instability, sanctions and drought, there is increasing evidence that Zimbabwe is stabilizing and moving toward a path to recovery.

2. Agriculture forms the basis of the direct and indirect livelihoods of over 70 per cent of Zimbabwe's population. The country's main staple crops are maize, sorghum and millet. The main export commodities are: tobacco, cotton, sugar, sunflowers, tea and banana. Livestock plays an important role in the agriculture of Zimbabwe, as a means of diversification of income as a way of reducing vulnerability and income risk. Almost all farmers own livestock with poultry and cattle are ranked as the most important livestock type. Most households in the rural areas are net food buyers: they do not produce enough food to meet their needs and as a consequence, have to rely on markets and other non-farm sources such as casual labour to bridge the food gap to the next season.

3. Zimbabwe scores relatively well in terms of gender equality, being ranked 8th out of 52 African countries on the Africa Gender Equality Index that measures gender differences across three dimensions: economic opportunities, human development, and law and institutions. Literacy rates for women are very high and comparable to men's: 94 per cent of women and 96 per cent of men are literate. According to the Zimbabwe Demographic and Health Survey, Zimbabwe's rural women make independent decisions or jointly with their husbands on the use cash income and health care. Despite the achievements, there are wide gender disparities with respect to access and control and ownership of economic resources and involvement in community decision making.

B. Natural resources

4. Zimbabwe is endowed with a large variety of natural resources, spanning wild life, forests, land, water and minerals. The country is divided into five *natural regions* on the basis of soil type, rainfall, temperature and other climatic factors. These regions represent the agricultural potential for the production of crops and livestock. About 64 per cent of the country is in the arid and semi-arid areas in Natural regions IV (450-650 mm) and V (<450 mm) and more than 60 per cent of the rural population lives in these semi-arid areas (figure 1). Soils in the semi-arid areas are generally acidic with low organic matter and nutrient contents.

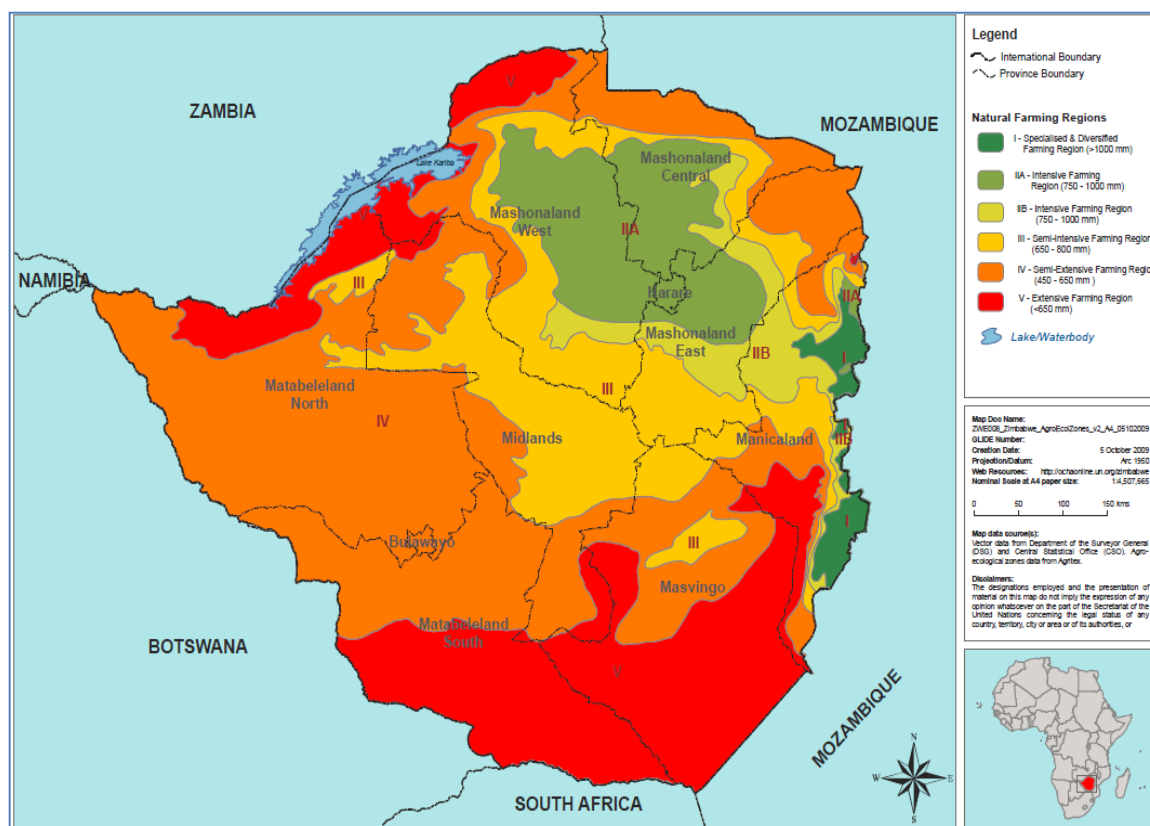


Figure 1: Agro-ecological zones of Zimbabwe; from Natural Region I (dark green) to Natural Region V (red)

5. With total renewable water resources per capita of 1,413 m³/year, Zimbabwe is experiencing periodic water shortages. As a result of the expected population increase, this figure is expected to drop below the absolute water scarcity threshold of 500 m³/year³³. To retain and regulate available rainfall, Zimbabwe has invested heavily in storage of water, most prominently through the Kariba dam, built in the 1950's on the Zambezi river to create the world's largest water reservoir. There are another 2,200 small and medium-sized dams in the country for urban water supply and irrigation. Many of these dams are however threatened by high levels of siltation. Still, utilization rates of dam storage capacity are very low across the country, mostly as a result of decreasing demand in agriculture following the economic downturn.

C. Climate

6. Zimbabwe has a highly variable climate both spatially and temporally. Rainfall is the most important climatic factor affecting crop production. Natural climate variability results from the El Niño-Southern Oscillation (ENSO), with a high correlation between El Nino events and droughts. Rainfall over southern Africa, including Zimbabwe is also associated with the movement of the Inter-Tropical Convergence Zone (ITCZ). Rainfall is confined to one distinct rainy season stretching from October to April and the rains are usually characterised by short duration, high intensity convective storms. Zimbabwe's mean annual precipitation (MAP) is about 657 mm/annum with a distinct gradient from the drier south to the wetter north of the country. The rainy season usually ends in March-April following the northward retreat of ITCZ and reduced heating of the continent. There is considerable inter-annual variability in both precipitation and runoff, ranging from 16 per cent on the northern plateau to 48 per cent in the Limpopo Valley. The length of the growing period in the country, especially in the semi-arid regions, is quite variable, ranging from 70-100 days in the South East

³³ FAO Aquastat, 2016

Lowveld (Natural Region V) to 100-135 days in the South East Middleveld, although it is less than 70 days in some of the areas of the Lowveld.

7. Zimbabwe is one of the 'hotspots' for climate change, with predicted increases in temperatures and rainfall variability, and increased probability of extreme events such as droughts and flash floods. Spatially averaged mean annual temperature has slightly increased by approximately 0.6 °C since the beginning of the 20th century, but the increase is substantially amplified in the last quarter of the century. Largest increase was observed in the south-eastern parts (significant increase up to 0.8 °C). In southern Africa, temperature has risen by over 0.5 °C in the last century and the warming trend that has been observed in southern Africa over the last few decades is correlated and consistent to the trends in global temperature increases over the past few decades. In Zimbabwe, three models used to analyze climate data also predict a temperature rise of between 2 and 4 °C by 2100.

8. No clear historic trend has been observed for annual rainfall amounts but a substantial year to year variability as well as some long-term periodicity is visible in the observations. Rainfall predictions for the longer term in Zimbabwe are uncertain. Different climate change models project change in precipitation in the range from -21 to +8 per cent by 2100. Research furthermore suggests that the in-season rainfall distribution is playing a stronger part in influencing crop yields than total annual rainfall. Crop moisture related problems are associated with intra-seasonal dry spells during critical stages of crop growth rather than cumulative rainfall.

9. Zimbabwe also has a history of severe floods driven by tropical cyclones, mainly linked to storm activity in the southern Indian Ocean and these usually occur after extended drought years (examples include Cyclone Lisette in 1997, and Cyclone Japhet in 2003). Droughts and floods have very high social as well as economic costs. Some 60 per cent of Zimbabweans are farmers or are engaged in agro-industry, and so the economic damage, impacts on livelihoods and human suffering associated with extreme weather events can be very high including water and food shortages, poor health outcomes, economic losses to subsistence and commercial farmers, and destruction of infrastructure.

D. Key Issues

10. Key social, environmental and climate issues identified as crucial for SGRP are:

- (a) Complex and volatile interactions between macro- and micro-economic, political, social, environmental and climate change factors that threaten smallholders' resilience;
- (b) Increasing population density combined with declining effective availability of natural resources as a result of climate change and poor natural resources management;
- (c) Insufficient capacity at village level to implement good natural resources management.

II. Potential social, environmental, and climate change impacts and risks

A. Key potential impacts

11. SGRP proposes to revitalize the smallholder irrigation sector, by rehabilitating existing schemes both in terms of infrastructure as well as capacity of farmers to manage the schemes, grow crops and sell them. Furthermore, the programme will invest in good natural resources management in the greater scheme area, the rainfed lands directly surrounding the scheme command area.

12. The following list details **potential social and environmental impacts** of the programme, and strategies to mitigate negative impacts. Most risks are minimized under SGRP as it focuses on rehabilitation of existing irrigation schemes. In some cases however, SGRP may expand the irrigated area to arable lands directly adjacent to current command areas, optimizing the water resources available from existing head works.

13. A prospectus will be developed for each scheme considered for financing under SGRP, which includes (i) a description of the proposed project; (ii) current status of the project; and (iii) a description of the known or predicted environmental impacts. Based on this prospectus, the Environmental Management Agency will determine the need for an ESIA, and the scope of that ESIA. Most schemes

are expected to require an ESIA; only in cases of limited construction activities (e.g. the repair of a pump) or only capacity building, an ESIA may not be required.

14. Once an ESIA has been carried out, an Environmental and Social Management Plan (ESMP) will be developed for the scheme, which proposes mitigation measures to potential impacts identified in the ESIA. Generic mitigation measures to those risks are identified below, and will be adjusted to suit the specific situation.ESIAs and ESMPs are reviewed by the Environmental Management Agency prior to investment by the programme, and sent back for revision if found inadequate.

15. **Expected positive impacts**

- (a) **Increased availability of water resources** for both irrigation farmers, through the revitalized irrigation scheme, as well as for rainfed farmers, through better water retention in soils, and livestock herders, through the provision of watering places.
- (b) **Increased income** for both irrigation farmers and rainfed farmers.
- (c) **Reduced vulnerability** to climate variability and extreme events such as droughts.
- (d) **Increased natural resource bases** in terms of vegetation (through grazing land management), soil cover (through good agricultural practices), water.
- (e) **Preserved or improved biodiversity** through community-based natural resources management.

16. **Potential negative impacts**

- (a) **Economic and physical resettlement** resulting from land re-allocations, removal of assets due to the construction of infrastructure.
 - Expected economic and physical resettlement is minor, as the project will mostly work on existing schemes. In case of expansion of schemes, an assessment of resettlement impacts will be made as part of the ESIA screening. The Programme will not engage in the revitalization of schemes where significant resettlement is expected.
- (b) **Land use conflicts** resulting from expansion of schemes, increase in value of irrigated land, reduced access to water.
 - Expected land use conflicts are minor as the project will mostly work on existing schemes. In case of expansion of schemes, a participatory approach will be taken to map current and future land users. After having been informed on and having agreed to the exact layout of the scheme, communities need to confirm Free, Prior and Informed Consent (FPIC) prior to investment by the programme.
- (c) **Physical cultural resources**, such as graveyards or religious sites, removed or damaged when expanding schemes.
 - Risk to physical cultural resources only exists in the case of expansion of schemes. The ESIA will detail any such resources present in the to be developed areas and provide alternatives to preserve them when possible.
- (d) **Reduction in quantity and quality of water resources available** for downstream water users, animals, and domestic use, as a result of increased abstraction for irrigation purposes.
 - For each scheme, a water balance will need to be conducted, determining the water resources available downstream once the scheme is functional. This water balance will need to take into account expected changes in water availability as a result of climate change. Allocation of water resources, through water permits, is done by the (sub-) catchment council. Obtaining a water permit will be a prerequisite for SIRP to invest in a scheme. Deterioration of water quality may occur as a result of increased use of

chemical inputs, which will be mitigated by providing farmers with training on use of inputs, and on environmentally safe handling and storage of agrochemicals.

- (e) **Soil erosion** due to vegetation removal, construction of infrastructure, inadequate drainage provision, transport of heavy materials.
 → Adoption of good agricultural practices (minimum tillage, intercropping, mulching) and investments in soil and water conservation will limit soil erosion. The ESMP will identify measures to limit erosion during construction through adequate siting of gravel pit areas, restoring and landscaping borrow pits after construction, planting of grasses and trees to re-vegetate construction sites.
- (f) **Drainage.** Poor drainage of irrigation schemes leads to waterlogging and salinization, rendering agricultural land unproductive and causing potential health issues.
 → SIRP will pay specific attention to drainage provisions in scheme designs. Adequate slopes and levelling will improve drainage, and drainage canals will be constructed where required. In case last-mile access roads are constructed, side drains need to be included.
- (g) **Loss of vegetation** due to land clearing for expansion of irrigated land.
 → There is limited risk of vegetation loss under SIRP, as most lands will be already used for crop production. In case vegetation needs to be cleared, these impacts need to be well studied in the ESIA. The actual clearing needs to be careful and well supervised to avoid unnecessary clearing.
- (h) **Wildlife disturbance** due to blocking of migration routes, reduced access to drinking water, noise and pollution during construction.
 → Limited wildlife disturbance is expected as a result of SIRP interventions. In case of expansion of schemes, the ESIA will identify if the proposed expansion blocks migration routes or limits access to water. Measures to mitigate those impacts, such as crossings or water ponds, will be included in the ESMP.
- (i) **Waterborne and water-related diseases**, such as malaria and bilharzia.
 → Scheme ESMPs will include measures for environmental control, such as removal of aquatic vegetation, proper drainage provisions, refilling of borrow pits, and prevention of contamination with faeces by providing sanitation facilities.

B. Climate change and adaptation

17. **Environmental impacts.** The predicted climate change scenarios will have widespread implications for the environmental integrity of Zimbabwe. It is predicted that the climatic and environmental factors that engender rapid soil erosion, such as high temperatures, scant vegetation cover, frequent bouts of droughts, intense rainstorms, and strong winds; will intensify and result in the acceleration of soil erosion and desertification. This increases the need for widespread adoption of soil and water conservation measures.

18. Closely related to soil loss is the loss of biodiversity which plays an important role in the livelihoods of Zimbabweans. Zimbabwe is endowed with a rich biodiversity, and nature-based tourism has been one of the most important sectors of the economy. Even though tourism rates have plummeted by more than 75 per cent since 2000, it continues to be a main economic driver. Increased soil erosion which is an adjunct to climate change will lead to increases in the loss of both plant and animal species if not abated through the promotion of improved land management practices. Indications are that increases in temperatures over time will lead to rapid environmental changes which most species might not be able to adapt to. While this may not directly affect SIRP, it is important the programme does not further exacerbate the situation.

19. Rural communities in Zimbabwe depend on biomass fuels for energy supplies. The resilience and regenerative capacity of forest resources are negatively affected by extreme climatic conditions. A

decrease in forestry resources negatively impacts on the stability of energy supplies for both cooking and heating. Such natural resource issues can be best dealt with through a combination of community-level planning and byelaws, which will be stimulated under SGRP.

20. **Socio-economic impacts.** Agriculture is the mainstay of the Zimbabwean economy and more than 60 per cent of the economically active population depends on it for their livelihood. The widespread soil and environmental degeneration in Zimbabwe is reducing both the extent and productivity of agricultural land, which poses a serious threat to rural livelihoods. Maize (the country's staple food) yields are expected to decrease by up to 30 per cent and even more in worst case scenarios by 2030 already. The area suitable for maize production is projected to further decrease by 2080. Probability of years in which growing season is likely to fail in future due to drought is projected to be as high as 100 per cent in some parts of the southern region. The reduction in yields is expected to be further exacerbated by droughts and increasing maximum temperatures that create conditions for increased incidence of diseases and pests

21. Rangelands occupy significant land area in Zimbabwe and provide livelihoods for a large proportion of the population. Climate change will change pasture productivity, for example, the growth of grass is inhibited by erratic rainfall, and invasive species may proliferate under extreme climatic conditions. One of the most serious environmental challenges affecting rangelands is that of veld fires resulting in massive loss of grasslands and the lowering of the ability of ecosystems to provide goods and services to society and the environment.

22. Extreme weather events which are predicted under the various climate change scenarios will also adversely impact livestock productivity. Increased rainfall amounts and higher temperatures will result in increased incidents of diseases such as foot rot and the spread of pests, especially ticks, while droughts will result in degraded and unproductive rangelands. The net effect of the increased incidences of drought and wet periods will be increased livestock mortality and decreased quality of livestock products unless interventions such as improved veterinary services, climate smart livestock pens, water use efficiency measures and better drainage systems are introduced.

23. The increases in soil erosion, reductions in availability of water and reduced crop and livestock production will all combine to adversely impact human health and security in Zimbabwe. Food shortages will increase the vulnerability of the poor to diseases associated with poor nutrition. Increased incidence of drought and heavy short duration rainfall with accompanying rising temperatures will introduce new disease vectors such as mosquitoes into regions of the country where they were previously uncommon. This will have direct implications for people's health.

III. Environmental and social category

24. The environmental and social classification of SGRP is **Category B**, as the focus of the investment is primarily on the rehabilitation of existing under-performing irrigation schemes. The programme may have limited adverse social impacts on human populations or environmentally significant areas (see section II A), but these risks will be minimized through a solid scheme selection and scheme design process as well as through investments in the greater scheme area. Any remaining risks will be identified in the Environmental and Social Impact Assessment (ESIA) and remedied by scheme-specific mitigation measures agreed upon in the Environmental and Social Management Plan (ESMP) for each scheme.

IV. Climate risk category

25. The climate risk classification of SGRP is **Moderate**. Although Zimbabwe's rural population is at high risk due to the climate change impacts as identified in section II B, the interventions proposed under SGRP are quintessentially designed to minimize those impacts. Revitalized irrigated agriculture is a key adaptation pathway to respond to increasing (intra-) seasonal variability of water supply. Water use efficiency will be improved by reducing conveyance losses and by training farmers on irrigation water management and water application methods. When designing extensions to existing schemes, increased crop water requirements due to increased evapotranspiration will be taking into

account to determine potential irrigable area. Finally, interventions in the greater scheme area aim to restore the natural resource base and use it in a more sustainable way, thereby increasing resilience to shocks.

V. Recommended features of project design and implementation

A. Mitigation measures

26. Mitigation measures are discussed in section II A.

B. Multi-benefit approaches

27. Multi-benefit approaches are interwoven into the project design. Irrigation schemes will be designed/updated in a way that takes into account diverse water users (irrigation, domestic, animals), maintaining or improving access to water for all users. Investments in the greater scheme area are multi-benefit in terms of economic development and natural resource conservation, reduction of green-house gasses, protection of wildlife and more general maintaining and promoting biodiversity. Increased overall water use efficiency will have positive economic, social and environmental effects.

C. Incentives for good practices

28. The main incentive for targeted farmers to adopt good practices, in terms of adapting to climate change and natural resources management, is the premise that good practices introduced by the project contribute to better livelihoods in terms of income and health. Introduction of good practices will be accompanied with sufficient capacity building, both in terms of training as well as material and tools, to ensure farmers are enabled to adopt these new practices.

D. Participatory processes

29. The revitalization of each scheme will start with a participatory diagnostic, which looks beyond the technical aspects of the scheme and includes social, economic and environmental factors. Based on this diagnostic, farmers will be able to influence the design of interventions for their scheme. In the greater scheme area, interventions will also planned through participatory methods. Existing mechanisms to manage natural resources in the village will be assessed jointly by community members and experts, natural resources will be mapped and interventions will be jointly identified.

VI. Analysis of alternatives

30. In terms of scheme rehabilitation, analysis of alternatives will be done as part of the preparatory studies (pre-feasibility and feasibility studies). At this stage, diverse possibilities of water supply methods, conveyance means, scheme layout, and irrigation techniques will be discussed and agreed upon between the project, design consultants and the community. The ESIA will also identify alternatives in terms of managing social and environmental impact.

31. At programme level, an important consideration of alternatives is carried out during scheme selection. Criteria are employed to select schemes that show the highest viability in terms of social and economic impact.

VII. Institutional analysis

A. Institutional framework

32. Although Zimbabwe has a robust natural resources management framework, the over-exploitation of natural resources has led to severe land and environmental degradation in most parts of the country. It is an explicit goal of the Intended Nationally Determined Contribution (INDC) and the current draft Comprehensive Agricultural Policy Framework 2012-2032 (CAPF) to improve compatibility of agriculture and the environment through more efficient and sustainable utilization, and the effective management and conservation of resources. The Constitution of Zimbabwe (2013) gives every person environmental rights that include the right:

- (a) To an environment that is not harmful to their health or well-being; and

- (b) To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation;
- (c) Promote conservation; and
- (d) Secure ecologically sustainable development and use of natural resources while promoting economic and social development.

The Environmental Management Act of 2002 recognizes environmental rights as human rights.

33. In the past there has been little emphasis on environmental issues and environmental impact assessment (EPA) in the irrigation sector in Zimbabwe. The Environmental Management Agency, a parastatal under the Ministry of Environment, Water and Climate (MEWC), is the statutory body responsible for ensuring the sustainable use of natural resources and the protection of the environment and coming up with plans to prevent pollution and environmental degradation. EMA has two operational departments which are the Environmental Protection (EP) and the Environmental Management Services (EMS). Environmental Planning & Monitoring Unit under the EMS department is responsible for implementation of the EIA: Environmental Impact Assessment. Institutional and legislative framework of Environmental and Social Considerations (ESC) in Zimbabwe are summarized Table 1.

Table 1: Institutional and Legislative Framework of Environmental and Social Considerations in Zimbabwe

Category	Organizations concerned	Laws, and Articles concerned
EIA	Ministry of Environment, Water, and Climate Ministry of Health and Child Care EMA: Environmental Management Agency Environmental Planning and Monitoring Unit	Environmental Management Act CAP 20:27 PART XI Environmental Impact Assessment, Audit, and Monitoring of Projects PART XVI General "First Schedule"
Land	Minister of Local Government, Public Works and National Housing Ministry of Lands and Rural Resettlement RDC: Rural District Councils	Communal Land Act CAP 20:04 Rural District Council Act CAP 29:13
Water use fee	Ministry of Environment, Water, and Climate Ministry of Agriculture, Mechanization, and Irrigation Development ZINWA: Zimbabwe National Water Authority Mazowe Catchment Council ZESA: Zimbabwe Electric Supply Authority	Water Act CAP 20:24

Source: Environmental Management Act CAP 20:27, Communal Land Act CAP 20:04, Water Act CAP 20:24

34. A flowchart of the ESIA process is included in Annex I.

B. Capacity building

35. Building capacity on mainstreaming social and environmental considerations is crucial to the long-term impact of SIRP's interventions. The project coordination unit will include a dedicated Environmental Coordinator who will oversee the correct implementation of ESIA procedures and lead the monitoring of ESMP implementation in close coordination with the Environmental Management Agency. Training on ESIA procedures, and more generally SECAP elements of the SIRP design, will be conducted during the programme start-up workshop. Further on-the-job training to project staff and implementers will be provided by the Environmental Coordinator throughout the lifetime of the programme.

C. Additional funding

36. Possibilities of additional funding for environment and climate change adaptation related activities may be pursued during programme implementation. High potential exists to upscale the programme's interventions in sustainable land management and link this to sub-catchment management and river system planning, lifting the programme to a landscape-approach. Further co-

financing options include the promotion and scaling-up of alternative energy sources, e.g. solar-powered irrigation.

VIII. Monitoring and Evaluation

37. SIRP will put considerable efforts to achieving robust monitoring and evaluation (see PDR for further details). It will also support the development of a management information system of irrigation schemes, capturing their location, environmental context, interventions carried out, planned and needed, amongst others. Communities will also be empowered to carry out their own monitoring and evaluation of interventions in the scheme area and the adjacent rainfed lands.

XI. Budgetary resources and schedule

38. Budget related to implementation of SECAP under SIRP is mainstreamed into the project design and includes:

- (a) Development of ESIA's and ESMPs (under sub-component 1.1, as part of feasibility studies)
- (b) Implementation of ESMPs (under sub-component 1.1, as part of the investment costs)
- (c) Monitoring of implementation of ESMPs through fees paid to EMA.

X. Record of consultations

39. The design mission has met and discussed with a wide variety of stakeholders, including farmer-based organizations and women's groups. A full list of people and institutions consulted can be found in the project life file, in the both design missions' aide memoire.

Annex 1 – ESIA flowchart

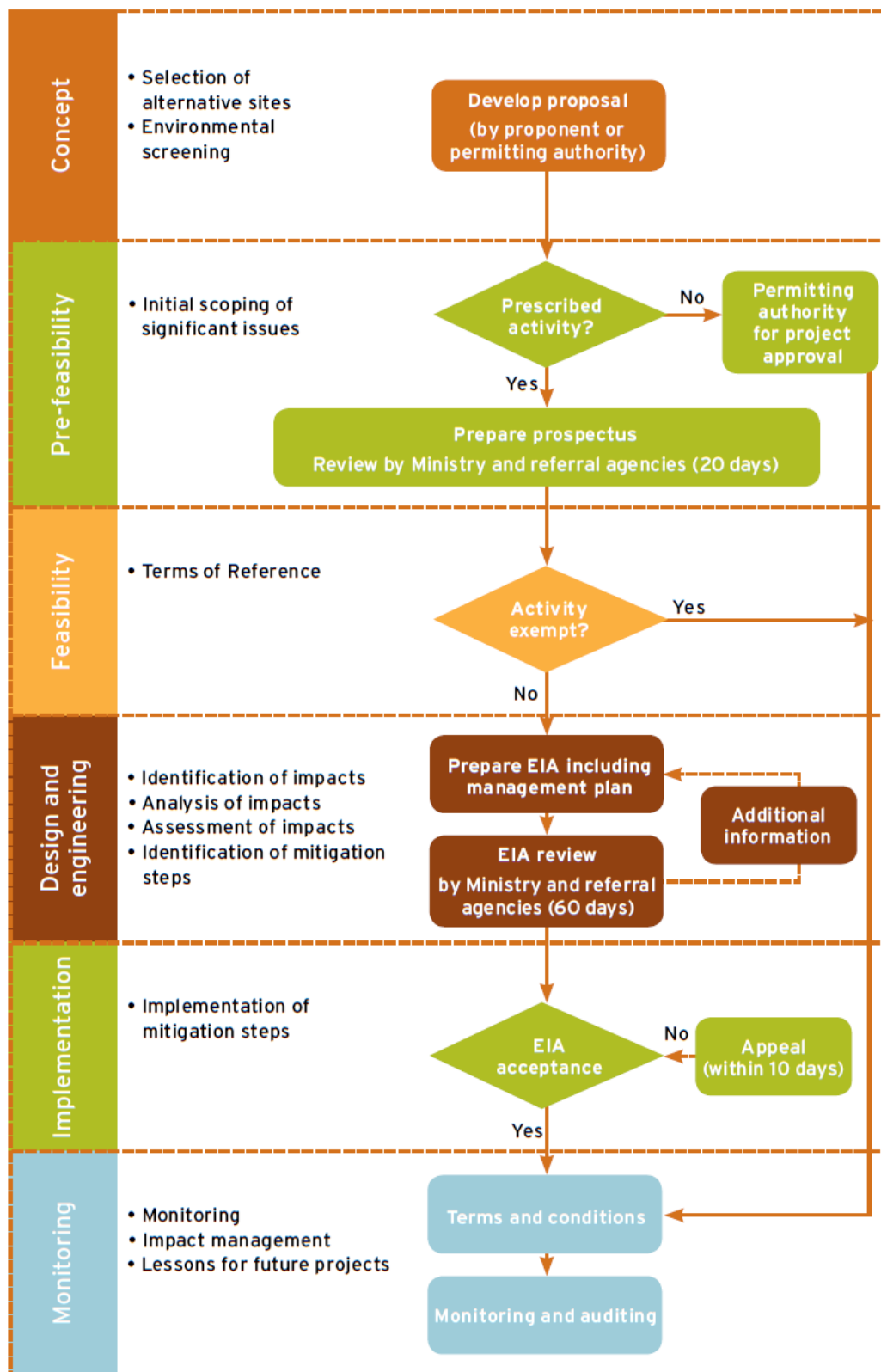


Figure 2: ESIA flow chart. Source: SADC Environmental Legislation Handbook 2012