

Bhutan

Commercial Agriculture and Resilient Livelihoods Enhancement Programme Supervision Report

Mission Dates: 1 June - 20 August 2020

Document Date: 28/08/2020

Project No. 1100001739

Report No. 5472-BT

Asia and the Pacific Division
Programme Management Department

Abbreviations and Acronyms

<u>AI</u>	<u>Artificial Insemination</u>
<u>ARDC</u>	<u>Agriculture Research and Development Centre</u>
<u>AWPB</u>	<u>Annual Work Planning and Budgeting</u>
<u>CAHW</u>	<u>Community Animal Health Worker</u>
<u>CAIT</u>	<u>Community-Based Artificial Insemination Technician</u>
<u>CSA</u>	<u>Climate Smart Agriculture</u>
<u>CSV</u>	<u>Climate Smart Village</u>
<u>DLO</u>	<u>District Livestock Officer</u>
<u>DoA</u>	<u>Department of Agriculture</u>
<u>FGs</u>	<u>Farmers' Groups</u>
<u>FY</u>	<u>Financial Year</u>
<u>HMAP</u>	<u>Herbal, Medicinal and Aromatic Plants</u>
<u>LUC</u>	<u>Land Use Certificate</u>
<u>MoAF</u>	<u>Ministry of Agriculture and Forests</u>
<u>MSP</u>	<u>Multi-Stakeholder Platform</u>
<u>NCWC</u>	<u>National Council for Women and Children</u>
<u>NGO</u>	<u>Non-Governmental Organization</u>
<u>OPM</u>	<u>Office of Programme Management</u>
<u>RAMCO</u>	<u>Regional Agricultural Marketing Cooperative Office</u>
<u>RLDC</u>	<u>Regional Livestock Development Centre</u>
<u>SJI</u>	<u>Samdrup Jongkhar Initiative</u>
<u>WUA</u>	<u>Water Users Association</u>

A. Project Overview

Region:	Asia and the Pacific Division	Project at Risk Status:	Not at risk
Country:	Bhutan	Environmental and Social Category:	B
Project Name:	Commercial Agriculture and Resilient Livelihoods Enhancement Programme	Climate Risk Classification:	2
Project ID:	1100001739	Executing Institution:	Ministry of Agriculture and Forests
Project Type:	Storage, processing and marketing	Implementing Institutions:	Food Corporation of Bhutan Ltd
CPM:	...		
Project Director:	Dorji Wangchuk		
Project Area:	Lhuentse, Mongar, Pergatshel, Samdrup Jongkhar, Trashiyangtse and Trashigang		

Approval Date:	07/09/2015	Last audit receipt:	18/08/2020
Signing Date:	11/12/2015	Date of Last SIS Mission:	20/08/2020
Entry into Force Date:	11/12/2015	Number of SIS Missions:	10
Available for Disbursement Date:	01/03/2016	Number of extensions:	1
First Disbursement Date:	04/03/2016	Effectiveness lag:	3 months
MTR Date:	24/11/2018		
Original Completion Date:	31/12/2022		
Current Completion Date:	31/12/2025		
Financial Closure:	not available yet		

Project total financing

IFAD Financing breakdown	IFAD	\$10,281,000
	Asia and the Pacific Division	\$1,000,000
	Asia and the Pacific Division	\$1,060,596
	IFAD	\$8,273,429
	ASAP Trust Fund	\$5,022,615
Domestic Financing breakdown	Private sector local	\$407,000
	National Government	\$5,773,849
	Beneficiaries Cash	\$2,324,000
	National Government Cash	\$766,000
	Beneficiaries	\$658,805
	Food Corporation of Bhutan Ltd	\$4,802,410
Co-financing breakdown,	To be determined	\$0
Project total financing:		\$40,369,704

Current Mission

Mission Dates:	1 June - 20 August 2020
Days in the field:	Remote mission

Mission composition: Louise McDonald, Country Director and Mission Leader, Michael Hamp, Inclusive Rural Finance Specialist, Eric Patrick, Climate Change Adaption Specialist, Jens Evald Kristensen, Agriculture Specialist, Agribusiness and value chain approaches, Harold Liversage, Land Tenure Specialist, Mani Ram Moktan, Environmental Specialist, Udyog Subedii, Market and Value Chain Specialist, Le Chi Dung, Financial Management Specialist, Vedamurthy Angadi, Procurement Specialist, Mehry Ismaili, M&E and KM, Esha Singh, Country Technical Analyst, Sashwati Mishra, Gender and Social Inclusion Analyst, Elizabeth Ssendiwala, Senior Regional Technical Specialist, Institutions

Field sites visited: No field visits. The mission was conducted remotely.

B. Overall Assessment

Key SIS Indicator #1	Ø	Rating	Key SIS Indicator #2	Ø	Rating
Likelihood of Achieving the Development Objective		4	Assessment of the Overall Implementation Performance		4

Effectiveness and Developmental Focus	4	Project Management	4
Effectiveness	4	Quality of Project Management	4
Targeting and Outreach	4	Knowledge Management	5
Gender equality & women's participation	4	Value for Money	4
Agricultural Productivity	5	Coherence between AWPB and Implementation	3
Nutrition	N/A	Performance of M&E System	4
Adaptation to Climate Change	4	Requirements of Social, Environmental and Climate Assessment Procedures (SECAP)	4

Sustainability and Scaling-up	4	Financial Management and Execution	4
Institutions and Policy Engagement	4	Acceptable Disbursement Rate	4
Partnership-building	4	Quality of Financial Management	4
Human and Social Capital and Empowerment	4	Quality and Timeliness of Audit	4
Quality of Beneficiary Participation	4	Counterparts Funds	5
Responsiveness of Service Providers	4	Compliance with Loan Covenants	4
Environment and Natural Resource Management	4	Procurement	4
Exit Strategy	4		
Potential for Scaling-up	4		

Relevance	5
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C. Mission Objectives and Key Conclusions

Background and Main Objective of the Mission

CARLEP aims to facilitate the transformation of a subsistence-based rural agricultural economy into a sustainable value chain and market driven productive sector by promoting climate smart approaches in agriculture, engaging private sector and strengthening capacities of communities and local institutions. CARLEP targets selected Gewogs in six eastern Dzongkhags (Lhuentse, Mongar, Pemagatshel, Samdrup Jongkhar, Trashiyangtse and Trashigang) with high production and marketing potential in selected value chains. The programme benefits 28,975 smallholder farmer households (HH), of which 7,115 HH directly benefit from vegetable and dairy value chains. The objective of CARLEP is “increased returns to smallholder farmers through climate resilient production of crops and livestock in nationally organized value chains and marketing systems.” The total programme cost of US\$30.357 million is financed over seven years and is made up of the following financing: IFAD (US\$19.25 million), and the Adaptation for Smallholder Agriculture Programme (ASAP) (US\$5 million); Royal Government of Bhutan (RGoB) (US\$5.64 million); Food Corporation of Bhutan Limited (FCBL) (US\$4.80 million); and beneficiaries (US\$0.66 million). CARLEP became effective on 11 December 2015 and will be completed – as a result of the approval of the Additional Financing (AF) - in December 2025. The CARLEP-AF was approved to cover the original financing gap, and to expand the outreach approach and to scale up outputs.

Objectives of the mission

The main objectives of the mission were the following: a) undertake an in-depth analysis of the macro-economic situation, activities in the specific project areas in the respective Dzongkhags and Geogs, and relevant policy environment to understand the impact of the COVID-19 pandemic and potential measures that CARLEP-AF can take to mitigate the food and rural economic crisis in the project area; and b) in-depth review of recent experiences of IFAD and other partners' work in the agriculture and rural development sector, particularly in the agribusiness sector focused on poverty reduction.

Due to the remote nature of the mission, the start-up, implementation support and supervision used information / data collected by the Office of Project Management (OPM), self-assessment, and insights of national consultants.

The start-up of the CARLEP-AF was highly relevant in light of the COVID-19 pandemic and the pressures its exerting on domestic food production, food and nutrition security, natural resource management and climate resilience for increasing sustainability and import substitution for self-sufficiency.

CARLEP is continuing implementation (although some areas were impacted negatively due to COVID-19) and is moving to a whole village approach, promoting multi sector cooperatives/federations and transforming farming into a sustainable business. To this end, key issues to be addressed are the following: i) identification of key crops/vegetables for meeting market demand (locally and internationally); ii) production priorities to be determined by soil analysis and rejuvenation; iii) value addition in rural areas; and iv) climate appropriate infrastructure. Another key aspect is the identification of fallow lands for leasing. A legal agreement that is beneficial to the owner/leaser as well as the farmer is required, so that farmers will have security of investments. Likewise, agricultural land needs to be protected from conversion to urban development.

Key Mission Agreements and Conclusions

This was the second supervision after the 2018 Mid-Term Review (MTR) and was carried out in conjunction with the start-up of the Additional Financing for CARLEP. Eight months after entry into force of CARLEP-AF in December 2019, the programme has shown good progress in the following areas: food security has improved and diversification has commenced; the number of lead farmers and members in farmers' groups (FG) have doubled and they have trained 60 farmers for model farms (100% above target); the dairy sector has continued to grow with production increases in dairy products as well as in fodder production; and vegetable production has been intensified and expanded with training of farmers exceeding 163% above target; and time saving and drudgery indices for women have improved. CARLEP is also supporting RGoB's development of its National 2040 Renewable Natural Resources (RNR) Strategy. It is also clear that despite OPM's small size, it is diligent about following IFAD procedures on Annual Work Plan and Budgeting (AWPB) and Financial Management.

Building on these positive signals, the mission highlights that additional work is needed in the following areas: access to finance; technical support to agricultural production, and marketing and food security. The COVID-19 pandemic has definitely caused delays in implementing agreed activities, nonetheless CARLEP-AF now offers an opportunity to move to a whole village approach; development of federations of FG; promoting a more business-like approach to farming, including training on financial literacy; and continuing to strengthen the focus on climate-smart agriculture at the village level.

The following **challenges**, exacerbated by the COVID-19 crisis, were identified by the mission that require keen attention:

- Production issues: holistic support to soil fertility improvements and identification of neighbouring villages where the climate smart village (CSV) model can be rolled out to are necessary for achieving sustainable production at scale;
- Self-sufficiency: for achieving food and nutrition security, the production of organic fertilizer, efficient irrigation

- infrastructure, climate resilience and environmental management, and seed production is necessary;
- Access to finance: farmers and rural entrepreneurs should be encouraged to use the range of existing financial products and services. Ease of access to existing agricultural finance, and provision of financial education will greatly assist in facilitating smart borrowing. Use of Priority Sector Lending loans and mobile money options would allow efficient outreach to remote rural areas for investments in new projects as well as in business expansion, particularly to scale-up dairy farming; and
- Developing market linkages: through group strengthening and increasing the leadership role of women in FGs and cooperatives, better market linkages can be achieved.

With regard to CARLEP-AF, the advance allocation has not been disbursed since the project entered into force. Several preparatory activities were successfully undertaken such as the completion of the Programme Implementation Manual (PIM) and operational guidelines (e.g. on Matching Grant Scheme). The OPM is fully staffed in all key positions. The logical framework has been reviewed and updated and the M&E system is gradually been established. The programme is overall on-track and consistent with all main loan covenants.

Overall cumulative disbursement and AWPB execution has been good and 69.14% for IFAD Loan and Grant has been disbursed. Delays have been experienced due to the COVID-19 pandemic and issues associated with the appropriation of a project budget for 2020.

On programme and financial management, priority over the remaining month should be given to the immediate finalization of the AWPB 2020, completion of the recruitment of project staff at Dzongkhag level, finalization of the M&E system, and clarification of the procedures for monitoring the allocation of matching grants.

Key recommendations include:

- A Management Information System (MIS) needs to be urgently deployed with direct links to Government systems for Financial Management, so that the project can have real time financial information. Systematic M&E and Knowledge Management are required to ensure that capacities are built at all levels as well as to better monitor project activities;
- Develop a youth engagement plan for scaling up youth farm cooperatives
- Develop a list of participating financial institutions to sign a MOA with CARLEP-AF to provide financial support to beneficiaries including terms and conditions. Guide CARLEP target group to Priority Sector Lending (PSL) scheme and systematically monitor the use of PSL loans together with the matching grant scheme
- Prepare a road map for supporting the revitalisation of organic farming including: (i) an awareness campaign; (ii) affordable certification system; (iii) soil sampling and analyses.
- Map upstream springs and rivers for supply of irrigation water
- Develop investment opportunities for HMAP and domestic and export markets including direct linkage to buyers
- Develop a strategy and guidelines for identifying and allocating lands for young farmers
- *As a Priority:* Deploy/recruit/contract a full time Procurement Specialist at OPM to manage and coordinate all procurement activities. Tendering for high value procurement activities should be centralized at OPM;
- Strengthen Farmers Organisations/cooperatives/enterprises into fully operational legal entities.

D. Overview and Project Progress

Assessing the programme for its effectiveness at this stage in implementation is limited to the self-assessment by OPM and remote consultation with the key stakeholders. There are a number of meaningful outputs achieved as detailed by components and outcomes below.

The three programme components, in addition to programme management are interlinked and implemented in close coordination and phased across the programme lifetime: Component 1) Market-led sustainable agriculture production leads to sustainable increase in resilient agricultural production by rural households; Component 2) Value chain development and marketing focuses on a new approach to value chain financing, instituting organised value chains and marketing systems by establishing networks of farmer groups to facilitate marketing of vegetable and dairy products; and Component 3) Institutional support and policy development aims at strengthening agricultural institutions and policies for improved and resilient agricultural and marketing practices.

The AF phase introduces new elements under the three components of the programme which aligns with the RGoB's 12th five year plan. In addition to the two selected value chains of the original programme (vegetables and dairy), three additional value chains (fruit, HMAPs, aquaculture) and two additional activities (commercial agriculture for youth, and off-farm youth enterprises) are included in the additional financing phase.

Component 1: Market-led sustainable agricultural production

Outcome 1: Community-based resilient agricultural production increased

Output 1.1: Increased production resilience, diversification and innovation

Climate smart villages (CSVs). Progress has been made in terms of adoption of new climate smart crop varieties. Overall, the area cropped increased over the years, both for area under irrigation and rainfed land. Sprinkler irrigation has been adopted by an average of 16% of the HHs and soil management by cover crops by 26% of the HHs. Six new CSVs have been included, bringing the total to 12. They are all moving towards the adoption of improved planting material.

Planting material. Family nutrition was promoted across 11 CSVs by establishing home gardens. Irrigated fruit orchards were promoted in 7 CSVs, benefiting 97 HH with 2,646 grafted temperate fruit trees/nuts, covering 22.5 acres of land. The remaining 5 CSVs will be supported with establishment of sub-tropical orchards during the next 6 months. To ensure availability of quality vegetable seeds, 19 farmers have been supported to multiply different vegetable seeds, and are linked to Trashiyangtse National Seed Centre for sale of seeds.

Improved food security. To improve food security, support was provided to 66 acres of upland rice, 17 acres of spring rice and maize seed for 77.5 acres, benefiting 17 and 103 HH respectively. Photovoltaic fencing, cement for water tanks for rainwater harvesting and maize deshelling equipment have been procured. Training activities have been deferred until COVID-19 related restrictions are lifted.

Based on CARLEP-AF documentation, support is still needed to ensure long-term sustainability, including: (i) holistic support to soil fertility improvements (particularly for organic production); and (ii) identification of neighbouring villages, where the CSV model can be rolled out for broadening the scale of production.

Crop diversification. Scaling up crop diversification was planned for 931 acres and to date 739 acres have been planted (79%). The new crops include maize, legumes (Adzuki beans, soybean, and rajma beans), quinoa and sweet buckwheat. CARLEP supports 151 (almost eight times above target) mushroom enterprises (oyster and shiitake). The programme supported upscaling of upland rice with 66 HH (230% above target).

Climate resilient agriculture. Of the two planned trainings in permaculture, only one course was conducted, with 25 farmers. The remaining trainings will be undertaken once the COVID-19 restrictions are lifted.

CARLEP-AF will support the **Agriculture Research and Development Centre (ARDC)** in screening various crop varieties for identifying those that respond well to organic and bio fertilizer as well as having strong resistance to pests and diseases.

Lead Farmers and Model Farms were advanced through ARDC training 60 Lead Farmers (50% above target). In turn, Lead Farmers trained 60 farmers (100% above target) to expand the model farms. Of the planned new model farms, 45 (75% of target) received support to date. In addition, 11 (59%) model farms received input support. Strong emphasis will be put on developing Lead Farmers in conjunction with application of information and communication technology (AICT) via smartphone mobile app.

Output 1.2: Vegetable production intensified and expanded

Training on improved production technologies was provided to 328 (163% above target) farmers. A similar picture is unfolding for training in nursery management where 168 farmers benefited i.e. 76% above target. Commercial seed production with input support was extended to 482 acres (3% above target). Only 13 acres (39% of target) were covered under production inputs support of vegetable seeds due to COVID-19. For protected agriculture, 165 green houses were financed (65% above target). Capacity building activities for 45 FG/cooperatives as planned for 2020 has not been completed.

The mission finds that support is still needed in the following areas: (i) holistic support to soil fertility improvements (ii) identify new villages where the CSV model can be rolled out allowing for scaling up production. Furthermore, ARDC needs to develop new crop varieties that respond well to organic and bio fertilizer, and with strong traits of resistance against pest and diseases. Also, lead farmer outreach can be expanded in conjunction with AICT via smartphone mobile app. In addition, vertical hydroponic production systems with movable gutters should be introduced for increasing the area utilised for production; this could also reduce the payback period and increase economic returns to farmers. The strengthening of vegetable production groups/cooperatives is also necessary.

Under CARLEP-AF assistance will be provided to introduce protected agriculture using vertical production system with hydroponic irrigation and movable gutter increasing the area utilised for production and reducing the payback period considerable and increasing the return to farmers.

Output 1.3: Dairy Production Intensified and Expansion

Progress beyond annual target, albeit partially, has been made in the area of breeding; specifically in terms of establishing Community-based Artificial Insemination Technicians (CAIT), trained CAIT-Community Animal Health Workers (CAHW) in the use of AI kits, established AI centres, initiated oestrus synchronization and use of sex sorted semen allowing for a more even milk production and breeding, and procurement of breeding bulls.

Breeding. Nine breeding bulls (80% above target), 2,000 straws of sexed semen, and 4 (33% above target) LN2 cans have been procured. Eight AI centres have been established (60% above target), and 24 (20% above target) CAIT-CAHW

trained on the use of AI kits. The programme has initiated oestrus synchronization and used sex sorted semen for 1,567 animals (168% above target).

Stables and milking cows. Furthermore, a total of 487 open type stables were constructed (43% above target) and 284 improved dairy cows (30% subsidy) were procured (42% above target).

Fodder development. Fodder development included provision of indigenous fodder, pasture/legume forage, crop residue enrichment, planting of perennial fodder crops in fallow and marginal land, fodder tree plantation in fallow land, winter fodder production, and planting of fodder slips. The programme financed (60% of costs) chaff cutters, pasture land fencing and hydroponic fodder. The following are the specific results for the fodder development subcomponent: (i) indigenous germplasm provided to 48 HH (92% above target); (ii) 90 acres have been brought under pasture/legume cultivation (90% above target); (iii) 117 MT (78% above target) of crop residue enriched; (iv) 432 acres of perennial fodder crops established in fallow and marginal lands (96% above target); (v) fodder tree planted in fallow land covering 107 acres (71% AT); (vi) winter fodder production on 714 acres (110% above target); (vii) 16 acres planted with fodder slips (39% above target); (viii) 391 chaff cutters procured (33% above target); (ix) only 40% of the 50 targeted HH were provided with fencing; (x) hydroponic fodder benefited 20 HH (40% above target); (xi) training/demonstration on total mixed ration will commence when the COVID-19 restrictions have been lifted.

Farmer training. Other trainings were conducted on hygienic milk production, dairy management and CAIT for youth groups under the Land Use Certification (LUC) scheme, and bio-gas installation and operation and maintenance. The following are the numbers of farmers and youth who were trained: 316 farmers (49% above target) were trained in hygienic milk production; (ii) 642 (57% above target) trained in dairy management; and (iii) 5 (100% above target) CAIT for youth groups under LUC.

Milk handling and processing. Eight groups (100% AT) were supported with processing equipment and 160 milk cans (146% AT) were distributed. The growing demand for dairy products in both domestic and export markets – mainly India - can be attributed to CARLEP's success in supporting the upstream and downstream activities of the dairy value chain.

Poultry and apiculture. CARLEP supported egg production for 96 HH (55% above target), and training on beekeeping and beehives for 31 HH (19% above target) were provided.

Bio gas installation. 222 farmers were trained in bio-gas operations and maintenance (217% above target) and currently, 98 farmers (61% above target) have benefited from biogas units. Under CARLEP-AF the National Soil Service Centre (NSSC) will be engaged to explore the enhancement of bio-gas slurry with other organic matter for making a composite fertiliser.

Under CARLEP-AF the National Soil Service Centre (NSSC) will be supported to explore the multiple use of bio-gas slurry as a fertiliser. The programme will continue to support viable processing enterprises including the expansion of Koufuku International Limited (KIL) and utilisation of whey, which have many economic uses.

Poultry and egg production have been promoted and beekeeping is supported through training and provision of beehives to HH. Output 1.4: Productive infrastructure

Renovation of irrigation schemes only reached 190 acres (27% of target) and 5.2 km (10%) canals completed, which will be completed as soon as the COVID-19 situation permits. Development of the dryland irrigation network was completed for 303 acres (61% of target) and drip/sprinkler irrigation (115 sets (94% above target) were procured; the remaining will follow as soon as possible. Spring water harvesting has been completed for only one out of 300 targeted HH, while rainwater harvest demonstrations were only conducted for 11 HH.

Under CARLEP-AF the use of submerged drip irrigation for vegetable and fruit orchards will be tested.

Furthermore, CARLEP-AF has five additional outputs.

CARLEP-AF Output 1.5: Fruit production intensified and expanded

The programme will promote the production of walnut, pecan nut, hazelnut, avocado, kiwi, passion fruit and persimmon.

CARLEP-AF Output 1.6: Herbal, medicinal and aromatic plants (HMAP) collection/cultivation intensified and expanded sustainably

The programme will assist the Ministry of Agriculture and Forests (MoAF) to review and/or prepare simple rules and guidelines for villagers, who wish to engage in the collection of non-timber forest products (NTFP), particularly HMAP.

CARLEP-AF Output 1.7: Aquaculture production introduced

The programme will support the establishment of a trout hatchery within the programme area, and provide support to young entrepreneur's interested in aquaculture.

CARLEP-AF Output 1.8: Commercial agriculture for youth

The RGoB is presently implementing a programme to attract rural youth to invest in commercial agriculture as part of the Land Use Certificate (LUC) scheme and CARLEP will expand this activity. **Speciality crops** are slowly reaching economies of scale warranting support for marketing. Two (100% above target) processing facilities for youth under the LUC have been established and 5 youth groups were equipped under LUC with small processing equipment.

CARLEP-AF Output 1.9: Off-farm youth enterprises

The programme will initiate an off-farm enterprise venture, particularly for the youth.

Component 2: Value Chain Development and Marketing

Outcome 2: Increased Smallholder income from crop and livestock value chains

Output 2.1: Vegetable and speciality crop commercialisation

Multi-stakeholder platforms (MSP) meetings for vegetable value chain at two locations resulted in linking 155 agricultural crop producer groups and 38 livestock groups with 65 schools totalling 25,234 students. Additionally, 13 traders have been linked to producers through the MSP process, which provide alternative markets to these FGs. One market assessment was conducted to understand the domestic demand for vegetables, but a planned market study on export demand for India could not be conducted due to COVID-19 restrictions. Despite all the inputs supplied, capacity building and market links created to schools and traders, the commercialisation and scaling up of vegetable production by beneficiaries was not reported.

Spawn production technology for mushrooms (oyster and shiitake) were extended to 2 out of 5 enterprises, and provided for sale to commercial growers (40% above target). A total of 8 enterprises (167% above target) were supported to establish houses for commercial production. Preparation of composite medium for production of shiitake mushroom is not mastered yet by ARDC. This is unfortunate as shiitake is in high demand on the domestic as well as international market. CARLEP-AF will assist providing technical expertise to introduce the right mix of medium for production of shiitake.

Trashigang **large market facility (LMF)** was developed and feasibility studies for establishing 2 LMFs in Nganglam and Trashiyangtse have been completed. In addition work on construction of Tyangtse LMF has already started and construction of Nganglam LMF has been deferred to 2020-21. In addition, 2 processing facilities were supported; 5 sets of processing and packaging materials were supported (sealing machines, plastic, level and quinoa milling machines);

Capacity building and training: i) 17 youth participated in an exchange learning programme; (ii) 1 youth learning exchange programme (bright spot program) was supported; (iii) 25 farmers (50% of target) also attended knowledge study visits; (iv) 1 (33% of target) regional marketing workshop was conducted; and (v) 4 (33% above target) FGs were upgraded to cooperatives. Cumulatively, 14 programme supported enterprises are headed by youths out of which 5 were supported in 2019-2020.

Output 2.2: Dairy commercialisation

Milk collection and processing units were supported with eleven milk collection centres (38% above target) and one collection shed, but the mission found only one dairy group (5% of target) that received assistance in the form of vacuum sealing machine, packaging & labelling materials and display due to COVID-19.

Koufuku International Limited (KIL). The agreement between the Ministry of Agriculture and Forests, RGoB and Koufuku International Limited (KIL) was signed in Nov 2019 for creating a viable milk market for dairy farmers; diversification of dairy products; and development of business plans for dairy enterprises. KIL is collecting milk from 9 farmer groups and has recently extended it to 2 more groups, on average, collecting 52200 litres of fresh milk monthly. CARLEP has supported KIL in terms of Technical Assistance (TA) for processed cheese formulation; capacity building of KIL staff on dairy value chain, product processing and marketing, and product promotion and advertisement. The programme will continue to support the expansion of KIL and production of whey, which is considered a "super food".

UHT and cheese production will increase the demand for milk when the planned processing facilities have been constructed and finally installed with support from CARLEP-AF. For this to happen, the final business plan and a legal binding MOA spelling out the transfer of CARLEP's contribution into shares for cooperatives delivering milk to KIL is required for IFAD's prior approval.

Output 2.3: Support to FG, cooperatives and entrepreneurs

The programme will provide a window of support for entrepreneurs, particularly young entrepreneurs, to start businesses linked to the selected value chains. The selection of entrepreneurs to be supported will be competitive. The programme will issue a public call for expressions of interest from interested entrepreneurs. In this context, the operational guideline for the implementation of the **CARLEP matching grant scheme** has been successfully completed in early 2020.

However, no progress has been made so far in **financial education** of the programme's target group. CARLEP-AF could without major efforts link its targeted clients with the various on-going initiatives by civil society organizations and the Royal Monetary Authorities (RMA) financial literacy programme rather than reinventing such capacity building activities and duplicating efforts.

The mission received anecdotal reports by OPM about programme beneficiaries, who were served by the Bhutan Development Bank Limited (BDBL) through the Priority Sector Lending (PSL) scheme by the RMA. Since the launch of the PSL guidelines in December 2017, all the 20 Dzongkhags and 7 financial institutions have been involved in reviewing PSL proposals. Following the issuance of Government Order C2/823 on 1 January 2018, PSL Committees have been formed in all Dzongkhags. The Dzongkhags collectively received 1,561 PSL applications, out of which 1,278 projects were approved by the *Dzongkhags* (quarterly report of RMA, May 2020). The majority of the projects (78%) were agriculture-related projects with the highest concentration in primary production. Unfortunately, CARLEP-related beneficiary data could not be collected during the remote supervision and the programme MIS rolled out in March 2019 does not report systematically on M&E data (see M&E section below) with respect to beneficiaries of loans and programme matching grants.

The supervision mission found that some producer and marketing groups – for instance in Mongar Dzongkhag - use BDBL loans ranging from Nu.0.2 million and Nu.0.5 million for the construction of greenhouses and poultry sheds, bee hives, shiitake mushroom farming, strawberry seedlings, etc. . Larger investment loans are needed for purchasing electric fencing, power tillers and transport vehicles. Furthermore, financing needs are reported along the various value chain activities, both directly at the different levels of value chain stakeholders as well as for integrated value chain financing approach.

Access to PSL loans will allow investments in new projects as well as in business expansion, particularly to scale-up dairy farming. The PSL scheme can be used for any of the following agricultural enterprises in the value chain, i.e. primary production, processing and packaging, and marketing and sales:

Primary Production	Processing and Packaging	Marketing and Sales
<p>Activities will cover activities as follows:</p> <p>i) Cultivation of agricultural crops, livestock farming and forestry.</p> <p>ii) Production of farming inputs including fertilizers, pesticides, seeds and seedlings.</p> <p>iii) Purchase of farming machinery and equipment.</p> <p>iv) Purchase of green house, irrigation, fencing and other farm development activities</p> <p>v) Purchase/production of animal feeds and billets</p>	<p>Activities will cover related infrastructure & allied activities as follows:</p> <p>i) Construction of cold storage facilities (such as warehouses, cold chain facilities, godowns and silos) for storing agricultural produce/ products.</p> <p>ii) Purchase of agricultural machinery/ equipment for food/agro processing and packaging</p> <p>iii) Production of animal feed and billets</p>	<p>Activities will cover related infrastructure & allied activities as follows:</p> <p>i) Purchase of farm utility transport vehicles</p> <p>ii) Packaging, labelling, advertisement and distribution of products</p>

To date there are no indications of CARLEP actively promoting the use of the PSL scheme by the targeted beneficiaries. Besides the PSL scheme, CARLEP-AF target group would benefit from other more recent developments in the financial sector such as:

- Farmer's Outreach Banking (FOB), is a service provided by the BDBL field staff to rural communities. They organise regular meetings at a pre-determined place, on a given date and time. Each BDBL branch office helps formulate an annual banking plan and the concerned regional offices monitors its implementation. FOB is like a mini bank offering a full range of banking services to rural communities.
- The National CSI Development Bank Limited [the former Rural Enterprise Development Corporation Limited (REDCL)], was registered as a bank by the RMA in February 2020. It provides non-formal rural financing (5% p.a., up to Nu. 0.5 million, loan amount: 100% of programme fund size, tenure: max. 5 years, collateral: guarantor), financing for cottage industries (7% p.a., Nu. 0.5 to Nu. 5 million, loan amount: 75% of programme fund size, tenure: max. 10 years, collateral: assets and guarantor), and financing for small industry (7% p.a., Nu. 5 Nu. 10 million, loan amount: 75% of programme fund size, tenure: max. 10 years, collateral: assets and guarantor).
- The Bhutan Economic Forum for Innovative Transformation (BEFIT), provides a platform to revisit the topic of Financial Inclusion by the RMA and the Royal Institute for Governance and Strategic Studies (RIGSS), in partnership with international development agencies, including IFAD. Within the overall perspective of "equitable growth through financial inclusion, BEFIT focuses on digital financial services for the benefit of CSIs, and

agriculture and rural enterprises. CARLEP-AF provides the space to further explore digital financial service application for its target group using BDBL's *ePay*, Bhutan's Mobile Payment System and other such schemes under the National Financial Inclusion Strategy (NFIS) 2018-2023.

- RMA is currently developing a Green Finance Roadmap to mobilize finance for Bhutan's sustainable development goals. There is an opportunity to come up with a comprehensive reform in the financial sector incorporating non-bank, insurance companies, capital markets, and institutional investors. Green insurance can play an important role in bringing new products and services focused on climate related risks including the crop insurance, which can become very important for CARLEP's target groups.

Small enterprises. RAMCO undertook feasibility studies for establishing green tea and small peanut processing units. The mission found that the feasibility studies are driven by RAMCO and not the targeted youth themselves as the assessment of the youth's business capability and skills etc. is only but a few lines in the SWOT. The feasibility studies do not mention cost and construction requirements related to food safety standards and the IRR in excess of several hundred percentage is unrealistic.

AF-CARLEP Output 2.4: Fruit commercialisation

RAMCO and service providers will undertake value chain analyses and market entry studies to inform the final selection of fruit crops to be promoted. This analytical work will verify whether markets are available, whether the commodities can be produced competitively, whether required quantities would be available, and whether quality can comply with required standards (Global G.A.P., etc.). Once commodities are selected, production will be organised in village clusters to assure quantity and quality.

AF-CARLEP Output 2.5: Sustainable commercialisation of HMAPs (collected and cultivated)

The programme will assist MoAF to develop rules and guidelines for the sustainable collection of HMAPs from forest areas. Collectors will be identified, trained and certified by a reputable international certification entity such as the Forest Stewardship Council (FSC). Support will be provided for producing an inventory of high value species with reference pictures and GPS coordinates.

AF-CARLEP Output 2.6: Aquaculture commercialisation

RAMCO will support interested entrepreneurs to conduct feasibility studies for trout production, and will ensure that markets are available, chosen locations are suitable for aquaculture, have the right water quality, and production techniques are environmentally sound.

Outcome 3: Agricultural institutions and policies for improved and resilient agricultural and marketing practices strengthened

Output 3.1: Strengthening Dzongkhag and Gewog staff

The mission received fragmented information on implementation status of this output. In 2019-2020, 9 extension agents were trained on AI at Rural Development Training Centre (RDTC); and 37 on group mobilisation and management. In total 173 government officials (144 males: 29 females) were trained. Gewog extension staff received capacity building in business planning and group mobilization. A total of 30 Gewog staff benefited.

RAMCO has a mandate to disseminate market information to farmers on a regular basis for effective marketing of agricultural products. The market information system developed by the Department of Agricultural Marketing and Cooperatives needs to receive regular inputs on price information of RNR products from 19 satellite towns. While the department has trained the concerned extension officers for weekly market price information collection using electronic tablets, the dissemination of weekly updated market prices to the farmers has not been forthcoming. This needs to be improved for enabling better farm-gate prices.

Output 3.2: Technical assistance / contracted staff

Suitable technical assistance to support group mobilisation, group strengthening, establishing value chain linkages and entrepreneurship have to be hired by OPM in collaboration with other implementing agencies.

New Output 3.3: Structured policy dialogue

No activities have been reported yet. The mission suggests for a structured policy dialogue, the OPM should develop a strategy and guidelines for identifying and allocating state, monastic society and private lands for young farmers, including the provision of suitable documentation (e.g.: lease agreements or Land Use Certificates) that enable long-term investment and improved access to finance.

One of the key policy issues that needs to be taken up relates to land tenure and leasing. In this regard, the OPM should develop a strategy and guidelines for identifying and allocating state, monastic society and private lands for young farmers, including the provision of suitable documentation (e.g.: lease agreements or Land Use Certificates) that enable

long-term investment and improved access to finance. This should include inter alia: identifying available under-utilized or fallow lands and the owners of such land, supporting young farmers to reach agreements on the use of this land and the issuing of relevant documentation following the guidelines of the National Land Commission Secretariat (see: <https://www.nlcs.gov.bt/>). Consideration should also be given to measures for ensuring equitable access to water and field access for land allocated to young farmers in the extension of existing irrigation schemes and also to the rights of access and collection of herbal medicinal and aromatic plants, from Government Reserved Forest, Community Forest or Private Forest, especially by poorer members of the community and women. Finally the strategy should include the training and capacity building requirements for Dzongkhag and Gewog staff, farmer groups and the programme beneficiaries in general to better enable them to address the land tenure issues mentioned above.

The LUC scheme is implemented since 2016 involving numbers of young people (mostly school graduates). State land is jointly identified by NLC, MoAF and Dzongkhag administration and different agricultural interventions are identified and implemented. Currently, replication of this scheme to other regions is on halt mainly to assess the existing LUCs that are implemented in the East. Therefore, it may take some time to implement leasing of fallow land and allocating to young farmers, depending on government directives to move forward.

Agreed Action	Responsibility	Agreed Date
Implementation of new activities under CARLEP-AF Lay the ground work for implementing the new outputs from 1.5 to 1.9 and from 2.4 to 2.6 Identify villages for support under CARLEP-AF Map villages having production similarities for clustering Varietal screening of selected crops to identify genes for developing new varieties with strong response to organic and bio-fertilizer and resistance against pest and diseases Examine if existing AICT in country can be used in conjunction with LF. If not develop a new app for AICT and develop the appropriate modules related to CARLEP activities	OPM/partner organisations	09/2020
Protected agriculture Prepare invitation for expression of interest to supply protected agriculture using vertical production system with hydroponic irrigation and movable gutter Explore the enhancement of bio gas slurry as a composite fertiliser Test submerged drip irrigation for vegetable production and fruit orchards Perfect the procedures of preparing the right medium for shiitake production.	OPM/partner organisations	11/2020
Policy engagement and Learning Sharing of good policy and practice between beneficiaries, development workers, and CSOs Develop a strategy and guidelines for identifying and allocating lands for young farmers	OPM and partners	12/2020

Demand driven support to enterprises Prepare a long list of enterprises that can be supported by the programme together with necessary review and outreach materials (sample investment prospectus, including AF-CARLEP matching grants , advertisements and invitations to encourage applications, application forms and transparent screening system) Prepare a road map for supporting the revitalisation of organic farming including: (i) awareness campaign; (ii) certification system; (iii) soil mapping for identifying what bio enhancements are needed. Develop investment opportunities for HMAP and domestic and export markets including direct linkage to buyers with bankable commitments Hire relevant technical expertise to support OPM+RAMCO with cooperative/enterprise formation, business orientation and planning, and overall commercialisation of vegetables and dairy value chains Develop incentive mechanisms for linking traders and FGs to alternative/diversified markets (including domestic, export). Promote more multi stakeholder platforms including for new commodities under AF phase (ongoing + AF) Strengthen FGs and cooperatives to form federations to collectively negotiate price and import/export policies & regulations	OPM/partner organisations	03/2021
Financial Services Link CARLEP target group with existing financial education programmes and develop a savings culture Develop a list of participating financial institutions to sign a MOA with CARLEP-AF to provide financial support to beneficiaries including terms and conditions Guide CARLEP target group to Priority Sector Lending (PSL) scheme and systematically monitor the use of PSL loans together with the matching grant scheme Collaborate with BDBL to apply Farmer's Outreach Banking (FOB) to CARLEP target group Collaborate with the National CSI Development Bank Limited to apply non-rural financing and cottage industry financing schemes to CARLEP target group Explore various options of mobile/digital financial service for CARLEP target group Follow the development of the Green Finance Roadmap for future complementary financial services such as crop insurance products for CARLEP target group	OPM/Financial Institutions	12/2021

E. Project implementation

a. Development Effectiveness

Effectiveness and Developmental Focus

Effectiveness

Rating: 4

Previous rating: 4

Justification of rating

Overall there has been good progress despite the challenges posed by COVID-19. The OPM has shown flexibility to adjust to new conditions and demands. They revised the AWPB to address the key issue of food security due to lack of reserves in country. The start-up of the CARLEP-AF is even more relevant with the impact of COVID-19 highlighting the need for increased nutritious production to increase food security, natural resource management and climate resilient measures for increased sustainability with a focus of import substitution for increase self-reliance. Production has increased in the dairy sector, crop diversification is underway as well as vegetable production. Linkages for markets are increasing also with "institutional" markets such as schools, hospitals, etc.

Production related activities continue being prioritised, while reporting on market links with schools and institutions need

to focus only on those assisted by CARLEP. Commercialisation which is a key objective might be difficult to achieve fully with only the concept of value chain but the programme might further explore the value chain approach as the programme moves into the implementation of the CARLEP-AF.

Log-Frame Analysis & Main Issues of Effectiveness

As of August 2020, the programme outreach was 17 531HH against the completion target of 28 975 HH as per PDR. Overall, the programme is making headway towards its stated targets although with some notable exceptions.

A more accurate reflection of physical infrastructure works needs to be included in the logframe.

Development Focus

Targeting and Outreach

Rating: 4

Previous rating: 4

Justification of rating

The outreach has increased from 20% in the last supervision mission to 48.75% (17, 531 out of 28,975 total households). So far, the programme has reached 38.4% of women beneficiaries (21,142 out of 55,053) and 8.3% youth (166 out of 2,000). The collaboration with SJI has helped the programme in expanding the outreach. The proposed engagement with Tarayana Foundation is a positive move by OPM and it will contribute towards further enhancing outreach.

Main issues

The targeting approach should be enhanced to identify and reach a broader set of target groups. The entry point is a community-based targeting approach, which consists of mobilising the entire community/village for identifying more vulnerable categories, assessing against eligibility criteria and consultation for ensuring that they will benefit to a significant degree. This should be combined with clear eligibility criteria and quotas for easily selecting identifiable social groups.

The outreach to women and youth needs to be accelerated in the remaining cycle of programme interventions. The youth action plan should include: i) developing service enterprises in support of agriculture and livestock rearing, such as supply of inputs, equipment (e.g. drip irrigation), processing, aggregation and trading (as suggested in the MTR); ii) setting a feasible quota for young women and men to be trained as “model lead farmers”; iii) define activities for better targeting and empowering young girls; and iv) develop a strategy for identifying and allocating state, monastic society and private lands for young farmers, including the provision of suitable documentation (eg: lease agreements or Land Use Certificates) that enable long-term investment and improved access to finance.

Agreed Action	Responsibility	Agreed Date
Targeting Improve targeting and indicating specific criteria and quota	OPM/Gewogs/ Tarayana Foundation/SJI	10/2020
Youth Develop a youth engagement plan	OPM/Gewogs/ Tarayana Foundation/SJI	10/2020
CSV Implement landscape-based/whole-of-village approach using farmers field school practices in 12 CSA villages	OPM/Dzongkhags/ Gewogs	01/2021

Gender equality & women's participation

Rating: 4

Previous rating: 4

Justification of rating

CARELP monitoring and evaluation indicators are gender-disaggregated (50% women), collected & analysed throughout CARLEP activities. Since June 2019, FGs formation increased by 15% and women constitute 59% of FGs with 28% taking executive role. Under component 1: 46% of 4500 households (60% women-headed) and 36% of 2600 households (50% women) beneficiaries trained respectively on vegetable and dairy production. Under component 2: 3759 households (2264 women-headed) and 1904 households (999 women-headed) trained on vegetable and dairy value chains, respectively. With regard to enhancing women's economic empowerment, the annual outcome survey 2019 findings reveals that women have 87% higher financial control; 56% income earned from vegetables and 52% from dairy products in comparison to men. In FY2019-20, 57 women vegetable groups were trained and women's drudgery reduction

equipment were purchased by CARLEP with gender-based budgeting in AWPB. e.g., biogas, chaff cutters, milk chillers. Interviews with women beneficiaries reveals that biogas, chaff cutters, milk chillers and solar driers significantly reduce women's drudgery.

Main issues

While positive gains are being made on gender equality and women's participation, there is a need for further enhancements in this area. Young women need to be empowered to take on leadership roles and to influence decision making processes.

Agreed Action	Responsibility	Agreed Date
Leadership management skills Training, exposure visit and mentoring on leadership management skills to women-led vegetable farming groups Training on gender responsive M&E for OPM staff	OPM/NCWC/Tarayana Foundation	10/2020
Women's participation Enhance 40% women membership in FGs, Cooperatives, post-harvest and marketing groups with 20% taking executive role (chairman, secretary, accountant)	OPM/NCWC/Tarayana Foundation	05/2021

Agricultural Productivity

Rating: 5

Previous rating: 4

Justification of rating

Performance on productivity has been very positive. There has been an expansion of interventions in both the vegetable and dairy value chains leading to a substantial increase in productivity. The Multi-Stakeholder Platforms are enabling Farmer and Dairy Groups to link up with schools, traders and other markets. The training in climate smart agriculture and support to youth groups are beginning to show results and a further expansion will be beneficial.

Main issues

With relation to dairy production, fodder type and quality still requires additional fine tuning particularly during the winter period to increase productivity. A change from Holstein-Friesian animals to Jersey and small cows like Brown Swiss, Ayrshire, Guernsey, Red Sindhi, and Tharparkar etc. with high feed conversion, inherent better health and lower maintenance can generate a higher return.

Vegetable and fruit value chain

The programme financed green houses for protected agriculture however, they are rudimentary. It is recommended that CARLEP-AF support investments in more durable green houses and closed systems using hydroponic irrigation, vertical production systems with movable gutters maximizing the utilization of space.

It is recommended that professional nurseries are established for tree crops at strategic locations. The programme should assist the nurseries to obtain the best mother planting material. If required the programme should support such nurseries with tissue multiplication facilities.

Producing shiitake mushrooms could be a big export commodity for Bhutan, it is therefore recommended to perfect the procedures of preparing the right mix of medium for shiitake production. Speciality crops are gradually reaching economies of scale warranting support for establishing marketing linkages

Agreed Action	Responsibility	Agreed Date
Identify villages for AF-CARLEP support Map villages having production similarities for clustering	OPM with partners	08/2020
Varietal screening and developing new varieties Varietal screening of selected crops to identify genes for developing new varieties with strong response to organic and bio-fertilizer and having strong traits for resistance against pest and diseases	OPM with partners	09/2020
Lead Farmer in conjunction with AICT Examine if existing AICT in country can be used in conjunction with LF. If not develop a new app for AICT and develop the appropriate modules related to CAELEP activities	OPM/TA	09/2020
AF-CARLEP support to introduction of organic farming Prepare a road map for supporting the revitalisation of introducing organic farming including: (i) awareness campaign; (ii) required and affordable certification system; (iii) detailed of soil sampling and analysis and different types of soil amendments, source and production and bio plant protection remedies.	OPM with partners	09/2020
Protected agriculture Prepare invitation for expression of interest to supply protected agriculture using vertical production system with hydroponic irrigation and movable gutter Explore the enhancement of bio gas slurry as a composite fertiliser Test submerged drip irrigation for vegetable production and fruit orchards Perfect the procedures of preparing the right medium for shiitake production.	OPM with partners	09/2021
Investment and Marketing Prospectus for HVC Develop investment and marketing prospectus for HVC for domestic and export markets including direct linkage to buyers with bankable commitments	OPM with support from RAMCO/domestic private sector and foreign private import sector/ITA	

Nutrition **Rating: N/A**

Adaptation to Climate Change **Rating: 4** **Previous rating: 4**

Justification of rating

Reasonable progress has been achieved in the area of adaptation to climate change. The number of climate smart villages have increased to a total of 12. The programme has enabled the promotion of sprinkler and drip irrigation, sustainable land management practices, introduction of bio-digesters, and rainwater harvesting techniques. A number of climate-resilient varieties of vegetables and cereals have been promoted together with crop rotation with legumes. Training on permaculture has been undertaken for an initial batch of farmers

Main issues

A landscape-based whole-of-village approach to climate-smart agriculture (CSA) needs to be implemented to achieve mainstreaming outcomes (climate change, poverty, gender). Farmer's field schools need to be established for applying CSA practices in the 12 CSA villages.

b. Sustainability and Scaling up

Institutions and Policy Engagement**Rating: 4****Previous rating: 4****Justification of rating**

CARLEP is supporting the RoGB on the development of the RNR 2040 Strategy and is also, inputting results into the UN system for informing overall development policy. Over the last year CARLEP has supported MoAF in undertaking consultations on the RNR Strategy which has been a significant engagement in policy activities.

Main issues

Improving land access and tenure security: CARLEP aims to support the allocation of under-utilized and fallow land, including state land and land owned privately or by monastic societies to poorer households and young farmers with suitable documentation (eg: lease agreements or Land Use Certificates) that enable long-term investment and improved access to finance for commercial farming. There are a few examples of LUCs being issued for state land and agreements being made with monastic societies for poorer households and young farmers but there do not appear to be many examples of land being acquired from private landowners. Under Component 3, the Programme intends to support evidence-based policy engagement including for the regulatory environment governing the use of fallow land and long-term leasing arrangements.

The programme also aims to extend irrigation schemes to fallow / vacant land allocated to young farmers, which is often found at the lower end of existing schemes. This could raise some concerns regarding their equitable access to water and fields, which may require some form of land consolidation / re-alignment.

Finally the programme will support the preparation of rules and guidelines for the collection of non-forest timber products, specifically high-value herbal medicinal and aromatic plants, from Government Reserved Forest, Community Forest or Private Forest based on the existing policies and laws governing NTPF. Consideration needs to be given to the existing arrangements and practices for such collection, especially by poorer members of the community and women.

Agreed Action	Responsibility	Agreed Date
Policy engagement and Learning Sharing of good policy and practice between beneficiaries, development workers, and CSOs Develop a strategy and guidelines for identifying and allocating lands for young farmers	OPM with partners	12/2020

Partnership-building**Rating: 4****Previous rating: 4****Justification of rating**

CARLEP since its inception has worked as a small team linking with partners for the implementation of the programme. While to date they have been mainly focused on government and its agencies (district to national levels) and state owned enterprises. Under the CARLEP-AF there is an opportunity to engage with a wider range of partners (DPs/CSOs/NGOs) in a more meaningful way.

Main issues

COVID-19 has shown the need for greater engagement with other partners to benefit from their expertise in specific areas. Production is also moving into a phase that will increase the need for strong partnerships in the private sector for TA, access to markets (local to international), financing –linkages with formal financial institutions, etc.

Agreed Action	Responsibility	Agreed Date
Partnerships Engage with WFP, FAO and WB for a least one area of priority	OPM, Districts, MoAF	05/2021
KM / Learning events With the three agencies hold at least one learning event planning for 2021	OPM, Districts, MoAF	05/2021

Human and Social Capital and Empowerment**Rating: 4****Previous rating: 4**

Justification of rating

Various trainings on specific technical and organisational aspects are helping build human and social capital. The establishment of farmer and dairy groups and youth cooperatives, capacity building of farmers in climate smart agriculture and permaculture, and specific focus on women's participation and empowerment are all contributing to build human and social capital.

Main issues

FGs, cooperatives, post-harvest, and marketing groups still lack organizational capacities, and trust and confidence in doing business. The farmers' groups & cooperatives have little control over prices, markets, and import & export regulations to sustain their business. A business profitability and sustainability plan needs to be developed in the upcoming phase of the programme and mentoring of smallholder farmers on realisation of these plans should be added to AWP/B 2020 and 2021.

Agreed Action	Responsibility	Agreed Date
Community Groups Accelerate group formation and group development activity	OPM	12/2020
Strengthening Farmers Organisations Strengthen farmers' groups and cooperatives to form federations to collectively negotiate price and import/export policies & regulations (AF)	OPM with partners	01/2021

Quality of Beneficiary Participation

Rating: 4

Previous rating: 4

Justification of rating

At present, CARLEP has engaged 66,690 beneficiaries in total, which amounts to above 50% of the total target beneficiaries. CARELP beneficiaries participate through training, membership in farmer or dairy groups, farmer's field festivals, exchange visits, and farmer study tours, to name a few. The annual outcome survey 2019 reveals that 60% of households participate in at least one CARLEP activity with highest farmer-to-farmer (94%), efficient irrigation (80%), land management (71%) business and marketing (60%). About 53% beneficiaries were highly satisfied, 40% moderately satisfied and 7% not satisfied at all. The beneficiary interviews by the consultant corroborate with CARLEP findings that most beneficiaries are satisfied.

Agreed Action	Responsibility	Agreed Date
Participatory Monitoring Develop systems for community monitoring and feedback to be integrated in the M&E framework (AF)	OPM	12/2020

Responsiveness of Service Providers

Rating: 4

Previous rating: 4

Justification of rating

Government agencies/departments currently make up the main group of service providers. There is good cooperation with the following agencies: ARDC providing new seeds/seedlings for climate resilience and shorter production periods, RAMCO has continued with building market access through the MSPs and access to information, and KIL has continued to work closely with both the OPM as well as the Dairy Farmer Groups with good returns to the farmers as well as increased production.

Main issues

Some of the technical expertise if not readily available in-country and efforts need to be taken to recruit experts regionally or globally.

Agreed Action	Responsibility	Agreed Date
Use of Technical Assistance The OPM will use contracting of TA (local or international) to increase performance of CARLEP including for outreach, procurement, market access/studies, cooperative development/formalization etc.	OPM	12/2020

Environment and Natural Resource Management

Rating: 4

Previous rating: 4

Justification of rating

CARLEP has been promoting sustainable land and water management, agro-biodiversity, permaculture, alternatives to fuelwood (biogas), feed and fodder conservation, and land development through mechanical terracing to prevent soil erosion. These activities are supporting better environmental sustainability through natural resource conservation.

Main issues

Irrigation water scarcity impedes commercialization of vegetable and dairy enterprises in many areas. Water sourcing for dry land irrigation may exacerbate the already scarce water sources and availability in the region.

Agreed Action	Responsibility	Agreed Date
Environmental and Social codes Implement environmental and social code of practice during dry land irrigation schemes construction (Annex 2)	OPM/Engineers	07/2020
Mapping of water sources Map available upstream springs and rivers for supply of irrigation water maintaining 30% environmental flow	OPM/DoA irrigation engineers	12/2020

Exit Strategy

Rating: 4

Justification of rating

With the institution of CARLEP-AF the programme has been extended to 2025. Now is an appropriate time for an effective exit strategy to be developed as VCs and enterprises grow. A viable exit strategy will depend on the strength of the groups and cooperatives, institutionalisation of the MSP process to build vegetable marketing linkages, the strength and viability of collaboration between dairy groups and KIL, and integration of successful experiences into the National Plans.

Agreed Action	Responsibility	Agreed Date
Exit Strategy A draft strategy should be developed as a base to build upon during the next 2 years	OPM	06/2021

Potential for Scaling-up

Rating: 4

Previous rating: 4

Justification of rating

The design of CARLEP-AF took into consideration successful intervention areas from the initial years of CARLEP implementation for developing a scaling up approach. CARLEP-AF will be the primary vehicle for scaling up quantitatively as well as spatially.

Agreed Action	Responsibility	Agreed Date
Increase number of Farmer Groups Women-led vegetable production & commercialization	OPM/RAMCO/FGs	12/2020
Youth Cooperatives Youth-led dairy production and commercialization increased	OPM/DLOs/Youth	12/2020
Increase number of lead farmers Lead farmers and CAIT extension models	OPM	12/2020

c. Project Management

Quality of Project Management	Rating: 4	Previous rating: 4
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Justification of rating

Considering the small size of OPM implementation was on track until COVID-19 impacted on Bhutan. Agriculture has been recognised as a priority for the government, especially increasing self-sufficiency as a matter of urgency. CARLEP adjusted its AWPB to meet the demands and provided a revised AWPB.

Main issues

Procurement delays are hampering implementation efficiency. Also, record keeping is inadequate. With regard to M&E and adaptive management, there is an urgent need for establishing a Management Information System (MIS). **See procurement and M&E sections below for Actions.**

Knowledge Management	Rating: 5	Previous rating: 4
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Justification of rating

During the current implementation period 2019-20 CARLEP has produced impressive work related to knowledge management including the full adoption of the multi stakeholder platform (MSP). All KM related activities are regularly included in the AWPB and adequate budget is allocated. During the current FY a total of 0.55 million was allocated for a workshop, which had to be postponed due to the COVID-19.

Main issues

CARLEP needs to update the KM Strategy with some minor changes subsequent to the approval of the additional financing (AF) in order to better reflect the changes and improvements in the components and the new Theory of Change and align the KM strategy and action plan with the objectives and components to create more harmonization.

Agreed Action	Responsibility	Agreed Date
KM Strategy Update the KM strategy to include the AF	OPM	12/2020
Staffing Participate in training for developing templates, KM tools and software	OPM	12/2020
Learning event Organize or participate in a national or regional KM event to advocate the success stories from the field from CARLEP	OPM	

Value for Money	Rating: 4
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Justification of rating

The overall implementation of activities exceeds appraisal target by 5%. Of the total budget of US\$21.16 million, US\$ 8.3 million has been spent leaving US\$ 15.23 million for the remaining activities. This actually suggest that the cost of implementing the present activities was less than what was budgeted for indicating that the programme got value for money, and the programme has sufficient funds to exceed the 105% outputs achieved until date. The mission was informed that both the Dairy and vegetable value chains have strong demand providing both horizontal and vertical increase in income generating activities under these two value chains. AF-CARLEP will further support the growth of the two value chains.

<i>Agreed Action</i>	<i>Responsibility</i>	<i>Agreed Date</i>
Data Collection Data rigor needs to increase to ensure that a full analysis of financial viability and value for money can be undertaken.	OPM/Districts	12/2020

Coherence between AWPB and Implementation

Rating: 3

Previous rating: 3

Justification of rating

AWPB strictly follows IFAD procedures and timely adjusted during the implementation.

<i>Agreed Action</i>	<i>Responsibility</i>	<i>Agreed Date</i>
Revise AWPB Following the mission the AWPB 2020-21 should be revised to reflect agreements made	OPM	09/2020

Performance of M&E System

Rating: 4

Previous rating: 4

Justification of rating

CARLEP has a good M&E Plan elaborated and the activities have adequate budget allocated and coherent with the plan. The programme programme programme conducts Annual Outcome Surveys and continue being active member of the South Asia HUB M&E community of practice. All activities for 2019-2020 have been entered into the Planner system. CARLEP promptly reports the yearly results through the new IFAD corporate system and have adapted also the new corporate indicators. Being CARLEP included under the ASAP umbrella funding, it is compulsory to report with all the climate change indicators.

M&E System Review

SECAP compliance monitoring should be part of the M&E plan. If OPM has limited capacity, it should seek TA assistance on capacity building training on SECAP.

<i>Agreed Action</i>	<i>Responsibility</i>	<i>Agreed Date</i>
Web-based MIS system Customize and roll out with retroactive data the new system	OPM	12/2020
Geo-Spatial M&E Data Professional training on collecting and use of geospatial M&E data	OPM	

Requirements of Social, Environmental and Climate Assessment Procedures (SECAP)

Rating: 4

Justification of rating

The social, environmental and climate change procedures (SECAP) were integrated during CARLEP Additional Financing design with component-wise risks identification, its level and mitigation measures based on SECAP screening questions.

SECAP requirements were monitored by OPM and followed with regard to construction & procurement procedures to minimize negative environmental impacts. SECAP implementation makes CARLEP the first-of-its-kind programme that addresses significant climate and environmental-induced risks through climate-resilient crop varieties, livestock breeds, CSA villages, efficient irrigation water uses (drip/sprinklers/piped), biogas interventions.

SECAP Review

The environmental and social issues appear to be monitored on an intermittent basis only. The emerging issues that need monitoring are; irrigation and farm roads small-scale site-specific construction issues, water-related conflicts, UHT/waste water treatment plant for which general environment and social compliance with stakeholders' engagement will be required. A more formal and comprehensive risk management protocol is needed. Technical support in this area would be useful and would lay a strong foundation for the next Additional Finance funded phase of the programme. Options to do so include geographical information system based training and equipment and partnership with a national institution which could provide hands-on support. The proposed UHT dairy plant would require the commissioning of an ESIA in conformity with national regulations. For safeguards risk issues – especially environmental – please see also Technical Annex.

Agreed Action	Responsibility	Agreed Date
SECAP Compliance Capacity building on compliance monitoring on environmental and social risks as part of M&E plan	OPM	03/2021

d. Financial Management & Execution

Acceptable Disbursement Rate

Rating: 4

Previous rating: 5

Justification of rating

Automated rating based on IFAD disbursement data

Main issues

The project is in its 5th year of implementation, total allocation for 3 original financing is SDR 10.23 million of that the Loan, Component Grant and ASAP Grant are SDR 5.89 mil, SDR 0.76 mil and SDR 3.58 mil respectively. The disbursement rate of the project is SDR 7.07 million or 69.14% (inclusive outstanding authorized allocation). Without outstanding authorized allocation, the disbursement rate is SDR 5.3 million or 51.95%.

In the start-up project, there was a gap and an inadequate knowledge on the planning of project activities however, by now the project partners are more aware after providing training and workshops and now able to implement planned activities on time as per the IFAD's & Government of Bhutan's norms.

There is a significant improvement of project disbursement rate since 1 June 2019, the disbursement rate sharply increases from 45% (including outstanding advance) to 69.14 as of 31 May 2020. The project disbursement rates for Loan, Component Grant and ASAP Grant are 74.5%, 85.3% and 56.9% respectively. See details in appendix 1.

The use of ICP provide effective tools for project to submit the Withdrawal Application timely, especially when project at the peak time of procurements. Adequate financial staff and project staff at OPM and implementing unit is another reason for disbursing the fund and receiving the replenishment from IFAD timely. Implementation of Government Accounting software provide great supporting on disbursement of fund for project.

Agreed Action	Responsibility	Agreed Date
Preparation of WA a) Calculate the taxes claimed so far and adjust the next WA by reducing this amount incorrectly claimed b) Ensure correct preparation of WA by not claiming taxes charged, advances paid and claim the full expenditure incurred before deduction of tax	AO, OPM	07/2019
Submission of Withdrawal Applications Prepare quarterly WA and submit to IFAD promptly after the end of the quarter	AO, OPM	

Fiduciary aspects

Quality of Financial Management

Rating: 4

Previous rating: 4

Justification of rating

Key accounting staff have been on board for all project level (OPM and IU), project operation is under comprehensive regulatory framework including PIM, IFAD policies, GoB law, procurement policy and finance manual. AWPB strictly follows IFAD procedures and timely adjusted during the implementation. The Government Accounting Software (ePEMS) has been gradually implemented that improve better accounting function and reporting capacity. Internal control and internal audit and external audit have noticeably improved. There is a remaining issue in financial reporting because the lack of capacity in ePEMS for recording the component, category and funding source, thus the software could not produce the financial reports that comply with IFAD reporting requirements.

Main issues

CARLEP organizational structure is aligned with the design, staff are doing as per the ToR given in the Programme Implementation Manual which clearly states who should do what and when therefore, FM is functioning well with no issues Project is staffed with experienced and qualified accounts personnel at OPM and IU's level. It would be much confident them to work with IFAD projects if IFAD could also invite them in IFAD Annual FM workshop because it provides lots of knowledge and ideas.

CARLEP seriously follow the process of preparation of AWPB and approval. firstly, by issuing budget call notification and organizing the AWPB cum PP workshop with CARLEP stake holders before Ministry of Finance, Bhutan issues the budget call notification. The AWPB is reviewed strictly based on the revised costab before submitting to IFAD with finance staff involved in checking the accuracy. AWPB properly approved by CPM before financial year starts. The MoF, Bhutan also issues budget call notification along with guidelines so CARLEP also must follow this guidelines.

The ePEMS (Government) system reports are not fulfilling the IFAD's requirement and even there is no provision to prepare WA's. The financial progress reports, preparation of WA's and SoE's are manually recorded therefore, a separate reporting mechanism (database) is required which will enable CARLEP to generate accurate reports as per the format agreed with IFAD.

Reports are prepared in accordance with IFAD's format accurately and submitted quarterly and annually but can't generate the financial reports and withdrawal applications in a format agreed with IFAD. Complete, accurate and reliable financial reports were submitted to IFAD with agreed format in a timely manner. Financial information reconciles with the IFAD disbursement records.

Despite the limitation of reporting function project timely prepare and submit the WA and SOEs in ICP, SOEs are fully supported with genuine supporting documentation and fairly sufficient. Accounting transactions are timely entered into ePEMS with good control on cash payment.

The mission notice the active function of internal audit in 6 dzongkhags internal audit offices and due-diligence of from finance section in agencies.

It is reported that project staff are not aware of IFAD anti-corruption policy.

Agreed Action	Responsibility	Agreed Date
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Reporting Enhance Interim Financial Progress and timely submit quarterly to IFAD	OPM	12/2018
Taxes – ineligible amounts Determine the ineligible amount of taxes charged to IFAD and provide communication to IFAD FO for refund/deduction from future WAs. Also track RGoB contribution provided as taxes.	OPM	12/2018
FCBL Analyse the breakdown of FCBL expenses which is mainly comprising salary cost (including those of the staff at stores) in order to determine what is/is not Recurrent Costs.	OPM	01/2019
Fixed Assets Full assets tagging and relevant reporting in asset registers, (i.e. starting to tag in ranking order from most expensive)	Finance OPM/ IUs	03/2019
E-Training on FM of IFAD funded projects All finance staff across CARLEP invited to undertake the IFAD FM e-learning (link has already been provided by the FMS to OPM).	OPM Finance	06/2019
Project Financial Statements a) Prepare financial statements in accordance with IFAD's reporting requirements and ensure that the financial statements are complete and accurate. b) For the year 2017-18, prepare the complete set of correct financial statements and get the audit verification done in respect of the revised PFS	AO, OPM	09/2019
Ring-fence CARLEP finance community OPM finance (i) to call, at least once a year, a FM workshop gathering all Carlep finance staff, (ii) OPM finance to provide one-to-one support through at least one visit per year at all IU (iii) and facilitate cross visit-cooperation of staff from adjacent districts.	OPM	12/2019
awareness of IFAD corruption policy Project staff and stakeholders are advised to read IFAD policy on Preventing Fraud and Corruption in its Activities and Operations. https://www.ifad.org/en/document-detail/asset/40189695	OPM, IU and stakeholder	12/2020
financial system/database Development of new financial system/database for project to consolidate the financial report	OPM	12/2020
Budgeting/costab Support OPM management in the feasibility of any exercise aimed at enhancing current costab/AWPB component classification (i.e. MYRB), providing a bridge/mapping of current expenditure to future plans.	OPM	

Budget planning Early and stronger engagement of Finance in the planning process, to come up with enhanced reporting on actual expenditure and residual balance, by IU and benchmarked as % of AWPB (cumulative/period)	OPM	
Contract Register Maintain Contract Register to monitor contracts and also to plan the cash flow for ongoing contracts	All Implementing Units	

Quality and Timeliness of Audit
Rating: 4
Previous rating: 3
Justification of rating

The AFS is submitted with 2 months delay. All FS are sufficient according to IFAD reporting and auditing manual that can be reconciled with IFAD records.

Main issues

The audit report submitted 2 months late, Statement of DA and reconciliation need to be resubmitted. The Accounting standard is acceptable to IFAD, the Audit coverage is complete. Financial reports are adequately prepared. Management reports provide sufficient control finding.

Agreed Action	Responsibility	Agreed Date
7. Shortfalls in the procurement of chaff cutter The lapses had occurred due to mistakes in placing the supply orders by the dealing persons and ambiguity in implementing the criteria or terms of subsidy payment at 60:40 (60% to be borne by Government & 40% to be borne by beneficiaries). As conveyed during exit meeting, 80:20 (80% borne by Government and 20% by beneficiaries) is applicable if the chaff cutter is to be distributed to group and 60:40 (60% by Government & 40% to be by beneficiaries) is to be applied only if chaff cutter is to be distributed to individual and not group. As agreed during the exit meeting, the CARLEP project management is requested to submit the assurance letter confirming that all materials had been supplied by the supplier and received by respective beneficiaries. Until such time, the Para shall stand. The project management is requested to exercise reasonable prudence in placing supply orders and avoid overwriting on official documents. Further, the project management is requested to bring clarity and uniformity in implementation of criteria or terms of subsidy payment. The project management is requested to exercise reasonable prudence in placing supply orders and avoid overwriting on official documents. Further, the project management is requested to bring clarity and uniformity in implementation of criteria or terms of subsidy payment.	Project management	12/2020

<p>10. Non recovery of insurance premium paid by Government</p> <p>According to the Department of Livestock's Guidelines on Interim Stimulus Support Package Implementation, 2014, "If cow dies during the insured period, the premium paid by DoL will be deducted from the insured amount received and deposited into RGoB Account".</p> <p>According to the information made available to the audit team, three out of 16 procured cows died during the year. Two out of three cows died within 15 days after reaching the site (both cows were not insured) and the remaining one died during insured period. The RAA was informed that the insured amount had been received from the insurance company and same was not deposited into RGR Account as per the Guidelines on Interim Stimulus Support Package.</p> <p>The insurance amount should be recovered and deposited into Audit Recoveries Account besides justifying for lapses.</p>	Project management	12/2020
<p>9. Re-claiming the already claimed bills by resubmitting settled bills of year 2017-18 in 2018-19 – Nu. 198,591.00</p> <p>The documented records and expenditure for establishment of dairy farms for URS groups, shed construction and construction of milk collection center was reviewed and the RAA noted that the bills, which were settled in 2017-18 in response to observation no. 35 of the previous audit finding for the financial year 2017-2018, was again claimed in the current financial year 2018-19.</p> <p>The RAA noted that bills for cement, transportation charges, railing & gate, and procurement of fuel was resubmitted or re-claimed during the financial year 2018-2019, which was previously settled or stated to have incurred for construction of temporary quarter for URC at Gulibee from the budget of insourcing cross breed cow financial year 2017-2018.</p> <p>It appeared as though the bills, which were fully settled in 2017-18, are re-claimed again in 2018-19 with a notion that different audit team in subsequent financial year may not detect or notice such deceitful act. In the year 2017-18, these bills were already used to settle the related claims and used as a basis to resolve the audit memo no. 35 reported in preliminary audit findings of the Dzongkhag Administration, Lhuntse, for the period 2017-2018.</p> <p>The double claims of Nu. 198,591.00 should be recovered and deposited into Audit Recoveries Account besides justifying for the lapses.</p>	RLDC management	12/2020

<p>8. Excess payment of transportation charges – Nu. 102,636.00</p> <p>The transportation charges of Nu. 424,366.00 was incurred for transportation of various agricultural and livestock materials. During the review of payment records, the RAA gathered following shortfalls:</p> <p>a) Payment for bill no. 444 dated 01/05/19 which was made twice, once vide disbursement voucher no. DV.5.25 dtd. 20/05/2019 and other vide disbursement voucher no.DV.6.56 dated 22/6/19 (Refer table below); and</p> <p>b) The RAA noted conflicting dates in the transportation charges paid for transportation of jersey. The local transportation dates do not correlate with transportation dates of jersey in the locality.</p> <p>As agreed during the audit exit meeting, the excess payment amounting to Nu. 102,646.00 should be recovered and deposited into Audit Recoveries Account Account within the three months from the date of issue of the report beyond which penalty@ 24% per annum would be levied as per the chapter IV, section 4.5.1.4 of Finance and Accounting Manual2016.</p>	<p>Project management</p>	<p>12/2020</p>
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4. Supply of inferior quality of CGI Sheet for diary shed construction	Project management	12/2020
<p>The RAA was informed that the Dzongkhag Administration had placed order of 24 gauge or 0.63 mm CGI sheet. The joint physical verifications were conducted in Phongmey, Samkhar, Thrimshing, Kangpara, Shongphu & Kanglung from 6 September to 9 September 2019. The joint physical verification team noted that the CGI sheet supplied by the suppliers were of 0.50 mm and not 0.63 mm 24 gauge.</p> <p>Management response: The verification team found that only eight (8) households got the required specification of 0.63mm CGI sheets as per supply order of Dzongkhag Procurement and rest 33 household got specification of 0.50mm (detail list attached). Since there is no significant physical difference in quality of CGI sheets between the two types of specifications, the beneficiary farmers are happy with the quality of CGI sheets they have received. The supplier failed to supply the specifications mentioned in supply order. The supplier, M/s Kota Shopping Center had accepted the mistake and the implementing agency failed to verify the stock because materials were received in bulk. we have received a assurance letter dated 14.11.2019 from M/s Kota Shopping Center, (attached) stating that, it was their mistake and they are liable to refund the difference amount. The supplier agreed to refund the difference amount to RAA, Audit Recovery Account as per rule and the assurance letter of suppliers attached herein for kind references. The difference amount is calculated as per the present market rate is tabulated below: Therefore, the difference amount of Nu 85437/- (Eighty-Five Thousand four hundred thirtyseven) only will be deposited to RAA, Audit Recovery Account immediately.</p> <p>RAA's Further Comments & Recommendation: As agreed during the audit exit meeting, the excess payment amounting to Nu. 96,316.42 should be recovered and deposited into Audit Recoveries Account Account within the three months from the date of issue of the report beyond which penalty@ 24% per annum would be levied as per the chapter IV, section 4.5.1.4 of Finance and Accounting Manual 2016. The project management is requested to ensure that properties are properly inspected and examined before acceptance/payment to check that the quantity and quality of properties received is correct.</p>		

<p>5. Excess payment to supplier – Nu. 102,667.50 (1.2.2)</p> <p>As informed by the Dzongkhag Livestock Sector, the Dzongkhag Administration, Samdrup jongkhar had supplied 15 bags of cement and 15 kilograms of MS Rod to individual beneficiaries. However, during the joint physical verifications of diary sheds, beneficiaries claimed that they received only 6 bags of cement and MS Rod (10 mm) was not received at all.</p> <p>It was also learnt that the cost of transportation of 6 PCC post to individual beneficiaries amounting to Nu. 600.00 each was incurred. The RAA couldn't comprehend the rationale behind transportation of PCC post given the fact that cement received was only 6 bags each and Ms. Rod was not received by the beneficiaries.</p> <p>As agreed during the audit exit meeting, the excess payment amounting to Nu. 102,667.50 should be recovered and deposited into Audit Recoveries Account Account within the three months from the date of issue of the report beyond which penalty@ 24% per annum would be levied as per the chapter IV, section 4.5.1.4 of Finance and Accounting Manual 2016.</p>	Project management	12/2020
<p>2. Payment made without receiving equipment</p> <p>During the review of equipment procurement vouchers of RLDC, Khangma, the RAA noted that all the payment to the suppliers were made without receiving equipment worth more than Nu. 6.9 million. It was also observed that liquidated damages for delays in supplies were not levied to the respective suppliers.</p> <p>Response: The RAA observation in this respect is well noted by the Management. As per the procurement norms, the Centre has tried to complete procurement document for open bid competition within time. However, due to delay in IFAD financial clearance for procurement, the supply orders couldn't be placed on time. The Centre has received green signal for procurement only in May 2019 during IFAD mission visits and started placing supply orders. The decision whether to postpone procurement of equipment to next FY or to push within FY 2018-19, arrived after weighing both pros and cons. The equipment are badly in need in the field for milk marketing and processing. The postponement of procurement to next FY would further delay the dairy value chain program. The dairy value chain program in the East region, as of till date, has been in good progress with RLDC Kanglung, Department of Livestock, taking as lead under CARLEP funding.</p>	Project management	12/2020

<p>6. Short levy of Liquidated damages for supply of materials – Nu. 17,536.92</p> <p>The Dzongkhag Administration, Lhuentse had procured numerous livestock equipment like quinoa hullers, display chillers, refrigerators, milk cans, chopping machine and others from various suppliers within the country incurring around Nu. 1.7 million from CARLEP fund.</p> <p>During the review of the expenses incurred thereon, the RAA noted incidences of delayed delivery of supplies beyond 30 days specified in the supply orders of the Dzongkhag. The delay ranges from 21 days to 41 days from the due date of delivery as shown in table below:</p> <p>The above lapses had occurred due to non-implementation of clause specified in the tender document as well as terms and condition specified in supply orders.</p> <p>The Dzongkhag Administration is requested to furnish justifications besides recovering Nu. 17,536.92 and depositing into Audit Recoveries Account.</p> <p>In all cases with exception to one case, the Dzongkhag Administration had failed to deduct the liquidated damages. As a result, liquidated damages amounting to Nu. 17,536.92 was short deducted. The above lapses had occurred due to non-implementation of clause specified in the tender document as well as terms and condition specified in supply orders.</p> <p>As agreed during the audit exit meeting, liquidated damages amounting to Nu. 17,536.92 should be levied and deposited into Audit Recoveries Account within the three months from the date of issue of the report beyond which penalty@ 24% per annum would be levied as per the chapter IV, section 4.5.1.4 of Finance and Accounting Manual 2016.</p>	Project management	12/2020
<p>3. Diversion of RGoB's retraining fund to a study tour in Thailand</p> <p>During the review of the expenses incurred on aforesaid retraining, the RAA noted that the above two Retraining funds were diverted for a study tour to Thailand from 28.03.2019 to 07.04.2019. The study tour incurred total expenditure of Nu. 1,329,750.00 (Refer table 2.3) that was met from budget allocated to Retraining on Post Harvest Management and Retraining on Vegetable Production Techniques.</p> <p>a) The approval for a study tour availed by 11 officials was not sought from the Human Resource Committee of the Ministry of Agriculture and Forest (the lead Programme Agency for the CARLEP project). The Dzongkhag Administration nominated the participants based on the note sheet approved by the Dasho Dzongdag. Thus, it gave an impression that the study tour was initiated based on request (request-based) of beneficiaries and not based on needs (need-based) of the CARLEP project.</p> <p>b) The diversion of retraining funds to study tour outside the country was not at all communicated to the Office of the Programme Management (OPM) as</p>	Project management	12/2020

the OPM.

c) One of the core principles of budgeting and accounting stipulated in FRR 2016 is to use funds only for purposes specified in the approved budget and.

Management response:

Dzongkhag Agriculture would like to appraise that the sector processed and approved the re-appropriation of the budget from the above cited activities to capacity building of staff of Agriculture sector and its implementing partners by Dasho Dzongdag as per the delegation of power of financial power in FRR 2016. However, the sector would like to submit that the study tour was proposed due to following reasons:

a) Majority of the sectors activities are development of infrastructures such as construction of irrigation channel and efficient irrigation systems with new emphasis on agriculture activities to be climate resilient. Moreover, in the course of implementing CARLEP activities in the previous years, the sector faced formidable challenges in implementing the programme's activities due to lack of understanding and capacity of the sector and its implementing partners such as LGs, engineering sectors and finance sector. Therefore, a great need to build capacity of all implanting sectors were felt and accordingly the sector proposed for the study tour of the relevant officials with the intent to efficiently implement the activities and avoid wasteful expenditure of limited resources.

Upon completion of the study tour, the sector was able to departmentally execute CARLEP projects 'Efficient Irrigation System' worth Nu. 1.5 million at Khamdang benefiting more than 70 households enhancing their livelihood by providing irrigation water for vegetable cultivation. Moreover, the sector had planned for dryland irrigation infrastructure worth Nu. 4.28 million in 2019-20 FY in Khamdang Gewog where there is chronic water problem. Due to the enhanced capacity of engineers and the other relevant officials, the dryland irrigation infrastructure is also being departmentally executed, whereby increasing the cost efficiency of the activity and also providing the beneficiaries with appropriate and quality infrastructure. Climate resilient or Smart Agriculture is new concept not only to the Local Governments and Engineers but also to agriculture staffs. Moreover, most of the engineers are civil with little knowledge on agriculture infrastructures which led to no improvement on infrastructures even with numerous programs in the past. Therefore, building capacity of the implementing agencies in order to efficiently implement the sectors planned activities accordingly to the need and requirement of new programs and policies were felt. Considering thee earlier and additional justification, the memo may be considered considering the progress the sector had made in efficiently implementing the planned

activities. I would also like to assure your kind self that such at which is contravention of FRR or budget notification shall not be carried out in future.		
<p>1. Adjustment of advances without receiving materials and non-levy of liquidated damages</p> <p>The settlements of advances sanctioned for CAHW-CAIT Package Development and Documentation production were reviewed and noted that RLDC, Khangma had adjusted advances without receiving materials and without deducting liable liquidated damages. The advance for CAHW-CAIT Package Development was sanctioned for printing of Farmers Training Manual on Poultry, Piggery, Fishery, Diary, Feed and Fodder production, Milk Processing and Product Diversification Manual, Manual on Clean Milk Production whereas the advance for Production Documentation was booked from activity improved Services Outreach through CAHWs & Lead Farmers for producing a short script on livestock production. Further, the documented records showed that the advance was sanctioned to Programme Director on 29/05/2019 vide disbursement voucher no. DV.5.5 to conduct training on CAIT and the work order to print the manuals was placed only on June 4 2019. During the physical verification, the printed manuals and the short scripts were not available or not received by the Office.</p> <p>Management response: The expenditure for printing of field manuals and extension materials was provisioned under budget line & activity under 045/027/008/01/45.02 and FIC 4129. All training manuals have been printed out and are ready for distributions to fields. About 800 copies have been printed out covering 8 different manuals. The short script video documentation on Clean Milk Production last dateline was scheduled on 30th September 2019 as per our work order. The firm has requested time extension till November end for submission. Lately, the RLDC management is being informed that the final script is almost ready for submission within this November month. The copy will be circulated to RAA and OPM once we receive the final script. The expenditure was booked in FY 2018-19 as we have not provisioned any budget line in 2019-20. The fund for above activity is released in 4th quarter due to other priorities and difficulties in fund release process from IFAD office. In order to pull forward the dairy value chain interventions, the RLDC management placed work order in June 2019 with good faith and intentions.</p>	Project management	12/2020

Counterparts Funds

Rating: 5

Previous rating: 4

Justification of rating

Government contribution as of 31 March 2020 is 100% of annual budget (1.57 mil), contribution including contribution on

tax and staff salary. Previously RGoB's contribution has not included the staffing costs they cover.

Main issues

The beneficiary and government contributions have almost achieved IFAD's target. Yes, the Government is on track in meeting overall counterpart contributions to the project. Counterpart fund amounts are being released in full and in a timely manner by the government.

Taxes on purchases of vehicles, service charges and import of equipment or materials are borne by the government however, taxes on vendors are claimed from IFAD which need to be refunded where OPM have already worked out which will be shared to IFAD soon.

The project was able to validate tax exemptions and counterpart financing are timely released. Due to timely counterpart financing, it has affected the project's performance positively.

Agreed Action	Responsibility	Agreed Date
Budgeting of counterpart funds OPM to increase the planning of those activities funded by the RGoB and at the same time monitor that overall districts' planning does not put in place activities overlapping with CARLEP that may be included in the project's plan.	OPM	12/2018
Determine/monitor tax quota out of RGoB contribution Determine/monitor tax quota out of RGoB contribution	OPM	01/2019
RGOB Contribution a) Record all tax exemptions provided by RGOB as its share of contribution b) Obtain and record contribution from RGOB in respect of tax claimed from IFAD	AO, OPM	08/2019
Tax refund for payment to Vendor to be recovered Tax refund for payment to Vendor to be recovered	OPM	12/2020

Compliance with Loan Covenants

Rating: 4

Previous rating: 4

Justification of rating

CARLEP has complied with most loan covenants in accordance with the financing agreement and as per the LTB.

Procurement

Procurement

Rating: 4

Previous rating: 3

Justification of rating

The Annual Procurement Plan (APP) was prepared and obtained IFAD's No objection on Sep 12, 2019. Programme has periodically updated/upgraded APP broadly in line in AWPB. In APP, the Procurement Schedule was selectively updated with actual dates as against the planned dates. Emphasis periodic update of procurement Schedule and utilise APP to as review and monitoring tool to identify critical delays. Based on the envisaged procurement activities in APP FY 2019-20, as on 15 Jun 2020, the Physical progress is around 65% of the planned activities were completed. Financial Progress is around 50% completed expenditure as against planned expenditure.

Procurement Review

Processes, procedures and systems applied exhibit some gaps and inconsistencies that have some impact on programme implementation and performance. Implementation support is required; however, prompt resolution of issues/constraints is likely.

Agreed Action	Responsibility	Agreed Date
Procurement Specialist Deploy a full time Procurement Specialist at OPM and assign procurement management function Share ToR with IFAD before initiating the Procurement Process.	OPM	09/2020
Upgrade APP and use APP as monitoring tool Update procurement schedule in APP [Planned vs Actual], utilize APP as monitoring cum review tool. Upgrade with the spill over activities in line with AWPB 2020-21. Update Contract register using the IFAD Form C-10 Update status of completed, in progress, in pipeline Procurement activities as on 30 June 2020 [end of present FY] Encourage the staff directly involved to undertake the World Bank promoted FREE certification courses in Public Procurement and Contract Management accessible at www.procurementlearning.org . Augment with need based online refresher sessions Develop and operationalize procurement contract monitoring system [MIS system] to integrate Planning, Procurement, and Financial Management functions.	OPM	03/2021

e. Key SIS Indicators

Likelihood of Achieving the Development Objective	Rating: 4	Previous rating: 4
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Justification of rating

the project is on track to achieve the development objectives

Assessment of the Overall Implementation Performance	Rating: 4	Previous rating: 4
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Justification of rating

the project results to be performing

F. Relevance

Relevance	Rating: 5	Previous rating: 5
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Justification of rating

The initial progress under CARLEP created the conditions for including Additional Financing. Farmer feedback is indicating that there has been an overall improvement in food and nutrition security and increasing resilience to climate change impacts. This has stood the beneficiaries well under the COVID-19 context. In light of COVID-19, the programme has adjusted priorities to ensure that food and nutrition self-sufficiency is necessary to reduce dependency on neighbouring countries.

G. Lessons Learned

Lead Farmers

The lead farmers have been an effective extension model in the promotion of agricultural technologies. The lead farmers were selected based on; willingness to expand their skills to neighbours, farming experience, leading a group and/or potentials to form group. In FY2019-20, a total of 26 lead farmers were selected and trained. The knowledge and skills of lead farmers were upgraded using hands-on farm technology demonstration followed by up-scaling in their village farms.

The Samdrup Jongkhar Initiative (NGO) identified 31 potential lead farmers and trained to up-scale outreach services to remote gewogs. It is reported that Dzongkhags and gewog extension centers have started to use their services. The SJI found that the lead farmers are useful in brokering technical information and messages. In Menji village of Lhuntse, a youth lead farmer led a group of 18 women & 4 men in winter vegetable cultivation commercialization on 15 acres of leased land with LUC. The Community Animal Health Workers are trained by RLDC to overcome inadequate extension coverage in larger gewogs and remote villages. The AI technology is one of the success stories reaching out to remote areas and social groups. With CARLEP support, RLDC Khaling trained 29 CAITs from 6 Dzongkhags. Combined with AI training, the CAITs were also trained to function as CAHW. Mr Sangay Tenzin capacitated with the AI & CAIT knowledge and skills, delivered services to Themnandi and Jaibab villages in Mongar and two dairy groups with 19 & 21 members, respectively. Another CAHW shares that he comfortably diagnoses symptoms and treats cow sickness combined with AI technology in 2 villages of Mongar. The CAITs of Samdrup Jongkhar, Pema Gatshel, Trashigang, and Mongar share similar stories (Lungten & Phuntsho, 2019). To up-scale outreach services, CAHW must combine AIT to secure financial benefits and concomitantly promote CAIT outreach service. Till date, 121 lead farmers and 87 CAITs were trained to lead other farmers.

Transforming Life – A story of youth dairy commercial farming group

One of the successful lessons of CARLEP supported youth group is *Nazhoen Gonor Yarphe Tshogpa* - a commercial dairy group in Jamkhar village, Trashy Yangtse (Chekey et al., 2019). The dairy group comprised of 3 unemployed men and 3 women. Youth employment by creating opportunities is one of the national priorities. At the national level, the unemployment rate among youth is reported at 13.7%. To incentivize youth employment in agriculture, an enabling policy and regulatory environment was created with fiscal and financial subsidies by the central Government. The youth group formed in 2017. They approached the Dzongkhag livestock sector with a proposal followed by feasibility studies. A loan amount of Nu 100,000 was accessed from the Rural Enterprise Development Limited. The Dzongkhag supported the acquisition of government land (7 acres) under land use certificate. The implementation modalities were agreed between the youth group and Dzongkhag. CARELP supported cow shed construction materials and purchase of 12 dairy cows whilst the youth contributed labour for construction and fodder development. The group's hard work paid off with milk production of 1080 litres per month and milk by-products; cheese (750 nos.), butter (51 kgs). Besides, they collected and marketed dairy products from nearby villages contributing a total income of Nu 46,680 per month/group. The social impacts were that the youth group transformed the fallow land to productive use, assured markets for villagers' dairy products boosting production, and conserve fodder germplasm for distribution to villages scaling-up dairy farming.

Women-led vegetable production commercialization

The CARLEP supported women leadership vegetable farming is one of the success stories (Wangmo, K. 2019). Ms Yangchen an uneducated woman of 52 years old spearheads the vegetable group locally named *Wangling Sonam Tshesey Tshogpa*. The group is comprised of 10 women farmers in the Wangling village of Mongar. She is one of the 6 recipients of vegetable value chain training under the CARLEP supported exposure visits to Thailand. She says "I was fortunate enough to represent farmers of eastern Bhutan to an outside country, and also learned lots of improved technology particularly on post-harvest and product diversification of vegetables." Back home, she manages the vegetable group and grows all kinds of vegetables with potato and chilli preferred crops owing to high demand and longer self-lives. In 2016, she received CARLEP supported greenhouse and input supplies (seeds, water sprinklers, pipes, plastic crates) and training from ARDC Wengkhari and Dzongkhag. She applied the knowledge and skills learned in her farm and played leadership role on commercial vegetable farming and quickly attained a progressive farmer status. She says "I did not go to formal school but that doesn't impede me in doing what I can do, and for record-keeping, I ask for my school-going grandchildren." Yangchen and her family of six (husband, daughter, son-in-law, and two grandchildren) works in a 6 acres of private land. Four acres are cultivated with cereals (maize) and fruit (citrus, pears, peach) and 2 acres with commercial vegetables. With increased vegetable production, Yangchen's earns an annual income ranged from Nu.1, 00,000-1,50,000 while the group members earns an average income from Nu 50,000-100,000. The vegetables produced are sold in Monger town and Gyelposhing high school. However, water scarcity impeded cultivation on a commercial scale. The group installed 14 water tanks. The locally grown fresh vegetables provide a rich source of nutrients to her children. To reduce uncertain climate risks, Yangchen practised risk-aversion integrated farming with dairy cows and 30 eggs layers. She says "integrated farming is more secure and profitable than concentrating on a single income vegetable source." The vegetables and crop residues were used to feed animals while dung and manure fertilizes vegetables creating a win-win situation mainstreaming gender, nutrition, youth and climate change. The factors that motivated her success were; interest, post-training application of knowledge and skills, commercial benefits, CARLEP technical and inputs support.

H. Agreed Actions

Agreed Action	Responsibility	Agreed Date
Overview and Project Progress		

<p>Implementation of new activities under CARLEP-AF</p> <p>Lay the ground work for implementing the new outputs from 1.5 to 1.9 and from 2.4 to 2.6</p> <p>Identify villages for support under CARLEP-AF</p> <p>Map villages having production similarities for clustering</p> <p>Varietal screening of selected crops to identify genes for developing new varieties with strong response to organic and bio-fertilizer and resistance against pest and diseases</p> <p>Examine if existing AICT in country can be used in conjunction with LF. If not develop a new app for AICT and develop the appropriate modules related to CARLEP activities</p>	<p>OPM/partner organisations</p>	<p>09/2020</p>
<p>Protected agriculture</p> <p>Prepare invitation for expression of interest to supply protected agriculture using vertical production system with hydroponic irrigation and movable gutter</p> <p>Explore the enhancement of bio gas slurry as a composite fertiliser</p> <p>Test submerged drip irrigation for vegetable production and fruit orchards</p> <p>Perfect the procedures of preparing the right medium for shiitake production.</p>	<p>OPM/partner organisations</p>	<p>11/2020</p>
<p>Policy engagement and Learning</p> <p>Sharing of good policy and practice between beneficiaries, development workers, and CSOs</p> <p>Develop a strategy and guidelines for identifying and allocating lands for young farmers</p>	<p>OPM and partners</p>	<p>12/2020</p>
<p>Demand driven support to enterprises</p> <p>Prepare a long list of enterprises that can be supported by the programme together with necessary review and outreach materials (sample investment prospectus, including AF-CARLEP matching grants , advertisements and invitations to encourage applications, application forms and transparent screening system)</p> <p>Prepare a road map for supporting the revitalisation of organic farming including: (i) awareness campaign; (ii) certification system; (iii) soil mapping for identifying what bio enhancements are needed.</p> <p>Develop investment opportunities for HMAP and domestic and export markets including direct linkage to buyers with bankable commitments</p> <p>Hire relevant technical expertise to support OPM+RAMCO with cooperative/enterprise formation, business orientation and planning, and overall commercialisation of vegetables and dairy value chains</p> <p>Develop incentive mechanisms for linking traders and FGs to alternative/diversified markets (including domestic, export).</p> <p>Promote more multi stakeholder platforms including for new commodities under AF phase (ongoing + AF)</p> <p>Strengthen FGs and cooperatives to form federations to collectively negotiate price and import/export policies & regulations</p>	<p>OPM/partner organisations</p>	<p>03/2021</p>

Financial Services Link CARLEP target group with existing financial education programmes and develop a savings culture Develop a list of participating financial institutions to sign a MOA with CARLEP-AF to provide financial support to beneficiaries including terms and conditions Guide CARLEP target group to Priority Sector Lending (PSL) scheme and systematically monitor the use of PSL loans together with the matching grant scheme Collaborate with BDBL to apply Farmer's Outreach Banking (FOB) to CARLEP target group Collaborate with the National CSI Development Bank Limited to apply non-rural financing and cottage industry financing schemes to CARLEP target group Explore various options of mobile/digital financial service for CARLEP target group Follow the development of the Green Finance Roadmap for future complementary financial services such as crop insurance products for CARLEP target group	OPM/Financial Institutions	12/2021
Development Effectiveness		
Identify villages for AF-CARLEP support Map villages having production similarities for clustering	OPM with partners	08/2020
Varietal screening and developing new varieties Varietal screening of selected crops to identify genes for developing new varieties with strong response to organic and bio-fertilizer and having strong traits for resistance against pest and diseases	OPM with partners	09/2020
Lead Farmer in conjunction with AICT Examine if existing AICT in country can be used in conjunction with LF. If not develop a new app for AICT and develop the appropriate modules related to CAELEP activities	OPM/TA	09/2020
AF-CARLEP support to introduction of organic farming Prepare a road map for supporting the revitalisation of introducing organic farming including: (i) awareness campaign; (ii) required and affordable certification system; (iii) detailed of soil sampling and analysis and different types of soil amendments, source and production and bio plant protection remedies.	OPM with partners	09/2020
Targeting Improve targeting and indicating specific criteria and quota	OPM/Gewogs/Tarayana Foundation/SJI	10/2020
Youth Develop a youth engagement plan	OPM/Gewogs/Tarayana Foundation/SJI	10/2020
Leadership management skills Training, exposure visit and mentoring on leadership management skills to women-led vegetable farming groups Training on gender responsive M&E for OPM staff	OPM/NCWC/Tarayana Foundation	10/2020

CSV Implement landscape-based/whole-of-village approach using farmers field school practices in 12 CSA villages	OPM/Dzongkhags/ Gewogs	01/2021
Women's participation Enhance 40% women membership in FGs, Cooperatives, post-harvest and marketing groups with 20% taking executive role (chairman, secretary, accountant)	OPM/NCWC/Tarayana Foundation	05/2021
Protected agriculture Prepare invitation for expression of interest to supply protected agriculture using vertical production system with hydroponic irrigation and movable gutter Explore the enhancement of bio gas slurry as a composite fertiliser Test submerged drip irrigation for vegetable production and fruit orchards Perfect the procedures of preparing the right medium for shiitake production.	OPM with partners	09/2021
Investment and Marketing Prospectus for HVC Develop investment and marketing prospectus for HVC for domestic and export markets including direct linkage to buyers with bankable commitments	OPM with support from RAMCO/domestic private sector and foreign private import sector/ITA	
Sustainability and Scaling up		
Environmental and Social codes Implement environmental and social code of practice during dry land irrigation schemes construction (Annex 2)	OPM/Engineers	07/2020
Policy engagement and Learning Sharing of good policy and practice between beneficiaries, development workers, and CSOs Develop a strategy and guidelines for identifying and allocating lands for young farmers	OPM with partners	12/2020
Community Groups Accelerate group formation and group development activity	OPM	12/2020
Participatory Monitoring Develop systems for community monitoring and feedback to be integrated in the M&E framework (AF)	OPM	12/2020
Use of Technical Assistance The OPM will use contracting of TA (local or international) to increase performance of CARLEP including for outreach, procurement, market access/studies, cooperative development/formalization etc.	OPM	12/2020

Mapping of water sources Map available upstream springs and rivers for supply of irrigation water maintaining 30% environmental flow	OPM/DoA irrigation engineers	12/2020
Increase number of Farmer Groups Women-led vegetable production & commercialization	OPM/RAMCO/FGs	12/2020
Youth Cooperatives Youth-led dairy production and commercialization increased	OPM/DLOs/Youth	12/2020
Increase number of lead farmers Lead farmers and CAIT extension models	OPM	12/2020
Strengthening Farmers Organisations Strengthen farmers' groups and cooperatives to form federations to collectively negotiate price and import/export policies & regulations (AF)	OPM with partners	01/2021
Partnerships Engage with WFP, FAO and WB for a least one area of priority	OPM, Districts, MoAF	05/2021
KM / Learning events With the three agencies hold at least one learning event planning for 2021	OPM, Districts, MoAF	05/2021
Exit Strategy A draft strategy should be developed as a base to build upon during the next 2 years	OPM	06/2021
Project Management		
Revise AWPB Following the mission the AWPB 2020-21 should be revised to reflect agreements made	OPM	09/2020
KM Strategy Update the KM strategy to include the AF	OPM	12/2020
Staffing Participate in training for developing templates, KM tools and software	OPM	12/2020
Data Collection Data rigor needs to increase to ensure that a full analysis of financial viability and value for money can be undertaken.	OPM/Districts	12/2020

Web-based MIS system Customize and roll out with retroactive data the new system	OPM	12/2020
SECAP Compliance Capacity building on compliance monitoring on environmental and social risks as part of M&E plan	OPM	03/2021
Learning event Organize or participate in a national or regional KM event to advocate the success stories from the field from CARLEP	OPM	
Geo-Spatial M&E Data Professional training on collecting and use of geospatial M&E data	OPM	
Financial Management & Execution		
Budgeting of counterpart funds OPM to increase the planning of those activities funded by the RGoB and at the same time monitor that overall districts' planning does not put in place activities overlapping with CARLEP that may be included in the project's plan.	OPM	12/2018
Reporting Enhance Interim Financial Progress and timely submit quarterly to IFAD	OPM	12/2018
Taxes – ineligible amounts Determine the ineligible amount of taxes charged to IFAD and provide communication to IFAD FO for refund/deduction from future WAs. Also track RGoB contribution provided as taxes.	OPM	12/2018
Determine/monitor tax quota out of RGoB contribution Determine/monitor tax quota out of RGoB contribution	OPM	01/2019
FCBL Analyse the breakdown of FCBL expenses which is mainly comprising salary cost (including those of the staff at stores) in order to determine what is/is not Recurrent Costs.	OPM	01/2019
Fixed Assets Full assets tagging and relevant reporting in asset registers, (i.e. starting to tag in ranking order from most expensive)	Finance OPM/ IUs	03/2019
E-Training on FM of IFAD funded projects All finance staff across CARLEP invited to undertake the IFAD FM e-learning (link has already been provided by the FMS to OPM).	OPM Finance	06/2019

Preparation of WA a) Calculate the taxes claimed so far and adjust the next WA by reducing this amount incorrectly claimed b) Ensure correct preparation of WA by not claiming taxes charged, advances paid and claim the full expenditure incurred before deduction of tax	AO, OPM	07/2019
RGOB Contribution a) Record all tax exemptions provided by RGOB as its share of contribution b) Obtain and record contribution from RGOB in respect of tax claimed from IFAD	AO, OPM	08/2019
Project Financial Statements a) Prepare financial statements in accordance with IFAD's reporting requirements and ensure that the financial statements are complete and accurate. b) For the year 2017-18, prepare the complete set of correct financial statements and get the audit verification done in respect of the revised PFS	AO, OPM	09/2019
Ring-fence CARLEP finance community OPM finance (i) to call, at least once a year, a FM workshop gathering all Carlep finance staff, (ii) OPM finance to provide one-to-one support through at least one visit per year at all IU (iii) and facilitate cross visit-cooperation of staff from adjacent districts.	OPM	12/2019
Procurement Specialist Deploy a full time Procurement Specialist at OPM and assign procurement management function Share ToR with IFAD before initiating the Procurement Process.	OPM	09/2020

<p>7. Shortfalls in the procurement of chaff cutter</p> <p>The lapses had occurred due to mistakes in placing the supply orders by the dealing persons and ambiguity in implementing the criteria or terms of subsidy payment at 60:40 (60% to be borne by Government & 40% to be borne by beneficiaries). As conveyed during exit meeting, 80:20 (80% borne by Government and 20% by beneficiaries) is applicable if the chaff cutter is to be distributed to group and 60:40 (60% by Government & 40% to be by beneficiaries) is to be applied only if chaff cutter is to be distributed to individual and not group.</p> <p>As agreed during the exit meeting, the CARLEP project management is requested to submit the assurance letter confirming that all materials had been supplied by the supplier and received by respective beneficiaries. Until such time, the Para shall stand.</p> <p>The project management is requested to exercise reasonable prudence in placing supply orders and avoid overwriting on official documents. Further, the project management is requested to bring clarity and uniformity in implementation of criteria or terms of subsidy payment.</p> <p>The project management is requested to exercise reasonable prudence in placing supply orders and avoid overwriting on official documents. Further, the project management is requested to bring clarity and uniformity in implementation of criteria or terms of subsidy payment.</p>	Project management	12/2020
<p>10. Non recovery of insurance premium paid by Government</p> <p>According to the Department of Livestock's Guidelines on Interim Stimulus Support Package Implementation, 2014, "If cow dies during the insured period, the premium paid by DoL will be deducted from the insured amount received and deposited into RGoB Account".</p> <p>According to the information made available to the audit team, three out of 16 procured cows died during the year. Two out of three cows died within 15 days after reaching the site (both cows were not insured) and the remaining one died during insured period. The RAA was informed that the insured amount had been received from the insurance company and same was not deposited into RGR Account as per the Guidelines on Interim Stilulus Support Package.</p> <p>The insurance amount should be recovered and deposited into Audit Recoveries Account besides justifying for lapses.</p>	Project management	12/2020

<p>9. Re-claiming the already claimed bills by resubmitting settled bills of year 2017-18 in 2018-19 – Nu. 198,591.00</p> <p>The documented records and expenditure for establishment of dairy farms for URS groups, shed construction and construction of milk collection center was reviewed and the RAA noted that the bills, which were settled in 2017-18 in response to observation no. 35 of the previous audit finding for the financial year 2017-2018, was again claimed in the current financial year 2018-19.</p> <p>The RAA noted that bills for cement, transportation charges, railing & gate, and procurement of fuel was resubmitted or re-claimed during the financial year 2018-2019, which was previously settled or stated to have incurred for construction of temporary quarter for URC at Gulibee from the budget of insourcing cross breed cow financial year 2017-2018.</p> <p>It appeared as though the bills, which were fully settled in 2017-18, are re-claimed again in 2018-19 with a notion that different audit team in subsequent financial year may not detect or notice such deceitful act. In the year 2017-18, these bills were already used to settle the related claims and used as a basis to resolve the audit memo no. 35 reported in preliminary audit findings of the Dzongkhag Administration, Lhuntse, for the period 2017-2018.</p> <p>The double claims of Nu. 198,591.00 should be recovered and deposited into Audit Recoveries Account besides justifying for the lapses.</p>	RLDC management	12/2020
<p>8. Excess payment of transportation charges – Nu. 102,636.00</p> <p>The transportation charges of Nu. 424,366.00 was incurred for transportation of various agricultural and livestock materials. During the review of payment records, the RAA gathered following shortfalls:</p> <p>a) Payment for bill no. 444 dated 01/05/19 which was made twice, once vide disbursement voucher no. DV.5.25 dtd. 20/05/2019 and other vide disbursement voucher no.DV.6.56 dated 22/6/19 (Refer table below); and</p> <p>b) The RAA noted conflicting dates in the transportation charges paid for transportation of jersey. The local transportation dates do not correlate with transportation dates of jersey in the locality.</p> <p>As agreed during the audit exit meeting, the excess payment amounting to Nu. 102,646.00 should be recovered and deposited into Audit Recoveries Account within the three months from the date of issue of the report beyond which penalty@ 24% per annum would be levied as per the chapter IV, section 4.5.1.4 of Finance and Accounting Manual 2016.</p>	Project management	12/2020

<p>4. Supply of inferior quality of CGI Sheet for diary shed construction</p> <p>The RAA was informed that the Dzongkhag Administration had placed order of 24 gauge or 0.63 mm CGI sheet. The joint physical verifications were conducted in Phongmey, Samkhar, Thrimshing, Kangpara, Shongphu &Kanglung from 6 September to 9 September 2019. The joint physical verification team noted that the CGI sheet supplied by the suppliers were of 0.50 mm and not 0.63 mm24 gauge.</p> <p>Management response: The verification team found that only eight (8) households got the required specification of 0.63mm CGI sheets as per supply order of Dzongkhag Procurement and rest 33 household got specification of 0.50mm (detail list attached). Since there is no significant physical difference in quality of CGI sheets between the two types of specifications, the beneficiary farmers are happy with the quality of GGI sheets they have received. The supplier failed to supply the specifications mentioned in supply order. The supplier, M/s Kota Shopping Center had accepted the mistake and the implementing agency failed to verify the stock because materials were received in bulk. we have received a assurance letter dated 14.11.2019 from M/s Kota Shopping Center, (attached) stating that, it was their mistake and they are liable to refund the difference amount. The supplier agreed to refund the difference amount to RAA, Audit Recovery Account as per rule and the assurance letter of suppliers attached herein for kind references. The difference amount is calculated as per the present market rate is tabulated below: Therefore, the difference amount of Nu 85437/- (Eighty-Five Thousand four hundred thirtyseven) only will be deposited to RAA, Audit Recovery Account immediately.</p> <p>RAA's Further Comments & Recommendation: As agreed during the audit exit meeting, the excess payment amounting to Nu. 96,316.42 should be recovered and deposited into Audit Recoveries Account Account within the three months from the date of issue of the report beyond which penalty@ 24% per annum would be levied as per the chapter IV, section 4.5.1.4 of Finance and Accounting Manual2016. The project management is requested to ensure that properties are properly inspected and examined before acceptance/payment to check that the quantity and quality of properties received is correct.</p>	Project management	12/2020
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<p>5. Excess payment to supplier – Nu. 102,667.50 (1.2.2)</p> <p>As informed by the Dzongkhag Livestock Sector, the Dzongkhag Administration, Samdrup jongkhar had supplied 15 bags of cement and 15 kilograms of MS Rod to individual beneficiaries. However, during the joint physical verifications of diary sheds, beneficiaries claimed that they received only 6 bags of cement and MS Rod (10 mm) was not received at all.</p> <p>It was also learnt that the cost of transportation of 6 PCC post to individual beneficiaries amounting to Nu. 600.00 each was incurred. The RAA couldn't comprehend the rationale behind transportation of PCC post given the fact that cement received was only 6 bags each and Ms. Rod was not received by the beneficiaries.</p> <p>As agreed during the audit exit meeting, the excess payment amounting to Nu. 102,667.50 should be recovered and deposited into Audit Recoveries Account Account within the three months from the date of issue of the report beyond which penalty@ 24% per annum would be levied as per the chapter IV, section 4.5.1.4 of Finance and Accounting Manual 2016.</p>	Project management	12/2020
<p>2. Payment made without receiving equipment</p> <p>During the review of equipment procurement vouchers of RLDC, Khangma, the RAA noted that all the payment to the suppliers were made without receiving equipment worth more than Nu. 6.9 million. It was also observed that liquidated damages for delays in supplies were not levied to the respective suppliers.</p> <p>Response: The RAA observation in this respect is well noted by the Management. As per the procurement norms, the Centre has tried to complete procurement document for open bid competition within time. However, due to delay in IFAD financial clearance for procurement, the supply orders couldn't be placed on time. The Centre has received green signal for procurement only in May 2019 during IFAD mission visits and started placing supply orders. The decision whether to postpone procurement of equipment to next FY or to push within FY 2018-19, arrived after weighing both pros and cons. The equipment are badly in need in the field for milk marketing and processing. The postponement of procurement to next FY would further delay the dairy value chain program. The dairy value chain program in the East region, as of till date, has been in good progress with RLDC Kanglung, Department of Livestock, taking as lead under CARLEP funding.</p>	Project management	12/2020

<p>6. Short levy of Liquidated damages for supply of materials – Nu. 17,536.92</p> <p>The Dzongkhag Administration, Lhuentse had procured numerous livestock equipment like quinoa hullers, display chillers, refrigerators, milk cans, chopping machine and others from various suppliers within the country incurring around Nu. 1.7 million from CARLEP fund.</p> <p>During the review of the expenses incurred thereon, the RAA noted incidences of delayed delivery of supplies beyond 30 days specified in the supply orders of the Dzongkhag. The delay ranges from 21 days to 41 days from the due date of delivery as shown in table below:</p> <p>The above lapses had occurred due to non-implementation of clause specified in the tender document as well as terms and condition specified in supply orders.</p> <p>The Dzongkhag Administration is requested to furnish justifications besides recovering Nu. 17,536.92 and depositing into Audit Recoveries Account.</p> <p>In all cases with exception to one case, the Dzongkhag Administration had failed to deduct the liquidated damages. As a result, liquidated damages amounting to Nu. 17,536.92 was short deducted. The above lapses had occurred due to non-implementation of clause specified in the tender document as well as terms and condition specified in supply orders.</p> <p>As agreed during the audit exit meeting, liquidated damages amounting to Nu. 17,536.92 should be levied and deposited into Audit Recoveries Account within the three months from the date of issue of the report beyond which penalty@ 24% per annum would be levied as per the chapter IV, section 4.5.1.4 of Finance and Accounting Manual 2016.</p>	Project management	12/2020
<p>3. Diversion of RGoB's retraining fund to a study tour in Thailand</p> <p>During the review of the expenses incurred on aforesaid retraining, the RAA noted that the above two Retraining funds were diverted for a study tour to Thailand from 28.03.2019 to 07.04.2019. The study tour incurred total expenditure of Nu. 1,329,750.00 (Refer table 2.3) that was met from budget allocated to Retraining on Post Harvest Management and Retraining on Vegetable Production Techniques.</p> <p>a) The approval for a study tour availed by 11 officials was not sought from the Human Resource Committee of the Ministry of Agriculture and Forest (the lead Programme Agency for the CARLEP project). The Dzongkhag Administration nominated the participants based on the note sheet approved by the Dasho Dzongdag. Thus, it gave an impression that the study tour was initiated based on request (request-based) of beneficiaries and not based on needs (need-based) of the CARLEP project.</p> <p>b) The diversion of retraining funds to study tour outside the</p>	Project management	12/2020

country was not at all communicated to the Office of the Programme Management (OPM) as the OPM.

c) One of the core principles of budgeting and accounting stipulated in FRR 2016 is to use funds only for purposes specified in the approved budget and.

Management response:

Dzongkhag Agriculture would like to appraise that the sector processed and approved the re-appropriation of the budget from the above cited activities to capacity building of staff

of Agriculture sector and its implementing partners by Dasho Dzongdag as per the delegation of power of financial power in FRR 2016. However, the sector would like to

submit that the study tour was proposed due to following reasons:

a) Majority of the sectors activities are development of infrastructures such as construction of irrigation channel and efficient irrigation systems with new emphasis on agriculture

activities to be climate resilient. Moreover, in the course of implementing CARLEP

activities in the previous years, the sector faced formidable challenges in implementing

the programme's activities due to lack of understanding and capacity of the sector and

its implementing partners such as LGs, engineering sectors and finance sector.

Therefore, a great need to build capacity of all implanting sectors were felt and

accordingly the sector proposed for the study tour of the relevant officials with the intent

to efficiently implement the activities and avoid wasteful expenditure of limited resources.

Upon completion of the study tour, the sector was able to departmentally execute

CARLEP projects 'Efficient Irrigation System' worth Nu. 1.5 million at Khamdang

benefiting more than 70 households enhancing their livelihood by providing irrigation

water for vegetable cultivation. Moreover, the sector had planned for dryland irrigation

infrastructure worth Nu. 4.28 million in 2019-20 FY in Khamdang Gewog where there is

chronic water problem. Due to the enhanced capacity of engineers and the other

relevant officials, the dryland irrigation infrastructure is also being departmentally

executed, whereby increasing the cost efficiency of the activity and also providing the

beneficiaries with appropriate and quality infrastructure.

Climate resilient or Smart Agriculture is new concept not only to the Local Governments and

Engineers but also to agriculture staffs. Moreover, most of the engineers are civil with little

knowledge on agriculture infrastructures which led to no improvement on infrastructures

even with numerous programs in the past. Therefore, building capacity of the implementing

agencies in order to efficiently implement the sectors planned activities accordingly to the

need and requirement of new programs and policies were felt.

Considering thee earlier and additional justification, the memo may be considered

considering the progress the sector had made in efficiently implementing the planned activities. I would also like to assure your kind self that such at which is contravention of FRR or budget notification shall not be carried out in future.		
<p>1. Adjustment of advances without receiving materials and non-levy of liquidated damages</p> <p>The settlements of advances sanctioned for CAHW-CAIT Package Development and Documentation production were reviewed and noted that RLDC, Khangma had adjusted advances without receiving materials and without deducting liable liquidated damages. The advance for CAHW-CAIT Package Development was sanctioned for printing of Farmers Training Manual on Poultry, Piggery, Fishery, Diary, Feed and Fodder production, Milk Processing and Product Diversification Manual, Manual on Clean Milk Production whereas the advance for Production Documentation was booked from activity improved Services Outreach through CAHWs & Lead Farmers for producing a short script on livestock production. Further, the documented records showed that the advance was sanctioned to Programme Director on 29/05/2019 vide disbursement voucher no. DV.5.5 to conduct training on CAIT and the work order to print the manuals was placed only on June 4 2019. During the physical verification, the printed manuals and the short scripts were not available or not received by the Office.</p> <p>Management response: The expenditure for printing of field manuals and extension materials was provisioned under budget line & activity under 045/027/008/01/45.02 and FIC 4129. All training manuals have been printed out and are ready for distributions to fields. About 800 copies have been printed out covering 8 different manuals. The short script video documentation on Clean Milk Production last dateline was scheduled on 30th September 2019 as per our work order. The firm has requested time extension till November end for submission. Lately, the RLDC management is being informed that the final script is almost ready for submission within this November month. The copy will be circulated to RAA and OPM once we receive the final script. The expenditure was booked in FY 2018-19 as we have not provisioned any budget line in 2019-20. The fund for above activity is released in 4th quarter due to other priorities and difficulties in fund release process from IFAD office. In order to pull forward the dairy value chain interventions, the RLDC management placed work order in June 2019 with good faith and intentions.</p>	Project management	12/2020
<p>Tax refund for payment to Vendor to be recovered</p> <p>Tax refund for payment to Vendor to be recovered</p>	OPM	12/2020

awareness of IFAD corruption policy Project staff and stakeholders are advised to read IFAD policy on Preventing Fraud and Corruption in its Activities and Operations. https://www.ifad.org/en/document-detail/asset/40189695	OPM, IU and stakeholder	12/2020
financial system/database Development of new financial system/database for project to consolidate the financial report	OPM	12/2020
Upgrade APP and use APP as monitoring tool Update procurement schedule in APP [Planned vs Actual], utilize APP as monitoring cum review tool. Upgrade with the spill over activities in line with AWPB 2020-21. Update Contract register using the IFAD Form C-10 Update status of completed, in progress, in pipeline Procurement activities as on 30 June 2020 [end of present FY] Encourage the staff directly involved to undertake the World Bank promoted FREE certification courses in Public Procurement and Contract Management accessible at www.procurementlearning.org . Augment with need based online refresher sessions Develop and operationalize procurement contract monitoring system [MIS system] to integrate Planning, Procurement, and Financial Management functions.	OPM	03/2021
Budgeting/costab Support OPM management in the feasibility of any exercise aimed at enhancing current costab/AWPB component classification (i.e. MYRB), providing a bridge/mapping of current expenditure to future plans.	OPM	
Budget planning Early and stronger engagement of Finance in the planning process, to come up with enhanced reporting on actual expenditure and residual balance, by IU and benchmarked as % of AWPB (cumulative/period)	OPM	
Submission of Withdrawal Applications Prepare quarterly WA and submit to IFAD promptly after the end of the quarter	AO, OPM	
Contract Register Maintain Contract Register to monitor contracts and also to plan the cash flow for ongoing contracts	All Implementing Units	

Bhutan

Commercial Agriculture and Resilient Livelihoods Enhancement Programme Supervision Report

Logical Framework

Mission Dates: 1 June - 20 August 2020
Document Date: 28/08/2020
Project No. 1100001739
Report No. 5472-BT

Asia and the Pacific Division
Programme Management Department

Commercial Agriculture and Resilient Livelihoods Enhancement Programme

Logical Framework

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
Outreach	1.b Estimated corresponding total number of households members							RIMS	Annual		
	Household members	141 562	28 975	141 562							
	1.a Corresponding number of households reached							RIMS	Annual		
	Women-headed households		2 254	14 486							
	Non-women-headed households		3 382	14 489							
	Households			28 975							
	1 Persons receiving services promoted or supported by the project										
	Females		11 088	55 053							
	Males			55 000							
	Young		200	2 000							
	Not Young										
	Total number of persons receiving services		11 288	110 053							

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
Project Goal Sustainably increase smallholder producers' incomes and reduce poverty through commercialization of production within programme households	5 000 direct beneficiary HH in vegetable and dairy value chains report at least 25% increase in HH asset and income, as compared to baseline (disaggregated by HHs-head gender)							IFAD's Results and Impact Management System (RIMS) and baseline surveys			No major socio-economic slow down, or natural disasters Increasing support for collaboration between different Agencies, civil society and private sector to develop value chains - Continued MoAF support for innovative approaches Agricultural approaches and technologies primarily remain profitable - Programme investments are realized as designed
	% of increase in HH asset and income		12	25							
	15% reduction in the prevalence of child malnutrition, as compared to baseline							Programme M&E			
	% reduction child malnutrition	31.37		16.7							

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
Development Objective Increased returns to smallholder farmers through climate resilient production of crops and livestock in nationally organized value chains and marketing systems	≥ 30% increase in production of vegetables and dairy products							Baseline survey - Sector studies - Technical agencies' reports and studies Research and academic studies Programme M&E			No major socio-economic slow down, or natural disasters Increasing support for collaboration between different Agencies, civil society and private sector to develop value chains - Continued MoAF support for innovative approaches Agricultural approaches and technologies primarily remain profitable - Programme investments are realized as designed
	% increase in production		25	30							
	≥ 20,000 HH in vulnerable areas with increased water availability for agriculture production							Baseline survey - Sector studies - Technical agencies' reports and studies Research and academic studies Programme M&E			
	Households		2 276	20 000							

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
Outcome Community-based Resilient Agricultural Production has sustainably increased	6 000 HH adopt sustainable agricultural practices							Programme M&E reports - Contracted studies - RIMS and benchmark - Scientific and conference papers			Collaboration between Government Agencies/staff and non-state service providers is successful Royal Government of Bhutan (RGoB) complementary financing and supportive annual block grants (dzongkhags) is allocated and utilised
	Households		5 636	6 000							
	1.2.2 Households reporting adoption of new/improved inputs, technologies or practices							RIMS	Annual	OPM	
	Total number of household members										
	Males										
	Females										
	Young										
	Households										
Output Increased Production Resilience, Diversification and Innovation	≥ 23 000 (of which 50% are women) smallholder HH supported in coping with the effects of climate change with sustainable land management practices							Base line studies Programme progress report Line agencies' reports			RGoB earmarked funding (including other donors) of agricultural inputs and capacity development of farmer groups is allocated and utilised as per programme design - Capacity of Government Agencies/staff and non-state service providers is adequate to achieve results as per programme design
	Females		1 486	11 500							
	Households		3 665	23 000							

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
Output Vegetable Production Intensified and Expanded	300 new vegetable farmer groups (4 500 HH) established and functional; minimum 60% female members							Base line studies Programme progress report Line agencies' reports			RGoB earmarked funding (including other donors) of agricultural inputs and capacity development of farmer groups is allocated and utilised as per programme design - Capacity of Government Agencies/staff and non-state service providers is adequate to achieve results as per programme design
	No. of groups formed		34	300							
	Policy 1 Policy-relevant knowledge products completed										
	Number										
Output Dairy Production Intensified and Expanded	150 Smallholder Dairy Farmer Groups (450 HH) established and functional, with minimum 50% female members							Base line studies Programme progress report Line agencies' reports			RGoB earmarked funding (including other donors) of agricultural inputs and capacity development of farmer groups is allocated and utilised as per programme design - Capacity of Government Agencies/staff and non-state service providers is adequate to achieve results as per programme design
	No. of groups formed		21	150							
	Households receiving animals from distribution/restocking							RIMS	Annual		
	Households										

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
Outcome Increased smallholder income from Crop and Livestock Value Chains	70% of the agricultural enterprises established have a positive outlook on their profitability and sustainability							Programme M&E reports - RIMS and benchmark - Line agencies' reports - Sector studies and reports - Farmer satisfaction surveys			Willingness for collaboration between Government Agencies/staff, FCBL and non-state actors, including small entrepreneurs and businesses, to develop and manage value chains and market infrastructure
	% of positive outlook on profitability		20	70							
	2.2.2 Supported rural enterprises reporting an increase in profit							RIMS	Annual	OPM	
	Number of enterprises			140	8	65	46.4				
Output Resilient Vegetable and Dairy Value Chains developed	65 geogs have developed climate resilient vegetable and dairy production, marketing, and infrastructure management plans							Programme progress report Sector reports and studies			FCBL has adequate financial allocations to develop its own capacity next to programme support - Geogs are willing to develop more holistic (value chain based) geog plans for dairy and vegetables to guide programme investments and strengthen local institutions for climate resilience
	No. of geogs		30	65							

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
Output Agricultural Commercialization and Enterprise Development strengthened	200 agriculture enterprises (including cooperatives) established and strengthened as part of value chain development							Programme progress report - Sector reports and studies			Adequate number of interested and able entrepreneurs come forward to establish businesses - Access to finance for small rural agricultural entrepreneurs is adequately facilitated
	No. of enterprises		34	200							
	Other productive infrastructure constructed/rehabilitated							RIMS	Annual		
	No. of infrastructure		743	830							
	People in groups managing productive infrastructure							RIMS	Annual		
	Males										
	Females										
	Groups managing productive infrastructure formed/strengthened							RIMS	Annual		
	No. of groups formed		15	26							
	Crop/Livestock production groups formed/strengthened							RIMS	Annual		
	No. of groups										
	People trained on land management practices							RIMS	Annual		
	Males										
	Females										
	2.1.4 Supported rural producers that are members of a rural producers' organization							RIMs survey Impact Assessment Survey MIS	Annual	PMU	
	Total number of persons										
	Males										
	Females										
	Young										
	Women in leadership position										
	1.1.4 Persons trained in production practices and/or technologies										

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
	Total number of attendances to training sessions										
	Men trained in crop			1 250							
	Women trained in crop			781							
	Men trained in livestock			1 100							
	Women trained in livestock			653							
	Young people trained in livestock										
	Total persons trained in crop			2 031							
	Total persons trained in livestock			1 753							
	2.1.3 Rural producers' organizations supported							RIMS	Annual	PMU	
	Rural POs supported			200							
	Total size of POs										
	Males			12 500							
	Females			12 500							
	Young										
	Women in leadership position										
	2.1.6 Market, processing or storage facilities constructed or rehabilitated							RIMS	Annual	PMU	
	Total number of facilities										

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
	Market facilities constructed/rehabilitated			93							
	Processing facilities constructed/rehabilitated			6							
	Storage facilities constructed/rehabilitated			12							
	1.1.2 Farmland under water-related infrastructure constructed/rehabilitated							RIMS	Annual	PMU	
	Hectares of land			1 922							
	3.1.4 Land brought under climate-resilient practices							RIMS	Annual	PMU	
	Hectares of land			730							
Output Community-driven Strategic Market Infrastructure developed	Vegetable and dairy value chain processing and marketing infrastructure designed and constructed in 10 dzongkhags							Programme progress report - Sector reports and studies			Complementary financing from RGoB and FCBL will be provided as earmarked
	No. of value chain processing and market infrastructure		53								
Outcome Strengthened Agricultural Institutions and Policies for Improved and Resilient Agricultural and Marketing Practices	≥ 70% of VC stakeholders report the use of market information in investment decision-making 60% of VC stakeholders report satisfaction with the policy and regulatory framework as providing a fair distribution of incentives, costs, benefits, and risks							Programme M&E reports - Line agencies' - Department of Agriculture Marketing and Cooperatives (DAMC), FCBL and Business Opportunity and Information Centre (BOiC) reports - Sector studies and reports - Programme survey			MoAF will pro-actively implement the 11th FYP strategy for enabling private sector engagement and participation within the process of commercialisation of agricultural development
	% of stakeholders reporting use of market information	15	30	70							

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
	3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices							RIMS	Annual		
	Households		58								
	Total number of household members			5 000							
	Males			2 500							
	Females			2 500							
	Young										
	Women-headed households		1 260								
	Non-women-headed households		1 847								
	Households		3 107	20 283							
	3.2.3 Households reporting a significant reduction in the time spent for collecting water or fuel							RIMS	Annual		
	Households		20	30							
	Households		1 700	8 693							
	Total household members		6 460								
	Males		3 872								
	Females		2 588								
	Young										
	Women-headed households										
	Non-women-headed households		681								

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
	1.2.3 Households reporting reduced water shortage vis-à-vis production needs							RIMS	Annual	OPM	
	Households		6 087								
	Total number of household members		4 838								
	Males		1 361								
	Females		3 477								
	Poor smallholder household members supported in coping with the effects of climate change							RIMS	Annual	PMU	
	Females			57 500							
	Males			57 500							
	Total household members			115 000							
	Households supported with increased water availability or efficiency							RIMS	Annual	PMU	
	Households			10 000							
	Individuals engaged in NRM and climate risk management activities							RIMS	Annual	PMU	
	Males			15 000							
	Total			30 000							
	Females			15 000							
	Community groups engaged in NRM and climate risk management activities							RIMS	Annual	PMU	
	Groups			65							
	Group members - females			15 000							
	Group members - males			15 000							
	Group members - total			30 000							

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
Output Strengthened value chain and marketing knowledge and communication	Market Information System MoAF/DAMC providing relevant (real-time) information to farmers							Programme M&E reports Line agencies', DAMC, FCBL and BOiC reports Sector studies and reports			Adequate technical and process support is provided to develop the models and approaches on the ground, to access learning and to document good practice (presently a weak part of IFAD projects)
	No of market information system			1							
	2.1.2 Persons trained in income-generating activities or business management							RIMS	Annual	PMU	
	Females		324								
	Males		486								
	Young										
	Persons trained in IGAs or BM (total)										
	1.1.4 Persons trained in production practices and/or technologies							RIMS	Annual	PMU	
	Total number of attendances to training sessions										
	Men trained in crop										
	Women trained in crop										
	Men trained in livestock										
	Women trained in livestock										
	Young people trained in livestock										
	Total persons trained in crop										
	Total persons trained in livestock										

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
Output Climate change resilience and value chain development lessons mainstreamed in agricultural policies and sector strategies	Enhanced engineering norms for building climate resilient irrigation systems							Programme M&E reports Line agencies' reports Sector studies and reports Policy documents Regulatory framework document for private sector and PPP			Dialogue and collaboration between Government Agencies/staff and external stakeholders is successful and generates meaningful lessons and insights for policy development
	No. of norms										
	Vegetable and dairy development policies enhanced based on multi-stakeholder consultation processes and programme lessons (resilience, value chain and marketing)							Programme M&E reports Line agencies' reports Sector studies and reports Policy documents Regulatory framework document for private sector and PPP			
	No. of policies			1							
	Regulatory framework for private sector development and PPP in agriculture sector developed							Programme M&E reports Line agencies' reports Sector studies and reports Policy documents Regulatory framework document for private sector and PPP			
	No. of framework										
	3.1.2 Persons provided with climate information services							RIMS	Annual		
	Females			2 500							

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
	Males			2 500							
	Young										
	Persons provided with climate information services										
	1.1.2 Farmland under water-related infrastructure constructed/rehabilitated							RIMS	Annual		
	Hectares of land										
	1.1.3 Rural producers accessing production inputs and/or technological packages							RIMS	Annual	PMU	
	Females										
	Males										
	Young										
	Not Young										
	Total rural producers										
	3.1.3 Persons accessing technologies that sequester carbon or reduce greenhouse gas emissions										
	Females			2 500							
	Males			2 500							
	Young										
	Not Young										
	Total persons accessing technologies			5 000							
	Government officials and staff trained										
	Males										
	Females										

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
	2.1.1 Rural enterprises accessing business development services							RIMS	Annual	PMU	
	Rural enterprises			256							
	Number of groups supported to sustainably manage natural resources and climate-related risks										
	Number of groups supported by crops sector										
	Number of groups supported by livestock sector										
	Natural resource manage groups with women in leadership positions										
	2.1.2 Persons trained in income-generating activities or business management							RIMS	Annual	PMU	
	Females										
	Males										
	Persons trained in IGAs or BM (total)										
	Number of members of the project-supported enterprise										
	Males										
	Females										
	Young										
	Number of project-supported enterprise with women in leadership positions										

Results Hierarchy	Indicators							Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Annual Result (2021)	Cumulative Result (2021)	Cumulative Result % (2021)	Source	Frequency	Responsibility	
	Number of project-supported enterprise headed by young farmers										
	2.1.6 Market, processing or storage facilities constructed or rehabilitated							RIMS	Annual	PMU	
	Total number of facilities										
	Market facilities constructed/rehabilitated										
	Processing facilities constructed/rehabilitated										
	Storage facilities constructed/rehabilitated										
	International and country dialogues on climate supported							RIMS	Annual	PMU	
	Dialogues			1							
	Land under climate-resilient practices							RIMS	Annual	PMU	
	Land area			3 000							

Bhutan

Commercial Agriculture and Resilient Livelihoods Enhancement Programme Supervision Report

Appendix 1: Financial: actual financial performance; by financier by component and disbursements by category

Mission Dates: 1 June - 20 August 2020
Document Date: 28/08/2020
Project No. 1100001739
Report No. 5472-BT

Asia and the Pacific Division
Programme Management Department

Appendix 1

Bhutan
CARLEP
Supervision report aide memoire - Mission dates: 01 Jun 2020

Table 3A: Financial: Actual financial performance by financier; by component and disbursement
Financial performance by financier

Amount in Million (USD) 0.000

Financier	Appraisal '000)	(USD Disbursements (USD '000)	Percent disbursed
IFAD loan	10.232	5.209	51%
IFAD grant	0.937	0.611	65%
ASAP trust grant	3.976	2.445	61%
FCBL	0.769	0.769	100%
Beneficiary Contribution	0.759	0.735	97%
Government contribution (Staff salary)	1 570	1 570	100%
Koufuku International Limited (KIL)	0.032	0.032	100%
	1 586.705	1 579.801	100%

Over all financier

Disbursement rate of IFAD financing are excluding the outstanding advances

Table 3B: Financial performance by financier by component (USD '000)

Amount in Million (USD) 0.000

Component	IFAD loan			IFAD grant		
	Appraisal	Actual	%	Appraisal	Actual	%
1	7.863	4.126	52%	0.487	0.354	73%
2	2.096	0.881	42%	0.069	0.019	28%
3	0.057	0.010	18%	0.031	0.010	32%
4	0.216	0.192	89%	0.350	0.228	65%
	10.232	5.209		0.937	0.611	

Table 3B: Financial performance by financier by component (USD '000)

Amount in Million (USD) 0.000

Component	FCBL			Government (RGoB financing)		
	Appraisal	Actual	%	Appraisal	Actual	%
1	0.769	0.769	100%	0.433	0.412	95
2	-	-		-	-	-
3	-	-		-	-	-
4	-	-		0.210	0.181	86
	0.769	0.769	100%	0.643	0.593	92%

Table 3C:

LOAN **2000000627** **Disbursement as of 31 May 2020**

Category Code	Category Description	Allocated	Disbursed	Pending WA	%	Available Balance
200003	WORKS	1 890 000.00	840 369.46	No	44.46%	1 049 630.54
200012	GRANTS AND SUBSIDIES	180 000.00	0.00	No	0.00%	180 000.00
200013	GOODS, SERVICES AND INPUTS	2 000 000.00	2 196 783.79	No	109.84%	-196 783.79
200019	TRAINING	1 230 000.00	301 155.37	No	24.48%	928 844.63
270001	AUTHORISED ALLOCATION	0.00	1 049 029.55	No	0.00%	-1 049 029.55
290001	UNALLOCATED	590 000.00	0.00	No	0.00%	590 000.00
	TOTAL:	5 890 000.00	4 387 338.17		74.49%	1 502 661.83

COMPONENT **2000000838** **Disbursement as of 31 May 2020**

Category Code	Category Description	Allocated	Disbursed	Pending WA	%	Available Balance
200012	GRANTS AND SUBSIDIES	40 000.00	0.00	No	0.00%	40 000.00
200013	GOODS, SERVICES AND INPUTS	210 000.00	155 021.14	No	73.82%	54 978.86
200016	OPERATING COSTS	70 000.00	16 815.31	No	24.02%	53 184.69
200019	TRAINING	370 000.00	334 204.28	No	90.33%	35 795.72
270001	AUTHORISED ALLOCATION	0.00	142 275.89	No	0.00%	-142 275.89
290001	UNALLOCATED	70 000.00	0.00	No	0.00%	70 000.00
	TOTAL:	760 000.00	648 316.62		85.30%	111 683.38

ASAP GRANT **2000000872** **Disbursement as of 31 May 2020**

Category Code	Category Description	Allocated	Disbursed	Pending WA	%	Available Balance
200003	WORKS	120 000.00	3 367.52	No	2.81%	116 632.48
200013	GOODS, SERVICES AND INPUTS	400 000.00	510 663.09	No	127.67%	-110 663.09
200019	TRAINING	2 700 000.00	955 998.42	No	35.41%	1 744 001.58
270001	AUTHORISED ALLOCATION	0.00	567 363.81	No	0.00%	-567 363.81
290001	UNALLOCATED	360 000.00	0.00	No	0.00%	360 000.00
	TOTAL:	3 580 000.00	2 037 392.84		56.91%	1 542 607.16

Total project	10 230 000.00	7 073 047.63	69.14%
oustanding AA		1 758 669.25	51.95%
		5 314 378.38	

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Commercial Agriculture and Resilient Livelihoods Enhancement Programme Supervision Report

Appendix 2: Physical progress measured against AWP&B

Mission Dates: 1 June - 20 August 2020
Document Date: 28/08/2020
Project No. 1100001739
Report No. 5472-BT

Asia and the Pacific Division
Programme Management Department

Appendix 2: Physical progress measured against AWP&B

Output	Activity	Indicator	Unit	Annual Target	Achievement	Achievement %	Cumulative achieve	Appraisal target	Achievement %
Component 1: Market-led sustainable agricultural production									
1.1.A	Climate Smart Agriculture Production and Management								
1.1.A	Upgrading of existing farmer groups (Agriculture)	No. of farmers Groups upgraded	No.	50	4	8	49	300	16
1.1.A	Upgrading of existing farmer groups (Livestock)	No. of farmers Groups upgraded	No.	41	2	5	19	150	13
1.1.A	Training of extension agents	No. of EAs trained	No.	30	30	100	51	420	12
1.1.A	Production inputs for farm resilience and diversification, Vegetable seed (Agriculture)	Area under farm resilience and diversification	Acre	635	1841	290	3101	7414	42
1.1.A	Production inputs for farm resilience and diversification (Livestock - Poultry)	No of native poultry units promoted	No.	168	130	77	358	300	119
1.1.A	Production inputs for farm resilience and diversification (Livestock - Piggery)	No. of native piggery units promoted	No.	0	0	0	30	150	20
1.1.A	Promotion of SLM techniques	Area under SLM	Acre	75	0	0	77	200	39
1.1.A	Land development (dryland terracing)	Area under land development	Acre	293	367.51	125	496.51	300	166
1.1.A	Land development (wetland consolidation)	Area under land development	Acre	62	98.29	159	98.29	300	33
1.1.A	Land development (fallow land reversion)	Area under land development	Acre	50	144	288	144	300	48
1.1.A	Local germplasm collection, conservation and promotion	No. of lines	No.	0	0	0	78	100	78
1.1.A	Crop diversification(Cereals, oil seeds, pulses)	Area under diversification	Acre	762	2219	291	3017	3000	101

1.1.A	Mushroom intensification	No. of mushroom entrepreneurs established	No.	17	13	76	13	150	9
1.1.B	Biogas								
1.1.B	Farm level rainwater harvesting infrastructure	No. of infrastructure established	No.	8	14	175	16	162	10
1.1.B	Tree crop seedlings	Area covered	Acre	75	0	0	104	300	35
1.1.B	Inputs for permaculture (agriculture)	Sets of tools supplied	set	6	7	117	11	36	31
1.1.B	Inputs for permaculture (livestock)	No. of units supported	No.	0	0	0	14	36	39
1.1.B	Bee Keeping	No. of household supported	No.	50	31	62	38	600	6
1.1.B	Nursery set up (Agriculture)	No. of nurseries set up	No.	8	0	0	24	50	48
1.1.B	Nursery set up (Livestock)	No. of nurseries set up	No.	8	5	63	5	6	83
1.1.B	Staff training on permaculture	No. of training	No.	0	0	0	1	2	50
1.1.B	Farmers training on permaculture	No. of farmers trained	No.	50	21	42	197	250	79
1.1.B	Permaculture materials & translation	No. of materials published	set	6	0	0	4	25	16
1.1.B	Biogas digester	No. of biogas digester promoted	No.	252	160	63	245	1412	17
1.1.B	TA biogas	No. of TA recruited	No.	0	0	0	0	1	0
1.1.B	Capacity building on biogas technology /a	No. of training	No.	1	1	100	1	76	1
1.1.B	Electric fencing	Length of the fencing	km	350	335	96	335	90	372
1.1.B	Promotion of solar dryers	No. of dryer	No.		0	0	1	36	3
1.1.B	Support to LUCs	lumpsum	No.	5	12	240	12	36	33
1.1.C	Innovation through ICTs								
1.1.C	Hand-held tablets, software and soil test kits	No. of ICT tools introduced	No.	0	20	0	32	100	32
1.1.C	Training on tablet-based soil monitoring technology	No. of training conducted	No.	0	0	0	0	4	0

1.1.C	Training on report writing documentation and information sharing	No. of training conducted	No.	0	0	0	3	5	60
1.1.C	Pilot e-reporting system	No. of e-reporting system	No.	0	0	0	1	1	100
1.1.C	Information management dissemination	No. of publication		0	0	0	0	50	0
1.1.D	Services								
1.1.D	Training of trainers (ToT) (Agriculture)	No. of ToT conducted	No.	2	0	0	3	14	21
1.1.D	Training of trainers (ToT) (Livestock)	No. of ToT conducted	No.	2	11	550	2	14	14
1.1.D	Training of lead farmers	No. of lead farmers trained	No.	40	30	75	128	240	53
1.1.D	Development of training material and field manuals	No. of training materials developed	No.	4	0	0	7	13	54
1.1.D	Expansion of lead farmers	No. of lead farmers trained	No.	45	139	309	560	1300	43
1.1.D	Farmer field festivals/field day	No. of Farmers field festivals convened	No.	0	0	0	32	63	51
1.1.D	Workshops (planning, review, evaluation)	No. of Workshops conducted	No.	10	9	90	17	20	85
1.1.D	Documentation and systematization	Documents produced	No.	0	0	0	2	3	67
1.1.D	Protected gear kits for extensions	No. of Kits supplied	No.	0	0	0	0	100	0
1.1.D.2	Demonstration inputs & equipment for lead farmers								
1.1.D.2	Production inputs Protected agriculture	Number of production inputs supplied	No.		4220	0	4247	130	3267
1.1.D.2	Poly-tunnels	No. of poly-tunnels set up	No.	72	1	1	105	35	300
1.1.D.2	Protected greenhouse with structures set	No. of poly-tunnels set up	No.		242	0	242	60	403
1.1.E	Resilient & Water Use Efficient Irrigation Development								

1.1.E	District engineers and extension agents (design and construction)	No. of DEs and EAs trained on climate resilient irrigation	No.	20	1	5	20	100	20
1.1.E	Water Users Associations (O&M)	No. of WUAs trained on Climate resilient irrigation	event	5	0	0	29	33	88
1.1.E	Preparation of manual for upgrading irrigation engineering norms	Manual for upgrading Irrigation Engineering norms prepared	No.	0	0	0	0	1	0
1.1.E	Irrigation Infrastructure								
1.1.E	Feasibility studies	No. of Feasibility studies conducted	No.	1	0	0	2	2	100
1.1.E	Renovation of irrigation infrastructure	Irrigation Infrastructure renovated (Area coverage)	Acre	750	401	53	3162	2704	117
1.1.E	Pilot irrigation schemes	No. of Pilots irrigation schemes developed	No.	1	1	100	2	26	8
1.1.E	Quality control and supervision	No. of quality control and supervision conducted	No.	0	0	0	0	12	0
1.1.E	Water efficient irrigation and promotion of efficient technologies /dryland irrigation	No. of improved irrigation system	No.	9	15	167	33	60	55
1.1.E	Pump irrigation network up to field edge	No. of pump irrigation	No.	2	2	100	2	20	10
1.1.F	Strengthening of Local Institutions on Smallholder's Climate Resilience								
1.1.F	Development of business model and sustainability plan for service and O&M	No. of business model and sustainability plan developed	No.	0	0	0	0	3	0

1.1.F	Upgrading of farm roads to climate resilient standards	No. or length of farm roads upgraded to climate resilient standards	KM	0	0	0	0	32	0
1.1.G	Technical Assistance (C1)								
1.1.G	Recruitment of National TA done	No. of TA recruited	No.	0	0	0	0	6	0
1.2.A	Training & extension material developed	No. of training & extension materials developed	No.	4	0	0	8	20	40
1.2.B	Capacity Development of Vegetable Production Groups								
1.2.B	Awareness and mobilization carried out (Agriculture)	No. of awareness & mobilization conducted	No.	7	0	0	56	104	54
1.2.B	Training on Production Techniques & Post-harvest Management								
1.2.B	Training on vegetable production techniques	No. of farmers training conducted	No.	24	13	54	93	390	24
1.2.B	Retraining on vegetable production techniques	No. of farmers training conducted	No.	0	0	0	8	790	1
1.2.B	Training on post-harvest management	No. of farmers trained on post-harvest management	No.	2	25	1250	300	390	77

1.2.B	Retraining on post-harvest management	No. of farmers retrained on post-harvest management	No.	0	0	0	5	790	1
1.2.B	Exchange visits for farmers	No. of exchange visits	No.	1	3	300	12	18	67
1.2.C	Vegetable Seed Research & Production								
1.2.C	Training and certification of vegetable seed growers	No. of vegetable seed growers trained on seed certification	No.	0	10	0	27	130	21
1.2.C	Equipment and input support vegetable seed growers	No. of Equipment supplied to veg. seed growers	No.	0	0	0	17	130	13
1.2.C	Retraining of vegetable seed growers	No. of veg. seed growers retrained	No.	0	0	0	6	195	3
1.2.C	Seed processing units vegetable seed farm NSC	No. of seed processing units supported	No.	1	0	0	1	2	50
1.2.C	Glasshouse construction vegetable seed farms NSC	No. of glasshouse constructed	No.	0	0	0	1	2	50
1.2.D	Provision of Vegetable Production Inputs								
1.2.D	Provision of stress tolerant vegetable seeds	Quantity of vegetable seeds supplied	Acre	380	0	0	688	3000	23
1.2.D	Small post-harvest equipment	No. of small post-harvest equipment promoted	No.	20	0	0	44	730	6
1.3.A	Development of training & extension materials								
1.3.A	Training & Extension materials developed (Livestock)	No. training & extension materials developed on dairy production	No.	0	0	0	1	78	1

1.3.A	AI service expansion & CAIT establishment breed intensification through sex sorted semen	unit of semen	Semen	2000	3652	183	3652	0	0
1.3.A	Training on AI	No. of people trained	No.	1000	703	70	703	0	0
1.3.A	Capacity Development of Dairy Production Groups								
1.3.A	Awareness & Mobilization Carried Out (Livestock)	No. of Dairy groups sensitized and mobilized	No.	1	0	0	27	95	28
1.3.A	Training on livestock husbandry	No. of dairy groups or individuals trained on livestock husbandry	No.	24	31	129	84	150	56
1.3.A	Retraining on livestock husbandry	No. of dairy groups or individuals retrained on livestock husbandry	No.	0	0	0	9	420	2
1.3.A	Training on clean milk production	No. of dairy groups or individuals trained on clean milk production	No.	18	27	150	74	150	49
1.3.A	Retraining on clean milk production	No. of dairy groups or individuals retrained on clean milk production	No.	0	0	0	28	420	7
1.3.A	Training on farm record keeping	No. of dairy groups or individuals trained on farm record keeping	No.	0	0	0	74	65	114

1.3.A	Retraining on farm record keeping	No. of dairy groups or individuals retrained on farm record keeping	No.	0	0	0	18	420	4
1.3.C	Improved Services Outreach through CAHWs & Lead Farmers								
1.3.C	CAHW model development and packaging	No. of CAHW model developed	No.	1	0	0	1	2	50
1.3.C	Training of trainers (ToT)	No. of ToT conducted on CAHW & lead farmers	No.	1	0	0	1	2	50
1.3.C	Training of CAHWs	No. of CAHWs trained	No.	1	1	100	82	105	78
1.3.C	Retraining of CAHWs	No. of CAHWs retrained	No.	0	0	0	0	80	0
1.3.C	Kits for AI practitioner	No. of Kits supplied	No.	0	0	0	32	80	40
1.3.C	Transport facilities for CAHWs	No. of CAHWs supported with transport facilities	No.	1	0	0	0	75	0
1.3.C	AI service expansion & CAIT establishment breed intensification through sex sorted semen	No. of CAIT established	No.	20	10	50	10	5100	0
1.3.C	Breed intensification through community breeding bull services	No. of bulls supplied	No.	15	9	60	9	75	12
1.3.C	Breed intensification through CHBPP	No. of breed intensification	semen	1000	200	20	200	2295	9
1.3.D	Support to Fodder & Feed Production								

1.3.D	Perennial fodder in fallow and marginal land	Area of fallow & marginal land under perennial fodder	Acre	160	707.3	442	1934.3	1633	118
1.3.D	Winter fodder crop demonstration and seed supply	Area under Winter fodder	Acre	568	2587.7	456	3308.7	1885	176
1.3.D	Promote fodder slips (Napier/Guatemalan, Pakchong)	Area under fodder slips	Acre	0	30.6	0	30.6	0	0
1.3.D	Promote fodder trees	Area under fodder trees	Acre	0	116.66	0	116.66	0	0
1.3.D	Training of feed producers	No. of feed producers trained	No.	6	0	0	60	200	30
1.3.D	Chopping machine (for dairy groups)	No. of chopping machines supplied	No.	316	391	124	415	947	44
1.3.D	Training on use of crop residues and feed/fodder	No. of training conducted	No.	20	42	210	50	40	125
1.3.D	Collection of indigenous fodder germplasm	No. of germplasm	No.	25	48	192	48	45	107
1.3.D	Planting native species fodder	Area under native fodder spp.	Acre		0	0	0	150	0
1.3.D	TMR facilities for youth	No. of unit	No.		0	0	0	5	0
1.3.E	Provision of Dairy Production Inputs								
1.3.E	Milk transportation Cans	No. of Milk cans supplied	No.	150	173	115	789	2000	39
1.3.E	Cross-breed cattle	No. of cross-breed cattle supported	head	210	401	191	959	2600	37
1.3.E	Shed construction	No. of sheds constructed	No.	314	568	181	1351	2000	68
1.3.E	Equipment dairy production groups	No. of equipment supplied to dairy producer groups	No.	44	44	100	44	147	30

Component 2: Value Chain Development and Marketing									
2.1.A	Strengthening of FCBL for Value Chain Development								
2.1.A	Capacity development activities	No. of staff trained on value chain development	No.	127	0	0	7	450	2
2.1.B	Vegetable value-chain design and business plan								
2.1.B	Vegetable value chain plans prepared	Vegetable value-chain design & business plan in place	Plan	1	0	0	1	3	33
2.1.C	Dairy value-chain design and business plan								
2.1.C	Dairy value chain business plans prepared	Dairy value-chain design & business plan in place	Plan	1	0	0	1	3	33
2.1.D	Value Chain Development, Strengthening and Expansion								
2.1.D	Multi Stakeholders facilitation process	No. of stakeholders engaged or consulted	No.	5	6	120	10	50	20
2.1.E	Technical Assistance (C2)								
2.1.E	National/External TA	No. of National/External TA recruited	No.	0	0	0	0	6	0
2.2.B	Support to Marketing Groups								
2.2.B	Awareness on marketing groups	No. of Marketing groups sensitized	No.	28	37	132	110	200	55

2.2.B	Strengthening of existing marketing and cooperative capacity development packages	No. of marketing & cooperative capacity development packages strengthened	No.	35	3	9	3	3	100
2.2.C	Training on Marketing Groups								
2.2.C	Formation of vegetable marketing groups	No. of vegetable marketing groups formed	No.	2	0	0	26	230	11
2.2.C	Formation of dairy marketing groups	No. of dairy marketing groups formed	No.	0	0	0	20	150	13
2.2.C	Training in marketing & value-chain	No. of groups or individual farmers trained on marketing & value-chain	No.	45	1	2	46	450	10
2.2.C	Training in packaging & handling	No. of groups or individual farmers trained on packaging & handling	No.	12	0	0	38	415	9
2.2.D	Support to Entrepreneurs								
2.2.D	Development of training packages for agriculture entrepreneurs	No. of training packages developed for agriculture entrepreneurs	No.	14	0	0	1	2	50
2.2.D	Entrepreneur identification and engagement process	No. of entrepreneurs identified and engaged	No.	0	0	0	0	1	0

2.2.D	Enterprise developed	No. of enterprise developed	No.	6	3	50	3	14	21
2.2.E	Other Trainings to Groups, Cooperatives & Entrepreneurs								
2.2.E	Training provided to other groups and entrepreneurs	No. of groups, coops & entrepreneurs trained	No.	4	0	0	34	50	68
2.2.F	Multi-stakeholder Platforms & Network development								
2.2.F	Multi-stakeholder platforms and networks developed	No. of platforms & networking established	No.	5	1	20	2	5	40
2.3.A	Planning & Design								
2.3.A	Business plan-based planning of market infrastructure	No. of market infrastructure developed based on business plan	No.	2	0	0	1	3	33
2.3.A	Development of business plans for 3 windows shops	No. of Developments windows shops convened	No.	0	0	0	1	2	50
2.3.B	Vegetable Value-chain, Post-harvest & Market Infrastructure & Equipment								
2.3.B	Value-chain equipment	No. of value-chain equipment promoted	No.	20	4	20	7	12	58
2.3.B	Value-chain infrastructure	No. of value-chain infrastructure put in place	No.	3	2	67	3	8	38
2.3.B	Support to KIL	lumpsum				0	1	5	20

2.3.C	Dairy Value-chain Post-harvest & Market Infrastructure & Equipment								
2.3.C	Construction of milk collection Center (MCC) with processing facilities	No. of MCC constructed	No.	18	5	28	47	44	107
2.3.C	Construction of milk collection shed (MCS)	No. of MCS constructed	No.	3	1	33	24	180	13
2.3.C	Milk processing unit (MPU)	No. of milk processing unit established	No.	1	1	100	12	24	50
2.3.C	Milk chilling van	No. of milk chilling van provided	No.	0	0	0	1	4	25

Component 3: Institutional support									
3.1.A	Strengthening of the DAMC Market Information System								
3.1.A	Strengthening of the DAMC market information system	DAMC MIS strengthened	No.	0	0	0	0	2	0
3.1.A	Equipment related to Market Information System upgrade	No. of equipment supplied for MIS upgradation	No.	0	0	0	3	4	75
3.1.B	Curriculum development of RNR Training and Education institutes								
3.1.B	Curricula for RNR Training & Education Institutes Developed	No. of curriculum developed	No.	0	0	0	0	2	0
3.2.A	Participatory policy development and monitoring approach								
3.2.A	Participatory Policy Development Approaches Developed	No. of participatory policy development process or approach initiated	No.	0	0	0	0	2	0
3.2.B	Mainstreaming climate resilience and value chain development lessons								
3.2.B	Policy Notes Developed, incorporating lessons from Climate Resilient Value Chain Development	No. of Policy Notes developed based on Climate resilience & and value chain development lessons	No.	0	0	0	0	3	0
3.2.C	Development of a regulatory framework for PPP								
3.2.C	Regulatory Frameworks for PPP	A regulatory framework for PPP developed	No.	0	0	0	0	2	0

3.2.D	Technical Assistance (C3)								
3.2.D	National/International TA	No. of Nationals/International TA recruited	No.	1	0	0	0	4	0
3.2.D	Support budget RNR training and education institutes	Amount supported	No.	0	0	0	0	3	0
3.2.D	Support budget climate resilience mainstreaming	Amount supported	No.	0	0	0	0	4	0
3.2.D	Support budget PPP regulatory framework	Amount supported	No.	0	0	0	0	3	0

4.1.A	Project Management Unit								
4.1.A	Vehicles	No. of vehicles purchased	No.	2	2	100	3	11	27
4.1.A	Laptops	No. of laptops purchased	No.	20	15	75	25	37	68
4.1.A	Printer	No. of printers purchased	No.	0	0	0	10	15	67
4.1.A	Scanner	No. of scanners purchased	No.	0	0	0	1	4	25
4.1.A	Photocopier heavy duty	No. of heavy duty photocopier purchased	No.	0	0	0	1	3	33
4.1.A	Office equipment	Stes of office equipment purchased	Set	0	0	0	5	28	18
4.1.B	Capacity Building								
4.1.B	Training on gender	No. of staff trained on gender	No.	1	0	0	1	3	33
4.1.B	Training on knowledge management	No. of staff trained on KM	No.	1	1	100	2	4	50
4.1.B	Training on monitoring and evaluation	No. of staff trained on M&E	No.	1	1	100	1	5	20
4.1.B	Training on financial management	No. of staff trained on FM	No.	2	1	50	3	12	25
4.1.B	Training and workshop for OPM staff	No. of training	Event			0	0	12	0
4.1.C	Coordination								
4.1.C	Coordination meetings with dzongkhags	No. of Dzongkhags coordination meeting held	No.	6	6	100	15	20	75

4.1.D	Food Corporation of Bhutan								
4.1.D	Materials and Equipment Procured for FCBL	No. of Materials and equipment procured by FCBL	No.	0	0	0	2	6	33
4.1.E	Monitoring & Evaluation								
4.1.E	Baseline and impact studies	No. of baseline & impact studies conducted	No.	0	0	0	1	1	100
4.1.E	Programme Supervision Mission	No. Of Mission	No.	1	1	100	4	17	24
4.1.E	Annual outcome surveys	No. of AOS conducted	No.	1	0	0	2	7	29
4.1.E	Other surveys/studies	No. of survey/studies conducted	No.	1	1	100	1	9	11
4.1.E	Mid-term review	Mid-term review conducted	Mission	0	0	0	1	1	100
4.1.E	Project completion report	PCR prepared	Report	0	0	0	0	2	0
4.1.E	MIS	No. of MIS	No.		0	0	0	4	0
4.1.E	Software development for M&E		No.		0	0	0	2	0
4.1.E	Study tours and learning visits (Both in-country and overseas)				4	0	7	9	78
4.1.F	Knowledge Management								
4.1.F	Printing and publications	No. of quality KM products published	No.	1	3	300	11	12	92
4.1.F	Setting up IMS (CARLEP Webpage)	Web page established	No.	0	0	0	1	1	100
4.1.F	Workshops and meetings	No. of workshops & meetings conducted	No.	1	1	100	5	11	45
4.2.A	OPM, Mongar								
4.2.A	National Program Director	No. of months Paid	Months	12	0	0	48	126	38
4.2.A	Finance Manager	No. of months Paid	Months	12	0	0	48	126	38

4.2.A	Accountant	No. of months Paid	Months	12	0	0	48	126	38
4.2.A	M&E and Gender Manager	No. of months Paid	Months	12	0	0	48	126	38
4.2.A	Project Support Officer	No. of months Paid	Months	12	0	0	48	126	38
4.2.A	KM Officer	No. of months Paid	Months	12	0	0	48	126	38
4.2.A	Component Manager (Agriculture Production)	No. of months Paid	Months	12	0	0	48	126	38
4.2.A	Component Manager (Livestock Production)	No. of months Paid	Months	12	0	0	48	126	38
4.2.A	Driver (x2)	No. of months Paid	Months		0	0	0	252	0
4.2.B	Liaison Office, Thimphu								
4.2.B	IFAD Focal Officer, PPD	No. of months Paid	Months		0	0	0	126	0
4.2.B	IFAD Focal Officer, AFD	No. of months Paid	Months		0	0	0	126	0
4.2.C	Operating Cost, Project Management Unit								
4.2.C	Vehicle operation and Maintenance	No of Vehicles	LPS	5	0	0	0		0
4.2.C	Maintenance of Building	Lump sum	LPS		0	0	0		0
4.2.C	Maintenance of Equipment	Lump sum	LPS		0	0	0		0
4.2.C	Utilities - telephone, internet, electricity, water, sewerage, fax, post, etc.	Lump sum	LPS		0	0	0		0
4.2.C	Office supplies	Lump sum	LPS	11	1	9	1		0
4.2.C	Travel and Meetings	Lump sum	LPS	2	0	0	0		0

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Commercial Agriculture and Resilient Livelihoods Enhancement Programme Supervision Report

Appendix 3: Compliance with legal covenants: status of implementation

Mission Dates: 1 June - 20 August 2020
Document Date: 28/08/2020
Project No. 1100001739
Report No. 5472-BT

Asia and the Pacific Division
Programme Management Department

Appendix 3: Compliance with legal covenants: status of implementation

Section	Covenant	Target/Action Due Date	Compliance Status/Date	Remarks
Schedule 1. paragraph 8.1	OPM finance (i) to call, at least once a year, a FM workshop gathering all CARLEP finance staff, (ii) OPM finance to provide one-to-one support through at least one visit per year at all IU (iii) and facilitate cross visit-cooperation of staff from adjacent districts.	30-Jun-19	Completed	Support being provided through wechat/whatsApp
Schedule 1. paragraph 8.1	E-Training on FM of IFAD funded projects	30-Jun-19	On-going	Few finance personnel completed the course
Section 7.01	Budget planning. Early and stronger engagement of Finance in the planning process, to come up with enhanced reporting on actual expenditure and residual balance, by IU and benchmarked as % of AWPB (cumulative/period)		Completed	Coordinated and actively involved
Section 7.01	Budgeting/COSTAB. Support OPM management in the feasibility of any exercise aimed at enhancing current COSTAB/AWPB component classification (i.e. MYRB), providing a bridge/mapping of current expenditure to future plans.		Completed	Actively involved during revision of cost tab and budgeting phase
Section 11.01	Determine the ineligible amount of taxes charged to IFAD and provide communication to IFAD FO for refund/deduction from future WAs. Also track RGoB contribution provided as taxes.	31-Dec-18	Completed	Taxes claimed are determined by conducting workshop with finance personnel and same amount will be deducted from last quarter WA's (April -June 2020)
Section 8.06	Full assets tagging and relevant reporting in asset registers, (i.e. starting to tag in ranking order from most expensive)	31-Mar-19	Completed	Fixed assets register are maintaining by respective agencies

Section 8.03	Reporting. Enhance Interim Financial Progress and timely submit quarterly to IFAD	31-Dec-18	Completed	Reported quarterly
Section B. 7	Analyse the breakdown of FCBL expenses which is mainly comprising salary cost (including those of the staff at stores) in order to determine what is/is not Recurrent Costs.	31-Jan-19	Completed	Determined recurrent cost
Schedule 1. paragraph 8.1	Provide training to the finance and accounts staff in respect of IFADs accounting and reporting requirements	31-Aug-19	Completed	Conducted 3 days training for finance personnel from 14-16th Nov 2019
Section 8.03	Contract Register. Maintain Contract Register to monitor contracts and also to plan the cash flow for ongoing contracts		Completed	Maintaining by respective agencies
Section 9.02	Financial statements. a) Prepare financial statements in accordance with IFAD's reporting requirements and ensure that the financial statements are complete and accurate. b) For the year 2017-18, prepare the complete set of correct financial statements and get the audit verification done in respect of the revised PFS	30-Sep-19	Completed	Submitted
Section 8.03	OPM to increase the planning of those activities funded by the RGoB and at the same time monitor that overall districts' planning does not put in place activities overlapping with CARLEP that may be included in the project's plan.	31-Dec-18	Completed	Counterparts funds are recorded manually in excel sheet
Section 11.01	Determine/monitor tax quota out of RGoB contribution.	31-Jan-19	On-going	
Section 9.02	RGOB Contribution. a) Record all tax exemptions provided by RGOB as	OPM	Completed	RGoB contribution are recorded in ePEMS however, salary for the CARLEP official is worked out separately in excel sheet

	its share of contribution			
	b) Obtain and record contribution from RGOB in respect of tax claimed from IFAD			
Section 4.03	Submission of Withdrawal Applications. Prepare quarterly WA and submit to IFAD promptly after the end of the quarter	OPM	Completed	Submitted quarterly
Section 4.03	Preparation of WA.			
	a) Calculate the taxes claimed so far and adjust the next WA by reducing this amount incorrectly claimed			
	b) Ensure correct preparation of WA by not claiming taxes charged, advances paid and claim the full expenditure incurred before deduction of tax	OPM	Completed	Prepared and submitted on time
Section 4.07	2019 Audit - Resolution of ineligible expenditure in money refund to designated account	31 Aug 20	Ongoing	OPM is working with the Auditor to resolve the issue.

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Commercial Agriculture and Resilient Livelihoods Enhancement Programme Supervision Report

Appendix 4: Technical background analysis

Mission Dates: 1 June - 20 August 2020
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Project No. 1100001739
Report No. 5472-BT

Asia and the Pacific Division
Programme Management Department

Appendix 4: Technical background analysis

Component 1: Pathway to Organic Farming, Food Self-sufficiency and Resilience to Externalities - precision smart soil bio-amendments, bio-nutrition and bio-pesticides for improved soil health and plant production

I. INTRODUCTION

1. Immediately after the first (imported) case of COVID-19 was discovered in Bhutan on March 6, the Government put in place several mitigating measures to contain the spread of the COVID-19. Because of the evidence-based early mitigation approach of testing, effective quarantines, and strict border control, Bhutan has only experienced 27 cases of COVID-19 all imported and none have died as of April 30, 2020.

2. Despite the commendable effort to contain the spread of COVID-19, the pandemic has negatively affected the country economically. Tourism is the worst affected sector after the closure of the border to India, depriving 50,000 people of related income. The crisis has also witnessed a fall in hydropower and construction of new hydropower facilities delaying potential new export earnings. The closure of the border has seriously affected the import export businesses. Of particular worry is the disruption in the regular food imports, which once again exposes the country's vulnerability to its food insecurity.

3. In an attempt to offset the impact of restricted import of food items the GoB has encouraged all farmers to increase food production to the extent possible, and for people who have left their farms and migrated to urban areas to return to farming.

4. To mitigate against import restriction of importing food the minister of Agriculture and Forestry (MoAF) has requested the administration of all 20 districts in the country to coordinate efforts with ministerial extension staff to support farmers to increase food production. The government will pursue increased food production through reinvigorating organic farming, which should have reached 100% by 2002. By 2020 the country had achieved 5% certified organic farming and another around 75% remained organic by default and around 20% considered conventional farming using synthetic input like pesticide and fertilizer. To accelerate increased food production, with emphasis on organic farming the CSI Bank will provide loans at low interest rate for procurement of bio-pesticides, reopening fallow land, establish electric fencing to avoid intrusion of wild animals, procurement of seed, organic soil amendments-fertilizer, bio pesticide, irrigation and machinery.

II. OVERVIEW OF ORGANIC FARMING IN BHUTAN

A. Political and Organisational Aspects

5. The political processes to promote Bhutan to adopt 100% organic farming began in 2003. Following this decision, the formulation of the National Framework for Organic Farming for Bhutan (NFOFB) began and completed in 2008. The stated mission of NFOFB is to develop and promote organic farming to maintain a sound environment, enable Bhutanese farmers and traders to provide safe, quality food produce and products for local consumers and export. Bhutan's vision for organic farming was to develop it as a way of life, and become a 100% organic nation by 2020. The broad strategy called for a community approach, covering all the farming communities of Bhutan, including subsistence, aiming at household food security and semi-commercial/commercial farmers aspiring for higher incomes and better living standards. The NFOFB advocates support to increase production for existing niche markets including lemon grass oil, potato, red rice, buckwheat, quinoa, cardamom, cordyceps, oranges, apples and vegetable.

6. The NFOFB is managed by the National Organic Programme (NOP) under the ARDC-Yusipang, Department of Agriculture (DoA) created in 2008. The governing body for the NOP is the

National Organic Programme Coordination Unit (NOPCU), supported by a Technical Working Group (TWG).

B. Land Resources and Broad Cropping systems

7. The total land area is 3,839,400 Ha comprising 72% forest representing 2,687,580 Ha, agriculture 542,890 Ha (14%) and other land 575,910 Ha (15%). The agriculture land is made up of 422,335 Ha (78%) permanent meadows and pastures, dryland 68,255 Ha (12.4%), wetland 39,910 Ha (7.3%) and horticulture¹12,390 Ha (2.3%). Of the 31,910 Ha irrigated land 27,680 are in use (94%)².

8. Twenty-six % protected forest of total area, 9% is biological corridors, 8% designated forest community units, and the remaining 57% is reserved forest. The long-term goal of the forestry sector is to keep 60% of the country area under forest cover in perpetuity.

9. The land areas of Bhutan, is located across six ecological zones as shown in table 1 together with the respective broad farming systems.

Table 1: Agro Ecological Zones and Broad Farming Systems

Agro-ecological zone	Altitude (m)	Temperature 0 C	Rainfall (mm)	Area (hectare)	Farming Systems, major crops and agricultural produce.
Alpine	3600-4600	-0.9- 12(5.5)	<650	1,096,615	Semi-nomadic people, yak herding, dairy products, barley, buckwheat, mustard and vegetables.
Cool Temperate	2600-3600	1 - 22 (10)	650-850	917,155	Yaks, cattle, sheep & horses, dairy products, barley, wheat & potatoes on dry land,
Warm Temperate	1800-2600	1-26 (13)	650-850	714,550	Paddy on irrigated land double cropped with wheat and mustard, barley and potatoes on dry land, temperate fruit trees, vegetables, cattle for draft and manure, some machinery and fertilizers used.
Dry Sub-tropical	1200-1800	3-29 (17)	850-1,200	503,465	Maize, paddy, millet, pulses, fruit trees and vegetables, wild lemon grass, cattle, pigs and poultry.
Humid Sub-tropical	600-1200	5-33 (20)	1,200-2,500	392,700	Irrigated paddy rotated with mustard, wheat, pulses and vegetables, tropical fruit trees.
Wet Sub-tropical	150-600	12-35 (24)	2,500-5,500	214,915	Irrigated paddy rotated with mustard, wheat, pulses and vegetables, tropical fruit trees.

Source: RNR Statistics 2015, MoAF, Bhutan

10. Land use classified as organic farming by default represent around 75% of all land, land under certified organic farming represent around 8% and conventional farming using synthetic inputs represent around 20%. Organic farming by default is land cultivated the traditional way without synthetic inputs. Conventional farming is land using synthetic inputs like fertilizer and pesticide.

11. Organic farming is cultivating on 10,390 Ha (8% of total cultivated area) by 2,680, households, 24 farmer groups and 3 cooperatives, 3 retailers and 1 exporter.

¹ Including HAMP, orchard and vegetables

² FAO, 2016 AQUASTAT at: <http://www.fao.org/nr/water/aquastat/main/index.stm>

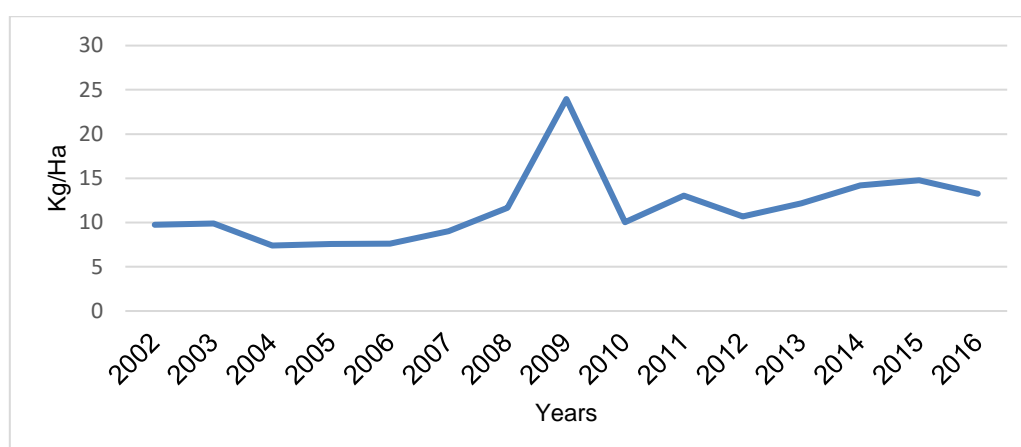
C. Crop Productivity and Agricultural Inputs

12. Crop productivity, in value terms has increased over the past decade by shifting from producing cereals to high-value commercial crops such fruits, hazelnuts, shiitake mushroom, cardamom, orange, lemongrass, apples and vegetables. The driver of crop diversification is import substitution. In addition, the volume of production increase around 7% annual³ during 2001 to 2014.

13. The annual increase in production can be attributed to new varieties with improved tolerates to both biotic and abiotic stresses. Increase land use crop intensity, improved road network, improved irrigation infrastructure, System of Rice Intensification, ridging of potato, support to establish protected horticulture, terracing of slops, small increase in the use of farmyard manure from an estimated 190,000 Mt in 2002 to XX Mt in 2016, emerging use of green manure and increased mechanisation.

14. Use of synthetic fertilizer grew from an average 9.76 Kg NPK per Ha in 2002 to 13.25 Kg NPK Ha in 2016, an increase of 2.55% per year amounting to an average of 0.249 Kg/Ha/year if considering all arable land. However, if the findings that only 19% of cultivated land (para 4) is using synthetic inputs still holds true the rate per Ha was around 51 Kg in 2002 and increasing to 70 Kg in 2016.

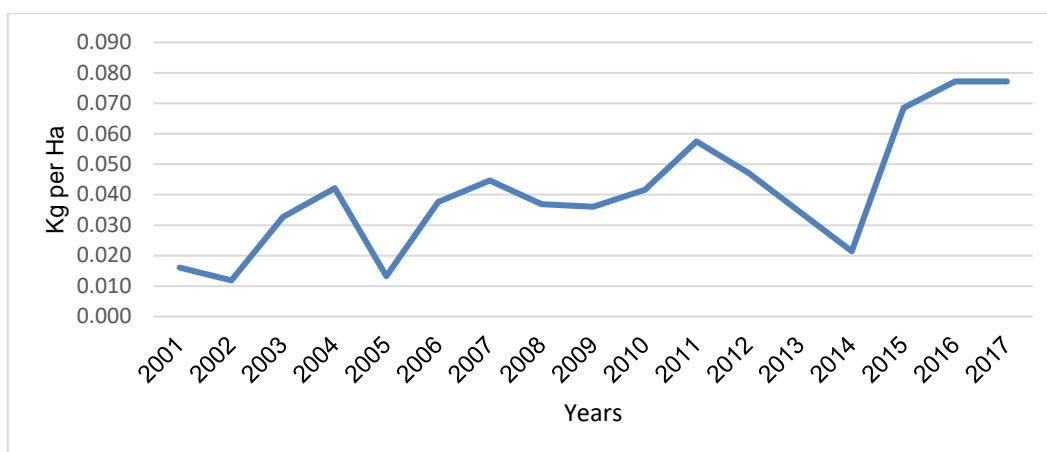
Figure 1: Kg NPK Fertilizer per Hectare



15. Use of pesticide grew an average of 23.6% per annum albeit, from a low dose averaging 15 gram/Ha in 2002 to 71 gram/Ha in 2016 for arable land. If the findings mentioned in para 4 still holds true and the pesticide is only use on 19% of the cultivated land the rates would be 80 gram and 370 gram respectively.

Figure 2: Kg Pesticide/Hectare

³ Bhutan Poverty Assessment Report (2014), National Statistical Bureau, Royal Government of Bhutan, Thimphu, 2014.



III. ASSESMENT OF IMPLEMENTATION OF ORGANIC FARMING IN BHUTAN

16. Two recent studies to assess the viability of organic farming in relation to food self-sufficiency: (a) “The Prospects of Organic Farming in Bhutan”; and (b) “Is Bhutan destined for 100% organic? Assessing the economy-wide effects of a large-scale conversion policy”.

A. The Prospects of Organic Farming in Bhutan

17. The Prospects of Organic Farming in Bhutan was the first study⁴ of its kind and conducted to determine the agronomic, financial, socio-economic and a SWOT analysis of performance and prospects of OA in Bhutan. Paddy rice was chosen as the model crop, and the agronomical and financial study was conducted during two cropping seasons (2012 and 2013) across three agro-ecological zones (AEZs) (low, mid and high altitude) of the country. The study involved 120 organic and 120 conventional farmers. The foundation of the socio-economic study was randomly selected 393 organic and 353 conventional farmers, from all 20 districts of Bhutan. The SWOT analysis conducted among 35 agricultural experts, policy makers, NGO officials and private sector members to assess experts’ views on pros and cons as well as the potentials and challenges of OA, and its promotion in Bhutan. The research questions and finding have been summarise in below table.

Table 2: Summary of Research Question and Findings

Research Question	Research Findings
Compare soil nutrients and properties in organic and conventional paddy fields	OM increase with attitude of the AEZ. The level of exchangeable P was higher in organic, lower AEZ and high AEZ. No difference between organic and conventional Only between AZE. The exchangeable K was highest in high altitude AEZ, otherwise no significant difference. Conventional farming showed higher soil bulk density than organic. Both farming system had very low and low N and P levels and moderate K levels. Organic farmers used leaf litter in combination with FYM as fertilizer,

⁴ The Prospects of Organic Farming in Bhutan

	and CA used FYM together with mainly urea. Field verifications and rough estimates of the NPK applied in organic and conventional fields were very similar an averaging 38 N-18 P ₂ O ₅ -15 K ₂ O Kg/Ha. General for both OA and CA is
Compare paddy yields of organic and conventional production systems	There was no significant yield difference between organic paddy 2,792 Kg/Ha compared to conventional paddy 2,772 Kg/Ha. There was a significant difference in yield between AEZ altitudes
Compare social parameters of organic and conventional farmers	The educational background of the two production systems were similar, so was land holdings. The most predominant age group involved in both farming systems are between 31 and 50 representing 70% and above that age representing 25% and below 31 only 5%. Indicating that youth are moving away from agriculture50
Compare contribution of women to organic and conventional paddy production	No difference in women work input whether organic or conventional production. However, men contributes with almost twice the labour force compared to women.
Compare happiness of organic and conventional paddy farmers	Around 84% of the organic farmers were happy and very happy compared to conventional farmers at 77%.
Compare profession preferences of organic and conventional farmers	Career preferences among organic and conventional farmers were similar around 35% wanted to continue farming. Around 60% wanted to be doctors, teachers and monks (20% for each occupation) and a very small but equal percentage for each production systems wanted to be in the army.
Compare cost-benefit of organic and conventional paddy production	There are no difference in benefit and cost between the two production systems. Organic farming generates NU 105,611/Ha with a B/C ratio of 2.7 and conventional farming NU 107,522 with a B/C cost of 2.8.
Compare paddy pest and disease incidences of organic and conventional paddy	Weed management among organic farmers is done manual and conventional growers use Butachlor, a post emergence herbicide. However, farmers do not strictly follow the recommended dosages and application leading to minimal effect and results in high weed incidence in both organic and conventional paddy fields. Unless insect and fungus incidences are widespread, both organic and conventional farmers do not intervene because it is sinful act to kill other living organisms, and such acts carry social stigma.
Irrigation adequacy and cropping in paddy fields	Around 75% of both organic and conventional farming have insufficient irrigation water
Analyse strengths, weaknesses, opportunities and threats of OA	94% expressed that Bhutan should promote OA and the experts agreeing on opportunities (44%) and threats (43%) is similar. Only 36% of the expert were sure Bhutan can convert to OA and 64% did not agree that Bhutan could make the move to 100% OA. Only 30% of the experts was in favour to phase out the SAC. The remaining 70% were not in favour or not sure.

B. Conclusion of Prospects of Organic Farming in Bhutan

18. The study concludes that OA, does not compromise the goal for food self-sufficiency in the case of paddy rice. This is partly true for other crops too because management practices, and resource use in both OA and CA are almost similar. Food self-sufficiency does not depend on crop productivity alone. Other factors such as access to productive assets, labour availability, and access to road and off farm employment opportunities equally affect food self-sufficiency goals need addressing.

C. Is Bhutan Destined for 100% Organic

19. Is Bhutan Destined for 100% Organic, was the second study⁵ examining the effect of converting the conventional agriculture into organic by default, without improvements to the default system.

20. The basis for this study is the Agricultural Sample Survey (ASS) 2012⁶ containing crop output data of about 6,200 farmers. This survey is the most recent, that includes questions on agrochemical use for crops at farm level. The data were organised along crops under organic and conventional farming, across each of the following three AEZ: (i) AEZ-1 is the humid, sub-tropical zone at altitudes below 1,200 meters above sea level (masl); (ii) AEZ-2 dry-subtropical AEZ between 1,200 and 1,800 masl; AEZ-3 temperate zone above 1,800 masl. For each crop-strata, benefit and cost data using existing crop budgets to developed new budgets for each crop-strata, allowing yield gaps between organic and conventional farming and among AEZs to be calculated. The yield gap were used in a general equilibrium (CGE) model used to assess the impact of the 100% organic conversion policy at the farm level and national economy at large. The analysis also incorporated statistical calculation to measure the significance for the various parameters.

21. The study analysis show that the fertilizer use on average would decrease from 38.4 Kg to 29.8 Kg NPK/Ha, resulting in an overall decline in yields of 24%. This in turn would affect the overall economy negatively and lead to a drop in in real GDP of -1.1% (USD 18.8 million) and a drop in total domestic absorption by -3.1%. The conversion would makes national food self-sufficiency declines by -5.1% from 84.1% to 79.0%, and cereal self-sufficiency reduced by -6.3% i.e. from 61.5% to 55.2% because of the substantial drop in paddy output and the increase in rice imports. The study estimates that the decline in food self-sufficiency will lead to an average drop in food consumption of -2.3% among agricultural households and -5.2% among non-agricultural households.

D. Conclusions, Is Bhutan Destined for 100% Organic

22. The study were able to show that lower yields and higher labour requirements in OA is needed to substitute the previous use of pesticides and fertilizers in CA. This resulted in a strong contraction of agricultural output, substantial losses in welfare and negative implications for food security. Based on study data, converting Bhutan's CA to the current organic by default farming system seems to be insufficient in fulfilling the promise of a 100% OA as a sustainable and environmentally friendly farming system that maintains current levels of food production. To reach this aim, further adaptations of cropping systems (fertilisation management, crop protection, integration of livestock) are necessary to narrow the current yield gaps and to develop truly holistic organic farming systems.

E. Assessment of the Results from the two Studies

23. The results from the two studies are very different, the first study show no significant between organic by default and conventional, whereas the second study show a 24% overall drop in yield moving from conventional to organic by default. The most plausible explanation for the difference between the results of the two studies can be survey samples used for the analysis, the first study use

⁵ Assessing the economy-wide effects of a large-scale conversion, "Is Bhutan destined for 100% organic?" International Agricultural Trade and Development Group, Humboldt-Universita't zu Berlin, Berlin, Germany

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own sample survey data whereas the second study uses secondary data from a study carried out several years before the actual study was undertaken.

24. Both studies assume that the organic by default is static, which has actually been the case. Efforts to extend improved soil fertility through organic and biological means has been minimal for the organic farming by default. Likewise, efforts to introduce bio-pesticides have been limited. Irrespective of the production system, soil improvement is required for most soils in Bhutan and will equally be beneficial for both organic by default and conventional farming.

25. The studies also agrees that the attempt to introduce organic is a top down approach with limited knowledge among extension workers and local government officials and even less knowledge among farmers.

26. The studies also agrees that investments in research and extension are necessary in order to increase the organic system by default. The current research is too limited and would need to expand significantly to increase without synthetic inputs.

IV. POTENTIAL FOR IMPROVING CROP PRODUCTION WITHOUT SYNTHETIC INPUTS

A. General Soil Fertility in Bhutan

27. Generally, soil health status in Bhutan is poor⁷. Plant production in most cultivated soils remove more nutrition than is added to the soils like FYM, forest litter and synthetic fertilizer. PH ranging from low (4.9) to moderate (5.7), Al are low to very low, indicating no aluminium toxicity. Moderate C: N ratio between 11:1 to 14:1, low organic carbon, very low N, P and moderate to high K contents in most soils, particularly N and P. Mg and Ca very low to low and percentage of Base saturation and total exchangeable base levels are low or very low. The low to very low exchangeable Ca and Mg levels as compared to predominantly moderate to high levels of exchangeable K are reflected by unfavourable Mg:K and Ca:K ratios and low CEC in most soils.

B. Required Amendments for Healthy Soils and Plant growth

1. Lime

28. Calcium is the soil health mineral; it builds good soil structure, and interacts with soil aggregates improve aeration/nitrogen (N₂) in the rhizospheres provide homes for other forms of soil life. Liming is the most common and effective way of improving acid soils to supply calcium, magnesium, phosphorus and other minerals to crops. Calcium will *accelerate the decomposition of organic matter*, improving the physical, chemical and biological properties, making soils more healthy and able to support symbiotic organisms such as Rhizobium bacteria in legumes and free-living nitrogen-fixers like azobacters, cyanobacters, Nitrosomas and Nitrobacter and blue green algae and other species of free-living nitrogen-fixers. The air in the rhizospheres contain 75% nitrogen and the more free-living nitrogen-fixers the more nitrogen will be trapped and made available to plant will be able to trap some of that nitrogen and make it available to plants.

29. Monitoring of soil PH is important to determine liming intervals ensuring a continuous healthy soil with sufficient level of CA. The lime rate for first time liming would be in the range from 0.5 MT/Ha to 3 MT/Ha depending on soil type, acidity of soil and cropping system. If pelletized lime is used the rates also drop as it is fast reacting compared to agriculture lime. These rates will generated incremental yields for several years (2-3) before re-liming is required. Re-liming will be at much lower rates that the original liming correcting PH.

2. Compost

30. Bhutan uses mainly non-decomposed FYM and forest litter as organic soil amendments. Before applying FYM, kept in manure heaps at the farm and in the field undergoing an anaerobic fermentation process, which releases methane that is 26 times more potent compared to carbon dioxide. When applied to the soil it will take long before the FYM and forest litter is decomposed and releases nutrition to the crops. Each Mt of FYM under anaerobic fermentation releases about one tonne of greenhouse gases, mostly in the form of methane.

31. However, the aerobic process of composting does not produce methane because methane-producing microbes are not active in the presence of oxygen. Aerobic composting is one method to reduce methane emissions from organic material like FYM. In the presence of oxygen and water, microbes, such as bacteria and fungi, uses the carbon for energy and decompose the organic wastes. Good compost used for rice has shown to increase yields by 63%⁸. Other benefits of compost:

- heat, which kills pathogens and seeds, is produced

⁷ Changing Soil Fertility Management in Bhutan: Effects on Practices, Nutrient Status and Sustainability* Chenchu Norbu and Christopher Floyd, 1999

⁸ Assessment of crop growth, soil properties and crop yield in an upland acidic soil with inorganic fertilizer blended with organic amendments in summer rice cropping seasons, [International Journal of Recycling of Organic Waste in Agriculture](#) Madhumita Ghosh & Ashalata Devi. 2019

- the remaining carbon is stable humus that is weed-free and safe to use for agriculture
- Compost contains macro and micronutrients
- Compost releases nutrients slowly
- Compost enriched soil retains nutrition and synthetic fertilizers better
- Compost buffers the soil, neutralizing both acid & alkaline soils, bringing pH levels to the optimum range for nutrient availability to plants.
- Compost alters soil structure, making it less likely to erode, and prevents soil spattering on plants—spreading disease.
- Compost can hold nutrients tight enough to prevent them from washing out, but loosely enough so plants can take them up as needed.
- Compost bacteria break down organics into plant available nutrients. Some bacteria convert nitrogen from the air into a plant available nutrient.
- Compost enriched soil have lots of beneficial insects, worms and other organisms that burrow through soil keeping it well aerated.
- Compost may suppress diseases and harmful pests that could overrun poor, lifeless soil.
- Compost encourages healthy root systems, which decrease runoff
- Compost can reduce eliminate use of synthetic fertilizers
- Compost can reduce pest pressure since it contains beneficial microorganisms that may protect plants from diseases and pests.
- Only a 5% increase in organic material quadruples soils water holding capacity.
- adding a source of organic matter that stimulates biological activity

3. Biogas Slurry

32. Biomass passing through an anaerobic digester produces methane for energy, and the by-product is bio-slurry. The liquid bio-slurry retains a high content of organic matter (OM), Nitrogen (N), Phosphorous (P) and Potassium (K), as well as a range of other macro- and micronutrients like Calcium (Ca), Magnesium (Mg), Iron (Fe), Manganese (Mn), Zinc (Zn); and different amino acids which can be turn into nitrogen can be used in different ways for agriculture.

33. Unfortunately, many farmers do not utilise biogas slurry proper, or not at all, due to lack of knowledge and means of transporting the slurry to the field and equipment of its application. Observations have shown that some farmers just let the slurry drain into the soil or to the nearest water stream. This is very unfortunate, considering the many uses for slurry:

- **Fertilizer.** It is an excellent fertilizer if incorporated into the soil before planting and at time of weeding. Trials⁹ and field observations show that slurry can brings about the same yields as synthetic fertilizer.
- **Folia fertilizer.** It is also an excellent folia fertilizer, which can inhibit diseases, and insect attaches.
- **Seed treatment.** Biogas slurry contains large amounts of humic acid ammonium, various kinds of vitamins, IAA and crops required nitrogen, phosphorus, potassium and other trace elements as well as a variety of active substances secreted by microorganisms. Studied¹⁰ have shown that soaking seeds with biogas slurry increases sprouting rate significantly because the inhibitory effects on rice root rot, sheath blight, helminthosporium sigmoideum cavara, bakanae disease, anthracnose of cotton, the leaf spot of corn among many other diseases and crops.
- **Pesticides** Numerus experiments have shown that biogas slurry can control many different diseases and types of pests from most crops. Some single-use slurry have reached or exceeded the efficacy of synthetic pesticide. Long-term using of biogas slurry as an auxiliary

⁹ BIOSLURRY = BROWN GOLD? A review of scientific literature on the co-product of biogas production. Lennart de Groot and Anne Bogdanski Food and Agriculture Organization of the United Nations Rome 2013

¹⁰ Jianjun-Liang. the study of comprehensive utilization of biogas technology. INFORMATION OF AGRICULTURAL SCIENCE AND TECHNOLOGY.2007

drug for pests and diseases control will not bring pollution to the environment or produce resistance to the pests and diseases.

- **Feed for animals.** Biogas slurry as feed preparation for pigs and poultry can promote growth, shorten the fattening period and improve meat feed ratio. There were no infectious or parasitic diseases with the main organs and meat by anatomical and meat quality analysis after slaughtered. Biogas slurry for fish farming increases the amount of plankton, also the enhancement of photosynthesis with more oxygen. At the same time, slurry feed fish can reduce fish diseases and save feedstuff.
- **Agent for composting.** Biogas slurry will also act to speed up composting of biomass with high carbon and at the same time enriched it.

34. Farmyard manure is in short supply for both compost and biogas, and is therefore a highly valuable material, which should be use in a proper manner to optimize its effect on plant yields.

4. Biochar

35. Soils store three times more carbon than exists in the atmosphere. Plants absorb atmospheric carbon, so the return of plant residues into the soil contributing to soil carbon. While much of this carbon returns to the atmosphere as biomass is decomposed and release as carbon dioxide. Sequestered carbon will contribute to fight climate change.

36. The chemical, electrical and magnetic properties of BC include bulk density and particle density, micro porosity, surface area making its use increase water-holding capacity. Contains N, P, K, S, Ca, Mg and Fe, Mn, Cu, Zn, Mo, B, Cl, Si, Na and Ni. Increases cation and anion exchange capacity (CEC and AEC), reducing and oxidising potential, magnetic susceptibility/paramagnetic and absorptivity of heavy metals and organic pollutants. Because of these properties, biochar application in the fields helps increasing the soil fertility, improved soil texture, improved sorption for nutrients that leads to increased availability to plants and reduce run off and leaching reducing pollution. Biochar is highly efficient in increasing crop production and yield. Another, major benefits is that biochar helps in combating climate change by sequestering the carbon dioxide in the air. Biochar provides many benefits to the environment agriculture so it is highly recommended to incorporate it in agriculture practices.

37. Bhutan has a large amount of biomass from trimming live tree fences, pruning of the tree canopy and thinning of tree stands.

38. There are numerous different high productive biochar kilns/reactors available, including mobile units at affordable prices. The size vary from production of 100 Kg biochar per day for small farms to 1 Mt/ hour including production of oil or gas as a by-products for commercial production.

39. Biochar mixed with compost will absorb nutrients and release these as needed by the plants. Likewise, soaking biochar in urine or biogas slurry will fortified it with nutrition.

5. Humic acid

40. Humic acids are extremely important as a medium for transporting nutrients from the soil to the plants, because they can hold onto ionized nutrients, preventing them from leaching. The depletion zone of the plant root attracts Humic acids which bring with them water and nutrients the plant needs. The depletion zone is the area close to the root of a plant from which the root draws (depletes) nutrients. If there is a lack of either humic acid or mycorrhizal fungus this zone will become particularly depleted.

41. One of the most noticeable and impactful benefits of humic acid is their impact on microbial populations of soil. Humic acid aid the growth of microbial population in tow primary ways. First, they provide a source of carbon, which serves as a food source for microbes. Secondly, due to their large size, they provide a source for microbe to colonize. So essential humic acid provide food and shelter to beneficial microbes, which explain why microbial population flourish in the presence of humic acid.

42. Although humic acid has a net negative charge, it also has positive charges, and very large molecular size. Because of these properties, humic acids are able to bond to all soil particles, which creates necessary space for microbes and healthy root growth. This is especially noticeable in high-clay and compacted soils, where soil particles tightly bound together. Humic molecules are even capable of standing clay particles on end, which allows more space and water penetration. Further, they remove salts from clay, which restores a negative charge from the clay particles, forcing them apart.

43. Humic acids have the unique ability to increase water retention in soils. With changing climate, this is becoming more important as ecosystems become strained. It is also vital for sandy, arid, and low-clay soils. The negative charge of humic acids attracts cations, which stick to the humic molecule. These cations, in the presence of water molecules, move slightly away from the humic molecule and attach loosely to the oxygen end of water molecules. The hydrogen ends of those water molecules then attach to the hydrogen ends of other water molecules. This effect reduces water evaporation by up to 30%.

44. Humic acids hold cations more easily, absorbed by a plant's negative charge root, improving micronutrient transfer to the plant's circulation system. This works because humic acids (ulmic, humic, and fulvic) pick up cations, attracted to the roots depletion zone and to the hyphae micro-tubes of mycorrhizae. Through chelation, humic substances increase the availability of these cations to plants. Humic acid improve soil structure,

45. Humic acid is necessary for healthy soil. Good compost contain between 5 to 8% humic acid, in addition, Bhutan have **brown coal and black peat** is readily available like Bhutan. The use of humic acids can be as a primer for composting, ingredient for making organic pelleted fertilize with compost, biogas slurry, biochar and by its own, direct application, folia application and alone.

6. Bio-fertilizer

46. The genus *Azospirillum* comprises plant-growth-promoting bacteria (PGPB), its capacity to fix atmospheric nitrogen, but also its capacity to synthesize phytohormones, conferring to plants tolerance of abiotic and biotic stresses.

47. The Arbuscular mycorrhizal fungi (AMF) is a bio-fertilizer. Moreover, the inoculation of AMF provides tolerance to host plants against various stressful situations like heat, salinity, drought, metals, and extreme temperatures. AMF may both assist host plants in the up-regulation of tolerance mechanisms and prevent the down-regulation of key metabolic pathways. AMF, being natural root symbionts, provide essential plant inorganic nutrients to host plants, thereby improving growth and yield under unstressed and stressed regimes. The role of AMF as a bio-fertilizer can potentially strengthen plants' adaptability to changing environment.

48. *Herbaspirillum seropedicae* is an endophytic bacterium capable of colonizing intercellular spaces of maize, rice, sorghum, sugar cane, bananas and pineapple. HS is highly versatile microorganism with capacity to metabolize a wide range of carbon and nitrogen. Studies have shown that *H. seropedicae* inoculated with crops are capable of fixing up to 40 Kg nitrogen/per crop cycle.

49. *Azotobacterspp* are non-symbiotic heterotrophic bacteria capable of fixing an average 20 kg N/ha/per year. Bacterization helps to improve plant growth and to increase soil nitrogen through

nitrogen fixation by utilizing carbon for its metabolism. It also have properties that protects plants against abiotic and biotic stresses.

50. Rhizobia are diazotrophic bacteria that fix nitrogen after becoming established inside the root nodules of legumes (Fabaceae). Rhizobia require a plant host to fix nitrogen.

7. Production of Bio-fertilizer

51. Commercial production of all above bio-fertilizers takes place many places around the world and might also provide a good business for young graduates

8. Bio-pesticide

52. Bio-pesticides are pesticides derived from natural materials as animals (manly insects), plants, bacteria, fungi and certain minerals. For example, canola oil and baking soda have pesticidal applications and considered bio-pesticides. As of April 2016, there were 299 registered bio-pesticide active ingredients and 1,401 active bio-pesticide product registrations in the USA. Bio-pesticides fall into three major classes:

- Biochemical pesticides are naturally occurring substances that control pests by non-toxic mechanisms. Bio-chemical pesticides include substances that interfere with mating, such as insect sex pheromones, as well as various scented plant extracts that attract insect pests to traps.
- Microbial pesticides consist of a microorganism (e.g., a bacterium, fungus, virus or protozoan) as the active ingredient. Microbial pesticides can control many different kinds of pests, although each separate active ingredient is relatively specific for its target pest[s]. For example, there are fungi that control certain weeds and other fungi that kill specific insects.
- The most widely used microbial pesticides are living organisms, which are pathogenic for the pest of interest. These include biofungicides (*Trichoderma*), bioherbicides (*Phytophthora*) and bioinsecticides (*Bacillus thuringiensis*, *B. sphaericus*).

9. Green manuring and harvesting legumes for compost

53. Climate condition in most of Bhutan, except for very high altitudes, allows for two to three crops per year, which enables the production of a leguminous crop. Legumes grown as green manure can help "build" soil structure over time, which increases aeration, water infiltration and root growth, and helps decrease the risk of soil erosion. Green manure crops remove carbon dioxide from the atmosphere and helps build soil organic matter.

54. The actual amount of atmospheric N that is fixed, and becomes available to subsequent crops depends on climate, soil health, and soil fertility (other than nitrogen). Legumes prefer a soil close to natural and Inoculation of legumes with the correct strain of *Rhizobium* spp is necessary.

55. Many different legume species exist with various uses. All have potential use for soil amendments, in the form of green manuring of whole plant, harvest the dry biomass above ground for application on soils in need for organic material and composting of mature or partly mature biomass. The amount of nitrogen absorbed from the atmosphere and fixed varies from 40 Kg N/Ha to 350 Kg N per Ha per crop cycle depending on type of legumes and growth duration and inherent soil fertility. Most legumes will also extract P, K, Ca, Mg and micro nutrition from the soil.

56. Examples of different legumes are cowpea (*Vigna unguiculata*), horse gram (*Macrotyloma uniflorum*) and velvet bean (*Mucuna pruriens*), multiuse legumes good for food, fodder, medicinal purposes, green manuring and compost making. They can be cultivated on fallow land, meadows, intercropped, and velvet beans can be cultivated under light forest canopy.

57. Another example of legumes are flood tolerant crops such as Sesbania and Aeschynomene or the more or less drought tolerant legumes Crotalaria and Tephrosia. The flood-tolerant legumes mentioned above are stem-nodulating and therefor well suited as intercropped and/or relay-cropped with rice and fix between 30 to 60 Kg 0g N per Ha.

58. Knowledge, seed availability and competition with other crops is the limiting factor for using legumes as green manure or compost.

10. Precision Soil Amendments and Plant Nutrition Recommendations

59. To optimise the return of soil amendments it is necessary to undertake large-scale soil sampling, analysis and mapping. CPS technology and software that can draw the respective maps will allow rapid turnaround with the information to farmers with the soil information and required soil amendments and plant nutrition recommendation.

11. Conclusion

60. **Availability of raw material.** All the raw material for soil amendments and plant nutrition are available in the form of lime, dolomite, biomass for biochar, brown coal/black peat for humic acid, cultivated organic material for compost and/or green manuring/biogas slurry. However all of above needs processing making the ingredients more active making it cheaper to move them to the final user.

61. **Feasibility and business Plans for producing soil amendments.** Guidelines for making the amendments for use by remote located farmers needs to be developed. Likewise, guidelines, feasibility studies and business plans and financing for young entrepreneurs wanting to make a business from producing these items needs to be developed. Fungi, bacteria and alga based bio-fertilizer and bio-pesticides if domestically manufactured need a special equipped lab, which might be a good business for young entrepreneurs.

62. **Organic agricultural focus.** Pursuing all avenues to produce /process organic/ bio soil amendments, plant nutrition and bio pesticide; it is realistic for Bhutan to attain food self-sufficiency. However, it is important that the focus be on the farmers who are organic by default rather than starve the conventional farmers from using synthetic. Of cause, it does not mean that conventional farmers should receive the service if interested.

V. THE WAY FORWARD

63. Although the government can just stop importation of synthetic inputs, it is not advisable due to the reasons mentioned in para xx. A better strategy is to focus on soil health protocols across both organic by default and conventional farming. Equally important is to develop pest management protocols across both production systems. The required actions to improve the organic agriculture default covering about 75% of the land cultivated and to do away with use of synthetic input on conventional farming covering around 20% of cultivated land is listed in below table 3.

Table 3: Activities, Parties Responsible, Commencement and Completion Date

	Activity	Party Responsible	Commencement/ completion
1	Prepare village soil analysis method and schedule	NSSC with support from ITA soil	August 2020/

	sampling	specialist.	ongoing
2	Prepare soil amendments recommendations according to soil analysis based on existing data	NSSC/ADCR with support from ITA soil specialist	September 2020/ November 2020
3	Support establish of agriculture lime and/or dolomite production	AMCO with support from ITA	September 2020 / May 2021
4	Support young entrepreneur to establish Biochar production	AMCO with ITA support if required	September 2020 / May 2021
5	Support young entrepreneur to establish high quality commercial and mechanical manufacturing compost (using FYM, forest produced organic, legume relay crops).	AMCO with ITA support	September 2020 / ongoing
6	Support young entrepreneur prepare seed treatment/nutrition buster for new established crops using fermented bio gas and/or cow urine/dung with soil and grain brand	ADCR with support from ITA	September 2020 / May 2012
7	Support young entrepreneur to set up trade with bio pest control (fungus, insects and weed) using IPM from agents derived from animals, insects, microorganisms, traps and production of these products if warranted	AMCO/ADCR/NSSC and ITA	September 2020 / May 2012
8	Varietal screening of selected crops to identify gens for developing new varieties with strong response to organic and bio-fertilizer and having strong traits for resistance against pest and diseases	ADCR/NSSC and ITA if required	September 2020/ ongoing
9	Test and introduced submerged (mechanical) drip irrigation for all crops including cereals, lowland and upland rice.	ADCR/NSSC and ITA if required	April 2021/October 2021
10	Introduce tractors (mountain orchard and walking tractors) and implement that can line sow, inter row cultivate for ween and row harvesting	ADCR/NSSC and ITA if required	October 2020/ May 2021
11	Support young entrepreneur to set up retail outlets caring inputs for organic farming and machinery	AMCO/ADCR/NSSC and ITA	October 2020/ May 2021
12	Procure 56 soil and tissue analysis field kits and GPS interface and mapping software	CARLEP and NSSC	
13	Train 2 extension worker for each of the 20 Dzongkhag and 6 staff of NSSC	ITA	
14	Prepare investment prospectus	ITA	

64. Annex I presents the terms of reference for developing precision soil amendments and plant nutrition recommendations. The ToR foresee two international TA, one soil specialist and one plant nutrition specialist. Both needs to be physical present in Bhutan during the assignment.

65. Annex II presents the terms of reference for examining comparative and competitiveness of HVC, market agreements, VCA, BP and financial analysis. The commercial viability of using and producing mineral and organic soil amendments, plant nutrition, bio-fertilizer and VC financing. The ToR foresees two TAs. One international business development specialist and one National data survey specialist. If prior Bhutan experience the ITA can undertake the work virtually if the situation do not permit in country work.

Annex I: Terms of Reference for Soil sampling, Analysis, Mapping and Preparing Initial Precision Recommendations

INTRODUCTION

Bhutan has been pursuing the introduction of organic agriculture since 2008 and is presently renewing its efforts. Good Soil Health Management (SHM) is one of the most important interventions for both conventional plant production and organic production. However, generally, soil health status

in Bhutan is poor. PH ranging from low (4) to medium (5.5), Al are low to very low, indicating no aluminium toxicity, moderate C: N ratio between 11 to 14.1, low N and P & K contents are low in most soils, particularly for P, percentage of BS low to very low with a low CEC in most soils. Such low to moderate soil parameters are affecting chemical, biological and physical functions within soils and plants prohibiting good yields. Under similar soil conditions, from all over the world including climatic zones show significant crop response to lime. That also includes the neighbouring countries India, Bangladesh, Nepal and Sikkim. The incremental yield increase for lime alone varies from 20-50% and yields will be even higher if combined with organics and bio-fertilizers bringing the total N in excess of recommended levels of synthetic fertilizers..

From above, it is realised that improving the soil health using lime on the waste area with low PH will contribute considerable to food self-sufficiency. Lime in combination with locally available soil amendments like compost, green manuring, bio-stimulants and biochar will further drive yields. Manufacturing of bio-fertilizer and bio-agents will be promote in Bhutan which will further boosting yield.

These interventions will significantly make agriculture sustainable and mitigate against climate change. It will also contribute considerable to food self-sufficiency and import earning from export. Equally important, it will make Bhutan more resilient against outside forces like the present and new pandemics and other events that might see the boarders to Bhutan closing.

To assess the commercial viability of improving soil health, plant nutrition and production of HVC for export, CARLEP will engage one international TA and one National TA to undertake below scope of work.

Scope of work

To make sure liming, other soil amendments and plant nutrition are applied at the most precise time, location, method, and rate soil analysis and soil mapping is necessary.

Through a consultative and field based process, the consultant will prepare guidelines for village soil sampling, soil analysis, preparation of recommendation for soil amendments and train selected soil-sampling staff, laboratory staff and agronomists. Preparation of the guideline will follow well-established and recognized methodologies:

- Sampling locations and strategies
- Sample timing
- Sample depth
- Handling of samples
- Sampling tools
- Samples and subsamples
- Sample collection

- Sampling Frequency
- Areas to avoid sampling
- Calibrating Soil test kit against analytical methods following best practises
- Prepare village based soil mapping outlining land of each farm with ledger showing soil values and proposed amendments and proposed next sampling after amendments
- Based on soil field test kits prepare soil amendments for different levels of PH, macro and micro nutrition. The soil amendments will be in the form of [dolomitic lime both for low PH and magnesium](#) and calcitic lime for low PH, compost, green manuring, biochar, humic substances e.g. peat soil. These amendments can be stand-alone or a mix of some or all above materials.
- Based on field test kits results formulate plant nutrition requirement for different soil values. The plant nutrition will be in the form of compost, humic, biochar and plant nutrition from green manuring, bio-stimulants and bio-fertilizer.
- Training in soil sampling techniques according to field parameters
- Training in using the soil kit and calibrating it against analytical methods following best practises
- Training in preparing soil mapping at farm and village level
- Training in preparing soil amendment recommendations
- Training in preparing plant nutrition recommendation

Consultancy Deliverables

The deliverables of the consultancy will be two reports:

- Guidelines for soil sampling, soil analysis and soil mapping;
- Soil mapping
- Performa tables showing different PH soil status, against recommended lime rates and when to sample for new analysis after applying the first lime
- Performa table showing soil status against recommended compost, humic, biochar and plant nutrition from green manuring, bio-stimulants and bio-fertilizer
- Evaluation report of trained persons and performance of the soil lab's capability
- Training evaluation report

Supervision/Reporting line and Duty Stations

The consultant will report directly to the CARLEP Programme Director supported by

TORs Amendment

CARLEP and the consultant may amend part of the present ToRs in order to have deliverables that better adheres to the context. The final report will reflect the amendments agreed. The parties must sign any amendments at the beginning of the mission.

8. Proposed Timeframe

ITA 25 days soil specialist and soil amendment specialist

ITA 25 days plant nutrition specialist

The soil specialist will start working 15 days earlier than the plant nutrition specialist giving them 10 days overlap for coordinating and agreeing on the use of soil maps and soil status. The soil specialist will be the team leader.

9. Payment milestones

CARLEP/IFAD

10. Academic qualifications and relevant professional experience

ITA relevant academic qualifications with a minimum of 10 years of experience from rural agricultural business development support. Knowledge about Bhutan an added advantage.

NTA relevant academic qualifications with a minimum of 10 years of experience from sample survey and data collection.

Language: fluency in English

ANNEX II: Terms of Reference for Business Development Support

INTRODUCTION

Bhutan has been pursuing the introduction of organic agriculture since 2008 and is presently renewing its efforts. Good Soil Health Management (SHM) is one of the most important interventions for both conventional plant production and organic production. However, generally, soil health status in Bhutan is poor. PH ranging from low (4) to medium (5.5), Al are low to very low, indicating no aluminium toxicity, moderate C: N ratio between 11:1 to 14:1, low N and P & K contents are low in most soils, particularly for P, percentage of BS low to very low with a low CEC in most soils. Such low to moderate soil parameters are affecting chemical, biological and physical functions within soils and plants prohibiting good yields. Under similar soil conditions, from all over the world including similar climatic zones show significant crop response to lime. That also includes the neighbouring countries India, Bangladesh, Nepal and Sikkim. The response to lime differs, but overall generates significant incremental yield increases from 0.2 to 1 Mt per Ha. The incremental yield increase for lime alone varies from 20-50% and yields will be even higher if combined with organics.

From above, it is realised that improving the soil health using lime on the waste area with low PH will contribute considerable to food self-sufficiency. Lime in combination with locally available soil amendments like compost, green manuring, bio-stimulants and biochar, humic acid will further drive yields. Manufacturing of bio-fertilizer and bio-agents will be promote in Bhutan which will further boosting yield.

These interventions is intentioned to significantly make agriculture sustainable and mitigate against climate change. It will also contribute considerable to food self-sufficiency and import earning from export. Equally important it will make Bhutan more resilient against outside forces like the present and new pandemics and other events that might see the boarders to Bhutan closing.

Bhutan is also pursuing to increase export of High Value Commodities (HVC) in a sustainable manner and resilient to externalities.

To assess the commercial viability of improving soil health, plant nutrition and production of HVC for export, CARLEP will engage one international TA and one National TA to undertake below scope of work.

Scope of work

To ensure that pursuing organic agriculture and HVC for export is commercial viable the consultants will undertake take the following tasks.

- Prepare B/C, comparative and competitive analysis of using and producing soil amendments in the form of biochar, humic acid, and agricultural lime/dolomite and pelletized fine powdered lime/dolomite. Based on the analysis prepare a list of recommended soil amendments.

For recommended soil amendments, establish the size of domestic and export markets and direct links to the buyers. Prepare VC analysis for the mineral soil amendments, the analysis will include a business plan for each relevant investment along the value chain required to develop a strong and sustainable value chain.

- Prepare B/C, comparative and competitive analysis of using and producing mineral, organic and bio-fertilizer in the form of biochar, humic acid, green manure, bio-fertilizer (based on living microbes). Based on the analysis prepare a list of recommended organic and bio-fertilizers.

For recommended organic and bio-fertilizer, establish the size of domestic and export markets. Prepare VC analysis for organic mineral and bio-fertilizer. The analysis will include a business plan for each relevant investment along the value chain required to develop a strong and sustainable value chain.

- Prepare B/C, comparative and competitive analysis of using and producing bio-pesticide based on microbial (bacteria, entomopathogenic fungi or viruses (and metabolites that bacteria or fungi produce), predator insects, protozoan, plants (antifeedants), certain minerals, pheromones and various plant scented extracts that attract insect pests to traps and bio-derived chemicals. Based on the analysis prepare a list of recommended bio-pesticides.

For recommended bio-pesticides, establish the size of domestic and export markets. Prepare VC analysis for the bio-pesticide, the analysis will include a business plan for each relevant investment along the value chain required to develop a strong and sustainable value chain.

- Prepare B/C, comparative and competitive analysis of using mechanisation and mechanisation services, productive infrastructure and productive infrastructure services.

For recommended mechanisation and productive services, establish the size of domestic, export markets, and prepare VC analysis including a business plan for each relevant investment along the value chain required to develop a strong and sustainable value chain.

Consultancy Deliverables

The deliverables of the consultancy will be:

- Report of the recommendations from the analysis of comparative and competitive advantages
- Report on trade agreement made
- Value Chain Analysis together with underlying business plans, logistics, financial analysis and value chain financing including crowd funding
- Proposed implementation plans for the VC investments
- Report on any legal issues and proposed amendments to existing legislation

Supervision/Reporting line and Duty Stations

The ITA will take the lead and will report directly to the CARLEP Programme Director.

TORs Amendment

CARLEP and the consultant may amend part of the present ToRs in order to have deliverables that better adheres to the context. The final report will reflect the amendments agreed. The parties must sign any amendments agreed too.

8. Proposed Timeframe

ITA 65 days

NTA 30 days

The ITA will be the lead and coordinate activities and the .

9. Payment milestones

CARLEP/IFAD

10. Academic qualifications and relevant professional experience

ITA relevant academic qualifications with a minimum of 15 years of experience from rural agricultural business development support. Knowledge about Bhutan an added advantage.

NTA relevant academic qualifications with a minimum of 10 years of experience from sample survey and data collection.

Language: fluency in English

Component 2: Value Chain and Marketing

This technical note provides details on additional aspects related to component 2 including programme progress till date and highlights key bottlenecks and way forward for this component. Since, the mission was conducted remotely, programme progress, challenges and several recommendations are based on self-assessment of the programmes and key implementing agencies.

Capacity Building for Value Chain, Markets and Business Development

On capacity building for value addition under component 2: in 2018-2019: 44 farmers were trained in post-harvest management; 19 vegetable growers on seed certification; 3 multi stakeholders facilitations were conducted for dairy; 20 vegetable marketing groups were formed; 8 dairy marketing groups were formed; 180 farmers from different groups trained on marketing and value chain; 100 farmers on packaging and handling; and 1 market infrastructure was developed based on the business plan. In 2019, 42 vegetable groups, 22 dairy farmers groups, 1 productive structure management group were formed, and additionally 8 crop/livestock production groups were strengthened. Further, 2 Multi-stakeholders platform and network creation events were organised, and 50 farmers had study tour to other regions for knowledge sharing and learning. Till date, 67 market infrastructures have been constructed or rehabilitated; and 4671 persons (2391 females: 2280 males) trained on income earning activities or business planning out of which 1029 females and 891 males were trained in 2019-2020.

Enterprise promotion (including capacity building and youth enterprise development)

The programme has 3 interlinked components including sustainable agriculture intensification including youth enterprise promotion (AF phase), value chain & marketing and institutional support. On physical progress, 14 programme supported enterprises are headed by youth out of which 5 have been supported in 2019-2020. Youth with Land

Use certificates (land developed and user certificates issued for youths to be used for agriculture and agricultural enterprises) have been supported with inputs and capacity building on a range of agricultural techniques and enterprises such as fruits trees cultivation, vegetable cultivation, mushroom farming, poultry production and animal husbandry. Overall, the sustainability of these enterprises have to be evaluated. In 2019-2020, ARDC provided training on spawn production to 5 entrepreneur at MSPU, Khangma. Three mushroom spawn production enterprises were developed; and 4 mushroom production house were established with materials. So far, only two young entrepreneurs have managed to produce at commercial scale i.e. 2400 bottles of oyster spawn which were sold in the local market at a price of Nu. 65, generating a gross income of more than Nu. 150,000. They are expected to double their produce in the coming season. RAMCO also conducted feasibility study of establishing green tea processing unit and peanut processing unit as part of enterprise development activities during 2019-2020. Overall, the programme programme programme is well behind its targets to develop 200 agriculture enterprise by 2025 (post additional financing), of which only 23 enterprises have been setup.

Market Studies and information

In Bhutan, it has been noted that farm gate prices of farm produce are nearly 20 to 25% lower than those of the nearby market prices. In case of vegetables, the farm gate prices are highly fluctuating and post-harvest losses are high and estimated at 20%. These losses are even higher with vegetables and fruits. Since in the AF phase, the programme programme programme will also be focusing on additional commodities including fruits, NTFP's etc., several market studies and feasibility studies need to be supported by OPM and RAMCO. It is expected that CARLEP (OPM+RAMCO), will hire additional expertise (service providers, technical assistance) to undertake the requisite studies.

RAMCO is mandated to disseminate market information to the stakeholders on regular basis for effective marketing of agricultural products. Market information system developed by Department of Agricultural Marketing and Cooperatives also needs to receive regular inputs on price information of RNR products from 19 satellite towns. While the department has trained the concerned extension officers for weekly market price information collection using the tablets, the support towards dissemination of weekly updated market prices to the farmer-producers will enable a better farm gate prices for the beneficiaries.

Key Bottlenecks and Way Forward

	Aspect	Bottlenecks	Way Forward
1.	Value chain and markets development for vegetable commercialisation	<ul style="list-style-type: none"> • Low volume of production and higher prices demand by FGs • Poor knowledge of farmers on marketing and product pricing • Traders not willing to participate due to higher price and non-consistent supply of vegetables • No collection shed to aggregate the products • Production not as per the market demand 	<ul style="list-style-type: none"> • Capacity development on marketing aspects, marketing strategy, cost of production and diversification should be provided • Collection shed should be constructed after proper feasibility analysis • More B2B linkages should be encouraged
2.	Value chain and markets development for livestock commercialisation	<ul style="list-style-type: none"> • Lack of consistent milk production i.e. high production during summer and low during winter • Production of clean milk by the group • Higher price expectation by FGs 	Educate FGs on pricing strategy and cost of production

		<ul style="list-style-type: none"> • Covid-19 related supply restrictions 	
3.	Organic certification and export markets (under AF)	<ul style="list-style-type: none"> • Recognition of certification by importing countries • Time consuming and complicated paper work from export authorities • Poor logistic support • Reliability of exporters 	<ul style="list-style-type: none"> • National certification should be accredited to international organization • Conduct proper feasibility studies to understand the demand and supply dynamics
4.	Business and enterprises development for agriculture	<ul style="list-style-type: none"> • Lack of capacity to develop proper business plan by FGs & youth • No risk taking abilities by FGs and youth due to high investment required • Lack of start-up capital • difficult in sourcing raw materials • Poor infrastructure facilities • Starting enterprise without feasibility study • Inexperienced management board • Poor knowledge in-line of business • Not able to compete with cheaper products available in the markets 	<ul style="list-style-type: none"> • Market research should be carried out to ensure that there is adequate demand for the products or services being offered (support from RAMCO) • Proper feasibility study should be carried out before establishment of enterprise • Strategies that will improve access to credit by agribusiness entrepreneurs should be encouraged
5.	Youth farming, Youth enterprises and capacity building	<ul style="list-style-type: none"> • Difficult to find dedicated youth taking farming as an enterprise • Lack of knowledge on farming enterprise 	Provide awareness on potential of RNR enterprise development and credit scheme available
6.	Developing business partnerships	Lack of trust and confidence between growers and traders	Conduct MSPs connecting several stakeholders to understand key requirements, issues and remove bottlenecks
7.	Implementation support for RAMCO		<ul style="list-style-type: none"> • Explore export markets- especially for vegetables and fresh milk • Demand assessment and linkages • Creating awareness on market demand, specification, demand patterns etc. • Study to promote agro enterprises in the region • Infrastructure and equipment/machineries support for enterprise development • Product standardization- support packaging and labelling materials • Capacity development of RAMCO staff on market linkages tools, cooperative development tools, product standardization (packaging and labelling) and to conduct market research and studies- approach and analysis (could hire national expertise/service providers for technical capacity development and fast-tracking programme)

			activities)
8.	Support to KIL		<ul style="list-style-type: none"> Promote development of a clear business strategy for profitability and development as a dairy cooperative.

Access and Use of Investment Capital

Early 2020 successfully completion of the operational guideline for the implementation of the CARLEP matching grant scheme was achieved. However, progress in financial education of CARLEP's target group has not begun. CARLEP could link its targeted clients with the various on-going initiatives by civil society organizations and the RMA financial literacy programme rather than reinventing such capacity building activities and duplicating the efforts.

The mission received anecdotal reports by OPM about programme beneficiaries, served by the Bhutan Development Bank Limited (BDBL) through the Priority Sector Lending (PSL) scheme by the Royal Monetary Authorities (RMA). Since the launch of the PSL guidelines in December 2017, all the 20 Dzongkhags and 7 financial institutions were involved in reviewing PSL proposals. Following the issuance of Government Order C2/823 on 1 January 2018, forming the PSL Committees in all Dzongkhags. The Dzongkhags collectively received 1,561 PSL applications, of which the Dzongkhags approved 1,278 programmes (*quarterly report of RMA, May 2020*). The majority of the programmes (78%) were agriculture-related programmes with the highest concentration in primary production. Unfortunately, it was not possible to collect CARLEP-related beneficiary data during the remote supervision and the programme MIS rolled out in March 2019 does not report systematically on M&E data (see M&E section below) with respect to beneficiaries of loans and programme matching grants.

The supervision mission found that some producer and marketing groups – for instance in Mongar Dzongkhag - use BDBL loans for the construction of greenhouses and poultry sheds, bee hives, shiitake mushroom farming, strawberry seedlings, etc. These loans varied in size from Nu.0.2 million, and Nu.0.5 million. There is a need for larger investment loans for purchasing electric fencing, power tillers and transport vehicles. The need of financing are reported along the various value chain activities, both directly at the different levels of value chain stakeholders as well as for integrated value chain financing approach.

Access to PSL loans will allow investments in new programmes as well as in business expansion, particularly to scale-up dairy farming. The table below shows how the PSL scheme can finance any of the following agricultural enterprises¹¹:

Primary Production	Processing and Packaging	Marketing and Sales
Activities will cover agriculture	Activities will cover related	Activities will cover related

¹¹ Priority Sector Lending Guidelines, 2017, Royal Monetary Authority of Bhutan

proper, livestock and forestry; and related infrastructure & allied activities as follows: i) Cultivation of agricultural crops, livestock farming and forestry. ii) Production of farming inputs including fertilizers, pesticides, seeds and seedlings. iii) Purchase of farming machinery and equipment. iv) Purchase of green house, irrigation, fencing and other farm development activities v) Purchase/production of animal feeds and billets	infrastructure & allied activities as follows: i) Construction of cold storage facilities (such as warehouses, cold chain facilities, go-downs and silos) for storing agricultural produce/ products. ii) Purchase of agricultural machinery/ equipment for food/agro processing and packaging iii) Production of animal feed and billets	infrastructure & allied activities as follows: i) Construction of cold storage facilities (such as warehouses, cold chain facilities, go downs and silos) for storing agricultural produce/ products. ii) Purchase of farm utility transport vehicles iii) Packaging, labelling, advertisement and distribution of products
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To date there are no indications of CARLEP actively promoting the use of the PSL scheme among relevant segments of targeted beneficiaries.

In the absence of systematically monitoring the use of matching grants and resources from the PSL scheme, the following anecdote illustrate the high potential for promoting the use the PSL scheme for the different CARLEP target group segments. *Mr. Pema Lodey, a programme beneficiary, who attended entrepreneurship training provided by Loden Foundation and initially leased 3 acres private land in Rewan, Mongar Dzongkhag in 2017 for agricultural production at an annual lease payment of Nu.18,000 invested in electric fencing, a water reservoir tank, poly house and vegetable seeds. With the support from CARLEP he received training and inputs for off-season vegetable cultivation (winter chili, cauliflower, cabbage, Indian chili, beans, water melon and tomatoes). Apart from his own production, he collects vegetables from the area to sell them to Paro and Thimphu markets using his pick-up that he purchased with a NU1 million PSL loan at an annual interest of 8%. He reported an average income of Nu.0.3 to 0.4 per year without deducting the expenses incurred.*

Besides the PSL scheme, CARLEP target group would benefit from other more recent developments in the financial sector such as:

- a) Farmer's Outreach Banking (FOB), a service provided by the BDBL field staff to the rural communities by visiting the pre-determined place, date and time of meeting on a regular basis. Each BDBL branch office helps formulating an annual banking plan and the concerned regional offices will monitor its implementation. FOB is like a mini bank offering a full range of banking services to the rural people.
- b) In February 2020, the RMA registered the former Rural Enterprise Development Corporation Limited REDCL as the National CSI Development Bank Limited. The CSI provides non-formal rural financing at 5% p.a., up to Nu. 0.5 million, loan amount: 100% of programme fund size, tenure: max. 5 years, collateral: guarantor), cottage industry financing (7% p.a., Nu. 0.5 to Nu. 5 million, loan amount: 75% of programme fund size, tenure: max. 10 years, collateral: assets and guarantor) and small industry financing (7% p.a., Nu. 5 Nu. 10 million, loan amount: 75% of programme fund size, tenure: max. 10 years, collateral: assets and guarantor).

- c) The Bhutan Economic Forum for Innovative Transformation (BEFIT) provides a platform to revisit the topic of Financial Inclusion by the RMA and the Royal Institute for Governance and Strategic Studies (RIGSS), in partnership with international development agencies, including IFAD. Within the overall perspective of “equitable growth through financial inclusion, BEFIT focuses on digital financial services for the benefit of CSI's, agricultural and rural enterprises. CARLEP-AF should explore digital financial service application for its target group such as of BDBL's *ePay*, Bhutan's Mobile Payment System and others under the National Financial Inclusion Strategy (NFIS) 2018-2023.
- d) RMA is currently developing a Green Finance Roadmap to mobilize finance for Bhutan's sustainable development goals. There is an opportunity to come up with a comprehensive reform in the financial sector incorporating non-bank, insurance companies, capital markets, and institutional investors. Green insurance can play an important role in bringing new products and services focused on climate related risks including the crop insurance, which can become very important for CARLEP-AF target group.

Targeting: Technical guidance note on poverty targeting and mainstreaming priorities

Based on the Dzongkhags' characteristics, the technical guideline for targeting poverty, gender, and climate change by geography and social context is derived below:

1. Definition of poor and subsistence poor households based on the National Poverty Analysis Report 2017. The definition of poor and subsistence poor should be adopted for the identification of poor and subsistence poor households;
2. Prioritization of Dzongkhags within the region based on the national poverty rate, depth and severity of poverty incidence;
3. Dzongkhags in the order of poverty priority are; Mongar, Pema Gatshel, Trashigang, Lhuntse, and Samdrup Jongkhar;
4. Under Mongar Dzongkhag, Thang Rong gewog (85 hh); Pema Gatshel (Dechhenling gewog with 45hh); under Trashigang, Sakten (46hh), Kangpara (34hh), Radhi & Khaling (29 each), Lumang (36hh), and Thrimsing (48hh); under Trashigang, Toetsho (45hh); under Lhuntse, Jarey (26hh); and under Samdrup Jongkhar, Singkhar Lauri (29hh) and Wangphu (37hh) (see Table 1) are food and income poor households;
5. Conduct climate vulnerability assessment in these gewogs and select villages with higher vulnerability index;
6. Identify these vulnerable households at villages with the assistance of Gewog administration and Tarayana Foundation based on the criteria such as household number, family size of ≥ 6 , and food insufficiency (not enough food to feed all households members for the last 12 months);
7. Select the food poor and vulnerable to climate change households¹² within the villages;
8. Conduct socio-economic survey including gender analysis to identify social groups, changing role of men and women, their critical needs, and priorities;
9. Develop output-based adaptive work plan mainstreaming gender, youth, nutrition, and climate resilience activities for input supplies, budget, implementing partners, and timeline;
10. Develop early warning weather forecast advisory services through social media (WeChat, Facebook; BBS/Radio);
11. Conduct annual outcome surveys to measures progress, achievements, and impact by gender and vulnerable status in the achievement of mainstreaming outcomes.

Table 1. CARLEP gewogs by population, gender, and number of poor households for intervention

Dzongkhag	Gewog	Total population	Percentage of women population	Number of poor households
Mongar	Shermung	1,621	51.2	24
	Tsamang	907	53.8	16
	Balam	912	54.2	37
	Thang Rong	1,605	55.4	85
	Khengar	1,833	52.5	36
	Jurmey	1,237	53.2	45
	Gongdue	1,228	50.3	14
	Silambi	1,357	53.3	05
Pema Gatshel	Chokhorling	703	51.9	13
	Chhimung	564	51	13
	Dechhenling	1,680	53	45

¹² Vulnerable groups can be defined as those individuals who are food and income poor, single women-headed households, landless, elderly and differently-abled people, divorcee, inaccessible households (at least requiring a day of walk from the nearest road point), and victims of domestic violence.

Trashigang	Sakteng	2,061	46.7	46
	Merak	1,562	45	18
	Kangpara	1,591	51.4	34
	Radhi	2,346	50	29
	Khaling	2,456	48	29
	Lumang	3,598	50	36
	Thrimsing	2,548	51	48
Trashy Yangtse	Toetsho	1,580	53	45
	Yalang	1,372	50	14
	Jamkhar	999	48	22
Lhuntse	Kurtoe	740	49	05
	Jarey	1,008	51	26
Samdrup Jongkhar	Singkhar Lauri	1,714	51	29
	Samrang	310	32	03
	Wangphu	1,803	50	37

Source: PHCB, Mongar, Pema Gatshel, Trashigang, Trashy Yangtse, Lhuntse & Samdrup Jongkhar, 2017

Annex 2. A suggested list of ESCoPs for category B activities

CARLEP Interventions	Environmental & Social Code of Practices
Dry land spring water irrigation/ micro- irrigation(drip/sprinklers) for vegetables	<ul style="list-style-type: none"> ✓ Do not overdraw water from the original springs. Leave a minimum 30% environment flow. ✓ Construct proper outlet drain from the field to prevent overflow and seepage water from the field disturbing neighbouring fields and down-slope environment. ✓ Minimum use of chemical fertilizers and pesticides in the garden/field where micro-irrigation is applied. ✓ Ensure there is an equal distribution of micro-irrigation facilities to the rightful and deserving beneficiaries. ✓ Water Users Group members should be trained in operation & maintenance
Agriculture diversification	<ul style="list-style-type: none"> ✓ Ensure researched and correct agriculture diversification. ✓ Ensure crop varieties that are productive, nutritious and market- oriented, and climate-resilient ✓ Ensure crop varieties & livestock breeds are climate, & pest/disease resistant. ✓ Ensure equity and equality in the distribution of input supplies (seeds and facilities).
Electric fencing (wildlife mitigation)	<ul style="list-style-type: none"> ✓ The fencing should be risk-free to human and animals. It should only deter wildlife animals from entering & damaging crops. ✓ For sustainability, the infrastructure should not be too dependent on imported raw materials. ✓ Electric fencing should not instigate social conflict in societies. ✓ The fencing should ensure to maximise beneficiary, in the sense the fencing should cover as many beneficiaries as possible. ✓ Ensure equity and equality distribution of materials and

	facilities to the rightful beneficiaries.
Use of bio-fertilizers to improve soil fertility	<ul style="list-style-type: none"> ✓ Programme should not support excessive chemical fertilizer distribution and use. ✓ Concentrate on the capacity of farmers to produce bio-fertilizers & bio-pesticides for replication & knowledge sharing in other societies. ✓ Ensure equity and equality distribution of materials and facilities to the rightful beneficiaries.
Greenhouse technologies	<ul style="list-style-type: none"> ✓ The Greenhouse technology for sustainability should not be too dependent on imported raw materials. ✓ Disposed-off plastics waste by burning in pits ✓ The programme should focus on capacity building for replication & knowledge sharing in other societies. ✓ Ensure equity and equality distribution of materials and facilities to the rightful beneficiaries. ✓ Youth beneficiary should be trained in operation & maintenance.
Small farm machinery (biogas, power tillers, mini threshers, reapers, ridgers, chaffers, and weeders)	<ul style="list-style-type: none"> ✓ For sustainability, the farmers should be trained in the operation and maintenance of the machinery. ✓ Capacity building must include an understanding of negative impacts of rampant disposal of oil, lubricants, plastic & metallic components, especially batteries. ✓ Educate in control of noise, dust, gaseous pollutions. ✓ Ensure equity and equality distribution of machinery and facilities to the rightful beneficiaries.
Support value addition (drying technologies, zero energy cooling chambers)	<ul style="list-style-type: none"> ✓ For sustainability, the farmers should be trained in the operation and maintenance of the facilities. ✓ Capacity building must include an understanding of negative impacts of rampant disposal of oil, lubricants, plastic & metallic components, especially batteries. ✓ Educate in control of noise, dust, gaseous pollutions. ✓ Ensure equity and equality distribution of machinery and facilities to the rightful beneficiaries.
Pilot model farm shops/outlets	<ul style="list-style-type: none"> ✓ Ensure land acquisition is either on government land or voluntary land contribution by private or community. ✓ For sustainability, the farmers also should be made responsible for the operation and maintenance of farm shops. ✓ Capacity building on standard operation procedures must include an understanding of negative impacts of rampant disposal of solid wastes, plastic, especially hazardous wastes ✓ Educate in control of noise, and dust pollutions during construction. ✓ Educate in disaster risks (fire, landslides, windstorm, and earthquake) and roadside accidents. ✓ Ensure equity and equality distribution of plots, raw materials & facilities to the rightful beneficiaries.
UHT & Waste water treatment plants	<ul style="list-style-type: none"> ✓ Implement Environment Management Plan (EMP) based on actual environmental site-specific impacts, mitigation measures, monitoring indicators with

	responsibilities, timeline, and budget (if needed)
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Bhutan

Commercial Agriculture and Resilient Livelihoods Enhancement Programme Supervision Report

Appendix 5: Mission preparation and planning, TORs, schedules, people met

Mission Dates: 1 June - 20 August 2020
Document Date: 28/08/2020
Project No. 1100001739
Report No. 5472-BT

Asia and the Pacific Division
Programme Management Department

Appendix 5: Mission preparation and planning, TORs, schedules, people met

COUNTRY OF ASSIGNMENT/LOCATION: Bhutan Commercial Agriculture and Resilient Livelihoods Enhancement Programme (CARLEP)

MISSION NAME: Remote Supervision mission and start-up of the additional financing

MISSION START AND END DATES: 29 May 06 July 2020

REPORT TO: Louise C. McDonald, Country Director, APR/PMD

MISSION COMPOSITION:

Louise McDonald, Country Director and Mission Leader
Michael Hamp, Inclusive Rural Finance Specialist
Eric Patrick, Climate Change Adaption Specialist,
Jens Evald Kristensen, Agriculture Specialist, Agribusiness and value chain approaches
Harold Liversage, Land Tenure Specialist
Mani Ram Moktan, Environmental Specialist
Udyog Subedii, Market and Value Chain Specialist
Le Chi Dung, Financial Management Specialist
Vedamurthy Angadi, Procurement Specialist
Mehry Ismaili, M&E and KM
Esha Singh, Country Technical Analyst
Sashwati Mishra, Gender and Social Inclusion Analyst
Elisabeth Ssendiwala, Senior Regional Technical Specialist, Institutions

BACKGROUND:

The Commercial Agriculture and Resilient Livelihoods Enhancement Programme (CARLEP) aims to facilitate the transformation of a subsistence-based rural agricultural economy into a sustainable value chain and market driven productive sector by promoting climate smart approaches in agriculture and strengthening capacities of communities and local institutions. It builds on prior and on-going IFAD interventions focused on increased agricultural production and makes a basic shift in approach towards marketing and climate resilient farming practices. The programme will target selected Gewogs in six eastern Dzongkhags (Lhuentse, Mongar, Pergatshel, Samdrup Jongkhar, Trashiyangtse and Trashigang) with high production and marketing potential in the selected value chains. The programme will benefit 28,975 smallholder households, of which 7,115 HH will directly benefit from vegetable and dairy value chains. The objective is "increased returns to smallholder farmers through climate resilient production of crops and livestock in nationally organized value chains and marketing systems." The total programme cost of US\$ 30.357 million will be financed over seven years by IFAD (US\$ 19.25 million), the ASAP (US\$ 5 million), RGoB (US\$ 5.64 million), FCBL (US\$ 4.80 million) and beneficiaries (US\$ 0.66 million). The programme became effective from 11 December 2015. CARRLEP has three programme components, in addition to Programme Management. The components are interlinked and will be implemented in close coordination and phased across the programme lifetime. Component 1. Market-led sustainable agriculture production would lead to sustainable increase in resilient agricultural production by rural households. Component 2. Value chain development and marketing focuses on instituting organised value chains and marketing systems by establishing networks of farmer groups to facilitate marketing of vegetable and dairy products Component 3. Institutional support and policy development aims at strengthening agricultural institutions and policies for improved and resilient agricultural and marketing practices

MISSION OBJECTIVES AND OUTPUTS:

During the period 29 May to 30 June 2020, the mission team including the Government CARLEP Steering Committee will undertake the remote start-up implementation support and supervision for Comprehensive Market-focused Agriculture and Rural Livelihood Enhancement Programme (CARLEP) - Additional Financing in the Kingdom of Bhutan.

Ms. Louise McDonald will be the Mission Leader. She will (in conjunction with team members) be in charge of coordinating the mission's consultations and based on the extensive work of the Government, CARLEP, and Programme Steering Committee from the Self-Assessment. Other team members will include: Mr. Michael Hamp, Inclusive Rural Finance Specialist; Mr Eric Patrick, Climate

Change Adaption Specialist; Mr. Jens Evald Kristensen, Agriculture Specialist, Agribusiness and value chain approaches; Harold Liversage, Land Tenure Specialist; Mr Mani Ram Moktan, Environmental Specialist; Udyog Subedii, Market and Value Chain Specialist; Mr Le Chi Dung, Financial Management Specialist; Vedamurthy Angadi, Procurement Specialist; Ms Mehry Ismaili, M&E and KM; Ms Esha Singh, Country Programme Analyst; Ms Sashwati Mishra, Gender and Social Inclusion Analyst; and Ms Elisabeth Ssendiwalwa, Senior Regional Technical Specialist, Institutions.

I will be the Mission Leader for this assignment and will ensure the overall deliverables in time and quality. As the first remote supervision for CARLEP the IFAD Technical Specialists will support and backstop the CARLEP team, consultants including national mission members' and on consultations and work in the field remotely to ensure IFAD requirements for supervision are met. The following paragraphs describe the mission's main tasks and outputs.

On or about 29 May 2020, the national mission team will commence and the IFAD team members will participate remotely as per the mission itinerary presented in Annex 1. For the next period of about 15 days, until xx 2020, the team will undertake intensive consultations with the government steering committee and the PMU staff in charge.

In addition, the national mission members will liaise closely with all the interlocutors in organizing a programme of visits to the Districts for field investigations, and direct face-to-face interviews with the target group and other partners of CARLEP Supervision (if travel is possible). National members will, if possible meet face to face with partners / prospective partners based in Thimphu.

I. General Mission Objectives and Tasks:

The main objectives of the mission are In-depth analysis of the relevant general, Kingdom of Bhutan, macro-economic situation, the specific programme area, Dzongkhags and Geogs, settings, as well as relevant policy environment / framework to understand the impact of the COVID-19 pandemic and potential measures that CARLEP-AF can take to mitigate the food and rural economic crisis in the programme area. This analysis will include current district and macro-economic policies.

In-depth review of recent experiences of IFAD (available in e-library of CARLEP-AF dropbox: <https://www.dropbox.com/....>) and others in the agriculture and rural sectors, and in particular in the agribusiness sector which contributed to poverty reduction. The start-up, implementation support and supervision will use as much as possible the information / data collected by the PMU (self-assessment) and the national consultants. The review includes ongoing donor support and government programmes that address the COVID-19 pandemic in the programme area and major interventions by the private sector with respect to their potential interfaces and synergy effects with CARLEP-AF.

Assessment of the support rendered to promote grassroots farmers' groups, associations, and cooperatives, and other self-help groups in undertaking agribusiness activities as well as micro and small enterprises and microfinance services used by the target group.

Collection of verifiable information of programme interventions addressing environmental and climate change issues and their impact on social inclusion.

A review of the government procurement procedures and strategies, particularly within the context of COVID-19; and

A review of the relevant financial management procedures of government for the relevant institutions.

1. Each member of the national mission member will be assigned primary responsibility for one or several areas of concentration, with remote backstopping from IFAD experts. The Team Leader, after consultations with the IFAD experts abroad, can re-assign tasks based on the requirements and competencies. Within the area of his or her concern, each national mission member will identify the main issues and how they will need to be addressed.
2. The PMU will coordinate logistics requirements of the mission and agree with mission the areas and stakeholders, institutions and beneficiaries to be visited for best information and analysis in order to support programme start-up implementation and supervision.

3. The final implementation support and supervision document must include the following items:
...
4. The mission will produce a report in a format satisfactory to IFAD by xx May 2020. Each member must deliver his or her contribution to the report in a format and with content satisfactory to IFAD on or before the date specified in the mission itinerary.

III. Mission Outputs

The mission will prepare an aide memoire containing their main conclusions and proposals for the action points for programme implementation, including specifics as a result of the impact from COVID-19. The AM shall be discussed with IFAD before being thoroughly reviewed with the concerned entities of the Government during a wrap-up meeting to be chaired by an appropriate authority of the Government, on about 20 June 2020 or earlier

The final Start-up Implementation and Supervision Report including all annexes shall be submitted by email not later than 14 June 2020, and shall follow the IFAD template for such reports to the satisfaction of the Asia and the Pacific Division. This includes the summary within the word limit. Full working papers should be provided by the consultants.

INDIVIDUAL RESPONSIBILITIES, EXPECTED OUTPUTS AND REQUIRED COMPLETION DATES

Louise McDonald, Country Director

Remotely represent IFAD in all consultations, launch of the mission, pre-wrap up and wrap-up meeting with key government representative and stakeholders.

Provide overall guidance to the mission and lead all the discussion with the stakeholders and government key officers during the entire duration of the mission.

Contribute to the partnerships, alignment and ownership sections as appropriate.

Michael Hamp, Inclusive Rural Finance Specialist

Working remotely together with his local counterpart consultant will review access and use of finance and investment capital by programme participating or potentially participating financial service providers (Tarayana Foundation, Rural Enterprise Development Cooperation Ltd., REDCL, Bhutan Development Bank Ltd., BDBL) financial incentive mechanisms, particularly the different matching grant schemes, and emerging value chain financing mechanisms. He will review critical design features concerning appropriate financial services mechanism conducive to climate resilient agricultural production and pro-poor value chain development. The assessment will cover government programme, including the Royal Monetary Authority's Private Sector Lending for the promotion of cottage and small-scale industries as well as insurance-based lending to agriculture and the alignment of CARLEP-AF interventions. He will also review the progress made in terms of financial literacy training and the application of digital financial services / online banking service innovations. As the PTL for CARLEP he will also provide support to the Mission Leader in reviewing the AM and Supervision Reports.

Jens Evald Kristensen, Agriculture Specialist, Agribusiness and value chain approaches

Under the overall guidance of the Country Director, you are responsible for the following tasks:

Component 1: Market-led sustainable agricultural production

- To review the progress and results for market-led sustainable agricultural production including: (i) awareness among farmers of programme; (ii) village coverage; (iii) agriculture investment plans. Clustering, marketing and adaptive research, (iv) extension services; (v) information and communication technology (ICT) and (vi) biogas.
- Review and assess the programmes efforts to expand and expand vegetable production
- Review progress on intensified dairy production and expansion
- Assess the programme's effort in intensifying and expanding fruit/nut production

- Evaluate the programme's effort in intensification of HMAP collection/cultivation and expansion
- Review progress made in introducing aquaculture production
- Assess the programme's effort in promoting and supporting commercial agriculture for youth and off-farm youth enterprises
- Review the progress on production-related infrastructure including: (i) irrigation channel upgrading; (ii) pump irrigation networks; (iii) piped networks on dryland, (iv) demonstrations of water-efficient on-farm irrigation; (v) matching grant scheme for water-efficient on-farm irrigation; (vi) multiple use water schemes; (vii) solar electric fencing; (viii) land development; (ix) rural roads; and (x) infrastructure-related capacity building, feasibility studies and surveys.

Component 2: Value chain development and marketing

- Review the value chain development effort in: (i) Vegetable commercialisation; (ii) dairy commercialisation; (iii) BD support to entrepreneurs and VC financing; (iv) fruit commercialisation; (v) sustainable commercialisation of HMAPs (collected and cultivated); (vi) aquaculture commercialisation; (vii)

Component 3: Institutional support

Assess the programme's efforts in strengthening dzongkhag and gewog staff through: (i) technical assistance / contracted staff; (ii) structured policy dialogue

Deliverables: Inputs to Aide Memoire, inputs to both the supervision report and start-up report. Other activities as required and assigned by the Country Director

Harold Liversage, Land Tenure Specialist

The lack of a land use policy / strategy was identified in CARLEP's theory of change during design as one of the root causes to the challenges faced in the programme area, which has contributed to: challenges in young people's access to land, unregulated encroachment of residential development on agricultural land, land fragmentation issues especially around the size of plots, the decline in cultivated land and the underutilization of fallow land. This in turn has contributed to the out-migration of young people. Most women acquire land ownership through matrilineal inheritance which offers them economic opportunities and relatively equal status with men but in many rural households there are still gender disparities which can impact on household investment decision making, including for income derived from farming.

Among the activities intended to address these challenges, the programme aims to:

In Component 1 support is to be provided to young entrepreneurs to access state land through the RGoB's Land Use Certificate scheme or to negotiate long-term leases with the owners of fallow / vacant. LUCs and lease deeds are expected to be used as collateral, allowing for long-term investment on the land.

It is estimated that there is around 29,500 acres ($\pm 12,000$ ha) of fallow / vacant land in the programme area and, once lease agreements are signed, the programme intends to support the establishment of 350 commercial, 5 acre (2ha) farms which would hence utilize about 1,750 acres (± 700 ha) of the fallow land. Prior to the additional finance for the programme, twelve such groups had already been established under CARLEP.

Similar arrangements are presumably also relevant for identifying land for the support the programme will provide to young entrepreneurs in aquaculture and other land-based production (eg: fruit tree growing but possibly also other activities such livestock production and compost making).

Furthermore the programme aims to rehabilitate and extend existing irrigation schemes or develop new schemes for both current land users / owners and also for young entrepreneurs accessing fallow / vacant land, which is often found at the lower end of existing schemes.

Demonstrations of water efficient on-farm irrigation is to be done on private land. Similarly, the programme aims to support contouring, terracing and other land development activities for about 1,000 acres (± 400 ha) of private land. This will build on two pilots already done on 128 acres of privately owned land, prior to the additional finance. In the case of privately owned land, consideration needs to be given to women's ownership and use rights as well as to extending land development activities to land allocated to young entrepreneurs.

The programme will also support the preparation of rules and guidelines for the collection of non-forest timber products, specifically high-value herbal medicinal and aromatic plants, based on the existing policies and laws governing NTPF. Presumably, this will include collection on communal village lands. Consideration needs to be given to the existing arrangements and practices for such collection, especially by poorer members of the community and women.

The above activities are to be preceded by an awareness raising campaign and once a village decides to participate in the programme, participatory agriculture investment plans will be developed. These plans will identify priority investment and the associated training and capacity building requirements, which will be linked to the programme's targeting strategy and to the support to be provided in farmer group formation and training, including under Component 3. All these activities need to consider the existing tenure situation for the programme's target groups, especially women and youth, and the relevant associated measure required for improving their access to land.

Under Component 3, CARLEP will support evidence-based policy engagement including for the regulatory environment governing the use of fallow land and long-term leasing arrangements. It is anticipated that consideration may also need to be given to: (i) further provisions for improving youth access to land; (ii) the tenure situation of existing owners and users of private and state owned agricultural land; (iii) possible land consolidation arrangements, especially for irrigation schemes; (iv) women's tenure rights in relation to household investment decision making from the proceeds of farming; and (v) rights of access and use to communal lands, especially for the harvesting of NTFP. Furthermore, consideration should be given to the training and capacity building requirements for dzongkhag and gewog staff, farmer groups and the programme beneficiaries in general to better enable them to address the tenure issues mentioned above.

Description of tasks and outputs.

1. Provide a brief overview (<1page) of the current land tenure policy, legislative and institutional framework in Bhutan.
2. Identify the main challenges and opportunities for programme beneficiaries, especially for young people and women, and specifically looking at: (i) Provisions for improving youth access to land; (ii) The tenure situation of existing owners and users of private and state owned agricultural land. (iii) Possible land consolidation arrangements, especially for irrigation schemes. (iv) Women's tenure rights in relation to household investment decision making from the proceeds of farming. (v) Rights of access and use to communal lands, especially for the harvesting of NTFP. (vi) Measures for the prevention of unregulated encroachments on agricultural land.
3. Identify specific measures that can be included or strengthened in the programme activities, looking in particular at: the awareness raising, participatory agricultural investment planning, training and capacity building and policy engagement activities; and specific measures related to improving youth access to land, women's tenure rights and tenure security on private, communal and state owned land.
4. Prepare and reach agreement with programme implementers on a set of recommendations with specific deliverables and timeframes for addressing the tenure challenges identified.
5. Make a contribution to the Aide Memoire and prepare a Technical Note (of around 5 - 7 pages) on the above.
6. Produce a brief news piece / blog (2 -3 pages) with a few "stories from the field" / case study interviews with beneficiaries and photographs.

Description of technical resource inputs and methodology.

The tasks will be undertaken by an in-country consultant (ICC) with technical back-stopping provided by IFAD's Land Tenure Specialist (ILTS) located in Rome.

The work will include:

- (a) doing a review of relevant documentation by both the ICC and ILTS;
- (b) face to face meetings and interviews with programme beneficiaries, implementers and other key stakeholders by the ICC;
- (c) where possible, virtual meetings by the ICC and ILTS with programme implementers and other stakeholders to review main findings and recommendations;

Initial drafting of AM, technical note and news piece / blog by the ICC with contributions and additional review inputs by the ILTS.

Mani Ram Moktan, Environmental Specialist

Under the overall guidance of the Country Director, you will familiarize yourself with the objectives of the programme, as well as of the upcoming phase of the programme. You will both assess progress since the last supervision (June 2019) as well identify practical lessons relevant in particular to the activities which will be scaled up; all from the point of view of climate resilience and environmental sustainability, as well as targeting and social inclusion. You will work closely with the PMU, based both on their self-assessment and your own observations (possibly including travel) as well as working closely with the ECG member of the PDT and the Regional Social Inclusion officer. Technical assistance/guidance to meet the IFAD requirements for start-up, implementation and supervision will be provided by Mr Eric Patrick, Ms Sashwati Mishra.

You will assess the degree to which the planned outreach has been successful both in quantity and quality, make any recommendations related to future targeting (both social and geographical), as well as on the effects of the programme in the last period with respect to IFADs mainstreaming objectives (gender, nutrition, youth; climate and environment). You will delve more deeply into the effectiveness of the targeting strategy to date, also with an explicit inform the expected whole-of-village targeting approach, including recommendations.

You will make use of mainstreaming analytical tools which will be provided and explained in order to do so. You will assess the effectiveness of the poverty targeting and mainstreaming priorities within the programme components and throughout the programme activities and institutional arrangements as well as M&E system. You will assess the relevance and implementation effectiveness of the poverty targeting and mainstreaming strategies of the programme. You will assess the interrelationships between the mainstreaming themes to the degree possible as well as the relationship to observed poverty impacts. You will assess the degree to which social organization promoted by the programme have proved to be an effective pathway to mainstreaming, together with the specialist on institutions

In light of funding from the Adaptation for Smallholder Agriculture Program, you will also assess in particular the effectiveness of the climate resilience efforts both direct and indirect and to identify which pathways have proven most effective for the purpose of further promoting these in the subsequent phase in particular. Prepare a technical guidance note on poverty targeting and mainstreaming priorities that will be annexed to the supervision report.

You will identify what have been the most effective entry points for promoting mainstreaming and why and provide guidance on if/how these could be further promoted in the subsequent activities, including any specific recommendations, including on cross mainstreaming nor mutually reinforcing mainstreaming effects. If the mainstreaming benefits have proven difficult to achieve you will identify whether there are any barriers which are outside of the influence of the current programme and whether any may be amenable to policy engagement, reflecting the relevant policy directions of the Government of Bhutan.

You will provide ratings in the standard IFAD supervision template according to IFADs Guidance for Performance Scores and will explain if necessary to the PMU the logic and criteria being employed. This will be provided to you. In particular you will contribute to the narrative and the discussions leading to the ratings in the sections "Targeting and Outreach", "Gender Equality and Women's Participation (including Youth engagement/employment)", "Nutrition", "Adaptation to CC", "Sustainability and Scaling Up" and "Environment and Natural Resources"; "Human and Social Capital", "Potential for Scaling Up" and "Lessons Learned" together with recommendations on any improvements in these area.

You will also control whether any environmental or social risks which may have been identified earlier have been monitored by the programme, whether there have been mitigating efforts and if so to what effect. You will be provided with IFADs current safeguards procedures. Land tenure and resource access issues, especially for women and youth, should be highlighted if relevant. You may make recommendations on the same, including with respect to the current and any future M&E system, especially with regards to indicators which are missing or could be improved and would better capture the effectiveness or not of efforts in the mainstreaming areas. You will advise on any

assessment methodologies which would be advisable to use in future, in particular based on household methodologies

You will familiarize yourself with the SECAP assessment/annex for the subsequent phase from the point-of-view of advising on any safeguards issues in particular in light of the experience of the programme to date.

Finally, you will provide your views as the potential for any environmental or land use information management system which could inform future programme targeting, planning and monitoring.

Deliverables: Inputs to Aide Memoire, Inputs to supervision report which includes a summary of your technical working paper. Other activities as required and assigned by the Country Director

Udyog Subedi, Market and Value Chain Specialist

Under the overall guidance of the Country Director, you will be responsible for Strengthening the Farmer groups under Component 1: Market-led sustainable agricultural production and component 2: Value chain development and marketing and will undertake the following activities under the overall supervision of the programme technical lead. Technical assistance/guidance to meet the IFAD requirements for start-up, implementation and supervision will be provided by Mr Michael Hamp, Ms Esha Singh and Ms Elizabeth Ssendiwala.

Component 1: Group Formation and Strengthening, including a review of tenure security issues.

1. Assess community/village based outreach approach as programme's entry point;
2. Assess the status of formation/ establishing of new producer groups
3. Assess progress in strengthening of newly established and other producer groups under different sub-components and their readiness to develop into multi-purpose cooperatives
4. Review strengthening and forming new community production and marketing groups including progress in their capacity development
5. Assess formation and strengthening of Water User Associations
6. Assess the strengthening of existing marketing and cooperative capacity development
7. Review progress in institutional support and capacity building under Comp. 3
8. Assess the tenure security issues that need to be addressed and review progress in doing this under Components 1 and 3 (see detailed ToRs attached in Annex).
9. Provide recommendations to improve implementation in these key areas

Component 2: Value Chain Development and Marketing

10. Assess the progress and achievement of outputs under component 2 on value chain development and marketing; (These include standard activities including review of AWPB's, previous supervision reports, discussions with programme counterparts at FCBL, RAMCO, PMU, Dzongkhag and Gewogs, discussion with beneficiaries etc.)
11. Assess the programme's capacities and progress (including /in-progress business plans, multi stakeholder platforms) towards undertaking value chain and market entry study and recommended actions from the previous supervision including the required market infrastructure, markets and emerging market prospect and business partnership and certifications for organic or export orientation or commercialisation etc. based on identified markets.
12. Identify and recommend institutional strengthening and capacity building interventions as needed based on the assessments under point 1 and 2;
13. Provide overall implementation support and actionable inputs as required by RAMCO, FCBL, PMU etc. to improve market linkages both domestic and export oriented.
14. Assess the effectiveness of capacity development and especially youth farming and youth entrepreneurship development interventions by CARLEP-AF
15. Review the progress made in terms of climate resilient (water and energy) infrastructure development, markets and emerging market prospect and business partnership
16. Review access and use of finance and investment capital by programme participating or potentially participating financial service providers (Tarayana Foundation, Rural Enterprise Development Cooperation Ltd., REDCL, Bhutan Development Bank Ltd., BDBL) financial incentive mechanisms, particularly the different matching grant schemes, and emerging value chain financing mechanisms

17. Review critical design features concerning appropriate financial services mechanism conducive to climate resilient agricultural production and pro-poor value chain development.
18. Review the progress made in terms of financial literacy training and the application of digital financial services / online banking service innovations.

Engagement with IFAD:

- Actively include IFAD counterparts in discussion with key stakeholders and beneficiaries identifying suitable mediums (skype, zoom, WhatsApp) wherever feasible
- Share all electronic documents – reports, pictures, videos with IFAD related to programme progress on activities
- Engage with IFAD for finalisation of inputs to AM, Supervision report and technical note through weekly bilateral discussions.

Deliverables: Inputs to Aide Memoire, Inputs to supervision report, Finalise a table identifying key value chains being promoted– vegetables (specify), dairy etc., households involved, associated activities- post harvest, processing, local storage and related infrastructure, identified/in-process partners including traders, processors, aggregators etc., key bottlenecks and identify actionable next steps. Other activities as required and assigned by the Country Director

Le Chi Dung, Financial Management Specialist

Objectives:

For remote Start-up workshop:

- (i) To reach a clear common understanding of the legal and financial conditions of programme objectives and expected results, and the roles and responsibilities of each party.
- (ii) To clarify IFAD requirements and procedures relating to disbursements, counterpart funding, AW/PB and procurement plan, FM and reporting.

For remote Supervision workshop:

- (i) To evaluate whether the financial management arrangements in place to manage and control programme finances meet IFAD's fiduciary requirements.
- (ii) To evaluate programme financial performance.
- (iii) To follow up on implementation status of internal and external audit recommendations and agreed actions from the most recent supervision mission.
- (iv) To verify the validity of Withdrawal Applications and documentation underlying Statements of Expenditure.
- (v) Provide remote support to the programme team on specific issues / challenges.

Duties and Responsibilities/ Mission(s):

You will undertake the following FM Remote Start-up workshop for additional financing and Supervision Mission:

- i. Programme: CARLEP; programme number: 1100001739, Country: Bhutan; Financing: IFAD grant and loan; programme FM Risk rating: Medium; ICP: live.

DURING THE START-UP WORKSHOP STATED ABOVE YOU WILL PERFORM THE FOLLOWING TASKS:

1. Provide overview of programme key documentation: The General Conditions, FA, LtB/R, IFAD Guidelines on programme Financial Reporting and Audits, IFAD Disbursement Handbook and PIM.
2. Go through the operation of the designated and programme accounts, IFAD disbursement procedures, preparation of WAs (including the SOE mechanism), preparation of the AWP/B and procurement plan, ICP, periodic financial reporting and preparation of financial statements

DURING THE SUPERVISION MISSION STATED ABOVE YOU WILL PERFORM THE FOLLOWING TASKS:

a) Obtain the necessary documents and familiarize him/herself with the programme. A sample list of documents is presented in annex 2

b) Perform a desk review:

1. Review the results of the latest external Audit Report (including specifically the Management Letter) to ascertain whether any issues raised by the auditor identify potential fiduciary risks - where relevant follow up on issues arising by contacting the external auditors.¹ Consult main findings, requests for clarification and action plan proposed by FMD with the latest audit review exercise.
2. Review the most recent quarterly/semi-annual Interim Financial Reports (IFRs). Confirm whether IFRs have been submitted within the prescribed time limit and whether the content is aligned to requirements.
3. Review FM recommendations and findings from the latest supervision mission (if applicable) and the list of agreed actions.
4. Determine the amount of the Withdrawal Applications (WAs) submitted to IFAD since the last supervision mission using the Historic Transaction Report (HTR). Obtain a scanned copy of these WAs and proceed to identify the sample of expenditures under SOE to be checked.
5. Review the operation of the programme designated account (DA), and programme accounts to ensure that the DA reconciliation is correctly prepared. Validate the closing balances from copies of the bank statement and clarify the status of the reconciliation items (if any). Note down any pending payments and withdrawal applications still not paid by IFAD including replenishments, reimbursements and direct payments.

c) Re-assess the Programme Financial Management Arrangements (via teleconference / skype / zoom / email):

1. Perform a remote Financial Management Performance Assessment, using the FMAQ template (annex 6), to review the strengths and weaknesses of the programme's financial management systems. Validate the answers by asking for electronic evidence as appropriate (organogram, staff TORs, Invoices, Financial reports, Screen shots from the accounting software, scanned documents, etc....)
2. Together with the programme Financial Controller or equivalent, review actions taken to address recommendations and validate the status of actions by asking for electronic evidence as applicable, of:
 - i. previous years' Supervision review,
 - ii. recommendations raised by external auditors on previous years management letters,
 - iii. recommendations raised by FMD during the audit review exercise; and
 - iv. Follow-up on internal audit recommendations.
3. Perform a virtual walkthrough of the programme internal controls relating to financial management and financial administration of programme funds. As part of this exercise pick one or two large expenditure items from each expenditure category, claimed from IFAD since the past supervision and trace the item through the whole audit trail:
 - i. Approved AWPB and procurement plan,
 - ii. IFAD non objection (if applicable),
 - iii. Contract/invoice,
 - iv. Duly authorized purchase order,
 - v. Accounting software ID number (transaction inserted in the accounting software),
 - vi. Verification (physical and documentary) evidence as applicable that works have been completed,/goods delivered/ services rendered in accordance with the contract,
 - vii. Verification of payment (bank statement/cash book), and

¹ Virtual meetings with the External Auditor may not be feasible, in which case any issues noted should be documented for follow-up at a later date.

² A self-evaluation by Project staff of agreed actions may be conducted as a first review. Where evidence provided is not deemed sufficient, the actions status should not be updated in FMDB.

- viii. Programme assets duly reflected in the fixed asset register. The collected information should be validated by reviewing scanned documents (contracts, invoices etc.) screen shots from the accounting software, pictures, videos, beneficiary interview etc. as appropriate and feasible.
4. Confirm the functionality of the accounting system and the financial reporting system by requesting the programme to submit financial reports, extracted directly from the accounting system and compare these with the trial balance, bank statements and IFAD records for the same time period to determine that the accuracy and compliance with IFAD requirements. In addition, explore what reports can be generated automatically from the system and which reports need to be prepared/modified in excel and the type of budget controls system has.
5. Review Withdrawal Applications and Statements of Expenditures submitted to IFAD after the previous supervision mission to:
 - i. verify adequacy, completeness and validity of claims by selecting on a sample basis expenditure items from each category of expenditures and requesting for scanned supporting documentation for these items (see annex 2, 3 and 4 of these ToRs for guidance, SOE review check list and a general list of required supporting documentation). Note down any ineligible expenditures.³
 - ii. Ensure that the claimed expenditures are net of tax and that the financing percentages have been applied in accordance with Schedule 2 of the Financing agreement. Record any ineligible expenditures.
 - iii. Confirm whether WAs prepared regularly, in an efficient manner and in line with the LTB.
 - iv. Discuss findings with the programme finance staff and request further clarification / supporting documentation as deemed relevant.
6. Based on the financial reports prepared by the programme, review the overall financial performance by expenditure category and component to assess the programme's overall financial performance against appraisal and against the approved AWPB. Review the cumulative status of funds by category of expenditure, approved AWPB and the programme commitments (contracts signed not paid) in order to estimate the adequacy of funds and the need for category reallocations. Discuss the status of preparation of the annual financial statements (if relevant for the period).
7. Review and discuss with the programme financial controller the status of counterpart funding: i) whether the Borrower/Lead programme Agency made available financing proceeds to the programme, as planned; ii) whether the amount of counterpart funds provided so far in line with the minimum amount mentioned in the programme Financing Agreement and the programme design report.
8. Request a copy of the MoUs/contracts signed with the programme main implementing partners. Evaluate if key fiduciary provisions are included and the adequacy of financial and fiduciary arrangements included therein. Ask for a scanned copy of a funds application submitted to the programme by the implementing partner and check the relevant related supporting documentation.
9. Review the programme fixed asset register so as to verify the following: i) the fixed asset register contains the necessary information and in an acceptable format; ii) assets were part of the approved procurement plan (spot check); iii) assets have been tagged with a serial number (serial number and location included in the fixed asset register); and iv) all assets were subject to an annual inventory exercise (ask for electronic copy of the report). Ensure a proper handover plan of the programme assets has been formally agreed on and documented by the programme, the lead programme agency and the Borrower (if the programme is in a completion phase). Review how vehicle fuel use is being controlled by reference to a withdrawal application submitted in the period.

³ In verification of expenditures an analytical procedures should be adopted/performed specially for salaries and allowance and recurrent cost instead of conventional approach. This will reduce the number of documents to be scanned by the project and to some extent the issue of language barrier.

10. Review and discuss with the programme financial controller compliance of the loan/grant covenants to date and record any pending issues. Validate the status through scanned documents etc. as feasible.
11. Review and discuss with the programme financial controller the status of ineligible expenditures emerging from audit or previous supervisions, or any pending legal cases, which may imply ineligible expenditures. Record any ineligible expenditures and the proposed repayment plan.
12. If the programme has an Internal Audit function, review the latest internal audit report(s) and discuss with the programme internal auditor the findings of the report and the status of past recommendations (if any).⁴
13. Review the audit arrangements of the past and future programme audits and its timelines. If relevant, organise a tele/skype/Zoom conference with the SAI or the private audit company to discuss issues raised in latest Audit Report and IFADs audit review. Discuss the TOR for the upcoming audit (if relevant for the period).
14. If relevant, organise a tele/skype/Zoom conference with the co-financiers to discuss FM issues.

Vedamurthy Angadi, Procurement Specialist

In line with Module IV of the IFAD Procurement Manual, the Consultant should carry out the following tasks:

- 1) Review the current Procurement Plan in order to assess it has been fully updated and upgraded, ascertain its completeness, its concurrence with the AWPB, and its consistency with the country systems and/or IFAD Procurement Guidelines and Handbook;
- 2) Provide support, advice and recommendations on the following:
 - a. The thresholds, ceilings and preferences to be applied in the implementation of procurement under the programme;
 - b. The contract types and contractual arrangements for goods, works and consulting services required to implement the programme;
 - c. The proposed methods of procurement;
 - d. The related IFAD review procedures and provide suggestions to improve the overall quality of the procurement processes;
- 3) Review a minimum sample of 10% of all procurement contracts for compliance;
- 4) Carry out spot checks on past procurement activities and assess the extent these adhere to Government and/or IFAD Procurement Guidelines and Handbook; in particular, verify that the goods, services and works procured correspond with the approved AWPB and Procurement Plan, in terms of quality and quantities;
- 5) Review the procurement, contracting and implementation processes and timeliness and appropriateness of procurement actions;
- 6) Assess contract administration and management procedures;
- 7) Assess the procurement capacity of all entities to be reviewed in terms of manpower, levels of training of procurement staff, work environments and independence of procurement staff to carry out their statutory assignments;
- 8) Conduct specific analysis of value for money (VFM) at all levels and the reasonableness of prices for:
 - a. Goods, equipment, etc using available price indicators;
 - b. Civil Works, compared to locally accepted standards and prices; and
 - c. Services compare quality-output to international standards and prices;

⁴Virtual meetings with the Internal Auditor may not be feasible, in which case any issues noted should be documented for follow-up at a later date.

- 9) Determine whether adequate systems are in place for procurement planning, implementation and monitoring, and whether documentation are maintained as per required standards and can be relied upon;
- 10) Verify to the extent possible, whether goods, works and consulting services contracted were supplied/completed according to the required specifications and technical standards;
- 11) Review issues identified in the previous procurement review and aide-mémoire and procurement related issues identified in programmeprogramme audit reports;
- 12) Identify deficiencies and make recommendations for improvements and control mechanisms in the procurement procedures and processes;
- 13) Conduct a review of any significant changes in the borrower/recipient's procurement system and practices, and ensure programmeprogramme procurement procedures and systems are updated accordingly;
- 14) Review/update the Procurement Risk Assessment, using the IFAD Procurement Risk Matrix (Module I of the IFAD Procurement Manual);
- 15) Assess further procurement staff training needs and ensure relevant training is planned and provided to programmeprogramme management and procurement staff in a timely manner;
- 16) Submit an assignment report (as per IFAD format), and any other relevant ancillary documents;
- 17) Carry out any other activity, as required by the Country Director.

Mehry Ismaili, M&E and KM

As Monitoring & Evaluation (M&E) Specialist works in guidance of the Mission Leader closely with the other members of the team and the OPM staff responsible for M&E and MIS. Specific responsibilities include:

M&E and MIS

- Review the M&E and MIS system to assess the level of progress and adequacy of data and information contained; identify gaps and suggest measures to mitigate the gaps to ensure that required data and information is available and that the Planner system is functioning to expectations;
- Ensure consistency of data and information recorded in the programmeprogramme database; carry out a few sample test during the field visit to ensure the level of accuracy;
- Provide guidance for RIMS Endline survey to ensure that required data and information is collected to report to the key logframe indicators;
- Guide the programmeprogramme in consolidating the data and information required to assess the programme effectiveness on i) programmeprogramme target and output delivery, ii) programmeprogramme outcomes and impact, and iii) targeting and outreach;
- Review of the logframe and validate the RIMS data;
- Contribute to mission aide memoire and main report in consultation with the CD;
- Any other tasks that may be assigned by the CD

KM

- Review the programmeprogrammes KM strategy, action plan and resourcing.
- Review the implementation of KM part in view of the programme KM Strategy and adopted approached and guide the programmeprogramme to identify innovations, best practices and lessons learned through the implementation of various value chains;

- Provide guidance in documenting the influences of the programme innovations, best practices and lessons learned to similar development programmes/programmes in the country and beyond
- Provide guidance to prepare a full list of the priority KM themes and KM products to be prepared in the coming 12 months - including operational documents to be prepared (published/unpublished) by the programme and to upload all these documents in the programme website for the benefit of wider audiences;
- Support the programme in identifying the innovative tools, best practices/case studies developed and successfully applied that can help accelerate CARLEP implementation
- Provide guidance to prepare a full list of the KM products including operational documents prepared (published/unpublished) by the programme and to upload all these documents in the programme website for the benefit of wider audiences;
- Support the programme in identifying the innovative tools, best practices/case studies developed and successfully applied; provide guidance in consolidating and compiling them
- Contribute to mission aide memoire and main report in consultation with the ML;
- Any other tasks that may be assigned by the CD.

Sashwati Mishra, Gender and Social Inclusion

Under the overall guidance of the Country Director, you will be responsible for:

- Assessing the progress on targeting and outreach and gender equality and women's participation and provide support to improve the rating to 5
- Integrating nutrition in phase II and contributing/reviewing other sections of the report including human, social capital and empowerment and quality of beneficiary participation
- Providing guidance for documentation of good practices of the programme with relevance to the social inclusion mainstreaming priorities in terms of developing a template, working with programme team and local consultants.
- Contributing to the ToRs for the recruitment of the local consultants and backstopping and provide technical support to the consultant during the supervision mission and start-up to fulfil their ToRs.

Deliverables: Inputs to Aide Memoire, inputs to both the supervision report and start-up report. Other activities as required and assigned by the Country Director.

Esha Singh, Technical Analyst (Value Chain)

Under the overall guidance of the Country Director, you will be responsible for:

- Support the local consultants and staff to assess the progress and achievement of outputs under component 2 on value chain development and marketing;
- Support the local consultant to assess the programme capacities and progress and recommend institutional strengthening and capacity building interventions as needed;
- Provide overall implementation support and actionable inputs as required by RAMCO, FCBL, PMU etc. to improve market linkages both domestic and export oriented;
- Provide inputs to the AM and supervision report prepared by the local consultant and participate in all relevant meeting – start-up, component 2: specific discussions with OPM and beneficiaries, partners and service providers and wrap up as feasible.

Deliverables: Inputs to Aide Memoire, inputs to both the supervision report and start-up report. Other activities as required and assigned by the Country Director.

Elisabeth Ssendiwala, Rural Institutions Specialist (Group Formation and Strengthening)

Under the overall guidance of the Country Director, you will be responsible for:

- Support the local consultant and staff to assess community/village based outreach approach as programme entry point;
- Support the local consultant to assess the status of formation/ establishing of new producer groups;
- Support the local consultant to assess progress in strengthening of newly established and other producer groups under different sub-components and their readiness to develop into multi-purpose cooperatives;
- Review strengthening and forming new community production and marketing groups including progress in their capacity development;
- Support the local consultant to assess formation and strengthening of Water User Associations;
- Support the local consultant to assess the strengthening of existing marketing and cooperative capacity development;
- Review progress in institutional support and capacity building under Comp. 3;
- Provide recommendations to improve implementation in these key areas;
- Provide inputs to the AM and supervision report prepared by the local consultant and participate in all relevant meeting – start-up, component 1: specific discussions with OPM and

Date	Agendas	Participant
29 May	Programme submit documentation and information to IFAD – below list	

beneficiaries, partners and service providers and wrap up as feasible.

Deliverables: Inputs to Aide Memoire, inputs to both the supervision report and start-up report. Other activities as required and assigned by the Country Director.

Start-up Workshop and Remote Supervision Mission 29 May to 30 Jun 2020 Agenda

01-05 Jun	IFAD desk review	
08 Jun	Remote Start-up workshop – CARLEP additional financing	
	Morning: i) IFAD perspective; ii) Disbursements procedures and preparation of WAs; iii) Accounting and Financial Reporting	programme Manager (IFAD perspective), programme FOs
	Afternoon: i) Internal Control; i) External Auditing; iii) ICP; iv) Q & A	programme FOs, ICP user/approver (ICP section)
9-10 Jun	Remote Supervision Mission - Teleconference meeting	
9 Jun	i) programme presentation on current FM operation, strength and weakness; ii) working through FMAQ	programme FO/ programme Manager (presentation)
10 Jun – 22 Jun	i) FMAQ – continued; ii) discussion on findings on documentation provided by programmeprogrammeprogramme. ii) Financial and procurement issues iii) Progress presentation by implementing agencies (ARDC/RLDC/RAMCO and Dzongkhags) iv) M&E related on M&E system and core outcome indicators for logical frame work. v) Direct contract with farmers beneficiaries and group representatives	programme FOs programme management, OPM
27-28 June	Draft mission report	
29 June 2020	Wrap-up meeting	programme Manager, programme FOs, IFAD CPM, IFAD RC,

Officials met through remotely CARLEP/ IFAD Mission Members (June 2020)

Sl, No	Name	Designation	Address
1.	Mr. Lhab Dorji	Programme Director	ARDC, Wengkhar
2.	Mr. Sonam Gyeltshen	Dy. Chief Research Officer	ARDC, Wengkhar
3.	Dr. Tshering Dorjee	CEO	KOUFUKU
4.	Mrs. Tashi Zangmo	Sr. LPO	RLDC, Kanglung
5.	Mr. N.S Tamang	DLO	Trashigang
6.	Mr. Suraj Gurung	ADAO	Trashigang
7.	Mr. B.N Sharma	DLO	Samdrup Jongkhar
8.	Mr. Chorten Gyeltshen	DAO	Samdrup Jongkhar
9.	Mr. Sangay Tenzin	ADLO	Pemagatshel
10.	Mr. Tashi Phuntsho	DAO	Pemagatshel
11.	Mr. Chhimi Dakpa	ADAO	Trashy Yangtse
12.	Mr. Phurpa Tshering	DLO	Trashy Yangtse
13.	Mr. Kuenzang Tshering	DAO	Mongar
14.	Mr. Tenzin Dorji	DLO	Mongar
15.	Mr. Sonam Phuntsho	ADAO	Lhuentse
16.	Mr. Phurpa Tshering	ADLO	Lhuentse
17.	Mr. Dorji Wangchuk	Programme Director	OPM, CARLEP
18.	Mr. Ugyen Wangdi	CM-Agri	OPM, CARLEP
19.	Mr. Norbu	CM-Liv	OPM, CARLEP
20.	Mr. Ugyen Wangchuk	Accountant	OPM, CARLEP
21.	Mr. Jigme	Finance Officer	OPM, CARLEP
22.	Mr. Karma Tenzin	M&EO	OPM, CARLEP
23.	Mr. Sangay Choda	PSO	OPM, CARLEP
24.	Mrs. Chhimi Lhamo	KMO	OPM, CARLEP
25.	Mrs. Manisha Biswa	Finance Officer	Lhuentse
26.	Mr. Nima Dorji	Accountant	Lhuentse
27.	Mr. Kelzang Phuntsho	Accountant	Pemagatshel
28.	Mr. Pema Dorji	Accountant	Samdrup Jongkhar
29.	Miss. Jigme Chozom	Finance Officer	Samdrup Jongkhar
30.	Mr. Lam Dorji	Accountant	Trashigang
31.	Mr. Tshering Darjay	Accountant	Trashy Yangtse
32.	Mrs. Cheten Zangmo	Accountant	RAMCO
33.	Mr. Sangay Jamtsho	Marketing Officer	RAMCO
34.	Mr. Karma Tenzin	Assistant Marketing Officer	RAMCO
35.	Mrs. Tashi Gyelmo	Accountant	ARDC, Mongar
36.	Mr. Phuentsho	Procurement/store	ARDC, Mongar
37.	Mr. Tashi Dendup	Procurement Officer	Lhuentse
38.	Miss. Chimi Dem	Procurement Officer	Mongar
39.	Mr. Sonam Tobjay	Store In-Charge	Trashigang
40.	Mr. Thinley Dorji	Procurement Officer	Trashigang
41.	Mr. Karma Tenzin	Livestock Production Officer	Trashigang
42.	Mr. Sangay Wangdi	Agri. Extension Officer	Mongar
43.	Mrs. Tenzin Chezom	Group Chairperson	Mongar
44.	Mr. Lobzang Chopel	Agri. Extension Officer	Chali, Mongar
45.	Mr. Tshering Wangchuk	Farmer	Chali, Mongar
46.	Mr. Pema Loday	Youth	Rewan, Tshakaling
47.	Mr. Sonam Gyeltshen	Youth	Kalapang, Saling
48.	Mr. Kelzang Gyeltshen	Youth	Kheri, Lumang, Trashigang
49.	Mr. Singye Norbu	Liv. Extension Officer	Dewathang, S/J
50.	Mr. Shacha Zangpo	Treasurer, Farmer`s group	Dewathang, S/J
51.	Mr. Norbu	Youth	Naemaed, LUC
52.	Mrs. Lhadon	Youth	Naemaed, LUC
53.	Mr. Rinchen	Youth	Naemaed, LUC

54.	Mr Svante Helms	World Food Programme	Thimphu
55.	Ms Tenzin Lhaden	World Bank	Thimphu
56.	Mr Felipe Dizon	World Bank	Washington DC
57.	Mr Chadho Tenzin	Food and Agriculture Organisation	Thimphu

Bhutan

Commercial Agriculture and Resilient Livelihoods Enhancement Programme Supervision Report

Appendix 6: Procurement

Mission Dates: 1 June - 20 August 2020
Document Date: 28/08/2020
Project No. 1100001739
Report No. 5472-BT

Asia and the Pacific Division
Programme Management Department

Appendix 6: Programme Procurement Management:

Justification of rating:

The Annual Procurement Plan (APP) was prepared, updated/upgraded and broadly in line with AWPB. Few areas like procurement schedule in the APP needs to be updated periodically. Based on the reviewed sample files (3 out of 11), the followed procurement process is in consistent with the agreed Procurement Framework with few minor deviations. The participation in the procurement opportunities (Works) is adequate and the discovered price is below the estimated price. Total 22 bids were received on an average of 7.33 bids per procurement opportunity. The average quoted price is below 27.57%; however, the complete contract registered was not prepared and this limited the sampling to 3 files. During the interaction, inferred the varied procurement capacity of procurement officers/in charge officers managing the programme procurement at the districts and at Implementation Partners except ARDC. The procurement officers at district allocated with CARLEP task are also assigned with other programme/government budget initiatives. The capacity gap exists even after 5 days Procurement Training was provided (9-13 Sep 2019) by IFAD staff. In previous Supervision mission 2019, recommended a full time Procurement Officer (PO) at OPM and adaptation of contract register. The selection process of PO at OPM is in progress and contract register was not updated. The Contract management and record keeping, and decentralised contract management arrangements to be validated.

Pillars	Rating	Justification
A. Review of Procurement planning	3	Procurement planning exhibits significant shortcomings and inconsistencies across some of the requirements. Programme implementation is negatively impacted and delayed; implementation support is required; resolution of issues/constraints is likely but will take some time.
B. Process and Procedures: from prequalification to bidding	4	Processes and procedures applied exhibit some gaps and inconsistencies that have limited impact on programme implementation and performance. Implementation support is required, however, prompt resolution of issues/constraints is likely
C. Process and Procedures: from evaluation to awards	4	Processes and procedures applied exhibit some gaps and inconsistencies that have limited impact on programme implementation and performance. Implementation support is required, however, prompt resolution of issues/constraints is likely
D. Contract management	3	Processes, procedures and systems for administration, supervision and management of contracts exhibit numerous shortcomings. Programme implementation is negatively

		impacted; implementation support is required; resolution of issues/constraints is likely but will take some time.
E. Record Retention	4	The programme's record retention exhibits some weaknesses. Implementation support is required, however, prompt resolution of issues/constraints is necessary.
Overall	4	Processes, procedures and systems applied exhibit some gaps and inconsistencies that have limited impact on programme implementation and performance. Implementation support is required, however, prompt resolution of issues/constraints is likely.

Procurement Review:

Applicable Procurement Framework: Procurement of Goods, Works and Services financed by the Financing shall be carried out in accordance with the provisions of Borrower/Recipient's Procurement Regulations, to the extent that are in consistent with IFAD Procurement Guidelines. Each Annual Work Plan and Budget must contain Procurement Plan, which shall identify the procedures which must be implemented by the Borrower/Recipient to ensure consistency with the IFAD Procurement Guidelines.

Borrower/Recipient's Procurement Regulations: The Public Finance Act (PFA), passed in 2007, is the legal basis for the RGOB's procurement rules and regulations. Chapter VI of this Act ("Financial Management Requirement") empowers the Ministry of Finance (MOF) to institute norms on public procurement: "issue rules, manuals, directives, instructions or notification on the specific matters as follows: (...) procurement. In January 2012, an amendment of the Act was passed in the Parliament and called "Public Finance (Amendment) Act of Bhutan 2012." The Procurement Rules and Regulations (PRR) published in 2009 by MOF is the main document that guides all public procurement processes in Bhutan. Several amendments have been made to the PRR 2009 and a revised version was launched in June 2014. No Procurement Act in Bhutan.

Procurement Profile: Goods requirements are simple off the shelf like procurement of seeds, input construction materials like cement, steel, various types of pipes required for small works(material provided by the programmeprogrammeprogramme and labour contracts by beneficiary /programmeprogrammeprogramme] to various initiatives in agriculture, livelihood and watershed/dryland irrigation sectors and electric fencing. Works requirements like construction of various community infrastructure inter alias, construction of irrigation canal, markets, production houses, processing centres and cattle sheds etc., The programmeprogrammeprogramme also envisaged to procure few Supply and Installation (S&I) type of requirements like food / milk processing plants. Besides Goods and Works, envisaged few consultancies like impact/evaluation studies and strategic advice.

Operation Context: Bhutan is landlocked small country. The programme is being implemented in six programme districts located in Eastern Bhutan. Many of them are small value activities scattered across at various sites. In view of limited presence of manufacturing sector, many of the envisaged requirements are likely to be imported by neighbouring countries India and China, and from other countries. All procurements are expected to stipulate comprehensive Warranty [Parts/Labour/Onsite], post installation support, list of essential spare parts and uninterrupted acquisition of consumables, adequate number of trained personnel in case of high value S&I plant installation. During the

preparation of the bid document, ensure these conditions are inbuilt into the General Conditions / Specific conditions of the contract. The Districts and implementing partners raised these concerns during the interaction

Procurement Plan: The Annual Procurement Plan (APP) was prepared and obtained IFAD's No objection on Sep 12, 2019. Programme has periodically updated/upgraded APP broadly in line in AWPB. In APP, the Procurement Schedule was selectively updated with actual dates as against the planned dates. Emphasis periodic update of procurement Schedule and utilise APP to as review and monitoring tool to identify critical delays.

Based on the envisaged procurement activities in APP FY 2019-20, as on 15 Jun 2020, the Physical progress is around 65% of the planned activities were completed. Financial Progress is around 50% completed expenditure as against planned expenditure. Table 1 shows the procurement category wise break up of (Number and Value) completed, in progress, procurement in progress and pipeline activities, if any. Mission noted that majority of the Goods procurements were completed. However, 50% of the Works contracts in progress. In few procurements of Goods, delay is attributed to delay in supply from China. Due to pandemic COVID -19 the shipments are affected. Even shipment from India which is just across the border is faced with difficulties. District and IA followed up and attempting to ensure the completion as per the agreed contractual obligations. The Financial Year (FY) is closing on June 2020. Ensure complete of all planned activities and adequate funds are available due to change over of FY. Those procurement activities are not initiated may be carried forward to Next FY with remarks. Upgrade the APP for FY 2020-21 and update the AWPB 20-21.

Table 1: Review of PP 2019-20: Status of Completed, In Progress, Procurement in Progress and Pipeline activities

Procurement Category	Planned Expenditure		Completed Expenditure		Implementation is In Progress		Procurement in Progress		Not required		Remarks
Amount in BTN million	Nos	Estimate	Nos	Amount	Nos	Amount	Nos	Amount	Nos	Estimate	
Goods	150	233.685	104	118.594	6		7		1		Information waited for 21/22
Works	16	58.42	6	26.652	6		2				2 Procurements to be initiated
Consultancy Services	1	2.7		0.9							
Non-Consultancy Services	1	1.15		0							
Total	168	295.955	110	146.146	12		9		1		

In one of the planned procurements i.e., UHT Plant was planned procure as International Shopping (IS).

Table 2 Extract of Procurement Plan V3 dated 3 Feb 2020

AWPB/Component Ref	No	Description*	Funding	Package/ Lot Num	Pre-or Post Qualification	Prior or Post	Plan vs. Act	Procurement Method	Amount (Million)
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				ber		Rev iew	ual		BTN)
CARLEP/OPM/LIV/COMP 2/2.2.2/LOAN/GSI-101	1 4 5	Purchase processing equipment for UHT plant in Samdrup Jongkhar	IFAD LOAN	1	Post- Qual	Prior Review	Plan	IS	52.0 0
							Actual		

The Processing plant comprised of Supply, Installation and Operational support] may be staggered into (i) key equipment / supplies (ii) laboratory equipment (iii) associated construction works and installation and final acceptance for performance (iv) operational support during post installation and maintenance period. Phasing these stages with delivery periods during the implementation /post implementation period. Link these stages with the balanced payment terms [ensure not the front loaded or favourable to the supplier]. Also, link these payment terms carefully to the above stages along with delivery period. If needed, stipulate per-dispatch inspection for key equipment.

Revise procurement method in the PP from International Shopping to NCB. Indicate the inclusive estimated cost of procurement [Now showing US \$ 0.74 million, where the 70% of the total investment is US \$ 2.772 m]. In view of the size and risk associated with the investment, the procurement of the UHT should be undertaken through a competitive bidding exercise advertised internationally or in local market which includes the neighbouring markets such as India, China and Nepal. As the RGoB is not having Supply and Installation (S&I) Standard Bid Document (SBD), Customize World Bank's S&I as per the Bhutan Procurement Framework and use it for preparation of the bid document. During the preparation of the bid document, Programme may Seek desired inputs/peer review from the IFAD to prescribe realistic qualification criteria, Linking the delivery and payment terms, and fine-tuning other conditions of the contract.

Government of Bhutan may also adopt an alternative method of procurement as opposed to the competitive and transparent competitive bidding process outline in the RGOB Procurement Regulations/Law by ensuring the necessary clearance from its central procurement unit. Lastly given the capacity within the programmeprogrammeprogramme which does not have a senior procurement officer and the complexity of this procurement, the management procurement should be transferred to central procurement agency or unit that has adequate capacity to undertake complex procurement. IFAD would also provide necessary support and guidance on this matter.

i. Review of Ongoing/Completed Procurement Activities and Documentation

Procurement Arrangements:

Procurements were initiated by the 6 Programme Districts and Implementation Partner agencies. In District, District Livelihood Officer (DLO) and District Agriculture Officer (DAO) initiates the procurement and award the contracts. At Districts, Procurement Officers are helping them to process the procurement. After issuance of the Contracts/Purchase orders, the field officers including Engineers implement the contracts, accepts the supplied goods/completed works after verification and recommends for processing payment. The payment is process through ICT Platform e Payment system. At Implementation Partner agencies, a similar process was followed at ARDC and RLDC. As

majority of the programme requirements at RAMCO are like district level livelihood initiatives, the procurement process followed at district is referred and price discovered will be used for issuance of Purchase Order in livestock.

Based on the contract list comprised of 13 contracts (from FY 2018-19: 9 Contracts, FY 2019-20: 4 Contracts) sampled 4 contracts. The softcopies for 3 contracts were shared from initiation till award. The contract management details were not shared

- (i) **Process and Procedures from Prequalification to bidding:** Prequalification process was not carried as many of the simple low value procurements. Reviewed contracts are as per the PP. The Standard Bidding Documents prescribed by RGoB PPR are used to prepare the bid documents. The estimated cost for Works is based on the Bhutan Schedule of Rates (applicable year) and cost Index based on the districts. The estimate was approved, and technical sanction was issued. The procurement process for districts is processed through eGP platform and for regional centers through manually. The minutes of the bid opening with price and details of bid security, bid opening checklist and signature of the bidder/bidder's representative.
- (ii) **Process and Procedures from Evaluation to Awards:** The bid document stipulated qualification criteria and PPR Form – 3 was used to prepare the evaluation reports. Evaluation done across 3 steps, Preliminary Examination, Technical Evaluation and Financial Evaluation, consistent with the methods of procurement. Evaluation report was signed by the Evaluation committee.

Procurement of Works are carried out by Engineers in the Implementing Agencies/Dzongkhags who have procurement experience from implementing similar activities under RGoB. The OPM does not carry out any of the procurement activities. For the procurement of works, the Engineers have used the e-GP (electronic Government Procurement) System for tendering and the e-Tool for evaluation of works above Nu. 4 million. This has ensured proper documentation of the entire procurement process, compliance to rules and regulations and application of technical and financial evaluation.

In reviewed contracts, the contracts were awarded to the lowest priced and evaluated responsive bidder. Performance security was stipulated, and record was found in one file and not in other two files.

- (iii) **Conclusion:** The procurement process followed is in consistent with the agreed Procurement Framework (Bhutan Procurement Rules and Regulations in consistent with the IFAD Procurement Guidelines and Handbook). The participation is adequate, and the discovered price is below the estimated price. Total 22 bids received on an average of 7.33 bids per procurement opportunity. The quoted price is below 27.57%; Unbalanced bids [-20% (to be validated)] were not computed and additional Performance Security was not obtained.

ii. Review of Contract Administration and Management

The contracts are based on the Contract Form, GCC and SCC and signed by the both the parties. Contract management details were not available / shared softcopies. The recording of work in the Measurement Book (MB), certification of acceptance from competent authority/committee for complex goods, the period required to process the payment, and validity of insurance policies to be validated.

Royal Audit of Authority Bhutan has carried out the Audit for FY 2018-19. The scope of review includes review of procurement and contract management related aspects [based on the draft Audit Rules]. From the management letter, few observations extracted and tabulated:

Table 3: Audit observation from procurement perspective and Advice from Royal Audit Authority of Bhutan

SI NO	Audit observation from procurement perspective	Advice after obtaining justification
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1.	Non-levy of liquidated damages (1.2.13). RLDC, Kangma <i>the printed manuals were received after 163 days from the supply order date, the supplier is liable for 10% liquidated damages</i>	<i>As agreed during the audit exit meeting, 10% liquidated damages should be levied to both parties for failing to deliver the deliveries as per the terms and condition of supply</i>
2.	Payment made without receiving equipment – Nu. 695,180.37 (1.2.13) The documented records showed that most of supply orders were placed at the last two months of the financial year	<i>As per the procurement norms, the procurement committee has worked out all liquidated damage-imposed LD of 0.01% of the amount per day starting from the day of due period</i>
3.	Supply of inferior quality of CGI Sheet for diary shed construction (1.2.9) The cost difference (excess payment to supplier due to supply of inferior quality CGI sheet) between 0.63 mm and 0.50 mm CGI sheet	<i>The excess payment amounting to Nu. 96,316.42 should be recovered and deposited into Audit Recoveries Account</i>
4.	Excess payment to supplier – Nu. 102,667.50 (1.2.2)	<i>The excess payment amounting to Nu. 102,667.50 should be recovered and deposited into Audit Recoveries Account</i>
5.	Short levy of Liquidated damages for supply of materials – Nu. 17,536.92 (4.4.17) during the joint physical verifications of diary sheds, beneficiaries claimed that they received only 6 bags of cement and MS Rod (10 mm) was not received at all	<i>Liquidated damages amounting to Nu. 17,536.92 should be levied and deposited into Audit Recoveries Account</i>
6.	Shortfalls in the procurement of chaff cutter (4.4.67)	<i>the CARLEP programme management is requested to submit the assurance letter confirming that all materials had been supplied by the supplier and received by respective beneficiaries</i>

It is evident from the above table, that RAA reviewed the procurement and contract management including joint physical inspection. IFAD may seek status of report of these relevant audit para/memos and may be validated on sample basis.

iii. Review of issues identified in the previous procurement supervision and aide-mémoire and procurement related issues identified in programmeprogrammeprogramme audit reports

Previous Supervision mission 2019 Procurement related action points and their status provided in Table

Table 4: Status of Previous Supervision mission 2019 Procurement related action points

Description of Agreed Action Point, Agreed date and Responsibility [Aug 2019]	Status as on 15 Jun 2020 and Remarks
1. A full time Procurement Expert will be recruited on contract by the OPM to coordinate and monitor procurement activities of the programme Agreed Date: Jun 2019 Responsibility: OPM	Not Completed Explored local expert but not available. Not attempted through a procurement process. Planned to complete the appointment of PS. Process in progress

Description of Agreed Action Point, Agreed date and Responsibility [Aug 2019]	Status as on 15 Jun 2020 and Remarks
<p>2. A Procurement training will be conducted for the staff of OPM, gewogs, Dzongkhags and all other implementing agencies to create awareness and understanding of: RGoB's Procurement Guidelines; Use of RGoB's e-Government Procurement System ; IFAD's Procurement Guidelines; Use of IFAD's NOTUS system; Documents to be retained Contract Management</p> <p>Agreed Date: Sep 2019 Responsibility: OPM and IFAD</p>	<p>Completed</p> <p>5days procurement training was conducted (9th-13th Sept, 2019) at Samdrup Jongkhar. Training was impaired with Sriram's Technical Assistance as part of ISM</p>
<p>3. Contract Register: Maintain Contract Register to monitor contracts</p> <p>Agreed Date: Jun 2019 Responsibility: All Implementing Units</p>	<p>Not Completed</p> <p>Provided contract register is only for 13 contracts. Not updated the register and Not used IFAD Form C-10</p>
<p>4. Post Procurement review: Post review of contracts will be carried out at least once in a year, towards end of the financial year and feedback will provided to the OPM</p> <p>Agreed Date: May 2020 Responsibility: IFAD</p>	<p>Partially Completed during the remote SM.</p> <p>Based on the available Contract Register, sampled and reviewed based on the soft copies. Contract management aspects and documents to be reviewed / validated.</p> <p>After the receipt of updated contract register, the sampling and review to be undertaken.</p>

iv. Assessment of further procurement staff training needs

At OPM, no dedicated Procurement Specialist is functioning to support the PD on day to day programmeprogrammeprogramme procurement management aspects. This was the one of the action points recommended & agreed during the previous SM. The OPM checked the availability of the Procurement Specialists in Bhutan and their brief market assessment indicated that there are not available. However, the OPM did not attempted any procurement process and failed to find any.

During the interaction, inferred that understanding of the programmeprogrammeprogramme procurement including contract management varies across the districts and Implementation Partners. This capacity deficit is even after 5 days Procurement Training was provided at (9th-13th Sept, 2019) at Samdrup Jongkhar by IFAD Staff Sriram as per the ISM.

District level procurement activities were processed with by the Procurement Officers. Their involvement is limited to processing the Framework Agreements for the planned packages, issue Purchase Orders based on the approved requests from DAO/DLO. They were not involved in the preparation of the AWPB and PP and during the contract management. Few of them are preparing the list of POs issued and reporting to the OPM periodically.

At Implementation Partners, programme Director of ARDC is supported by Procurement Officer. At RLDC and RAMCO, there are no procurement officer managing the programme procurement.

programme procurement function needs to capacity building measures to upgrade the procurement proficiency of those directly involved in procurement process. Due to evolving pandemic situation, possibility of conducting Workshops and Training is limited. Hence, the programme staff may be advised to complete the World Bank promoted free certification courses in Public Procurement and Contract Management. These are online courses may be accessible at www.procurementlearning.org . A virtual short session to augment the procurement capacity may undertake in coordination with the IFAD.

v. Key findings and conclusions from the PRM assessment update

The Procurement Risk Matrix (PRM) was prepared based on the literature review, previous SM reports and other available documents available in the public domain and World Bank reports. The PRM is updated during and shared along with this Working Paper.

Net Rating (Mar 2020): **2.54**

Findings are in agreement with overall findings mentioned in this working paper.

- Deploy Procurement Specialist at OPM, Update contract register;
- Use the appropriate Procurement Method depends upon the complexity. For Processing and Production Plants, NCB using Supply and Installation is appropriate.
- Ensure adequate scope for POs to participate and contribute in preparation of PP and AWPB
- Strengthen Acceptance, stock keeping and issuance details, applying Liquidated Damages as per the agreed Contract Conditions and process the Final Payment

Revised Net Rating after updating the available details (June 2020): **2.59**