KINGDOM OF BHUTAN

# COMMERCIAL AGRICULTURE AND RESILIENT LIVELIHOODS ENHANCEMENT PROGRAMME (CARLEP)

## Annual Progress Report

## (FY2020-2021)

**Type of Report: Annual Progress Report**

**Publication Date: August 2021**

**KINGDOM OF BHUTAN**

# COMMERCIAL AGRICULTURE AND RESILIENT LIVELIHOODS ENHANCEMENT PROGRAMME

IFAD Loan: 2000000627

IFAD Grant: 2000000838

ASAP grant: 2000000872

## ANNUAL PROGRESS REPORT

July 2020 – June 2021

**Prepared & Published by:**

Office of the Programme Management (OPM)
Commercial Agriculture & Resilient Livelihoods Enhancement Programme (CARLEP)
Secretariat, Ministry of Agriculture & Forests
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## Currency Equivalents

| Currency Unit | | Ngultrum (BTN) * |
|---|---|---|
| USD 1.00 | = | BTN 72.00 (as of august 2021) |

**/ The Bhutan Ngultrum (BTN) is pegged with the India Rupees (INR)*

## Weights And Measures

International metric system, unless otherwise mentioned, and except for:

| | | |
|---|---|---|
| 1 Kilogram | = | 1000 Gram |
| 1 Kilogram | = | 2.204 Pound |
| 1 Kilometre | = | 0.62 Mile |
| 1 Metre | = | 1.09 Yards |
| 1 Square Metre | = | 10.76 Square Feet |
| 1 Acre | = | 0.4047 Hectares |
| 1 Hectare | = | 2.47 Acres |
| 1 *Langdo* | = | 1400 Square Meter |

## Abbreviations And Definitions

| | |
|---|---|
| Ac | Acres |
| ADAO | Assistant Dzongkhag Agriculture Officer |
| AFD | Administration and Finance Division |
| AMEPP | Agriculture, Marketing and Enterprise Promotion Programme |
| AOS | Annual Outcome Survey |
| APA | Annual Performance Agreement |
| ARDC | Agriculture Research and Development Centre |
| ASAP | Adaptation for Smallholder Agriculture Programme |
| AWPB | Annual Work Plan and Budget |
| BAIL | Bhutan Agro Industries Ltd. |
| B2B | Business to Business |
| BAFRA | Bhutan Agriculture and Food Regulatory Authority |
| BDBL | Bhutan Development Bank Limited |
| BTN | Bhutan Ngultrum |
| CAHW | Community Animal Health Worker |
| CARLEP | Commercial Agriculture & Resilient Livelihood Enhancement Programme |
| CEO | Chief Executive Officer |
| CM | Component Manager |
| CMU | Central Machinery Unit |
| CSV | Climate Smart Village |
| DAMC | Department of Agriculture Marketing and Cooperatives |
| DAO | Dzongkhag Agriculture Officer |
| DE | District Engineer |
| DoA | Department of Agriculture |
| DoL | Department of Livestock |
| DLO | Dzongkhag Livestock Officer |
| DNB | Department of National Budget |
| DPA | Department of Public Accounts |
| DPO | Dzongkhag Planning Officer |
| DT | Dzongkhag Tshogdue |
| ES | Extension Supervisor |
| F | Female |
| FA | Financing Agreement |
| FCBL | Food Corporation of Bhutan Limited |
| FG | Farmers' Group |
| FY | Fiscal Year |
| GEO | Gewog Extension Officer |
| GNHC | Gross National Happiness Commission |
| GoI | Government of India |
| GT | Gewog Tshogdue |
| Ha | Hectare |
| HH | Household |
| ICT | Information, Communication Technology |

| | |
|---|---|
| IFAD | International Fund for Agricultural Development |
| IFPP | Integrated Food Processing Plant |
| IFPRI | International Food Policy Research Institute |
| KIL | Koufuku International Limited |
| KM | Knowledge Management |
| Km | Kilometer |
| L | Litre |
| LPG | Liquid Petroleum Gas |
| LUC | Land Use Certificate |
| M | Male |
| M&E | Monitoring and Evaluation |
| MAGIP | Market Access and Growth Intensification Project |
| Masl | Meter above Sea Level |
| MCC | Milk Collection Center |
| MCS | Milk Collection Sheds |
| MIS | Marketing Information System |
| MGF | Matching Grant Facility |
| MoAF | Ministry of Agriculture and Forests |
| MoEA | Ministry of Economic Affairs |
| MoF | Ministry of Finance |
| MoHCA | Ministry of Home and Cultural Affairs |
| MoLHR | Ministry of Labour and Human Resources |
| MPU | Milk Processing Unit |
| MT | Metric Ton |
| MTR | Mid-Term Review |
| MSP | Multi-Stakeholders' Platform |
| NCB | National Competitive Bidding |
| NEC | National Environment Commission |
| NGOs | Non-Governmental Organizations |
| NMC | National Mushroom Centre |
| No | Number |
| NOP | National Organic Programme |
| NPD | National Programme Director |
| NPHC | National Post Harvest Centre |
| NPPC | National Plant Protection Centre |
| NPSC | National Programme Steering Committee |
| NSC | National Seed Centre |
| NSSC | National Soil Service Centre |
| Nu | Ngultrum |
| O&M | Operation and Maintenance |
| OPM | Office of the Programme Management |
| PLC | Programme Letter of Credit |
| PPD | Policy and Planning Division (MoAF) |
| PPP | Public Private Partnership |
| PRR | Procurement Rules & Regulations |

| | |
|---|---|
| PSF | Production Support Fund |
| Pkts | Packets |
| RAMC | Regional Agriculture Machinery Centre |
| RAMCO | Regional Agriculture Marketing and Cooperative Office |
| RGoB | Royal Government of Bhutan |
| RIMS | Results and Impact Management System |
| RNR-EC | Renewable Natural Resources Extension Centre |
| RLDC | Regional Livestock Development Centre |
| RMA | Royal Monetary Authority |
| RUG | Road Users Group |
| SAP | School Agriculture Program |
| SLM | Sustainable Land Management |
| SOE | Statement of Expenditure |
| TA | Technical Assistant |
| TMR | Total Mixed Ration |
| ToT | Training of Trainers |
| WA | Withdrawal Application |
| WUA | Water Users' Association |

## Map of the Programme Areas

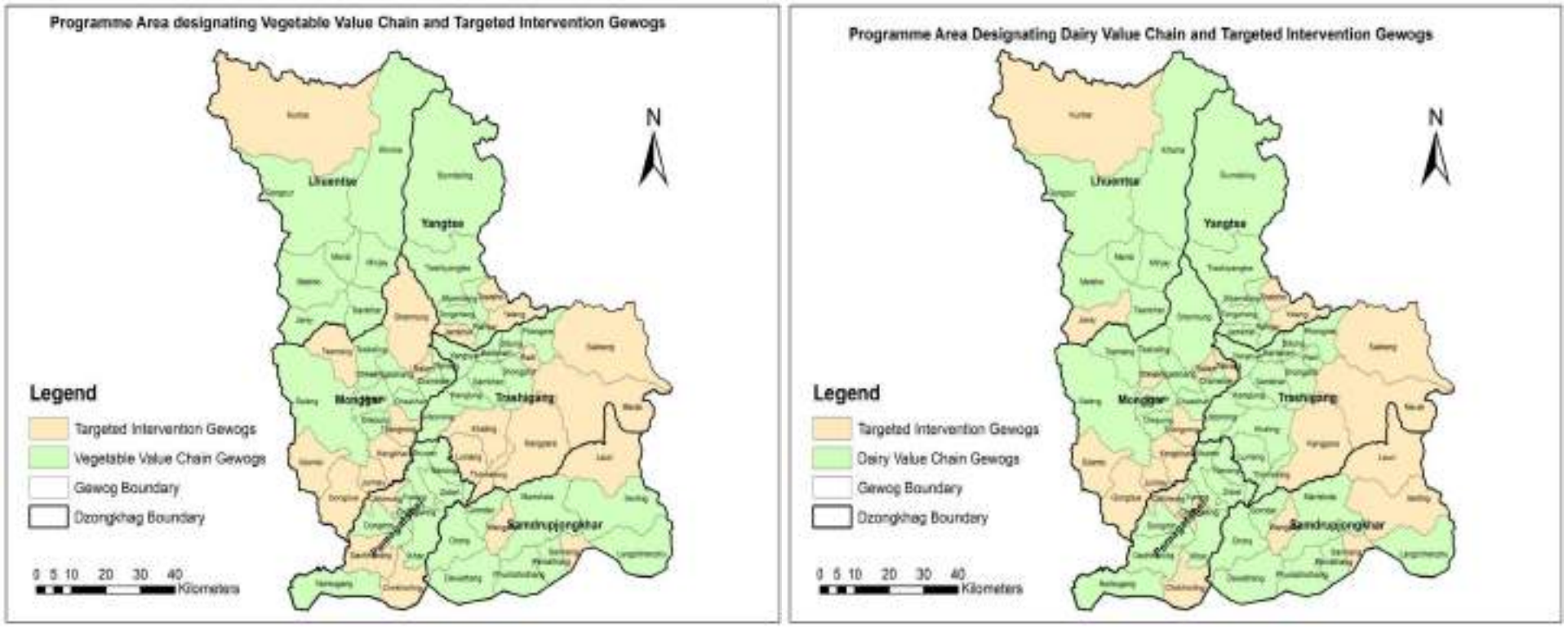



Figure 1. Map showing Programme areas

## A. Programme Background

This is the sixth year Annual Progress Report for Commercial Agriculture and Resilient Livelihoods Enhancement Programme (CARLEP). It is the eighth agriculture and rural development programme financed by the International Fund for Agricultural Development (IFAD). The financing negotiation for CARLEP was held in July 2015 followed by IFAD Executive Board approval in September 2015 and the signing of the Financing Agreement by December 2015. The programme was launched on 11 December 2015 and will be completed – as a result of the approval of the Additional Financing (AF) - in December 2025.

The program goal is to sustainably increase smallholder farmers' income and reduce rural poverty. This will be achieved through climate-resilient commercialized production of crops and livestock by programme households linked to the nationally organized value chain and marketing systems. The objective is to increase return to smallholder farmers through climate-resilient production of crops and livestock in a nationally organized value chain and marketing system.

To achieve its goal and objective, the programme has 3 major components and eight sub-components with 27 broad activities. The three major components are i) market-led sustainable agricultural production; ii) value chain development & marketing; and iii) institutional support and policy development. The programme is expected to benefit 28,975 smallholder households (HHs), of which 7,115 HHs will directly benefit from vegetable and dairy value chains. Although CARLEP is extended till 2025 through the additional funding of IFAD-11, the overall goal and objectives remain unchanged except for some incorporations of entrepreneurship development through diverse agricultural activities.

The main implementing partners are six Dzongkhags & concerned Gewogs, Regional Agricultural Marketing Cooperatives and Office (RAMCO), Agriculture Research and Development Centre (ARDC) Wengkhar, Regional Livestock Development Centre (RLDC) Kanglung and koufuku International Limited (KIL) Chenery, Trashigang.

In line with the programme objective, the implementation of a two-pronged approach has been adopted – i) Commercial or value chain approach to be focused in those Gewogs and villages with high production & market potential and ii) Targeted interventions in those far-flung Gewogs and villages having higher incidences of poverty.

The overall programme implementation is being coordinated by the Office of Programme Management (OPM) based at Wengkhar. The OPM is supported and guided by the

National Programme Steering Committee (NPSC) at the national level and Regional Programme Implementation Committee (RPIC) at the regional level.

The programme is also supported by one focal officer at the Policy and Planning Division (PPD) and one focal accounts officer at the Administrative and Finance Division (AFD) of the Directorate Services in liaising with the RGoB and other external agencies at the national level.

The total programme cost of US$ 31.526 million, over seven years, is financed by - IFAD (US$9.3 million), ASAP (US$ 5 million), RGoB (US$5.767 million), Beneficiaries (US$ 0.659 million) and a financing gap (USD 6 million). After the MTR a sum of USD 11.2 million is approved as additional financing.

## B. Progress and Performance by Components

Commercial Agriculture and Resilient Livelihoods Enhancement Programme has adopted a two-prolong approach as explicitly stated in the Project Design Report (PDR). The value chain approach is based on vegetable and dairy and targeted interventions for building farm resilience through the adoption of climate-smart approaches and enhancing on-farm diversity.

# COMPONENT 1: MARKET-LED SUSTAINABLE AGRICULTURAL PRODUCTION

## Output 1.1: Increased Production Resilience, Diversification and Innovation

### 1.1.1. Climate Smart Agriculture Production and Management

Crop diversification through the promotion of climate-resilient crops is being implemented in the programme areas to build climate resilience, thereby increase returns to smallholder farmers. In this regard, various potential and stress-tolerant crops such as Heat Tolerant Maize, stress-tolerant vegetable varieties, low water requiring indigenous crops such as upland paddy and millets, and other climate-resilient crops such as quinoa,

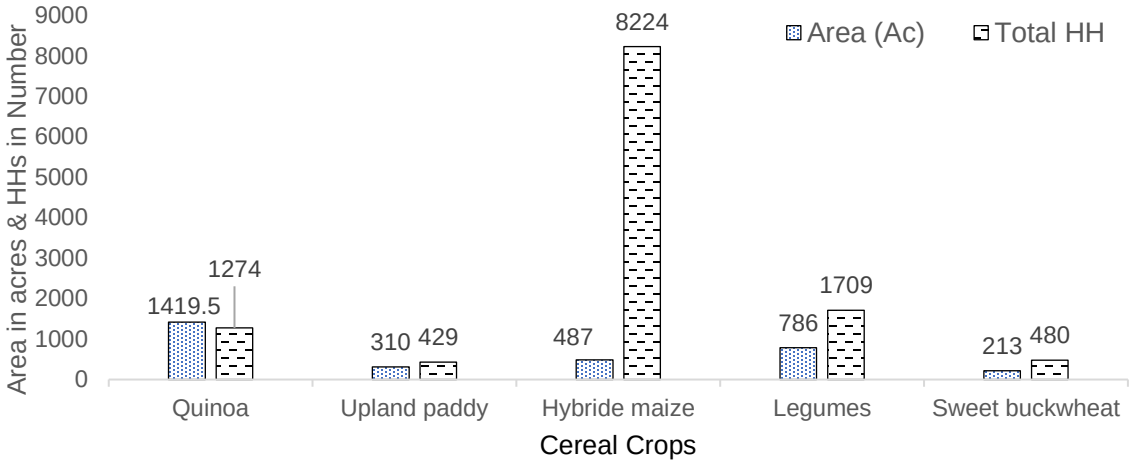



Figure 1: Area coverage and HHs benefitted under crop diversification and intensification

buckwheat, and legumes were promoted and intensified all across the programme areas during the financial year 2020-2021. A total of 3215.5 acres of land have been brought under crop intensification and diversification and have benefited 12116 HHs. Different types of cereal seeds supported and area of cultivation with HHs benefited is presented in Figure 1.

#### *1.1.1.1. Processing & value-addition equipment*

Post-harvest losses are one of the main constraints and challenges in agricultural production in the programme areas. Hence, the project supports improved storage facilities (curing shed) and capacity development of farmers on post-harvest management of vegetables to minimize the post-harvest losses. In FY2020-21, Lhuentse Dzongkhag has promoted 22 numbers of onion curing sheds benefiting 22 households. These curing

sheds are expected to reduce the post-harvest losses from 15% to 5% in the ensuing years. With the construction of the curing shed, the farmers also plan to expand their area of onion cultivation for higher production and income generation.

#### *1.1.1.2. Mushroom intensification*

Mushroom is one of the low-volume high-value commodities. It is also a highly nutritious and rich source of minerals and vitamins. Promotion and intensification of mushroom cultivation and its technical support in the East is solely mandated to ARDSC Khangma with the establishment of the Mushroom Spawn Production Unit. The unit provides services and technical support to individual households, groups, villages, schools and institutions and promotes the crop as an enterprise. The unit has produced and supplied 13,191 bottles of Shiitake and Oyster Mushroom spawns to farmers in FY2020-21. A total of 20364 numbers of shiitake billets and 17047 bags of oysters mushroom were inoculated benefiting 88 farmers (Table 1) from Lhuentse, Mongar, Trashiyangtse, Trashigang and Pemagatshel. A total of 167 farmers (115 females) were provided with 14 different mushrooms related training for better production and management. Likewise, six youths were trained on mushroom spawn production at the MSPU this reporting fiscal year.

ARDC Wengkhar also initiated a household-level nutritional enhancement program with the establishment of a homestead nutrition garden through a focused village approach. During the reporting period, a total of 44.6 acres of backyard integrated model farms belonging to 309 households (F-146) have been developed and supported with plantation of 5497 numbers of mixed fruit based on different climatic zones.

Table 1 shows the summary information on shiitake and oyster mushroom promoted under different Dzongkhags

| Dzongkhag | Shiitake mushroom | | Oyster mushroom | |
|---|---|---|---|---|
| | No. of billets | No. of farmers | No. of bags | No. of farmers |
| Lhuntse | 1759 | 8 | 2000 | 8 |
| Mongar | 4880 | 16 | 2522 | 16 |
| Pemagatshel | 700 | 6 | 2780 | 6 |
| Trashigang | 9575 | 41 | 6125 | 41 |
| Trashiyangtse | 3450 | 17 | 3620 | 17 |
| ***Total*** | ***20364*** | ***88*** | ***17047*** | ***88*** |

### *1.1.1.3. Up-gradation of FGs into Cooperatives and Registration*

The farmers' groups and cooperative development is one of the important programs of CARLEP through the Regional Agricultural Marketing and Cooperatives Office (RAMCO). The FGs and Coops are entities that can address the problem of the low scale of production and build social cohesion in the community. In the east, where commercialization is challenging, the formation and development of farmers' groups and cooperatives is the only approach to achieve the economies of scale for marketing.

The up-gradation of progressive FGs into cooperatives indicates the transition of farming from earlier subsistence to semi-commercial or commercial farming. In this fiscal year, two dairy cooperatives were upgraded into cooperatives. The up-gradation was carried out after identifying potential FGs, reviewing by-laws, business plans and management plans. Besides up-gradation of farmer groups, RAMCO has registered three progressive dairy farmer groups and has also mobilized a vegetable FG in Sarjung under Samdrup Jongkhar.

Table 2: Farmers group assisted

| Sl/No | Name of the Cooperative | Dzongkhag | Geog | Sector | Member | | |
|---|---|---|---|---|---|---|---|
| | | | | | **M** | **F** | **Total** |
| 1 | Jomo Lanor Namley Tshokdey | Trashigang | Merak | Liv. | 10 | 7 | 17 |
| 2 | Sakteng Kuenphen Lanor Namley Tshokdey | Trashigang | Sakteng | Liv. | 18 | 2 | 20 |
| 3 | Buchung Kewazangpo Amtshu Detshen | Trashigang | Merak | Liv. | 10 | 19 | 29 |
| 4 | Lauri Jersey Group | Samdrup Jongkhar | Lauri | Liv. | 16 | 9 | 25 |
| 5 | Tshothang Jarsey Group | Samdrup Jongkhar | Lauri | Liv. | 22 | 3 | 25 |
| 6 | Serjung Vegetable Groups | Samdrup Jongkhar | Martshala | Agri. | 35 | 30 | 65 |
| | | | | **Total** | **111** | **70** | **181** |

### 1.1.2. Innovation through Biogas & Permaculture

#### *1.1.2.1. Poultry for farm resilience*

Small-scale poultry farming support was provided to pro-poor and vulnerable households to build their farm resilience besides enhancing household nutrition and income. As shown in the graph, 158 households (95 male and 63 female) in the remote villages under the respective Programme Dzongkhags received support to establish backyard poultry farms.

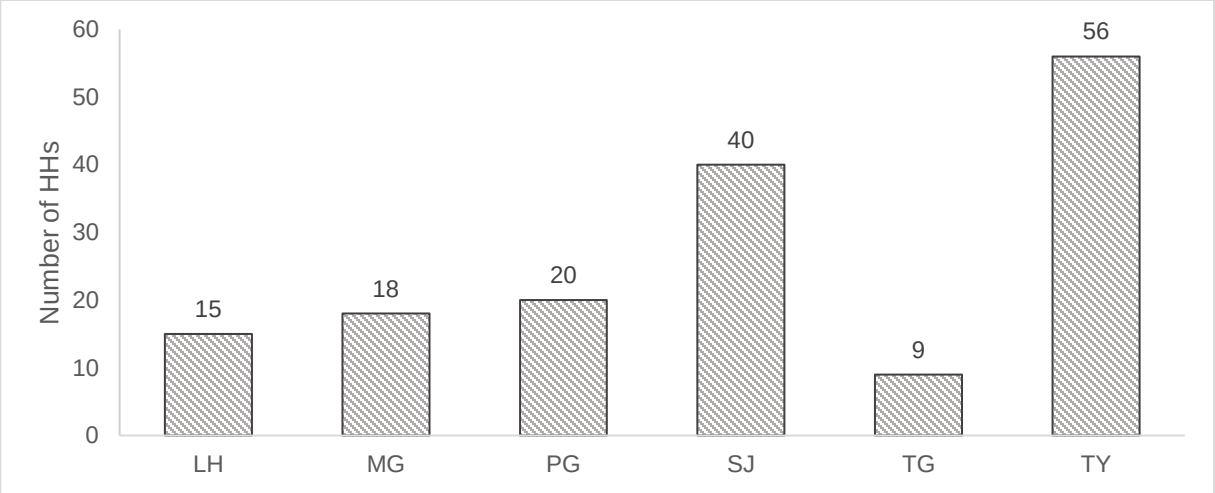



Figure 2: Number of HHs supported with backyard poultry farm

Similarly, Pemagatshel Dzongkhag has facilitated the establishment of 14 units of contract native poultry farming, benefiting 9 male and 5 female households. Native poultry farming was promoted among the farmers to meet native pullet requirements in the Programme areas.

#### *1.1.2.2. Apiculture*

CARLEP promotes apiculture (*Apis Cerena)* in areas where indigenous crops are popularly grown with the objectives to enhance the income of the farmers through on-farm diversity and ensure the conservation of local bees.

Therefore, a total of 221 beehive sets were supplied for honey production. The Dzongkhag wise number of beehive sets supplied is shown in figure 7.

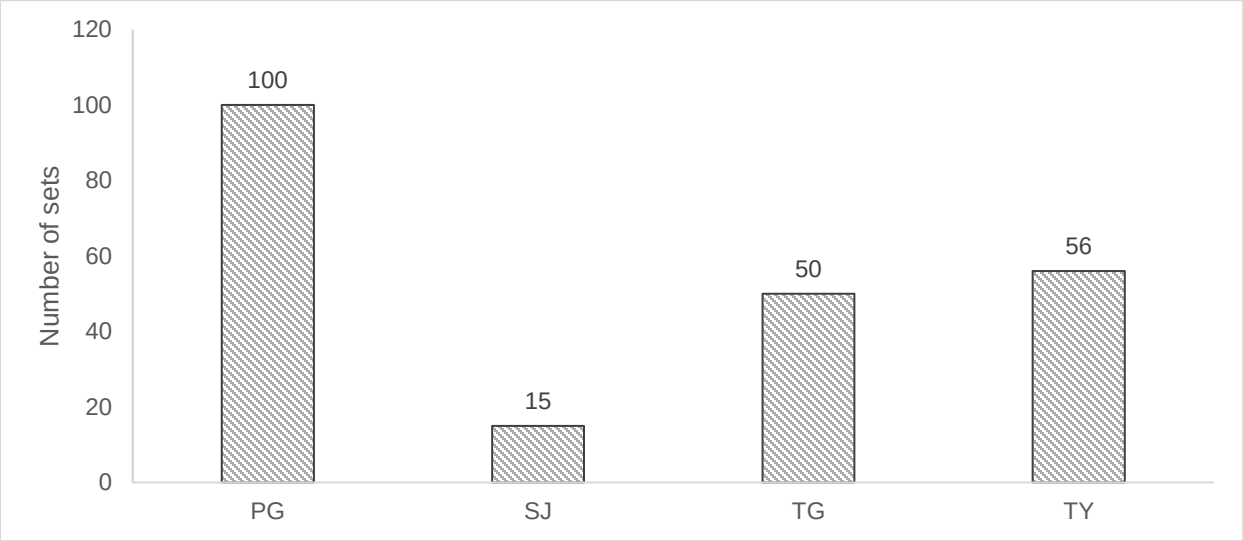



Figure 3: Number of HHs supported with apiculture

### *1.1.2.3. Biogas installation*

As part of an overall strategy of promoting climate-smart farming system, CARLEP facilitates the construction of family-sized (4 m3 ) biogas through subsidy support in the form of biogas appliances equivalent to 50 % of the unit cost.

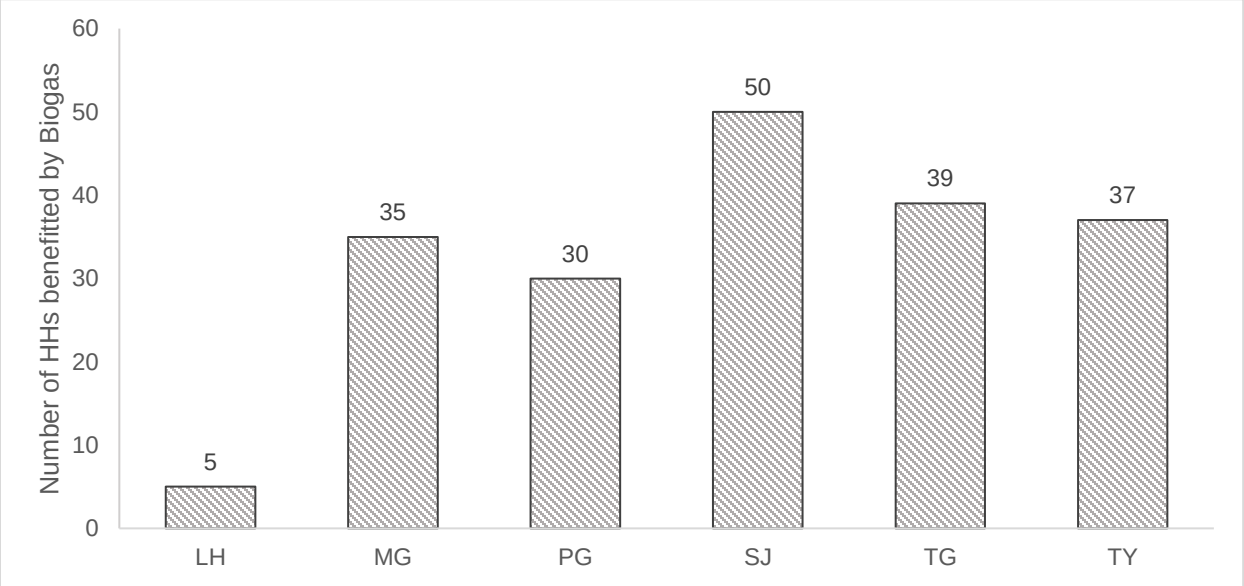



Figure 4: Biogas plant installation

During the FY 2020-2021, 196 households in the Programme areas adopted biogas technology with subsidy support from CARLEP. The biogas technology has been supported to ensure the production of clean energy for cooking and to enable household

sanitation and production of bio-slurry fertilizer which can be productively used in vegetable farming. During the reporting period, farmers reported a significant reduction in the purchase of LPG, and the use of firewood and electricity for cooking and lighting.

#### *1.1.2.4. Agricultural innovations through the adoption of climate-smart village*

Permaculture concept is being implemented through adoption of climate smart villages. With the inclusion of six new Climate Smart Villages (CSV) in FY2019-2020, there is total of 12 pilot villages in the region, with two villages in each Dzongkhag, covering 332 rural households (Male-169, Female-154). ARDC Wengkhar in collaboration with relevant stakeholders implemented the planned interventions in the identified pilot villages based on the outcome of Participatory Vulnerability Assessment (PVA) and experiences gained from the past year.

During FY2020-2021, the development of homestead nutrition garden through focused village approach and crop diversification among others were focused. Drinking water shortage is seen as one of the pertinent issues in most of CSVs, let alone for irrigation. This has compelled resource-poor smallholder farmers to rely on rainfed agriculture. Hence, water catchment protection and spring water harvesting have been implemented as effective strategies to address water shortages in these villages. Likewise, the villagers have been supported with household-level water storage tanks for storing water for drinking as well as for irrigating the homestead nutrition garden in the backyard. In FY2020-21, a total of 142 HHs were provided water storage tanks each, of which 60 are female beneficiaries. In addition, efforts are also being made to promote low water requiring indigenous crops such as upland paddy, millets and buckwheat in those villages experiencing a water shortage.

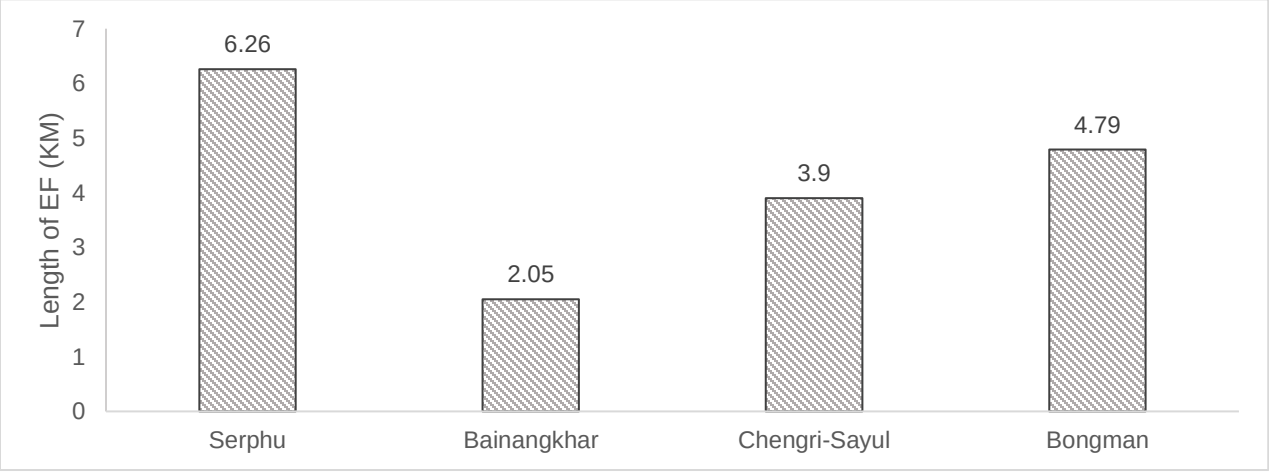



Figure 5. Length of EF in CSVs

The crop depredation by wild animals is the most severe non-climatic hazards confronting the villages. Hence, electric fencing has been promoted to reduce crop loss to wildlife. A total of 17KM electric fencing has been installed for 73 HHs from Bongman in Pemagatshel, Bainangkhar in Trashiyangtse, Chengri-Sayul in Trashigang Dzongkhag and Serphu in Lhuentse. With the electric fence put in place, the farmers reported a reduction in crop loss to wildlife by 90%.

### 1.1.3. Increased Agriculture Outreach Services

The lead farmer model was first initiated during HRDP, JICA in 2014 at ARDC Wengkhar, and was adopted by CARLEP since its inception in 2016. Compounded by rugged terrain, scattered settlement, and limited resources, outreaching the services of one extension staff in the Gewog supporting the extension activities is challenging. The effectiveness of service delivery and dissemination of technology has been one of the main concerns. Considering all these factors, the 'Lead Farmer Model' was adopted under CARLEP-IFAD, as an approach to enhance extension service delivery through farmer-to-farmer extension and to extend new agricultural technologies to rural communities. The key role of lead farmers after completing training is to disseminate agriculture technologies to other fellow farmers.

ARDC Wengkhar trains new Lead Farmers on four modules spread across one year and after completing all the modules, the participants are certified as Lead Farmers. ARDC Wengkhar has trained 132 lead farmers (Female-33) from 2016 to 2020.

In FY2020-21, ARDC could not conduct the Lead Farmers training due to restriction of public gathering amid the COVID-19 pandemic. However, the lead farmer expansion programme has been successfully implemented in Dzongkhags and Gewogs using Lead farmers that were trained by ARDC to enhance the Extension services delivery and more outreach. During the financial year 2020-2021, a total of 236 farmers (F-99) from Lhuentse, Trashiyangtse, Trashigang and Pemagatshel have been trained under the programme.

Samdrupjongkhar Initiatives (SJI) has trained the farmers under Dewathang and Orong Gewog on the preparation and use of bio-pesticides. The activity is conducted under Lead farmers' expansion and outreach of extension services program planned under ARDC Wengkhar. A total of 97 farmers (F-56) were trained on the formulation of biopesticide using locally available plants and others spices.

## Output 1.2: Vegetable Production Intensification and Expansion

### 1.2.1. Inputs for Vegetable Production

Vegetable is an important commodity attributing to its nutritional value and food security. Vegetable production in the country has been highly encouraged among the farmers in the light of COVID-19 pandemic. To boost vegetable production to meet the market demand especially during the pandemic, farmers have been supported with greenhouse materials for the production of high-value vegetables for better income generation during the offseason. The crops in the protected cultivation are based on the recommendation of ARDC for prioritized crops for off-season production with a major focusing on chili and tomato cultivation.

#### *1.2.1.1. Protected agriculture and provision of resilient vegetable seeds*

A total of 219 numbers pre-fabricated greenhouses and 68 sets of Protected Agriculture were supported through ARDC benefiting 217 households across all program Dzongkhag based on the Ministry's cost-sharing modality where the beneficiary contributes 20% of the total cost.

Similarly, a total of 204.3 Kg of assorted vegetable seeds has been supported to 9292 households (F-5326) with an area coverage of 612.4 acres.

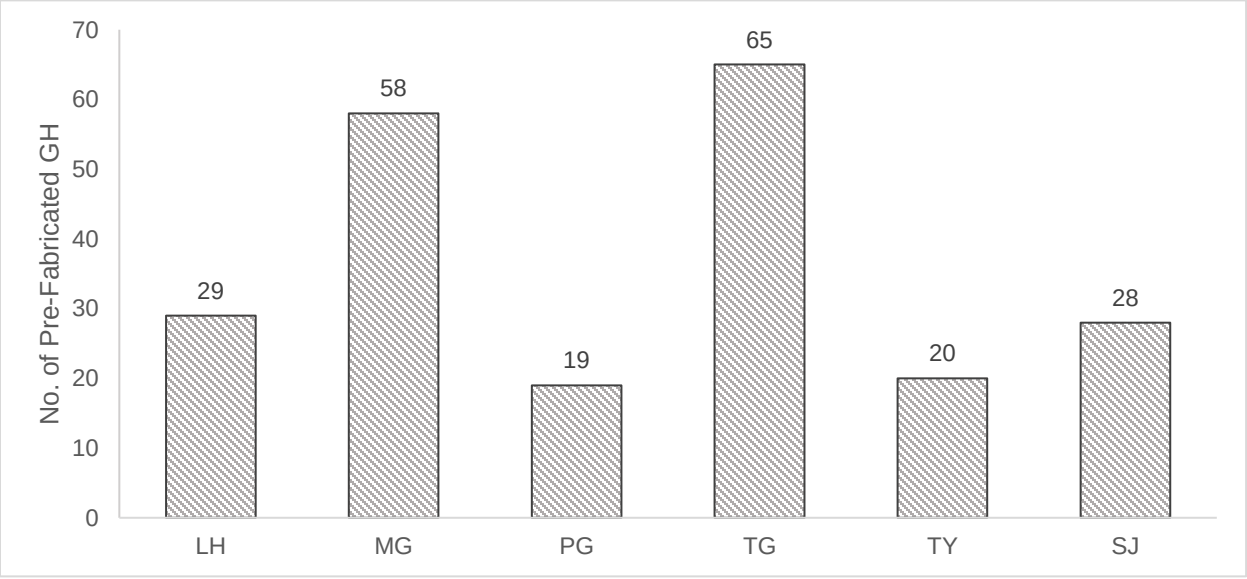



Figure 6. No. of Pre-fabricated GH

Table 3. Dzongkhag wise area under cultivation with total HHs benefited

| Agency | Area cultivated area (Ac) | Male | Female | Total HH |
|---|---|---|---|---|
| Lhuentse | 66.00 | 100 | 140 | 240 |
| Mongar | 114.00 | 300 | 350 | 650 |
| T/Yangtse | 336.00 | 2600 | 3900 | 6500 |
| T/Gang | 42.21 | 185 | 249 | 434 |
| P/Gatshel | 21.60 | 340 | 305 | 645 |
| S/Jongkhar | 32.59 | 441 | 382 | 823 |
| ***Total*** | ***612.4*** | ***3966*** | ***5326*** | ***9292*** |

#### *1.2.1.2. Water efficient irrigation*

The farmers were also supported for vegetable production through enhanced water use efficiency and climate-resilient irrigation systems in the production areas. A total of 2110 sets of sprinklers and 615 drip sets were supported to 2633 farmers (F-1186) under Lhuentse, Trashiyangtse, Trashigang and Samdrupjongkhar Dzongkhags. The supports were mostly provided to farmers venturing into commercial production under protected cultivation.

Table 4. Sprinklers and drips set supported and number of households benefited

| Agency | Sprinklers sets | Total HH | Drip sets | Total HH |
|---|---|---|---|---|
| Lhuentse | 200 | 150 | 50 | 50 |
| T/Yangtse | 1214 | 1214 | 263 | 227 |
| T/Gang | 696 | 696 | 152 | 146 |
| S/Jongkhar | 0 | 0 | 150 | 150 |
| ***Total*** | ***2110*** | ***2060*** | ***615*** | ***573*** |

### 1.2.2. Farmers Capacity Development

To enhance the capacity of the project beneficiaries, post-harvest management training was conducted in two Dzongkhags which include Trashiyangtse and Lhuentse. The training was targeted at farmers, vegetable groups and youth engaged in commercial vegetable production. A total of 564 farmers (F-396) attended training on vegetable post-harvest management and related technologies to acquire knowledge and skills to reduce the post-harvest losses during and after the crop harvest. The awareness on proper product display in the market for more customer attraction was also highlighted during the training.

However, most of the implementing agencies could not implement capacity development programs because of the mass gathering restriction imposed by the Government to prevent the spread of the Coronavirus.

### 1.2.3. Support to ARDC

With limited land for farming, adapting to the impacts of climate change and increasing opportunities for attracting youth in farming, research and development model on hydroponic was initiated at Research and Development Centre as part of the post-training program after some of the researchers availed a training at Chiang Rai Province in Thailand with support from the project in FY2019-2020. The hydroponics system was

Figure 7. Vertical system Hydroponic model in research Center

developed using the Nutrient Film Technique (NFT) and Deep Water Culture (DWC). Vertical Tower System (SBVTS) of Hydroponics was developed for research and development model.

During FY2020-2021, a 9x5m greenhouse-based structure was established with Sprinkler and Vertical Tower System. The hydroponics is constructed with the use of perforated PVC pipes with simple techniques. The techniques unlike others, it does not require separate nutrient solution tanks. The nutrient solution is pushed up with the use of a pump from its base collection and sprinkle from the top with the use of a micro-sprinkler. The whole system is auto operated and can accommodate 2352 plants (lettuce and strawberry) in this system.

As shown in figure 8, another system of hydroponics is initiated and established in ARDC station which is medium-based hydroponics using the trough method and pot method enclosed structure-based of 10 x 5 m. The media used are mosses, coco peat, sawdust and biochar. The potting method is being used for production trials on chili and media trials on strawberries. The trough method is being used for a media trial on tomato and capsicum. The potting method can accommodate 150 plants of tomato and in the trough techniques, 96 plants of chili and strawberry can be accommodated. The total expenditure of the model costs up to Nu. 0.3 million.

Figure 8. Model on Medium based hydroponics

# Output 1.3: Dairy Production Intensified and Expanded

## 1.3.1. Dairy Production Inputs

### *1.3.1.1. Dairy equipment*

The programme supports investments in dairy groups' necessary equipment, such as improved milk cans. Dairy value chain equipment was supplied to the dairy farmer groups (DFG's) in the Programme areas. A total of 73 dairy equipment sets were supplied to the DFG's as shown in table below.

Table 5. Support list of dairy equipment supported

| Dairy equipment type | Total Numbers supplied |
|---|---|
| Cool box | 140 |
| Cream seperator | 9 |
| Butter churner | 3 |
| Refrigerator | 5 |
| Milk cans | 647 |
| Milk analyzer | 3 |
| Deep freezer | 7 |
| Display refrigerator | 13 |
| Milking bucket | 455 |
| Digital bench scale | 13 |
| Lactometer | 100 |
| Cheese vat | 3 |
| Total | **1398** |

### *1.3.1.2. Supply of improved dairy cows*

Increasing milk supply base is made possible through subsidized support to purchase of quality dairy cows and improving the genetics through breed up-gradation. Dairy cows and Heifer importations were initiated pre-COVID-19 pandemic as a fast-track mechanism to increase the smallholder dairy herds thereby enhancing milk production. During the post-COVID-19, internal sourcing of dairy animals was carried out by the Dzongkhags whereby CARLEP supported 30 % while the beneficiaries contributed 70 % of the cost.

Figure 9 shows Dzongkhag wise number of dairy cows supplied through 30 % CARLEP subsidy benefiting 339 households *(M=175; FM=173)*.

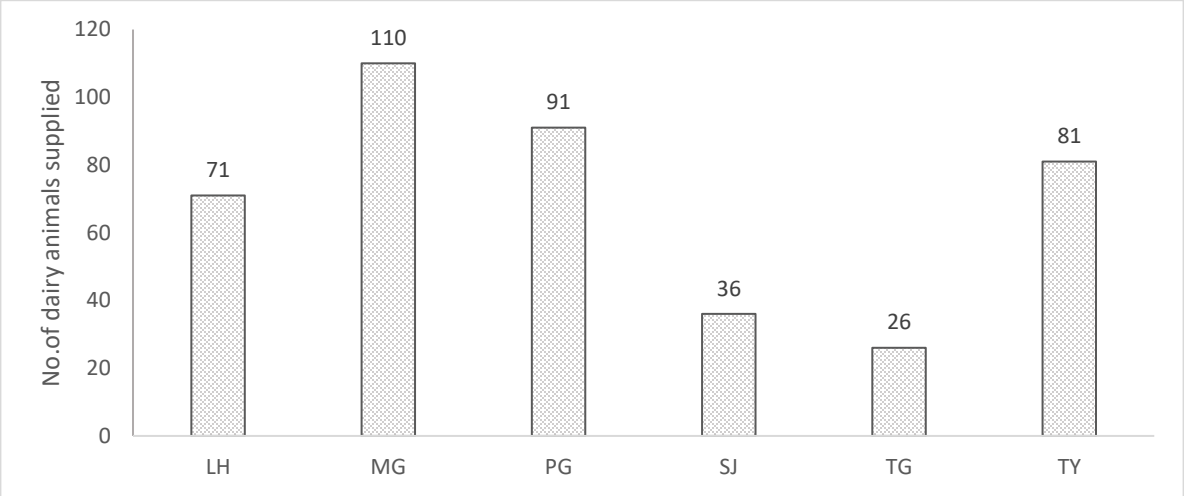



Figure 9. supply of improved cattle

### *1.3.1.3. Hygienic cattle sheds construction*

The CARLEP continues to support dairy farmers in the construction of hygienic cow sheds not only to promote stall feeding and reduce overgrazing in the forests but also to facilitate clean milk production and proper management of cow dung- for use in biogas production. During this FY 2020-2021, CARLEP facilitated the construction of 394 hygienic cow sheds as shown in Figure 10.

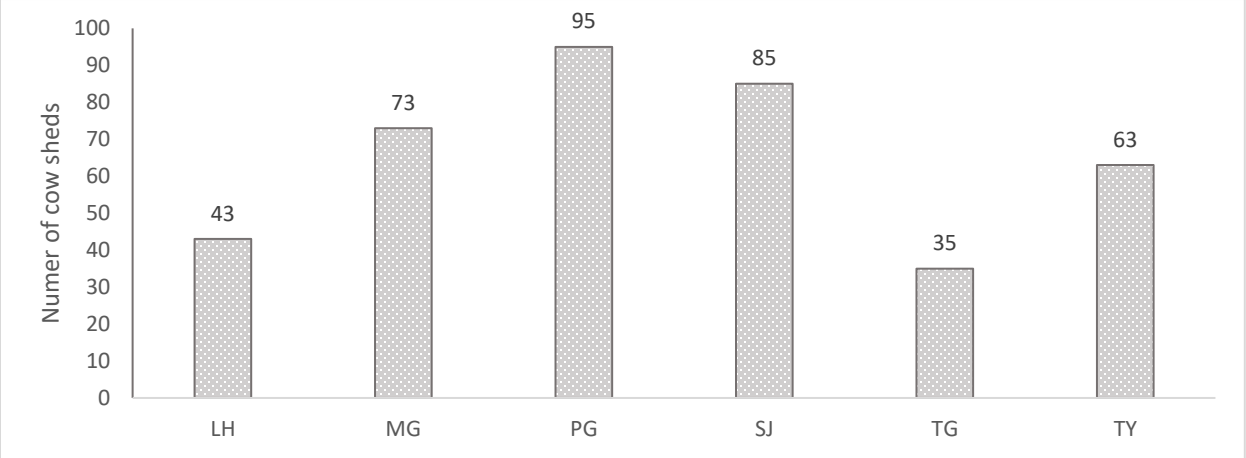



Figure 10. construction of improved cattle shed

### 1.3.2. Dairy Breed Enhancement

#### *1.3.2.1. Breed intensification through CHBPP*

In addition to dairy animals' importation from a neighboring country, the herd build-up program was initiated through the supply of breeding bulls to upgrade local animals, expansion of Contract Heifer and Bull Production program (CHBPP) areas and supply of sex-sorted semen for impregnation of heifers and cows in CHBPP areas. In the FY2020-2021, two breeding bulls were supplied to Lhuentse Dzongkhag benefiting 17 households *(Male=7; Female=10).* In addition, RLDC, Kanglung carried out the expansion of five CHBPP areas benefitting 209 smallholder dairy farmers *(Male= 76; female= 133)* spread across six Dzongkhags. Similarly, 3890 doses of imported sex-sorted semen were supplied to CHBPP sites through RLDC and Dzongkhags.

#### *1.3.2.2. Liquid Nitrogen (LN2) plant construction at RLDC, Khangma*

With the expansion of CHBPP areas and AI centers in the Program Dzongkhags, the demand for Liquid Nitrogen ($LN_2$) to preserve semen has been increasing over the years. With only one $LN_2$ plant at RLDC, Khangma encountering frequent breakdowns, there is a challenge in $LN_2$ production and meeting the demand of the AI centers. To enhance service delivery and cater to AI centers uninterruptedly, LN2 plant construction is ongoing at RLDC, Kanglung with 70% civil works completed

### 1.3.3. Improved Livestock Service Outreach

#### *1.3.3.1. Improved service outreach through CAIT*

With the rapid growth of livestock sectors in the country, there is a high demand for veterinary services. Community Artificial Insemination Technicians (CAIT) have been the drivers in upgrading dairy breeds, particularly in the Community Heifer and Bull Production Programme (CHBPP) areas. CAIT was instituted in the Programme areas to reach the technology to unreached dairy farmers. Artificial Insemination is slowly gaining popularity among dairy farmers due to higher success in conception rate and satisfying services by the CAITs, the training of more CAIT is of paramount importance.

During FY 2020-2021, A total of 8 CAIT's from the Programme areas were successfully trained on artificial insemination of a cow at Nanong gewog under Pemagatshel Dzongkhag. They have joined the pool of existing six CAIT spread across six Programme dzongkhags.

### *1.3.3.2. Farmers training on dairy management and clean milk production*

Dairy intensification in the Programme areas is aimed towards bringing smallholders to the mainstream dairy value chain loop. However, the process is hindered due to a lack of farmers' skills and knowledge in dairy management and clean milk production. Although most of the dairy farmers have good quality dairy cows, the average milk yield is significantly low due to poor management and inadequate feeding management. To address these challenges, farmers' capacity development programs were supported with fund support from CARLEP in the Programme Dzongkhags. Accordingly, Monggar and Pemagatshel Dzongkhag reported having trained 414 and 536 dairy farmers on dairy management and clean milk production, respectively. Training on clean milk production was prioritized and imparted to those dairy groups who started supplying milk to the dairy plant-based at Chenari, Trashigang. Similarly, dairy management training was focused on the newly formed groups to capacitate themselves in terms of dairy husbandry, record keeping, clean milk production, building social capital and business aspects.

Similarly, RLDC as a nodal agency for livestock development in the region imparted training to the milk collectors and processors on milk processing and milk quality control. A total of 47 farmers consisting of milk collectors and processors received training on milk quality control across the dairy value chain.

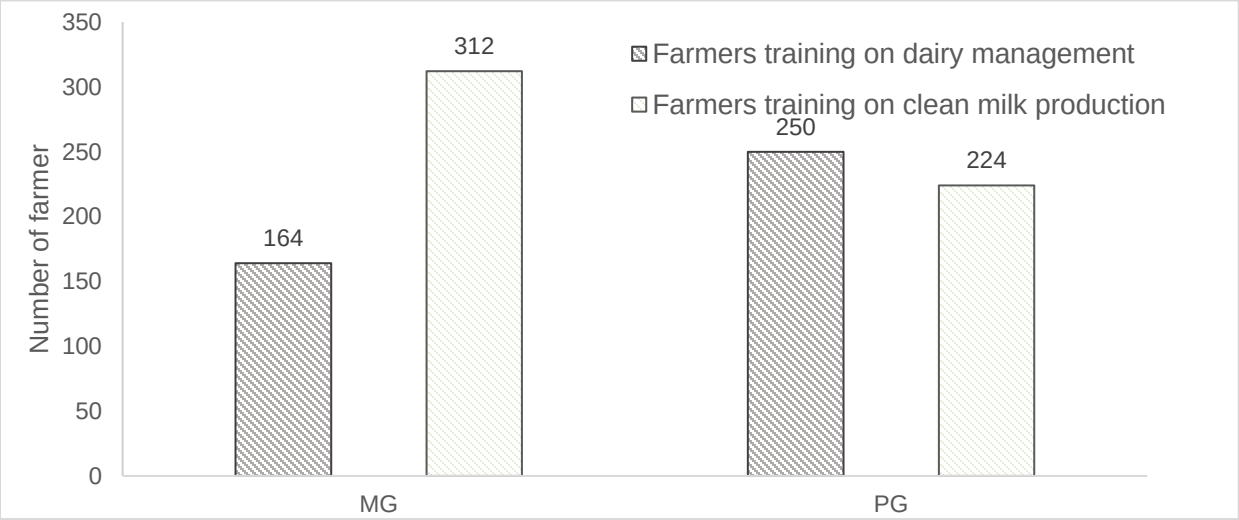



Figure 11. Farmrs taining on clean milk production and dairy management

### 1.3.4. Support to Feed and Fodder Production

#### *1.3.4.1. Promotion of improved pasture*

Pasture development in fallow and marginal land is being facilitated through the supply of improved pasture seeds. Sub-tropical *(Ruzi, molasses and stylo)* and temperate *(Grass mixture which includes Italian Rye grass, Tall fescue, Cocksfoot, white clover)* pasture seeds were supplied to the dairy groups. The amount of pasture seeds supplied against the area of improved pasture developed during FY2020-2021 is indicated in Figure 12.

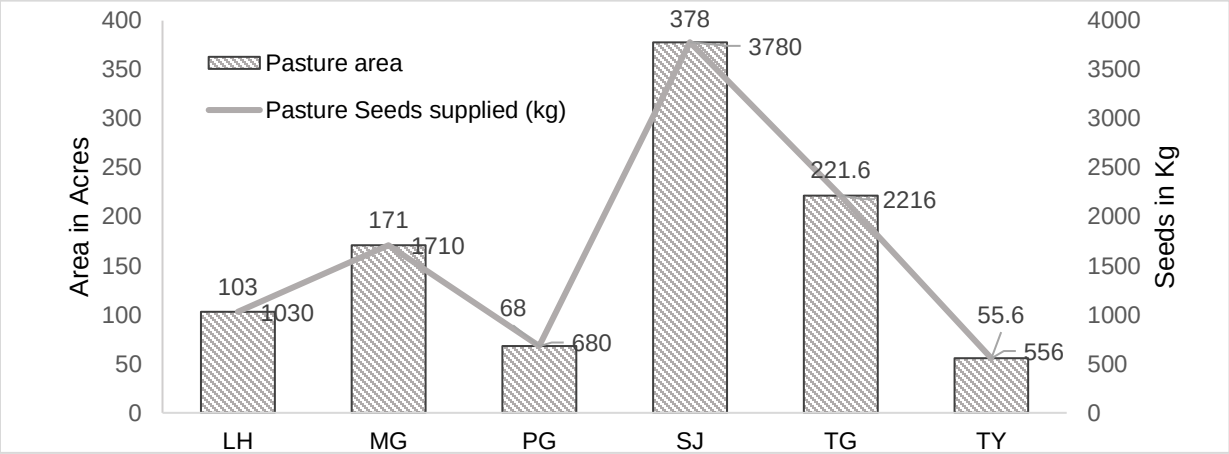



Figure 12. Pasture Development

#### *1.3.4.2. Fodder slips propagation*

*Napier* and *Guatemala* grass has become one of the major sources of forage for cattle in the eastern region. Until recently, the *Pakchong* variety has been introduced for propagation in the farmer's field as it has higher nutritive value besides higher biomass. During the FY 2020-2021, a total of 1,878,400 fodder cuttings covering 181.90 acres of land were propagated in fallow and marginal land as shown in figure 13.

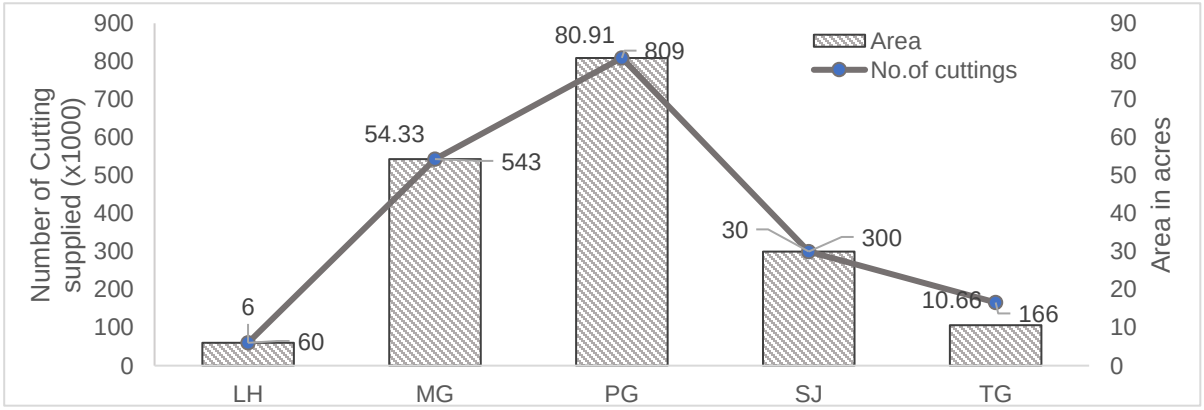



Figure 13. Fodder slips propagation

### *1.3.4.3. Fodder conservation*

Fodder conservation such as silage making and maize stover/paddy straw treatment was carried out by dairy farmer groups to enhance the winter fodder base for maintaining optimum milk yield. With CARLEP supporting fodder conservation inputs, a total of 1238 MT of fodder were reported to be conserved for feeding dairy animals during the lean season (winter) when the fodder resource is scarce.

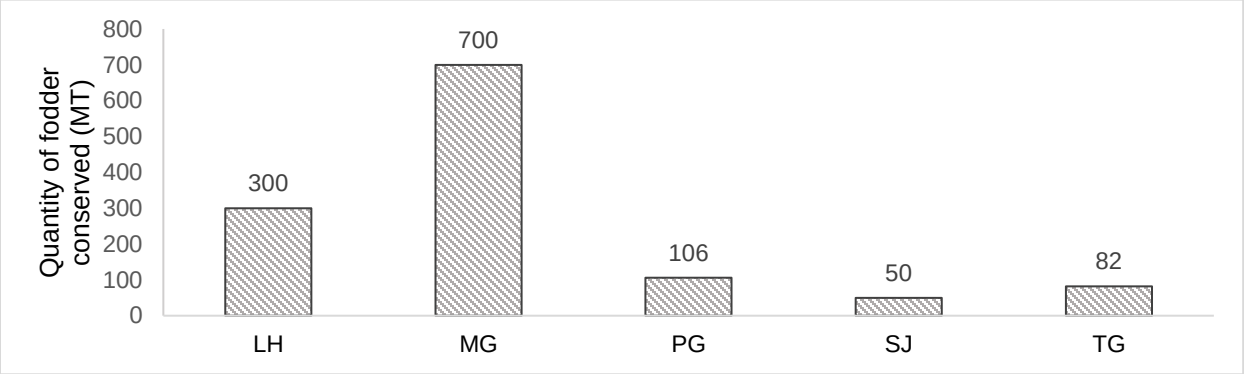



Figure 14. Quantity of fodder conserved

### *1.3.4.4. Winter oat promotion*

CARLEP promotes winter oat cultivation through the supply of seeds to dairy farmer groups. Winter oat cultivation after agriculture crop harvest has helped marginal farmers to utilize agricultural land effectively for winter fodder production. Naked oat is known for its high nutritive value and is considered an important fodder for dairy animals. A total of 39680 kgs of oat seeds were supplied to dairy groups during FY2020-2021. The Dzongkhag wise quantity of seeds supplied and area under oat cultivation is indicated in the figure below.

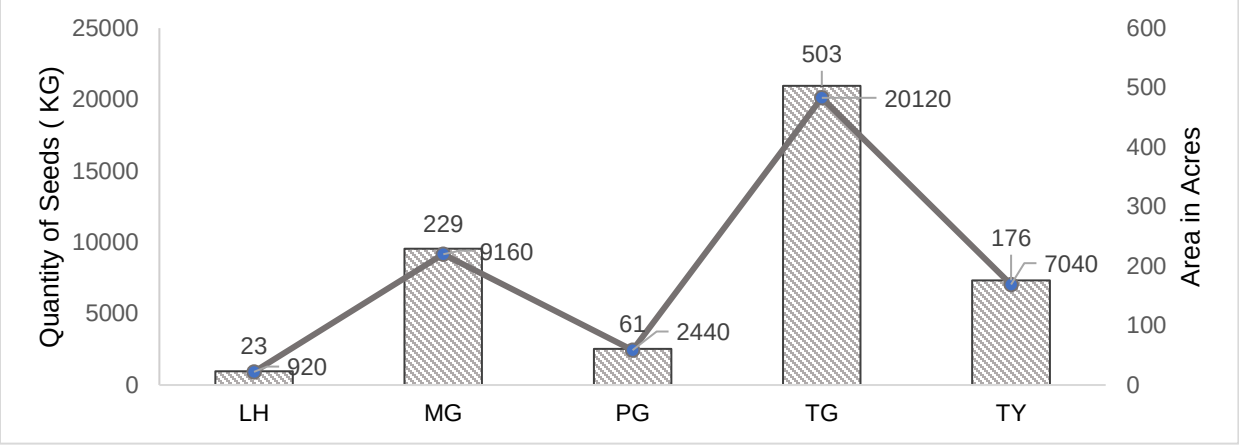



Figure 15. winter oat promotion

### *1.3.4.5. Hydroponic maize fodder promotion*

Hydroponic fodder promotion using maize and soya bean were piloted in a few Dzongkhags to optimize fodder production during winter. The biomass was found to be encouraging and worth scaling up. During the FY 2020-2021, Lhuentse and Samdrup Jongkhar Dzongkhag piloted maize hydroponic fodder with CARLEP supporting production inputs such as greenhouse plastic, trays, gunny sacks and maize seeds. A total of 14 households received support for piloting the technology *(Pemagatshel= 4 households; Samdrup Jongkhar= 10 households).*

### *1.3.4.6. Improved pasture land fencing*

To maintain the sustainability in fodder production, CARLEP continues to support pasture land fencing through subsidy provision for the purchase of barbed wire as per MoAF's cost-sharing mechanism (60% of the cost supported by CARLEP while 40% is borne by the beneficiaries). A total of 97 acres belonging to 95 households *(59 male; 36 female)* were supported with improved pasture land fencing.

### *1.3.4.7. Supply of chaff cutter*

Chopping fodder has always been labor-intensive and time-consuming, thereby discouraging farmers to conserve fodder for use during the lean season. As a solution, subsidy on chaff cutters was provided to dairy farmers to encourage fodder conservation and drudgery reduction, especially for women since women are involved more than men in tending cattle and household chores.

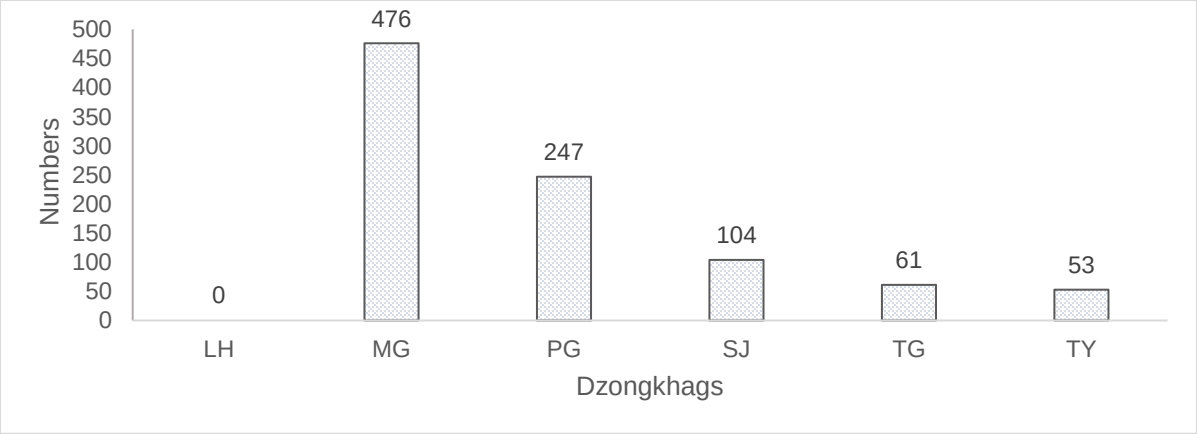



Figure 16. Supply of chaff cutter

A total of 941 chaff cutter sets were supplied to the dairy farmers on cost-sharing mode *(60% CARLEP support and 40% beneficiary contribution).* This intervention has benefited 554 households out of which 53% were women beneficiaries.

# Output: 1.4: Production Related Infrastructure

## 1.4.1. Irrigation Improvement

### *1.4.1.1. Renovation of irrigation canal*

The program supports developing climate-resilient irrigation infrastructure in 6 eastern Dzongkhags through the renovation of the existing dysfunctional gravity-based irrigation system. During FY2020-2021, a total of 6 schemes were planned however, only 3 schemes have been implemented and completed under Trashigang and Mongar and including 1 scheme implemented as spillover under Pemagatshel Dzongkhag.

A total of 4 km length irrigation canal has been renovated catering the irrigation facilities to over 196.88 acres of land benefiting 208 households. Out of 196.88 acres of command area, 100 acres of fallow land have been revived for the cultivation of vegetable and cereal intensification.

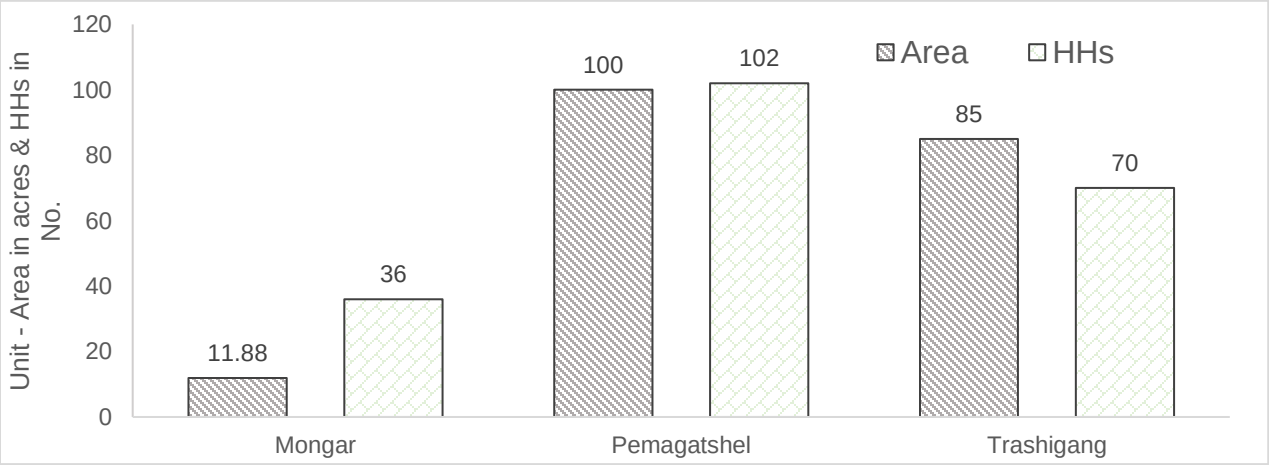



Figure 17. Area under irrigation renovation

### *1.4.1.2. Support to pump irrigation*

A lift/pump irrigation system implemented in Radhi Chuthawoong under Trashigang Dzongkhag was initiated as one of the pilot programs as the gravity-based irrigation is not feasible due to constant floods during the monsoon. Although the works have been coordinated and implemented by ARDC Wengkhar during FY2019-2020, the work could not be completed in the reporting year due to the COVID-19 pandemic. During FY2020-2021, it was taken up as spill over with the budget of Nu. 2.8 million. The work was completed on 26th January 2021 and handed over to the community who are into vegetable commercialization. The distance from the pump house to the storage tank is 530 meters. The water is pumped from the *Gumri* river to a storage tank and distributed to different production areas through distribution networks. The scheme is completed with

a total project cost of Nu. 3.9 million and has benefited 27 households catering for more than 25 acres of land which was completely left fallow due to irrigation constraints. Currently, 27 farmers are engaged fully under a vegetable commercialization program where varieties of vegetables are cultivated in an open field whereas high-value crops such as tomato and chili are cultivated in the Protected structures during the offseason.

Figure 18. Pump irrigation in Chuthawoong in Radhi Gewog

### *1.4.1.3. Dryland irrigation*

Dzongkhags have also implemented dryland irrigation focusing mainly on vegetable production where commercialization is limited by an inadequate supply of water. It also aimed to serve multipurpose use such as household consumption, dairy, poultry and other horticulture activities. During the financial year 2020-2021, a total of 14 schemes has been completed and have benefited 792 households (Female-259) across 6 eastern Dzongkhags. The scheme aims to solve the household water shortage and boost smallholder farmers to maintain homestead nutrition gardens which earlier could not be done due to a shortage of water.

Table 6. Dryland irrigation scheme under each Dzongkhag and households benefited

| Agency | No. of scheme | Total HH | Male | Female |
|---|---|---|---|---|
| Lhuentse | 1 | 19 | 9 | 10 |
| Mongar | 2 | 53 | 20 | 33 |
| Trashiyangtse | 6 | 531 | 390 | 141 |
| Trashigang | 1 | 59 | 39 | 20 |
| Pemagatshel | 1 | 19 | 9 | 10 |
| Samdrupjongkhar | 3 | 111 | 66 | 45 |
| ***Total*** | ***14*** | ***792*** | ***533*** | ***259*** |

### 1.4.2. Electric Fencing

Human-wildlife conflict is one of the major challenges faced by farmers in production enhancement. Farmers from all over the country have lost a large portion of their crops to wild animals every year. Therefore, the human-wildlife conflict has sought national attention in combating the challenges nationwide. In this regard, electric fencing/solar fencing emerged as an avenue for farmers to overcome the human-wildlife conflict and reduce crop losses. A total of 713.6 Km electric fencing have been installed in 6 eastern Dzongkhags and has benefited over 1223 households in combating the crop depredation by wildlife.

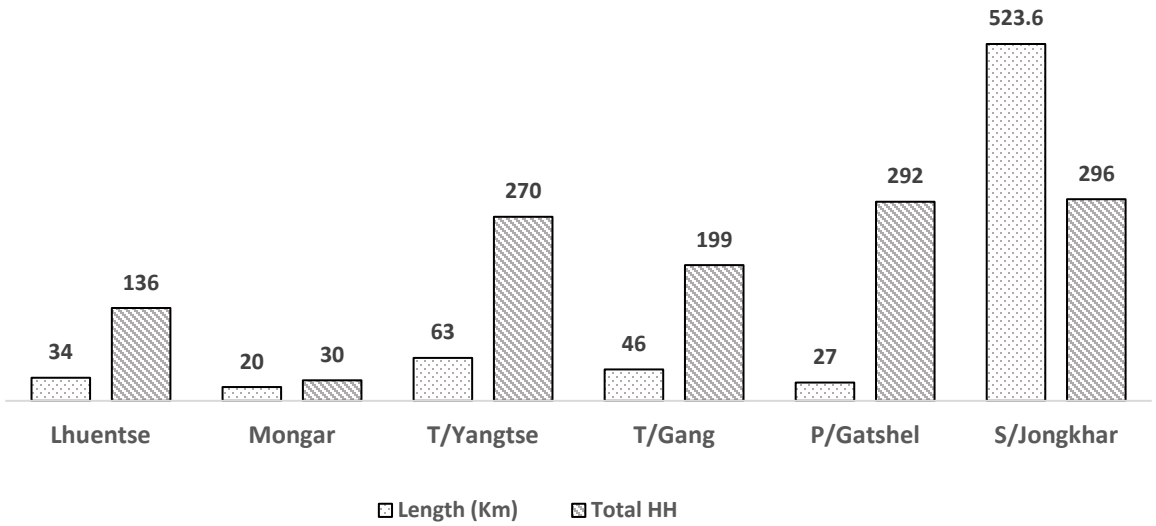



Figure 19. Number of electric fencing supported and households benefited

### 1.4.3. Land Development

The terrain of the land in 6 eastern Dzongkhags is characterized by sloppy terrain with surface stones making farm mechanization very difficult. Similarly, wetland terraces are too narrow and difficult for deploying farm machinery. In line with 12$^{th}$ FYP, CARLEP has prioritized land development as one major intervention for cereal intensification and vegetable commercialization. Agriculture Land Development (ALD) has been implemented based on three categories such as dryland terracing, wetland consolidation and fallow land reversion. A total of 436.31 acres of land has been developed (wetland and dryland) in this fiscal year, of which 121.10 acres of wetland and 28.62 acres of dryland were reverted from fallow land to arable land and benefits 449 HHs across six

eastern Dzongkhags. Likewise, each Dzongkhags has initiated different soil improvement activities through the cultivation of leguminous crops, plantation of grass slips for terrace stabilization and other crops as a post-land development program. Land development has immensely benefited the farmers in the programme areas due to the feasibility of farm mechanization. The farmers reported having reduced work drudgery and saved time. The time saved has been either used in performing other works or spending time with their families.

Table 7. ALD with area coverage and household benefitted

| Agency | Wetland Consolidation | | Dryland terracing | | Wetland fallow revived | | Dryland fallow revived | |
|---|---|---|---|---|---|---|---|---|
| | Area (Ac) | Total HH | Area (Ac) | Total HH | Area (Ac) | Total HH | Area (Ac) | Total HH |
| Lhuentse | 38.18 | 36 | 21.52 | 26 | 00 | 00 | 00 | 00 |
| Mongar | 0 | 0 | 16.29 | 8 | 10.33 | 25 | 9 | 10 |
| Trashiyangtse | 0 | 0 | 35 | 46 | 0 | 0 | 0 | 0 |
| Trashigang | 0 | 0 | 0 | 0 | 20.78 | 40 | 19.62 | 44 |
| Pemagatshel | 0 | 0 | 0 | 0 | 90 | 102 | 0 | 0 |
| Samdrupjong khar | 85 | 85 | 30.6 | 27 | 0 | 0 | 0 | 0 |
| *Total* | *123.18* | *121* | *103.41* | *107* | *121.10* | *167* | *28.62* | *54* |

# COMPONENT 2: VALUE CHAIN DEVELOPMENT AND MARKETING

## Output 2.1: Resilient Vegetable and Dairy Value Chains Developed

### 2.1.1. Developed Resilient Vegetable Value Chain

#### *2.1.1.1. B2B between schools and FGs*

The ARDC Wengkhar in collaboration with the Dzongkhag agriculture sector, with fund support from CARLEP reinforces market-focused production clusters and upscaling into promoting commercial and market-driven farming. However, increasing production is often challenged with marketing issues. The business-to-business (B2B) linkage, a platform of bringing together the producer and the traders while addressing the constraints and gaps through innovative solutions to improve business for the successful vegetable value chain has been initiated by RAMCO. In FY2020-21, RAMCO organized two Multi-Stakeholder Platform (MSP) at Mongar & Trashiyangtse. The agency has up-scaled the B2B link between farmer groups and schools for the supply of RNR products for the academic year 2021. Under this activity, the agency has facilitated linkages of 76 schools with 154 farmer groups involving 2171 households. The school linking has been carried out mainly to provide an assured and sustainable market to Farmer Group (FGs) and provide fresh and nutritious vegetables to schools. During the linking program, the price for different types of vegetables was discussed and agreed upon between the schools and the farmers' groups followed by the signing of a contractual agreement. The school linking program has encouraged farmer groups to cultivate vegetables on a semi-commercial scale and helped farmers groups to earn income.

#### *2.1.1.2. B2B between KIL, schools and SOEs*

To encourage dairy farmer groups and to minimize the import of dairy products, RAMCO conducted B2B between schools and KOUFUKU International Limited (KIL). The contractual agreement of one year has been signed with 49 schools (47 schools in Trashigang and 2 schools in Mongar) and KIL agreed to supply yogurt, fresh milk, salted butter, cottage and processed cheese to schools for the academic year 2021.

#### *2.1.1.3. Buyback of rajma beans and ginger by Food Corporation Of Bhutan Limited (FCBL)*

RAMCO in-collaboration with Dzongkhags had facilitated the marketing of 86 MT worth of Nu. 4.73 million Rajma beans from the farmers of Trashigang, Mongar and Lhuntse Dzongkhag to FCBL. The total of 51.80 MT worth of Nu. 3.855 million Rajma beans were supplied to schools to substitute lentils (Masur dal) imported from India. FCBL is also

linked with schools to supply meat and vegetables that are not produced within the region. FCBL has exported 1127.77 MT of ginger from the east worth 13.57 million as of June 2021.

### *2.1.1.4. Marketing of early chili*

Chili is the essential commodity for every Bhutanese cuisine and is consumed more as a vegetable rather than spices. As per the survey conducted by RAMCO in 2020, the weekly demand for early chili in the east is 6.115 MT. To fulfill the demand for chili in different markets, RAMCO has facilitated inter Dzongkhags marketing of chili with fund support from CARLEP. As the demand for early chili is high from December to April, Dzongkhag has been suggested to produce early chili to meet the market demand during the offseason.

### *2.1.1.5. Support to FGs to market RNR products during COVID-19 lockdown*

In keeping with the containment of COVID 19 protocols and for the benefit of the public, the Dzongkhag in collaboration with the RAMCO Mongar facilitated marketing of RNR products such as vegetables, fruits, and livestock products within and beyond the region during the national lockdown. RAMCO has stationed one marketing focal person in each Dzongkhag to facilitate the marketing of RNR products. Likewise, RAMCO has identified vegetable aggregators and trader's in-collaboration with Dzongkhags to supply RNR products to different vendors and retailers in the towns identified by the Dzongkhag. This was initiated to maintain a consistent supply of vegetables within the Dzongkhag and region amid the pandemic. A total of 35.3 MT worth Nu.1.4 million vegetables in the programme areas were marketed within the Dzongkhag during the lockdowns.

Table 8. Intra marketing of vegetables and dairy products

| **Sl/No** | Dzongkhag | **Quantity (MT)** | **Income ( Nu in MN)** |
|---|---|---|---|
| 1 | Mongar | 23.117 | 0.640 |
| 2 | Trashigang | 3.550 | 0.240 |
| 3 | Samdrup Jongkhar | 8.6370 | 0.491 |
| | **Total** | **35.304** | **1.371** |

## Output 2.2: Develop Resilient Dairy Value Chain

### *2.2.1. Investment support in vegetable value chain infrastructure*

The development of market infrastructures remains an important element under marketing. It provides a platform for buyers and sellers to meet and have transactions at a designated place and thus enabling better trade of RNR products.

In this fiscal year, a large market facility adjacent to the old large market facility at Trashi Yangtse was constructed. The market facility was built as an immediate solution to address marketing issues. With the new facility put in place, more farmers will be boosted to go for commercial production to meet the demand of the increasing population in the Dzongkhag due to the Kholongchu Hydro Energy Limited (KHEL).
Likewise, the maintenance of the Market shed at Gangola under Mongar was initiated in collaboration with the Dzongkhag. The shed will help farmers of Chali Gewog to sell RNR products to the commuters.

### 2.2.2. Investment Support In Dairy Value Chain Infrastructure

Product aggregation plays a crucial role in channelizing fresh milk from farms to dairy processing units. Due to the smallholding nature of dairy farms and scattered settlements, one milk collection shed was constructed in Pemagatshel dzongkhag; one small-scale MPU was constructed at Minjey under Lhuentse Dzongkhag; and five MCC's were constructed in Monggar (1), Pemagatshel (2) and Trashigang (2) as indicated in the table below. These infrastructures are inevitable as the bulking of fresh milk must be coordinated by putting in place an effective cold chain mechanism to maintain milk quality.

Table 9. Dairy related infrastructure

| | MCS | MPU | MCC | Total |
|---|---|---|---|---|
| Mongar | 0 | 0 | 1 | 1 |
| Pemagatshel | 1 | 0 | 2 | 3 |
| Trashigang | 0 | 0 | 2 | 2 |
| Lhuentse | 0 | 1 | 0 | 1 |
| **Total** | **1** | **1** | **5** | **7** |

These facilities are expected to motivate farmers in the collective marketing of dairy products besides improving hygiene and sanitation.

## Output 2.3: Support to Enterpreneurs and Young farmers

### 2.3.1. Dairy and Poultry Enterprise

Support to enterprise development was implemented mainly to stimulate agricultural investments and business activity. The support was provided to agricultural entrepreneurs, especially youths who are keen on medium and large agribusiness investment. This is to foster long-term investment in agribusiness development contributing to national food security and export to niche markets. During this reporting period, 10 semi-commercial dairy enterprises have been developed in Pemagatshel Dzongkhag with partial support in the form of material for shed construction, fodder development and subsidy for dairy cows/heifers' procurement.

Similarly, 14 poultry entrepreneurs in Pemagatshel Dzongkhag were supported for the establishment of a semi-commercial poultry enterprise. In addition, one commercial poultry enterprise (3000 layer birds) was developed at Lungten Zampa, Samkhar gewog under Trashigang Dzongkhag with CARLEP matching grant scheme. The support mechanism was designed in such a way that 50 % of the investment costs were contributed by entrepreneurs either through Priority Sector Lending (PSL) or self-financing while 50 % was supported by the CARLEP project. The CARLEP also supported two LUC's *(LUC, Tshowompoktor at Trashigang and LUC, Nyamaed at Trashigang)* to establish commercial poultry enterprises. The total number of enterprises developed in this reporting period is shown in table 8.

Table 10. Livestock Enterprise promoted

| Enterprise type | Pemagatshel | Trashigang | Monggar | Total |
|---|---|---|---|---|
| Dairy enterprise (Nos.) | 10 | 0 | 0 | 10 |
| Poultry enterprise (Nos.) | 16 | 1 | 1 | 18 |
| Total | 26 | 1 | 1 | 28 |

# COMPONENT 3: INSTITUTIONAL SUPPORT AND POLICY DEVELOPMENT

## Output 3.1: Strengthening District and Gewog Level Staff

### 3.1.1. Tools and Equipment:

#### *3.1.1.1. Improving market information system*

The sharing of information on price, quantity, aggregators and traders enables producers to negotiate with traders, explore opportunities to market their products and plan for production. To improve market information sharing among stakeholders, weekly market prices of major RNR commodities are collected from six major markets in the region. The market prices are regularly updated on AMIS by the collector. Consistent monitoring has been conducted to ensure prices are regularly updated.

## C. Activities & Outputs: Key Achievement Highlights

The overall programme outreach in this reporting period is 69.89% (20,250 HHs with a target of 28,975) based on the log frame indicator (Without double counting of households). There are 10815 male and 9435 female households beneficiary.

The main achievements of the activities and outputs during the FY 2020-2021 are as highlighted:

a) Inputs for cereals and pulses promotion covering 3083 acres of land has benefited 4484 households (2097 male and 2387 female).
b) 493 sets of materials such as pipes, cement, sprinkler, and drip sets were supplied under the promotion of water use-efficient technology.
c) Inputs supply of 205 kgs of seeds with an area coverage of 797 acres of land has benefited 9569 households, of which 5468 are female beneficiaries.

d) 36 lead farmers (27 male and 9 female) were trained at ARDC and 248 under lead farmer expansion programme through Dzongkhag were initiated.
e) 436.31 acres of land which includes dryland terracing, wetland consolidation and fallow land reversion has been developed benefiting 449 households.
f) 7340 km electric fencing has been installed and has benefited 1483 households to combat the human-wildlife conflict.
g) 223 sets of protected agriculture equipment (Greenhouse with frame structure) were supplied to 250 households for taking up commercial farming of high-value crops.
h) 415 improved cattle procured and distributed to the farmers benefiting 339 households in the dairy communities.
i) 394 cattle shed were constructed with material support such as CGI sheet, cement, ridging and nails, whereas the beneficiary contributed timber and labour for construction.
j) 328.495 acres of land were bought under perennial fodder cultivation to improve animal nutrition and has benefited 1315 households.
k) 560 Chaff Cutter/Chopping machines were supplied and benefited 554 households.
l) 196 units of family-sized biogas plant were installed
m) 158 poor and vulnerable households were supported with backyard poultry farm establishment
n) 2390 doses of sex-sorted semen were supplied to CHBPP areas
o) 5 MCC,1 MPU, and 1 MCS were constructed

## D. Convergence and Partnership

There are other projects such as a Global Climate Change Alliance through European Union (EU-GCCA), Government of India (GoI) supported projects, Highland Research and Development, Gewog and Dzongkhag development grants (RGoB), etc. operating in the same programme Dzongkhags. It is therefore important to synchronize or harmonize the annual work plan and budgeting among the projects and programmes to avoid duplication and to take advantage of synergy and complementing effects.

Virtual meetings were held with officials of FAO based in Bhutan and relevant consultants around the world. The main aim of the meeting was to harmonize and synchronize relevant activities in the field and to share the experiences.

## E. Grant Activities

The two grants – IFAD grant and ASAP trust grant mainly supported the training, farmers group formation, supply of inputs such as seeds, seedlings, water harvesting technologies, permaculture, nursery raising, biogas installations, organizing meetings and workshops, and lead farmers training. Although the grant fund covers training related both In-country and Ex-country, no training was entertained in this fiscal year due to COVID-19 Pandemic.

## F. Constraints/bottlenecks Affecting Component Progress and Actions Taken

The geographical location of the far-flung nature of village settlement has the utmost constraint and bottleneck affecting the overall development in the region. Some of the factors challenging the villagers are: water shortage, wildlife depredation, post-harvest losses, pests and disease among others. Therefore, CARLEP supports efficient irrigation facilities, protected agriculture, irrigation renovation, and electric fencing installation as an immediate solution to address the issues. Besides, the beneficiaries are also provided awareness and capacity-building training to equip the farmers to overcome the challenges.

Similarly, limited access to suitable agricultural land is one of the challenges faced by the agriculture sector. The challenges are further aggravated with the factors such as empty households, and rural-urban migration resulting in fallow land. In this fiscal year, some of the youth have returned to the village and have started commercial farming in the Government lease land and private fallow land for sustainable living. The supports are being rendered to these youths for commercial farming.

## G. Progress Towards Programme Purpose & Goal

The programme aims to facilitate the transformation of subsistence-based agriculture into a sustainable value chain market-driven productive sector by promoting climate-smart approaches in agriculture and strengthening the local or community capacity. The programme is gearing towards the goal and objective of CARLEP. Vegetable and dairy production has been increased. As a result, there has been an increase in the income of smallholder farmers. Likewise, the targeted interventions through the provision of input supports have helped crop diversification, improved household nutrition, enhanced income generation and also built farm resilience for livelihoods enhancement. Besides, the conservation of local crop varieties or native animal breeds has contributed towards resilience building.

Similarly, the promotion of Climate-Smart Agriculture (CSA) technologies through the adoption of pilot Climate-Smart Village (CSV) will help promote different Climate-Smart Agriculture (CSA) technologies through piloting of different models of CSV in different agro-ecological conditions and develop local level evidence for detailed implementation guideline for rolling out CSV models in the region. These interventions will directly contribute to increased rural income and thus reduce rural poverty.

To sustain the value chain, investments are being made in infrastructure development as well as in strengthening the capacities of the farmers' groups and other actors in the value chain. The support in post-harvest technology and product diversification both in vegetables and dairy are expected to help in the establishment of a sustainable value chain.

The overall programme outreach in this reporting period is 69.89% (20,250 HHs with target of 28,975) based on the log frame indicator (Without double counting of households). There are 10815 male and 9435 female households beneficiary reported.

## H. Programme Sustainability

The involvement of communities in irrigation infrastructure management through the establishment of the Water-Users' Association (WUA) is aimed at sustaining the benefits. The cost-sharing mechanism in providing input support is one of the strategies. The beneficiary contribution of 20% is being implemented for the supply of post-harvest equipment and Protected Agriculture (Supply of greenhouse structure) under the vegetable value chain. The farmers contribute 30% of the cost for the purchase of crossbred cattle. Similarly, the beneficiaries contribute labor force and locally available raw materials for the construction of dairy sheds while the programme supports the

purchase of other raw materials such as cement, nails and corrugated iron (CGI) sheets for roofing. The cost-sharing mechanism is being implemented to instill a sense of ownership among the beneficiaries and to motivate farmers in continuing the activities beyond the project period. The programme will continue to emphasize on programme sustainability through sensitization programs.

Further, the involvement of Public-Private-Partnership (PPP) is being solemnly pursued especially for infrastructure with higher investments. In the dairy value chain, the establishment of milk processing units on the PPP model has been initiated. The linking of dairy groups from Trashigang Dzongkhag to Kufouku International Limited (Japan assisted programme) has assured the milk market to the farmers. The programme will closely work with the company to sustain the dairy value chain. Similarly, the involvement of NGOs like the Samdrup Jongkhar Initiatives and Tarayana foundation will strengthen and ensure the implementation of climate change adaptation measures and resilient farming practices through the adoption and expansion of farmer-farmer extensions methodology to make the programme sustainable.

## I. Programme Management

Office of the Programme Management has conducted coordination activities such as preparation of Annual Work Plan and Budget as usual through a virtual meeting. A regular meeting and discussion with the Regional heads, RNR sector heads, Planning Officers, Budget and Account Officers has been conducted. Regular monitoring was carried out through field visits, telephonic conversations, e-mails, and other means of communication. Monitoring of five Dzongkhags was held successfully, However, physical monitoring in Samdrup Jongkhar could not be carried out because of COVID-19 travel restriction Therefore, most of the monitoring was carried out through phone calls, e-mail and virtual meetings.

## J. Financial Management

The financial achievement during FY 2020-2021 FY is 69% with an increase of 5% compared to last year's progress achievement of 64%. The achievement is based on the annual revised planned target.

Table 11. Consolidated financial progress for FY 2020-2021

| Financial Progress Report for CARLEP for FY 2020-2021 | | | |
|---|---|---|---|
| Amount in BTN "Million" | | | |
| **AGENCY** | **REVISED AMOUNT** | **TOTAL EXPENDITURE** | **ACHIEVEMENT (%)** |
| ARDC | 34.410 | 31.909 | 93% |
| RAMCO | 7.900 | 7.386 | 93% |
| S/JONGKHAR | 42.781 | 37.255 | 87% |
| TRASHIYANGTSE | 42.768 | 30.345 | 71% |
| OPM | 26.708 | 18.491 | 69% |
| LHUENTSE | 24.134 | 16.414 | 68% |
| TRASHIGANG | 30.576 | 19.538 | 64% |
| PEMAGATSHEL | 47.881 | 28.040 | 59% |
| RLDC | 10.100 | 5.804 | 57% |
| MONGAR | 51.532 | 25.326 | 49% |
| **Grand Total** | **318.790** | **220.508** | **69%** |

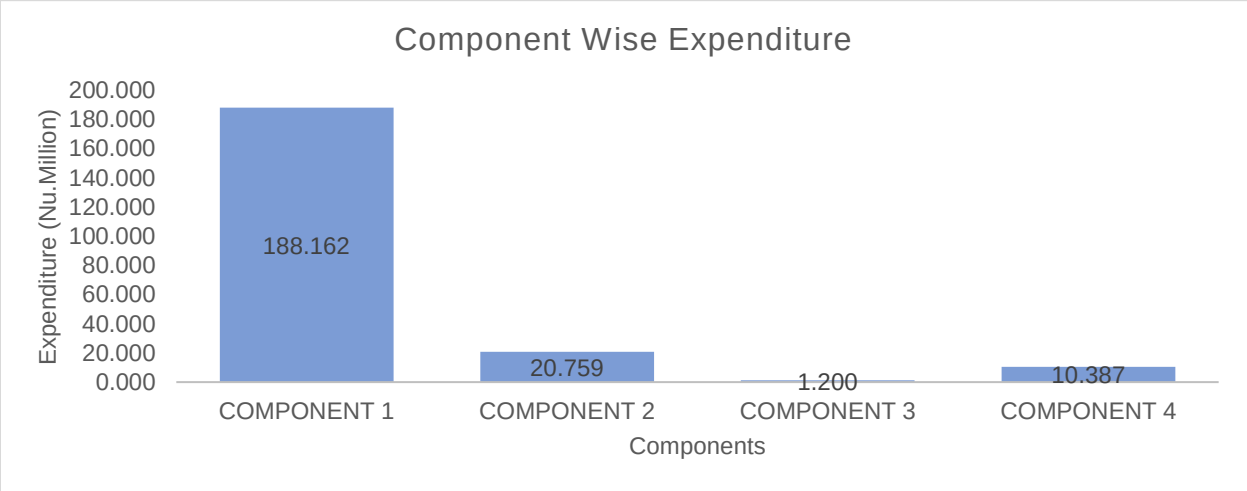



Figure 20. Component wise expenditure

Table 12. Expenditure in Fund Souce Categories

Fund Source Wise

Data

| FUND SOURCE | **Sum of TOTAL EXPENDITURE** | **Sum of RGoB CONTR.** | **Sum of BENEFICIARY CONTRIBUTION** |
|---|---|---|---|
| ASAP | 63.258 | 0.000 | 1.994 |
| GRANT | 5.396 | 0.000 | 0.000 |
| LOAN | 147.049 | 0.000 | 11.720 |
| RGOB | 4.805 | 7.368 | 0.000 |
| **Grand Total** | **220.508** | **7.368** | **13.714** |

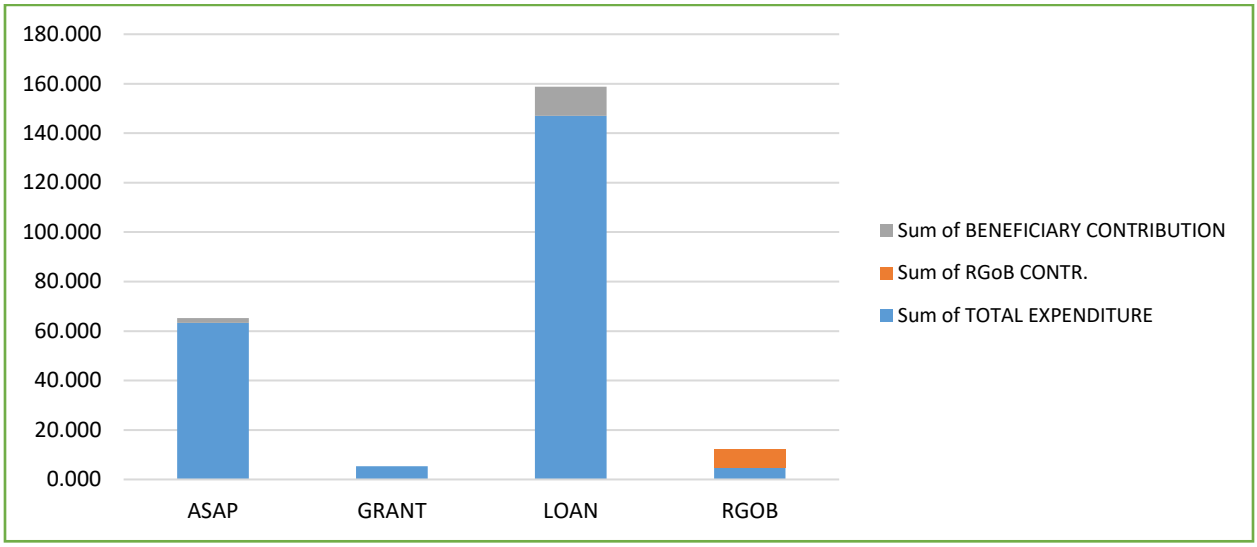



Figure 21. Expenditure sorted in funding sources.

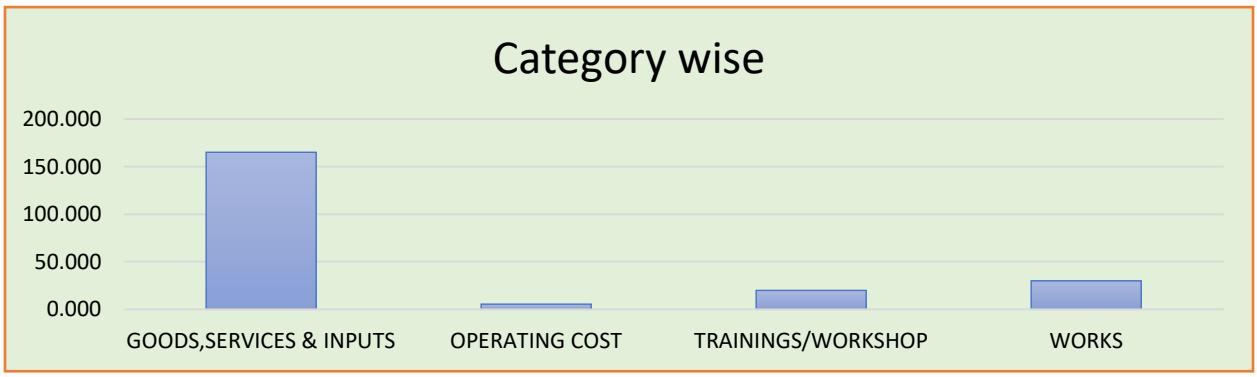



Figure 22. Categories wise expenditure

## K. Procurement

The procurement plan is based on the IFAD guideline and implemented as per the plan. In every Annual Work Plan and Budget (AWPB) meeting, all the reverent officers are made aware of the procurement guidelines and asked to make a procurement plan based on the work plan. The sanction is based on the procurement plan and gets the funds released in the OPM.

## L. Gender and Knowledge Management

Knowledge Management (KM) is considered an integral part of CARLEP. KM is about facilitating the processes by which knowledge is created, shared, replicated, and used in changing people's attitudes, behaviors and work patterns thereby improving the performance and effectiveness of the programme. This facilitation under CARLEP is guided by the IFAD knowledge value chain concept which advocates a strong connection between KM and M&E.

The programme recognizes the importance of Knowledge and its contribution to the following outcomes such as i) Improved programme performance and results through enhanced learning, knowledge sharing and dissemination/communication; ii)Enhanced information management system (IMS) to ensure better access to reliable information and knowledge iii) Improved engagement, partnership and collaboration with the programme implementing partners in KM.

Since its inception, CARLEP has done substantial work related to knowledge management and dissemination including the compilation of stories, articles, pamphlets and audio-visual documentation. In FY 2020-2021, the Office of the Programme Management (OPM), CARLEP and Agriculture Research and Development Center (ARDC) Wengkhar has put in extra effort to translate field expertise into video documents/ tutorial videos to create awareness and educate people, especially farmers on advanced farming technologies, practices, and management. To date, CARLEP has produced 18 audio-visual documentation, of which 9 videos have been produced with the in-house capacity of Programme Office and ARDC Wengkhar during FY 2020-2021. Likewise, the making of a video on Oyster Mushroom production is underway.

List of the KM Products produced this fiscal year are listed below:

1. How To Make Shiitake Mushroom Spawn
2. Hydroponic Fodder: An Innovative Solution To Green Fodder Shortage
3. Persimmon Grafting: How To Do Side-Veneer Grafting On Temperate Fruit
4. Pear Fruit Thinning

5. Kiwi Training And Pruning
6. Tashi: The First Woman Community AI Technician In The East
7. Tongphugang Farmers Take Up Protected Tomato Cultivation
8. Drying Local Persimmon In Solar Dryer
9. Making Your Organic Nutrient Solution

Likewise, the programme has also produced a pamphlet on hydroponic fodder production to guide our farmers towards increasing fodder availability in areas facing a shortage of fodder through hydroponic. All these KM Products were disseminated through various social media platforms i.e. IFADASIA Facebook page, CARLEP Facebook page, YouTube Channel (KMG Production-ARDC Wengkhar and OPM), Official WeChat Group, and the official web page for the replication and adoption of the programme activities. As our videos and success stories showcasing are limited to a few social media platforms, it was observed that only a few farmers were able to access our videos. In this regard, we have connected with 24 local cable operators in eastern Bhutan to telecast our videos (DVDs/CDs) through local channels to grasp wider audiences or farmers for more outreach and knowledge dissemination.

CARLEP has been organizing the annual write-shop to enhance the writing skills and techniques of the extension staff for proper documentation. However, the write-shop for this fiscal year could not be conducted due to the mass gathering restriction in the light of COVID-19.

**Gender**

The project explores and facilitates the promotion of need-based gender-friendly farm machinery, technologies, equipment & tools such as chaff cutter, corn sheller, quinoa de-husking, protected agriculture, electric dryers, electric fryers, weighing and sealing machine, Flexi-biogas, mini-power tillers, and also facilitate the promotion of efficient water use technologies such as drip irrigation, sprinkler, and automated irrigation to ease the burden of women farmers and enhance production. Likewise, training on climate-smart technologies is also facilitated to enhance community resilience to climate change.

CARLEP also supports the formation of women's groups to ensure active participation of women in project-related activities, decision-making bodies and committees. Likewise, the programme promotes a proportionate representation of women beneficiaries in training and capacity development programmes of farmers groups/cooperatives. Moreover, the development of thematic knowledge products related to gender and women empowerment is also given importance and emphasized in gender mainstreaming. A video focusing on women titled "Tashi: The first Woman Community AI

Technician in the East ” has been produced this fiscal year to encourage more women to take up CAIT jobs, which is stigmatized as Men’s jobs. Likewise, stories on a woman beneficiary of CARLEP will be featured in the 4th issue of Stories of Change.

For the total beneficiaries of 27,583 reported in FY2020-2021, the number of women beneficiary is 14,057 which is about 1% higher than the total male beneficiary.

Table 13. farmers beneficiary by gender

| ***Sector support*** | ***Male*** | ***Female*** |
|---|---|---|
| Agriculture related | 8623 | 8581 |
| Livestock related | 3605 | 3576 |
| Marketing and management related | 1298 | 1910 |
| Total | 13526 | 14057 |

In this fiscal year, CARLEP in collaboration with the National Commission for Women and Children(NCWC) planned a leadership training exclusively targeted to women farmers including youth aiming to empower and strengthen the competencies of potential female members of the FGs and Cooperatives/enterprises with leadership skills to take up leadership roles. However, the training could not be conducted due to the restriction on mass gathering in light of the COVID-19 pandemic.

## M. Summary of Lessons Learned

Annual Work Plan and Budgeting is a critical part of the project phase. The programme Management stresses more on the preparation of the Annual Work Plan and Budgeting and provides proper guidelines to the implementors. However, there is a need for improvement in planning to get the realistic target and budget estimation.

Multi-Stakeholders Platform (MSP) is found to be an important tool to address and strengthen the value chain. RAMCO is mandated for upscaling and expansion of the programme but proactive involvement of all other stakeholders is also imperative to improve and complement the procedures. RAMCO has subsequently engaged in a school linking programme but the same principle has to be applied for the larger market for mass benefits of our clients.

The dairy value chain model has been successfully adopted with smallholder milk producers linking to Koufuko International Limited (Dairy Plant) based at Trashigang. KIL serves as an assured market for fresh milk produced by dairy farmers in the eastern region. The milk payment system is based on the milk quality supplied to the factory in

which the factory makes a monthly payment to the smallholder milk suppliers besides providing credit for feed. Currently, 13 dairy farmer groups (DFG) are linked and are actively supplying milk to KIL. The milk is transported from MCC in a tanker funded by CARLEP.

As vegetable value chain development is challenged with a multitude of factors including, wildlife depredation, pest and diseases outbreaks, and water shortage among many others, the progress in VVC development is immeasurable. Therefore, the promotion of protected agriculture and adoption of Climate-smart agriculture technologies in certain areas of the programme areas have been recommended to produce off-season vegetables. Likewise, the facilitation of hi-tech and good post-harvest management needs to be taken care of to enhance the vegetable value chain.

## N. Conclusions and Recommendations for Follow-up

The overall physical outreach is 69.89% with financial achievement is 69.00% as well.

The planning phase has been improved in such a way that all the implementing agencies are required to prepare a work plan based on the farmer`s need including climate resilience and environmentally sustainable practices for ensuring sustainable value chain development. The farmer`s needs are taken on board with adding the sub-activity within activity, output, and component in the CARLEP.

Starting from the next fiscal year 2021-2022, OPM is coming up with a new M&E Portal for AWPB preparation, Progress reporting and data management. All the Gewog extension staff will be trained on the M&E system. The portal will ensure better transparency, accountability and complacency during the implementation of the CARLEP activities in the field. The portal will also help the implementing agencies to maintain proper records.

The sustainability of the youth involvement in farming is skeptical due to the countless withdrawal of group members under the Land Use Certificate to date. Therefore, an assessment or a separate study on youth needs to be conducted to make farming a wonderful avenue for youths.

Commercial vegetable farming with improved technology such as a hi-tech greenhouse or protected agriculture needs to be established in the periphery of the potential market.

Although all implementing agencies have put in their best efforts to complete the planned activities within the timeframe, the inevitable timely procurement of materials from third countries and India amid the pandemic delayed the work completion.

Moreover, farmers have been encouraged to grow more agricultural produces to meet the market demand regardless of the situation. With the two national lockdowns imposed in the country, many people have shown interest in farming and have started backyard kitchen gardens. Nonetheless, CARLEP along with implementing agencies was able to help farmers for mass production and keep the entire consumer satisfied.

## Annexure 1. Progress Report Matrix (2020-2021)

Table 14. Annual Progress Report Matrix

| OUTPUT | Sub Activity | Indicator | Unit | Annual Target | Annual Achi. | Annual Exp. | Appraisal Target | Cumulative Achi. | Achi. % | Financer |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.1.A | Climate Smart Agriculture Production and Management | | | | | | | | | |
| 1.1.A | Upgrading of existing farmer groups (Agriculture) | No. of farmers Groups upgraded | No. | 4 | 5 | 0.299 | 300 | 54 | 18 | ASAP |
| 1.1.A | Upgrading of existing farmer groups (Livestock) | No. of farmers Groups upgraded | No. | | 1 | | 150 | 20 | 13.33 | ASAP |
| 1.1.A | Training of extension agents | No. of EAs trained | No. | 0 | 0 | | 420 | 81 | 19.29 | ASAP |
| 1.1.A | Production inputs for farm resilience and diversification, Vegetable seed (Agriculture) | Area under farm resilience and diversification | Acre | 732 | 746 | 4.376 | 7414 | 3847.2 | 51.89 | LOAN |
| 1.1.A | Production inputs for farm resilience and diversification (Livestock - Poultry) | No of native poultry units promoted | No. | 217 | 158 | 3.432 | 300 | 516 | 172 | ASAP |
| 1.1.A | Production inputs for farm resilience and diversification (Livestock - Piggery) | No. of native piggery units promoted | No. | 0 | 0 | | 150 | 30 | 20 | ASAP |
| 1.1.A | Production inputs for farm resilience and diversification (Livestock - Goat) | No. of goat promoted | Nos. | 0 | 0 | | 150 | 0 | 0 | ASAP |
| 1.1.A | Promotion of SLM techniques | Area under SLM | Acres | 0 | 0 | | 200 | 77 | 38.5 | LOAN |
| 1.1.A | wet land consolidation (land development) | Area under land development | Acres | 120 | 38.2 | 2.591 | 450 | 534.69 | 118.82 | LOAN |
| 1.1.A | Dryland terracing (land development) | Area under land development | Acres | 285 | 103 | 2.605 | 450 | 201.7 | 44.82 | LOAN |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.1.A | Fallow land conversion (land development) | Area under land development | Acres | 490 | 150 | 4.761 | 450 | 293.73 | 65.27 | LOAN |
| 1.1.A | Local germplasm collection, conservation and promotion | No. of lines | No. | 0 | 0 | | 100 | 78 | 78 | ASAP |
| 1.1.A | Crop diversification(Cereals, oil seeds, pulses) | Area under diversification | Acre | 3515 | 2472 | 8.252 | 3000 | 5488.7 | 182.96 | LOAN |
| 1.1.A | Mushroom intensification | No. of mushroom entrepreneurs established | No. | 13 | 13 | 3.5 | 150 | 26 | 17.33 | ASAP |
| 1.1.A | Promote integrated nutrition garden | Area under kitchen garden | Acres | 41,7 | 50 | 1.997 | 100 | 50 | 50 | ASAP |
| 1.1.A | Green manure crops | Area under green manure | Acres | 75 | 60 | 0.1 | 120 | 60 | 50 | ASAP |
| 1.1.A | Train CBSP farmers on hybrid maize | No. of people trained | No. | 30 | 6 | 0.46 | 70 | 30 | 42.86 | ASAP |
| 1.1.A | Upscale of pineapple production | Area under pineapple | Acre | 10 | 1 | 0.275 | 100 | 10 | 10 | ASAP |
| 1.1.B | Innovation through Permaculture & Biogas | | | | | | | | | |
| 1.1.B | Farm level rainwater harvesting infrastructure | No. of infrastructure established | No. | 50 | 10 | 2.513 | 162 | 26 | 16.05 | LOAN |
| 1.1.B | Tree crop seedlings | Area covered | Acre | 0 | 0 | | 300 | 104 | 34.67 | LOAN |
| 1.1.B | Inputs for permaculture (agriculture) | Sets of tools supplied | set | 3 | 10 | 7.605 | 36 | 21 | 58.33 | ASAP |
| 1.1.B | Inputs for permaculture (livestock) | No. of units supported | No. | | 0 | 0 | 36 | 14 | 38.89 | ASAP |
| 1.1.B | Bee Keeping | No. of household supported | No. | 148 | 221 | 2.02 | 600 | 259 | 43.17 | ASAP |
| 1.1.B | Nursery set up (Agriculture) | No. of nurseries set up | No. | 0 | 0 | | 50 | 24 | 48 | ASAP |
| 1.1.B | Nursery set up (Livestock) | No. of nurseries set up | No. | 0 | 0 | | 6 | 5 | 83.33 | ASAP |
| 1.1.B | Staff training on permaculture | No. of training | No. | | 1 | | 2 | 2 | 100 | ASAP |
| 1.1.B | Farmers training on permaculture | No. of farmers trained | No. | | 4 | | 250 | 201 | 80.4 | ASAP |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.1.B | Permaculture materials & translation | No. of materials published | set | | 0 | | 25 | 4 | 16 | ASAP |
| 1.1.B | Biogas digester | No. of biogas digester promoted | No. | 248 | 196 | 4.58 | 1412 | 568 | 40.23 | ASAP |
| 1.1.B | TA biogas | No. of TA recruited | No. | 0 | 0 | | 1 | 0 | 0 | ASAP |
| 1.1.B | Capacity building on biogas technology /a | No. of training | No. | 0 | 0 | | 76 | 1 | 1.32 | ASAP |
| 1.1.B | Electric fencing | Length of the fencing | km | 600 | 740 | 9.899 | 90 | 1074.6 | 1194 | LOAN |
| 1.1.B | Promotion of solar dryers | No. of dyer | No. | 0 | 0 | | 36 | 1 | 2.78 | ASAP |
| 1.1.B | Support to LUCs | lumpsum | No. | 4 | 4 | 0.997 | 6 | 16 | 266.67 | LOAN |
| 1.1.C | Innovation through ICTs | | | | | | | | | |
| 1.1.C | Hand-held tablets, software and soil test kits | No. of ICT tools introduced | No. | 0 | 0 | | 100 | 32 | 32 | ASAP |
| 1.1.C | Training on tablet-based soil monitoring technology | No. of training conducted | No. | 0 | 0 | | 4 | 0 | 0 | ASAP |
| 1.1.C | Training on report writing documentation and information sharing | No. of training conducted | No. | 0 | 0 | | 5 | 3 | 60 | ASAP |
| 1.1.C | Pilot e-reporting system | No. of e-reporting system | No. | 0 | 0 | | 1 | 1 | 100 | LOAN |
| 1.1.C | Information management dissemination | No. of publication | | 10 | 9 | 0 | 50 | 9 | 18 | LOAN |
| 1.1.D | Increase Outreach of Extension Services | | | | | | | | | |
| 1.1.D | Strengthening & expansion of the Lead Farmer Model | | | | | | | | | |
| 1.1.D | Training of trainers (ToT) (Agriculture) | No. of ToT conducted | No. | 0 | 0 | | 14 | 14 | 100 | ASAP |
| 1.1.D | Training of lead farmers | No. of lead farmers trained | No. | 20 | 36 | 1.25 | 240 | 184 | 76.67 | ASAP |
| 1.1.D | Development of training material and field manuals | No. of training materials developed | No. | | 0 | | 13 | 7 | 53.85 | ASAP |
| 1.1.D | Expansion of lead farmers | No. of lead farmers trained | No. | 129 | 248 | 5.61 | 1300 | 808 | 62.15 | LOAN |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.1.D | Farmer field festivals/field day | No. of Farmers field festivals convened | No. | 6 | 1 | 0.36 | 63 | 33 | 52.38 | ASAP |
| 1.1.D | Workshops (planning, review, evaluation) | No. of Workshops conducted | No. | 6 | 2 | 0.99 | 20 | 19 | 95 | GRANT |
| 1.1.D | Documentation and systematization | Documents produced | No. | | 0 | | 3 | 2 | 66.67 | GRANT |
| 1.1.D | Protected gear kits for extensions | No. of Kits supplied | No | 2 | 2 | 0.006 | 100 | 2 | 2 | LOAN |
| 1.1.D.2 | Demonstration inputs & equipment for lead farmers | | | | | | | | | |
| 1.1.D.3 | Production inputs Protected agriculture | Area covered under protected agriculture | No. | | 0 | | 130 | 4247 | 3266.9 | LOAN |
| 1.1.D.4 | Poly-tunnels | No. of poly-tunnels set up | No. | | 0 | | 35 | 105 | 300 | LOAN |
| 1.1.D.5 | Protected greenhouse with structures set | No. of poly-tunnels set up | No. | 156 | 223 | 14.463 | 60 | 235 | 391.67 | LOAN |
| 1.1.E | Resilient & Water Use Efficient Irrigation Development | | | | | | | | | |
| 1.1.E | Training on Climate Resilient Irrigation | | | | | | | | | |
| 1.1.E | District engineers and extension agents (design and construction) | No. of DEs and EAs trained on climate resilient irrigation | No. | | 0 | | 100 | 20 | 20 | ASAP |
| 1.1.E | Water Users Associations (O&M) | No. of WUAs trained on Climate resilient irrigation | event | | 0 | | 33 | 29 | 87.88 | ASAP |
| 1.1.E | Preparation of manual for upgrading irrigation engineering norms | Manual for upgrading Irrigation Engineering norms prepared | No. | | 0 | | 1 | 0 | 0 | ASAP |
| 1.1.E.2 | Irrigation Infrastructure | | | | | | | | | |
| 1.1.E.3 | Feasibility studies | No. of Feasibility studies conducted | No. | 10 | 4 | 0.273 | 2 | 6 | 300 | LOAN |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.1.E.4 | Renovation of irrigation infrastructure | Irrigation Infrastructure renovated (Area coverage) | Acre | 96 | 20 | 3.6 | 3052 | 2724 | 89.25 | LOAN |
| 1.1.E.5 | Pilot irrigation schemes | No. of Pilots irrigation schemes developed | No. | 1 | 1 | 2.8 | 26 | 3 | 11.54 | LOAN |
| 1.1.E.6 | Quality control and supervision | No. of quality control and supervision conducted | No. | | 0 | | 12 | 0 | 0 | LOAN |
| 1.1.E.7 | Water efficient irrigation and promotion of efficient technologies | No. of improved irrigation system | No | 13 | 21 | 21.696 | 18 | 42 | 233.33 | LOAN |
| 1.1.E.8 | Pump irrigation network up to field edge | No. of pump irrigation | No. | 1 | 1 | 2.8 | 20 | 3 | 15 | LOAN |
| 1.1.E.9 | Promote sprinkler irrigation system | No. of sets | Set | 295 | 2110 | 3.578 | 5000 | 2110 | 42.2 | LOAN |
| 1.1.E.10 | Support- supply of drip sets | No. od sets | Set | 350 | 150 | 3.75 | 300 | 150 | 50 | LOAN |
| | Water source protection/catchment area | No. of site | site | 1 | 4 | 4 | 10 | 4 | 40 | ASAP |
| 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. | 1 | 1 | | 3 | 1 | 33.33 | ASAP |
| 1.1.F | Upgrading of farm roads to climate resilient standards | No. or length of farm roads upgraded to climate resilient standards | No./Km | | 0 | | 32 | 0 | 0 | ASAP |
| 1.1.G | Technical Assistance (C1) | | | | 0 | | | | | |
| 1.1.G | Recruitment of National TA done | No. of TA recruited | No. | | 0 | | 6 | 0 | 0 | ASAP |
| 1.2.A | Development of training and extension material | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.2.A | Training & extension material developed | No. of training & extension materials developed | No. | | 0 | | 20 | 8 | 40 | ASAP |
| 1.2.B | Capacity Development of Vegetable Production Groups | | | | | | | | | |
| 1.2.B | Awareness & Mobilization | | | | | | | | | |
| 1.2.B | Awareness and mobilization carried out (Agriculture) | No. of awareness & mobilization conducted | No. | 3 | 3 | 0.149 | 104 | 59 | 56.73 | ASAP |
| 1.2.B.2 | Training on Production Techniques & Post-harvest Management | | | | 0 | | | 0 | | |
| 1.2.B.3 | Training on vegetable production techniques | No. of farmers training conducted | No. | | 0 | | 390 | 93 | 23.85 | ASAP |
| 1.2.B.4 | Retraining on vegetable production techniques | No. of farmers training conducted | No. | | 0 | | 790 | 8 | 1.01 | RGoB |
| 1.2.B.5 | Training on post-harvest management | No. of farmers trained on post-harvest management | No. | 480 | 542 | 1.55 | 390 | 842 | 215.9 | ASAP |
| 1.2.B.6 | Retraining on post-harvest management | No. of farmers retrained on post-harvest management | No. | | 0 | | 790 | 5 | 0.63 | RGoB |
| 1.2.B.7 | Exchange visits for farmers | No. of exchange visits | No. | | 0 | | 18 | 12 | 66.67 | |
| 1.2.B.8 | Training on preparation of bio pesticides | No. of farmers training conducted | No. | 10 | 4 | 0.6 | 20 | 4 | 20 | ASAP |
| 1.2.C | Vegetable Seed Research & Production | | | | 0 | | | 0 | | |
| 1.2.C | Training and certification of vegetable seed growers | No. of vegetable seed growers trained on seed certification | No. | | 0 | | 130 | 27 | 20.77 | ASAP |
| 1.2.C | Equipment and input support vegetable seed growers | No. of Equipment supplied to veg. seed growers | No. | 1 | 1 | 0.05 | 130 | 18 | 13.85 | LOAN |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.2.C | Retraining of vegetable seed growers | No. of veg. seed growers retrained | No. | | 0 | | 195 | 6 | 3.08 | RGoB |
| 1.2.C | Seed processing units vegetable seed farm NSC | No. of seed processing units supported | No. | | 0 | | 2 | 1 | 50 | LOAN |
| 1.2.C | Glasshouse construction vegetable seed farms NSC | No. of glasshouse constructed | No. | | 0 | | 2 | 1 | 50 | LOAN |
| 1.2.D | Provision of Vegetable Production Inputs | | | | | | | | | |
| 1.2.D | Provision of stress tolerant vegetable seeds | Quantity of vegetable seeds supplied | Acre | 732 | 796 | 3.736 | 3000 | 1484.2 | 49.47 | ASAP |
| 1.2.D | Small post-harvest equipment | No. of small post-harvest equipment promoted | No. | | 1 | | 730 | 45 | 6.16 | LOAN |
| 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 | | 78 | 1 | 1.28 | ASAP |
| 1.3.A | AI Services expansion & CAIT established | Unit of semen | semen | 2000 | 500 | 2.943 | | 3657 | 0 | LOAN |
| 1.3.A | Training on AI | No. of people trained | No. | 44 | 8 | 0.3 | | 711 | 0 | ASAP |
| 1.3.B.1 | Awareness & Mobilization | | | | | | | | | |
| 1.3.B.2 | Awareness & Mobilization Carried Out (Livestock) | No. of Dairy groups sensitized and mobilized | No. | | 0 | | 95 | 27 | 28.42 | ASAP |
| 1.3.B.2 | Training on Good Dairy Management Practices | | | | | | | | | |
| 1.3.B.3 | Training on livestock husbandry | No. of dairy groups or individuals trained on livestock husbandry | No. | 430 | 166 | 0.363 | 150 | 250 | 166.67 | ASAP |
| 1.3.B.4 | Retraining on livestock husbandry | No. of dairy groups or individuals retrained on livestock husbandry | | | 0 | | 420 | 9 | 2.14 | RGoB |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.3.B.5 | Training on clean milk production | No. of dairy groups or individuals trained on clean milk production | No. | 312 | 312 | 0.596 | 150 | 386 | 257.33 | ASAP |
| 1.3.B.6 | Retraining on clean milk production | No. of dairy groups or individuals retrained on clean milk production | No. | | 0 | | 420 | 28 | 6.67 | RGoB |
| 1.3.B.7 | Training on farm record keeping | No. of dairy groups or individuals trained on farm record keeping | No. | | 0 | | 65 | 74 | 113.85 | ASAP |
| 1.3.B.8 | Retraining on farm record keeping | No. of dairy groups or individuals retrained on farm record keeping | No. | | 0 | | 420 | 18 | 4.29 | RGoB |
| 1.3.C | Improved Services Outreach through CAHWs & Lead Farmers | | | | | | | | | |
| 1.3.C | CAHW Model | | | | | | | | | |
| 1.3.C | CAHW model development and packaging | No. of CAHW model developed | No. | | 0 | | 2 | 1 | 50 | LOAN |
| 1.3.C | Training of trainers (ToT) | No. of ToT conducted on CAHW & lead farmers | No. | 2 | 0 | 0.702 | 2 | 1 | 50 | ASAP |
| 1.3.C | Training of CAHWs | No. of CAHWs trained | No. | | 0 | | 105 | 82 | 78.1 | ASAP |
| 1.3.C | Retraining of CAHWs | No. of CAHWs retrained | No. | | 0 | | 80 | 0 | 0 | RGoB |
| 1.3.C | Kits for AI practitioner | No. of Kits supplied | No. | | 0 | | 80 | 32 | 40 | ASAP |
| 1.3.C | Transport facilities for CAHWs | No. of CAHWs supported with transport facilities | No. | | 0 | | 75 | 0 | 0 | ASAP |
| 1.3.C | AI service expansion & CAIT establishment breed intensification through sex sorted semen | No. of CAIT established | Semen | | 0 | | 5100 | 10 | 0.2 | ASAP |
| 1.3.C | Breed intensification through community breeding bull services | No.of bulls supplied | No. | 8 | 2 | 0.149 | 75 | 9 | 12 | ASAP |
| 1.3.C | Breed intensification through CHBPP | No. of breed intensification | semen | 5000 | 1500 | 0.332 | 2295 | 200 | 8.71 | LOAN |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.3.C | Stipend for CAHWs | Amount disbursed | Nu. | | 0 | | 90 | 0 | 0 | LOAN |
| 1.3.C | Sero surveillance of animal diseases | No. of samples | No. | 2000 | 859 | 0.7 | 2000 | 859 | 42.95 | ASAP |
| 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 | 306 | 275 | 2.903 | 1633 | 2208.8 | 135.26 | LOAN |
| 1.3.D | Winter fodder crop demonstration and seed supply | Area under Winter fodder | Acre | 945 | 1377 | 5.282 | 1885 | 4685.7 | 248.58 | LOAN |
| 1.3.D | Training of feed producers | No. of feed producers trained | No. | | 0 | | 200 | 60 | 30 | ASAP |
| 1.3.D | Chopping machine (for dairy groups) | No. of chopping machines supplied | No. | 372 | 560 | 9.579 | 947 | 975 | 102.96 | LOAN |
| 1.3.D | Training on use of crop residues and feed/fodder | No. of training conducted | No. | | 0 | | 40 | 50 | 125 | ASAP |
| 1.3.D | Collection of indigenous fodder germplasm | No. of germplasm | No. | 6 | 8 | 0.091 | 45 | 48 | 106.67 | LOAN |
| 1.3.D | Planting native species fodder | Area under native Fodder spp. | Acre | | 0 | | 150 | 0 | 0 | LOAN |
| 1.3.D | TMR facilities for youth | No. of unit | No. | | 0 | | 5 | 0 | 0 | LOAN |
| 1.3.D | Inputs for hydroponic production | No. of site | No. | 7 | 10 | 0.55 | 50 | 10 | 20 | LOAN |
| 1.3.D | Inputs supply for fodder conservation such as silage making | MT | MT | 5000 | 94 | 0.5 | 5000 | 94 | 1.88 | LOAN |
| 1.3.D | supply of barbed wire for pasture fencing | Area of pasture land | Acres | 85 | 97 | 0.875 | 250 | 97 | 38.8 | ASAP |
| 1.3.E | Provision of Dairy Production Inputs | | | | | | | | | |
| 1.3.E | Milk cans | No. of Milk cans supplied | No. | 21 | 73 | | 2000 | 862 | 43.1 | LOAN |
| 1.3.E | Cross-breed cattle | No. of cross-breed cattle supported | head | 265 | 415 | 10.959 | 2600 | 1374 | 52.85 | LOAN |
| 1.3.E | Shed construction | No. of sheds constructed | unit | 157 | 394 | 9.382 | 2000 | 1745 | 87.25 | LOAN |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.3.E | Equipment dairy production groups | No. of equipment supplied to dairy producer groups | No. | 21 | 73 | 5.64 | 147 | 124 | 84.35 | LOAN |
| 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. | | 0 | | 450 | 7 | 1.56 | ASAP |
| 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 | | 0 | | 3 | 1 | 33.33 | LOAN |
| 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 | | 0 | | 3 | 1 | 33.33 | LOAN |
| 2.1.D | Value Chain Development, Strengthening and Expansion | | | | | | | | | |
| 2.1.D | Multi Stakeholders facilitation process | No. of stakeholders engaged or consulted | No. | 2 | 92 | 0.25 | 10 | 102 | 1020 | LOAN |
| 2.1.E | Technical Assistance (C2) | | | | | | | | | |
| 2.1.E | National/External TA | No. of National/External TA recruited | No. | | 0 | | 6 | 0 | 0 | ASAP |
| 2.2.B | Support to Marketing Groups | | | | | | | | | |
| 2.2.B | Awareness on marketing groups | No. of Marketing groups sensitized | No. | 30 | 5 | 1.2 | 200 | 115 | 57.5 | LOAN |
| 2.2.B | Strengthening of existing marketing and cooperative capacity development packages | No. of marketing & cooperative capacity development packages strengthened | No. | 5 | 1 | 0.129 | 3 | 4 | 133.33 | LOAN |
| 2.2.C | Training on Marketing Groups | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.2.C | Formation of vegetable marketing groups | No. of vegetable marketing groups formed | No. | | 0 | | 230 | 26 | 11.3 | LOAN |
| 2.2.C | Formation of dairy marketing groups | No. of dairy marketing groups formed | No. | | 0 | | 150 | 20 | 13.33 | LOAN |
| 2.2.C | Training in marketing & value-chain | No. of groups or individual farmers trained on marketing & value-chain | No. | 10 | 7 | 0.192 | 450 | 53 | 11.78 | ASAP |
| 2.2.C | Training in packaging & handling | No. of groups or individual farmers trained on packaging & handling | No. | | 0 | | 415 | 38 | 9.16 | ASAP |
| 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. | | 0 | | 2 | 1 | 50 | LOAN |
| 2.2.D | Entrepreneur identification and engagement process | No. of entrepreneurs identified and engaged | No. | 1 | 1 | | 1 | 1 | 100 | LOAN |
| 2.2.D | Enterprise developed | No. of enterprise developed | No. | 11 | 11 | 0.4 | 50 | 15 | 30 | LOAN |
| 2.2.E | Other Trainings to Groups, Cooperatives & Entrepreneurs | | | | | | | | | |
| 1 | Training provided to other groups and entrepreneurs | No. of groups, coops & entrepreneurs trained | No. | | 0 | | 50 | 34 | 68 | ASAP |
| 2.2.F | Multi-stakeholder Platforms & Network development | | | | | | | | | |
| 2.2.F.1 | Multi-stakeholder platforms and network development | | | | | | | | | |
| 2.2.F.2 | Multi-stakeholder platforms and networks developed | No. of platforms & networking established | No. | | 0 | | 5 | 2 | 40 | LOAN |
| 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. | 1 | 1 | | 3 | 2 | 66.67 | LOAN |
| 2.3.A | Development of business plans for 3 windows shops | No. of Developments windows shops convened | No. | 10 | 1 | 0.75 | 2 | 2 | 100 | LOAN |
| 2.3.B | Vegetable Value-chain, Post-harvest & Market Infrastructure & Equipment | | | | | | | | | |
| 2.3.B | Value-chain equipment | No. of value-chain equipment promoted | No. | 8 | 7 | 5.548 | 12 | 8 | 66.67 | LOAN |
| 2.3.B | Value-chain infrastructure | No. of value-chain infrastructure put in place | No. | 13 | 22 | 6.073 | 8 | 5 | 62.5 | LOAN |
| 2.3.B | Support to KIL | lumpsum | No. | 5 | 0 | 0.129 | 5 | 0 | 0 | LOAN |
| 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. | 6 | 6 | 3.08 | 44 | 52 | 118.18 | LOAN |
| 2.3.C | Construction of milk collection shed (MCS) | No. of MCS constructed | No. | 17 | 1 | 0.3 | 180 | 25 | 13.89 | LOAN |
| 2.3.C | Milk processing unit (MPU) | No. of milk processing unit established | No. | 1 | 1 | 1.725 | 24 | 13 | 54.17 | LOAN |
| 2.3.C | Milk chilling van | No. of milk chilling van provided | No. | | 0 | | 4 | 3 | 75 | LOAN |
| 3.1.A | Strengthening of the DAMC Market Information System | | | | | | | | | |
| 3.1.A | Strengthening of the DAMC market information system | DAMC MIS strengthened | MIS | | 0 | | 2 | 0 | 0 | LOAN |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 3.1.A | Equipment related to Market Information System upgrade | No. of equipment supplied for MIS upgradation | No. | | 0 | | 4 | 3 | 75 | LOAN |
| 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 | | 2 | 0 | 0 | ASAP |
| 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 | | 2 | 0 | 0 | ASAP |
| 3.2.B | Mainstreaming climate resilience and value chain development lessons in agricultural policies | | | | | | | | | |
| 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 | | 3 | 0 | 0 | ASAP |
| 3.2.C | Development of a regulatory framework for PPP | | | | | | | | | |
| 3.2.C | Regulatory Frameworks for PPP | A regulatory framework for PPP developed | Framework | | 0 | | 2 | 0 | 0 | ASAP |
| 3.2.D | Technical Assistance (C3) | | | | | | | | | |
| 3.2.D | National/International TA | No. of Nationals/International TA recruited | No. | | 0 | | 4 | 0 | 0 | ASAP |
| 3.2.D | Support budget RNR training and education institutes | Amount supported | No. | | 0 | | 3 | 0 | 0 | ASAP |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 3.2.D | Support budget climate resilience mainstreaming | Amount supported | No. | | 0 | | 4 | 0 | 0 | ASAP |
| 3.2.D | Support budget PPP regulatory framework | Amount supported | No. | | 0 | | 3 | 0 | 0 | ASAP |
| 4.1. | Project Management Unit | | | | | | | | | |
| 4.1.A | Material & Equipment | | | | | | | | | |
| 4.1.A | Vehicles | No. of vehicles purchased | No. | | 0 | | 11 | 3 | 27.27 | ASAP |
| 4.1.A | Laptops | No. of laptops purchased | No. | | 0 | | 37 | 25 | 67.57 | GRANT |
| 4.1.A | Printer | No. of printers purchased | No. | | 0 | | 15 | 10 | 66.67 | GRANT |
| 4.1.A | Scanner | No. of scanners purchased | No. | | 0 | | 4 | 1 | 25 | GRANT |
| 4.1.A | Photocopier heavy duty | No. of heavy duty photocopier purchased | No. | | 0 | | 3 | 1 | 33.33 | GRANT |
| 4.1.A | Office equipment | Sets of office equipment purchased | Set | | 0 | | 28 | 5 | 17.86 | GRANT |
| 4.1.B | Capacity Building | | | | | | | | | |
| 4.1.B | Training on gender | No. of staff trained on gender | No. | | 0 | | 3 | 1 | 33.33 | ASAP |
| 4.1.B | Training on knowledge management | No. of staff trained on KM | No. | 1 | 1 | 0.048 | 4 | 2 | 50 | ASAP |
| 4.1.B | Training on monitoring and evaluation | No. of staff trained on M&E | No. | | 0 | | 5 | 2 | 40 | ASAP |
| 4.1.B | Training on financial management | No. of staff trained on FM | No. | | 0 | | 12 | 4 | 33.33 | ASAP |
| 4.1.B | Training and workshop for OPM staff | No. of training | Event | | 0 | | 12 | 0 | 0 | ASAP |
| 4.1.C | Coordination | | | | | | | | | |
| 4.1.C | Coordination meetings with dzongkhags | No. of Dzongkhags coordination meeting held | No. | 3 | 1 | 0.874 | 20 | 16 | 80 | GRANT |
| 4.1.D | Food Corporation of Bhutan | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4.1.D.1 | Material and equipment | | | | | | | | | |
| 4.1.D.2 | Materials and Equipment Procured for FCBL | No. of Materials and equipment procured by FCBL | No. | | 0 | | 6 | 2 | 33.33 | LOAN |
| 4.1.E | Monitoring & Evaluation | | | | | | | | | |
| 4.1.E | Baseline and impact studies | No. of baseline & impact studies conducted | No. | | 0 | | 1 | 1 | 100 | GRANT |
| 4.1.E | Programme Supervision Mission | No. Of Mission | No. | 4 | 2 | 0.988 | 17 | 7 | 41.18 | GRANT |
| 4.1.E | Annual outcome surveys | No. of AOS conducted | No. | 1 | 1 | 0.316 | 7 | 3 | 42.86 | LOAN |
| 4.1.E | Other surveys/studies | No. of survey/studies conducted | No. | | 1 | | 9 | 1 | 11.11 | LOAN |
| 4.1.E | Mid-term review | Mid-term review conducted | Mission | | 0 | | 1 | 1 | 100 | GRANT |
| 4.1.E | Project completion report | PCR prepared | Report | | 0 | | 2 | 0 | 0 | GRANT |
| 4.1.E | MIS | No. of MIS | No. | 1 | 1 | 0.2 | 4 | 1 | 25 | GRANT |
| 4.1.E | Software development for M&E | No. of MIS | No. | | 1 | | 2 | 1 | 50 | GRANT |
| 4.1.E | Study tours and learning visits (Both in-country and overseas) | | | | 0 | | 9 | 7 | 77.78 | ASAP |
| 4.1.F | Knowledge Management | | | | | | | | | |
| 4.1.F | Printing and publications | No. of quality KM products published | No. | 5 | 9 | 0.16 | 12 | 20 | 166.67 | GRANT |
| 4.1.F | Setting up IMS (CARLEP Webpage) | Web page established | No. | | 0 | | 1 | 1 | 100 | GRANT |
| 4.1.F | Workshops and meetings | No. of workshops & meetings conducted | No. | 9 | 3 | 1.387 | 11 | 7 | 63.64 | ASAP |
| 4.2.A | OPM, Mongar | | | | | | | | | |
| 4.2.A | National Program Director | No. of months Paid | Months | 12 | 12 | 0.6 | 126 | 72 | 57.14 | RGoB |
| 4.2.A | Finance Manager | No. of months Paid | Months | 12 | 12 | 0.6 | 126 | 72 | 57.14 | RGoB |
| 4.2.A | Accountant | No. of months Paid | Months | 12 | 12 | 0.6 | 126 | 72 | 57.14 | RGoB |
| 4.2.A | M&E and Gender Manager | No. of months Paid | Months | 12 | 12 | 0.6 | 126 | 72 | 57.14 | RGoB |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4.2.A | Project Support Officer | No. of months Paid | Months | 12 | 12 | 0.6 | 126 | 72 | 57.14 | RGoB |
| 4.2.A | KM Officer | No. of months Paid | Months | 12 | 12 | 0.6 | 126 | 72 | 57.14 | RGoB |
| 4.2.A | Component Manager (Agriculture Production) | No. of months Paid | Months | 12 | 12 | 0.6 | 126 | 72 | 57.14 | RGoB |
| 4.2.A | Component Manager (Livestock Production) | No. of months Paid | Months | 12 | 12 | 0.6 | 126 | 72 | 57.14 | RGoB |
| 4.2.A | Component Manager (Value-chain and Marketing) | No. of months Paid | Months | | 0 | | 126 | 60 | 47.62 | RGoB |
| 4.2.A | Dy. Manager-RAMCO | No. of months Paid | Months | | 0 | | 126 | 0 | 0 | RGoB |
| 4.2.A | Office Assistant | No. of months Paid | Months | | 12 | | 126 | 12 | 9.52 | RGoB |
| 4.2.A | Driver (x2) | No. of months Paid | Months | | 12 | | 252 | 12 | 4.76 | RGoB |
| 4.2.B | Liaison Office, Thimphu | | | | | | | | | |
| 4.2.B | IFAD Focal Officer, PPD | No. of months Paid | Months | | 0 | | 126 | 0 | 0 | |
| 4.2.B | IFAD Focal Officer, AFD | No. of months Paid | Months | | 0 | | 126 | 0 | 0 | |
| 4.2.C | Operating Cost, Project Management Unit | | | | | | | | | |
| 4.2.C | Vehicle operation and Maintenance | No of Vehicles | LPS | | 1 | | | 1 | 0 | RGoB |
| 4.2.C | Maintenance of Building | Lump sum | LPS | | 1 | | | 1 | 0 | RGoB |
| 4.2.C | Maintenance of Equipment | Lump sum | LPS | | 1 | | | 1 | 0 | RGoB |
| 4.2.C | Utilities - telephone, internet, electricity, water, sewerage, fax, post, etc. | Lump sum | LPS | | 1 | | | 1 | 0 | RGoB |
| 4.2.C | Office supplies | Lump sum | LPS | | 1 | | | 2 | 0 | GRANT |
| 4.2.C | Travel and Meetings | Lump sum | LPS | | 0 | | | 0 | 0 | RGoB |

# Annexure 2: Stories of Vegetable and Dairy Products Marketing during National Lockdown

## A Case of Eastern Dzongkhags During National Lockdown

In keeping with the containment of COVID 19 protocols and for the benefit of the public, the Dzongkhag in collaboration with the RAMCO Mongar facilitated the marketing of farm products such as vegetables, fruits, and livestock products within and beyond the region during the national lockdown. Likewise, a price fixation for vegetables including operational cost, handling losses and overhead charges was implemented by the Ministry of Agriculture and Forests to prevent exorbitant rates charged by wholesalers and retailers during COVID -19 lockdown and also to facilitate the purchase of our local produce for further distribution to the consumers. The government also initiated paying the cost of production price and buying back the produces from farmers to save the farmers from going into a total loss. While the extension agents in the different gewogs were assigned in the aggregation and facilitation of the vegetables and dairy products in collaboration with respective Dzongkhag aggregators, the Dzongkhag agriculture officers along with the frontline workers assured access to essential items and services in their locality while assuring a non-compromising strategy of disease transmission.

## A Scenario in Lhuentse Dzongkhag during National Lockdown

he Lhuentse Dzongkhag produced a total of twenty-seven tons of vegetables including 4 tons of chili, 9.4 tons of potato, 0.4 tons of onion, 6.5 tons of cabbage, and 1.5 ton of other commodities such as tomato, spinach, broccoli, cauliflower, bitter guard, chives, coriander, ginger, etc. Besides, 0.06 ton of Mushrooms and 0.5 ton of fruits (apple, pear and watermelon) were delivered to schools, institutions, temples and residents within the Dzongkhag. The Dzongkhag aggregators and the team spared no efforts in sourcing

Figure 23. Vegetable and Fruits collected from farmers of Lhuentse for Marketing during national lockdown

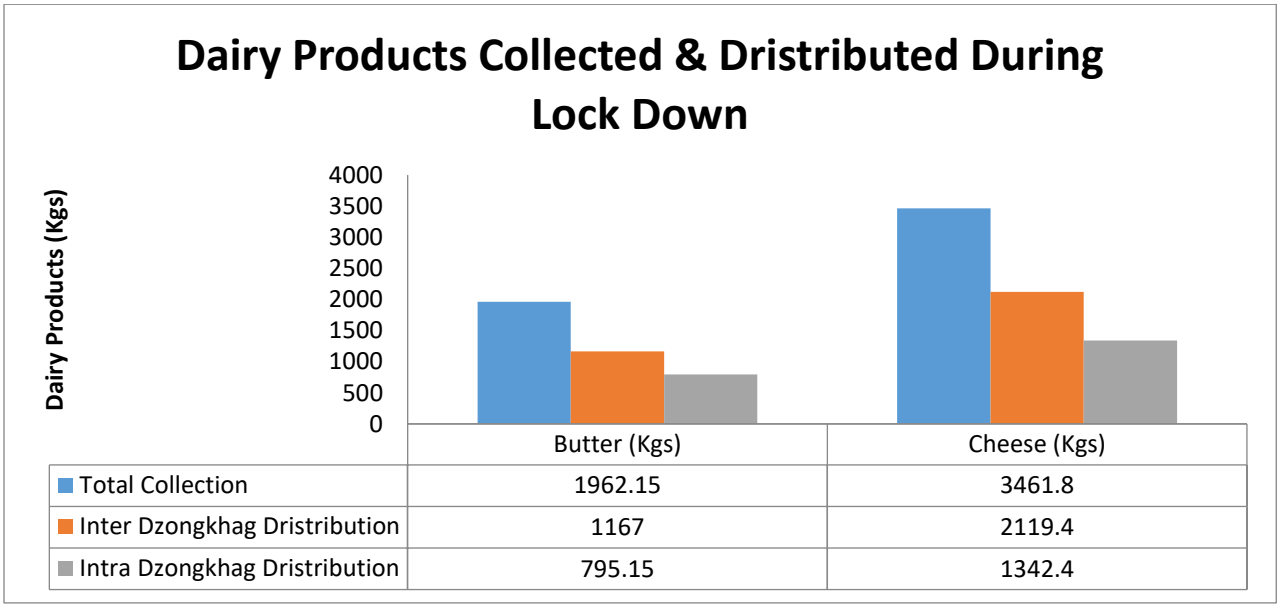
Figure 24. Dairy products marketed from Lhuentse during lockdown

assured market availability for all the Dzongkhags for quicker marketing of the products to the wider customers including Thimphu. The initiation aimed at saving farmers from going into loss and encouraging them for more productions. Besides BLDCL, the Mongar Livestock sector also extended their help to the Lhuentse livestock in arranging the transportation facilities and reaching the products to the BLDCL at the capital, Thimphu. During the lockdown, the Dzongkhag livestock sector aggregated 0.9 tons of butter, 1621 balls of cheese, 296 litres of churned milk, 350 cups of yogurt and 7500 no. of eggs and rendered door to door delivery helping the farmers with a total income-earning of Nu. 190,000. The dzongkhag livestock sector was also able to transport 0.15 tons of butter, 1200 balls of cheese, and 27300 no. of eggs to other Dzongkhags such as Nganglam, Mongar and BLDCL, Thimphu.

**A Scenario in Mongar Dzongkhag during National Lockdown**

The Mongar Dzongkhag collected a total of 1962.15 Kgs butter, 17309 balls of cheese (Approx. wt. 3462 Kgs), 81739 nos eggs and 126 liters of milk from 14 Gewogs covering 850 HH during the lockdown. The livestock products collected from 14 Gewogs were supplied within and outside the Dzongkhag. The excess of 59.48% of butter, 61.22% of cheese & 47.53% of eggs supplied to Bumthang, Thimphu (BLDCL) and Chukha (FCBL-Phuntsholing) Dzongkhags and the rest 40.52 % of butter, 38.78% of cheese and 52.47% of eggs were distributed within Dzongkhags.

Figure 25. Loading dairy products to be transported within the Dzongkhag and other Dzongkhags




| | Butter (Kgs) | Cheese (Kgs) |
|---|---|---|
| Total Collection | 1962.15 | 3461.8 |
| Inter Dzongkhag Distribution | 1167 | 2119.4 |
| Intra Dzongkhag Distribution | 795.15 | 1342.4 |

Figure 26. Dairy Products Collected, Intra and Inter Dzongkhag distributed

**A Scenario in Pemagatshel Dzongkhag during National Lockdown**

Figure 27. Vegetable and Dairy products markeked from P/Gatshel during lockdown

During the lockdown, the Pemagatshel dzongkhag collected and supplied vegetables to different places wherever needed. A total of 24 tons of vegetables including 15 tons of potato, 1 ton of radish, 1.8 tons of chili, 2 tons of cabbage, and other commodities such as onion, broccoli, spinach, tomato, etc were sold to the schools, and shops within the Dzongkhag. Besides, vegetables, the Dzongkhag also supplied 1.2 tons of fruits such as persimmon, jackfruit, banana, mango, pear and apple within Dzongkhag. The dzongkhag facilitated door-to-door product delivery to the people within the dzongkhags to avoid the spread of the disease. Likewise, the Dzongkhag collected and marketed 1.3 tons of butter and 1.8 kgs of cheese from the dairy groups to BLDCL Thimphu amid COVID-lockdown.

**A Scenario in Samdrup Jongkhar Dzongkhag during National Lockdown**

The Samdrup Jongkhar Dzongkhag collected 5.2 tons of vegetables including 1.5 tons of chili, 700 bundles of spinach, 0.6 ton of radish and other commodities from the farmers within the Dzongkhag. The Dzongkhag agriculture office also transported truckloads of close to 26 tons of vegetables from Kanglung and Udzorong gewogs, Trashigang, Trashiyangtse and Mongar Dzongkhag to Samdrup Jongkhar to meet the vegetable demand during the lockdown. The vegetables that are collected from the farmers within and beyond the region were divided among the identified vegetable suppliers and also ensured door-to-door delivery within the main town.

Figure 28. a) People lined up for buying the vegetables b) Vegetable transported in Bolero

**A Scenario in Trashigang Dzongkhag during National Lockdown**

Figure 29. Packing eggs for the door to door delivery

Trashigang Dzongkhag facilitated the internal supply of 274 tons of vegetables including 0.5 ton of broccoli, 6tons of Cabbage, 113 tons of potato and other commodities including ferns, mushrooms, cucumber etc. The Dzongkhag also received 4 tons of vegetables which included 0.7 ton of chili, 1.6 tons of cabbage, 0.65 ton of broccoli and others from the Ramjar Gewog, Trashiyangtse. Likewise, the Dzongkhag facilitated the supply of 5000 litres of fresh milk, 3900 litres of buttermilk, 1.8 tons of cheese, 4.1 tons of butter and 119000 nos. of eggs within the Dzongkhags. Of the total, the surplus of 1.7 tons of butter and 0.31 tons of cheese were supplied to Thimphu and 40,000 nos. of eggs to BLDCL, Thimphu.

Figure 30. Loading dairy products to be transpoted to Thimphu and shops within the Dzongkhgas

**A Scenario in Trashiyangtse Dzongkhag during National Lockdown**

Figure 31. Transporting Eggs and Feeds to-and-from poultry farm during lockdown

Farmers in Trashiyangtse made a good income from selling vegetables from their doorstep during this nationwide lockdown. About 1200 households in Wangringmo, Tsengkharla, and Yangtse gewog generated an income of Nu. 133,538 from the sale of 3.5 tons of vegetables within the Dzongkhag during the lockdown. Likewise, the farmers of Ramjar were able to sell out vegetables and fruits worth of Nu. 1,112,000 to the vendors.

The Dzongkhag closely worked with the vendor and other front line workers and facilitated door to door delivery of essential items including vegetables and dairy products. In total, the Dzongkhag facilitated the sale of 417 tons of vegetables, of which the surplus of 154 tons of vegetables was transported to Trashigang, Pemagatshel, Samdrup Jongkhar and Zhemgang.

Figure 32. Vegetable marketing from Trashiyangtse during lockdown

## Budget surrender during COVID-19 pandemic under CARLEP/IFAD funding

Table 15. Budget surrender during COVID-19 pandemic under CARLEP/IFAD funding

| **Agency** | **Budget head** | | | **Total (BTN)** |
|---|---|---|---|---|
| | **4127** | **4128** | **4129** | |
| ARDC, Wengkhar | 5.94 | | 1.772 | 7.712 |
| OPM, Wengkhar | 26.513 | 0.46 | 6.855 | 33.828 |
| RAMCO, Mongar | 10.85 | | 0.9 | 11.75 |
| RLDC, Kanglung | | | 2.581 | 2.581 |
| Trashi Yangste Dzongkhag | 5.724 | | 0.3 | 6.024 |
| Lhuentse Dzongkhag | 0.696 | | | 0.696 |
| **Total** | **49.723** | **0.46** | **12.408** | **62.591million** |
| **Total $ (@NU.72)** | | | | **0.869 million** |

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