



Investing in rural people

# COMMERCIAL AGRICULTURE AND RESILIENT LIVELIHOODS ENHANCEMENT PROGRAMME (CARLEP)

## ANNUAL PROGRESS REPORT (FY2018-19)

Type of Report: Annual Progress Report

Publication Date: October, 2019

**KINGDOM OF BHUTAN**

**COMMERCIAL AGRICULTURE AND RESILIENT LIVELIHOODS ENHANCEMENT  
PROGRAMME**

IFAD Loan: 2000000627

IFAD Grant: 2000000838

ASAP grant: 2000000872

**ANNUAL PROGRESS REPORT**

July 2018 – June 2019



Prepared by:

The Office of the Programme Management (OPM), CARLEP,  
Secretariat, Ministry of Agriculture & Forests, Wengkhar, Mongar.

Published by:

Office of the Programme Management (OPM)

Commercial Agriculture & Resilient Livelihoods Enhancement Programme (CARLEP)  
Secretariat, Ministry of Agriculture & Forests Royal Government of Bhutan

**For a copy of the report, please contact:**

Programme Director  
OPM, CARLEP  
Secretariat, Ministry of Agriculture & Forests  
PB No.: 146  
Wengkhar, Mongar. BHUTAN.  
Tel No.: +975 4 641236; Fax No.: +975 4 641237

## Table of Contents

Table of Contents	i
List of Figures	iii
List of Table	iii
CURRENCY EQUIVALENTS	iv
ABBREVIATIONS AND DEFINITIONS	v
MAP OF THE PROGRAMME AREAS	viii
MAIN REPORT	1
A. Programme Background	1
B. Changes in Programme Implementation Context and Design	2
C. Progress and Performance by Components	2
Component 1: Market-led Sustainable Agricultural Production	2
Output 1.1: Production resilience in agriculture increased and agriculture production diversified	4
Activity 1.1.1: Inputs support for crop production, Resilient and Diversification	4
Mushroom Production Support	6
Promotion of mushroom spawn production as an enterprise in the region	6
Promotion of mushroom production in the region	7
Innovations through Permaculture and Biogas	9
Improvement of permaculture model at Wengkhar	9
Promotion of permaculture practices in Climate Smart Villages	9
Support to Youth in farming under Land Use Certificate (LUC)	11
Activity 1.1.2: Resilient and Water Use Efficient Irrigation Development	13
Efficient Irrigation	13
Spring water harvesting for dry land irrigation	13
Activity 1.1. 3: Irrigation renovation (Infrastructure Development)	14
Output 1.2 Increased and expansion of vegetable production	15
Activity 1.2.1: Strengthening existing farmers group and establishment new groups	15
Activity1.2. 2: Post-harvest equipment	18
Output 1.3 Dairy production increased	19
Activity 1.3.1 Intensification and expansion of dairy production	19
Strengthening existing smallholder dairy farmer groups	19
Improved service outreach	20
Support for feed and fodder production	20
Provision of dairy production inputs	22

---

Component 2: Value Chain Development and Marketing	25
Activity 2.2.1: Multi-stakeholder facilitation process (Value Chain Enhancement Meeting)	25
Activity 2.2.3: matching grant guidelines	27
Output 2.3: Development of community driven market infrastructure	27
Component 3: Institutional Support and Policy Development	28
Outcome 3: Strengthened Agricultural Institutions and policies for improved and resilient and marketing practices	28
Activity 3.1.1: Improving Market information system	28
C.1 Activities & Outputs: Main Achievements	28
C.1.2 Progress towards Component Outcome (s)	29
C.1.3. Convergence and partnership	30
C. 1.4. Grant activities	31
C.1.5. Constraints/bottlenecks affecting Component Progress and actions taken	31
D. Progress towards programme purpose & goal	32
E. Programme Sustainability	32
F. Programme Management	33
F.1. Financial Management	35
F.2. Procurement	35
F.3. M&E, Communications, and Knowledge Management	35
F.4. Gender	36
H. Summary of Lessons Learned	36
I. Conclusions and Recommendations for follow-up	37

## List of Figures

Figure 1. Map showing Programme areas. ....	viii
Figure 2. Shiitake (left) and Oyster (right) .....	7
Figure 3. Heap composting method (left) and solar dryer model (right) .....	9
Figure 4. Main crop cultivated under protected Agriculture .....	12
Figure 5. Beneficiaries engaged in dryland irrigation development .....	14
Figure 6. No. of farmers on vegetable production .....	16
Figure 7. No. of farmers trained on post-harvest management .....	16
Figure 8. No. of farmers participating in exchange programme.....	17
Figure 9. No of farmers participating on awareness program.....	17
Figure 10. Solar dryer and drying of chill in Yangtse supported by CARLEP .....	18
Figure 11. Dzongkhag wise number of farmers trained on each module .....	19
Figure 12. Dzongkhag wise perennial fodder in fallow and marginal land (Pasture seeds supplied Vs. area developed).....	20
Figure 13. Dzongkhag wise fodder slips propagated (Nos.).....	21
Figure 14. Dzongkhag wise winter fodder seeds supplied Vs. area under winter fodder .....	21
Figure 15. Graph showing Dzongkhag wise support to purchase of dairy cows and dairy sheds.....	22
Figure 16. Milk supply trend by 9 groups of Trashigang to KOFUKO dairy plant .....	24
Figure 17. Dzongkhag wise milk production trend of dairy groups from 2016-2019 (Data source from RLDC, Kanglung) .....	24
Figure 18. Dzongkhag wise biogas installed in 2018-2019 .....	25
Figure 19. Participants on MSP at Mongar (5th May 2019).....	26
Figure 20. Participants during the B2B linkage interaction program.....	27

## List of Table

Table 1. Project support and beneficiary's contribution for spawn production .....	6
Table 2. Shiitake and Oyster mushroom promoted in the region .....	8
Table 3. <i>Permaculture activities implemented in CSVs sites</i> .....	10
Table 4. Production inputs support to CSVs sites .....	11
Table 5. <i>Project support and beneficiary contribution</i> .....	12
Table 6. Information on Irrigation Renovation .....	15
Table 7. Dzongkhag wise dairy equipment supplied .....	23
Table 8. Cumulative achievements as per the log frame .....	30
Table 9. Details of the ex-country training and workshop attended through the ASAP grant .....	31
Table 10. Some of the major activities which do not reflect in the main progress reports .....	34
Table 11. Consolidated financial progress for FY 2018-2019.....	35
Table 12. Annual Progress Report (FY 2018-19) .....	38

## CURRENCY EQUIVALENTS

Currency Unit		Ngultrum (BTN) *
USD 1.00	=	BTN 55.00

*\*/ The Bhutan Ngultrum is equal to the India Rupee.*

## WEIGHTS AND MEASURES

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

1 kilogram	=	1000 gm
1 kilogram	=	2.204 lb
1 kilometre	=	0.62 mile
1 metre	=	1.09 yards
1 square metre	=	10.76 square feet
1 acre	=	0.4047 hectares (ha)
1 hectare	=	2.47 acres
1 langdo	=	1400 m <sup>2</sup>

## 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
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 (MoAF)
DAO	Dzongkhag Agriculture Officer
DE	District Engineer
DoA	Department of Agriculture (MoAF)
DoL	Department of Livestock (MoAF)
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
Gol	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	Liter
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
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
MSP	Minimum Support Price
MSPU	Mushroom Spawn Production Unit
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
PME	Participatory Monitoring & Evaluation
PPD	Policy and Planning Division (MoAF)
PPP	Public Private Partnership
PRR	Procurement Rules & Regulations
PSF	Production Support Fund
Pts	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 Ratio
ToT	Training of Trainers
WA	Withdrawal Application
WUA	Water Users' Association

### MAP OF THE PROGRAMME AREAS

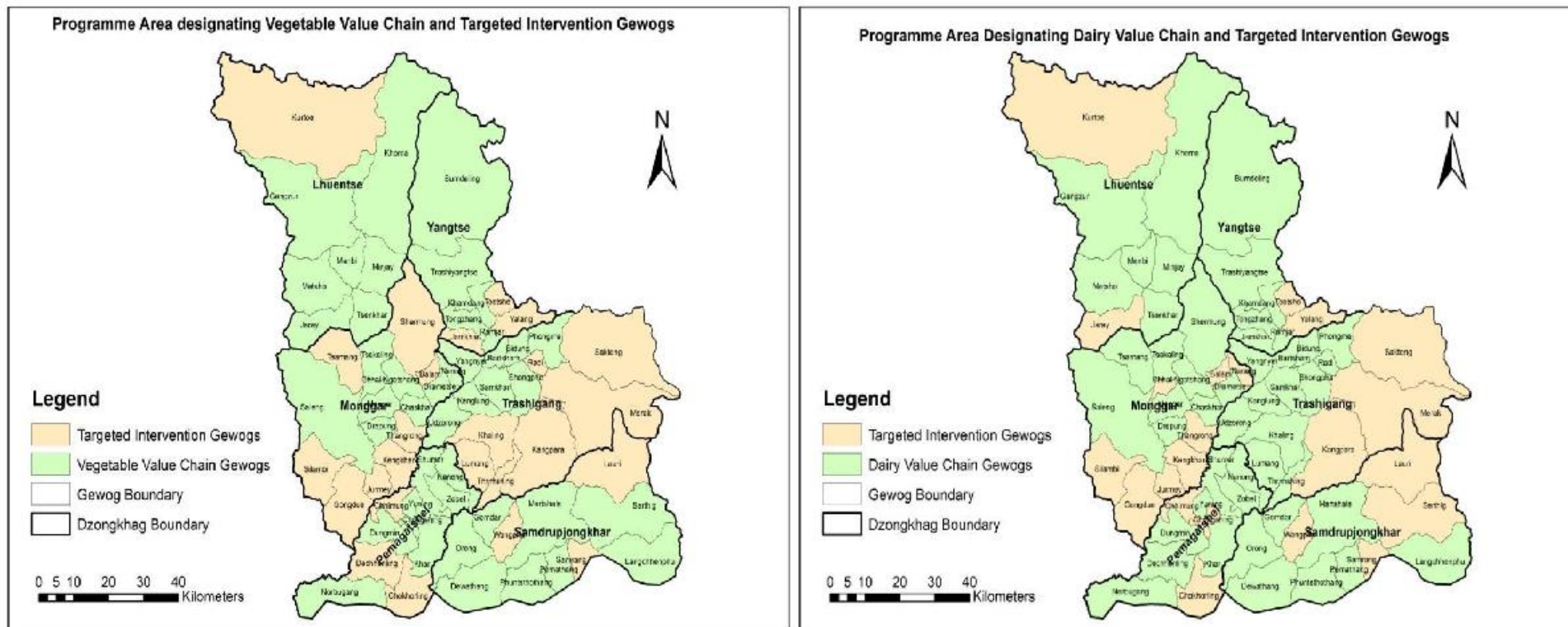


Figure 1. Map showing Programme areas.

## **MAIN REPORT**

### **A. Programme Background**

This is the fourth 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). This is to remind that Financing negotiation for CARLEP was held in July 2015 followed by IFAD Executive Board approval in September 2015 and signing of Financing Agreement by December 2015.

The goal of the programme is to reduce poverty through sustainably increasing the income of smallholder producers by way of commercializing agriculture production. The overall development objective of the programme is to increase returns to smallholder farmers through climate resilient production of crops and livestock in nationally organized value chains and marketing systems.

In order 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 two value chains.

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

In line with the programme objective, the implementation of two-pronged approach has been adopted – i) Commercial or value chain approach to be focused in those Gewogs and village 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 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), FCBL (US\$4.802 million), Beneficiaries (US\$ 0.659 million) and a financing gap (USD 6 million). After the MTR 11.2 million is sanctioned as additional funding with possible extension three years' project period (till 2025)

## **B. Changes in Programme Implementation Context and Design**

Commercial Agriculture and Resilient Livelihoods Enhancement Programme (CARLEP) has completed Mid Term Review (MTR) (23<sup>rd</sup> Nov. to 7<sup>th</sup> Dec. 2018) and design mission from (1<sup>st</sup> to 15<sup>th</sup> June 2019) and finalized the resources allocation from the IFAD (\$20.560 million). The MTR with additional resource allocation will focus and based on the 12<sup>th</sup> FYP priorities in line with Policy guidelines of the IFAD Governing Council. The implementing strategies have improved considerably compared to previous years, not only due to constructive recommendations provided during periodic fielding of IFAD missions but also due to increased experience of the implementers at the grass root level.

Mid-Term-Review (MTR) saw a major institutional reform whereby FCBL, as key actors in value chain development and marketing, was disengaged from the CARLEP Programme because of the incapacitation of the FCBL to carry forward both dairy and vegetable value chain as mandated in the Programme design. Instead, Kofuku International Limited, Chenery, as the definite market for fresh milk produced by farmer groups, was taken on board as one of the active contributors to dairy value chain development. Similarly, RAMCO has been designated to facilitate vegetable marketing contributing to vegetable value chain development. With the change in implementation settings and mandates of the implementing agencies becoming more pronounced, the outlook of programme implementation has improved to a certain extent.

## **C. Progress and Performance by Components**

### **Component 1: Market-led Sustainable Agricultural Production**

Commercial Agriculture and Resilient Livelihood Enhancement Programme has made considerable progress in dairy intensification and value chain development through creation of enabling environment for production, accessibility, processing and marketing. However, there remains a challenge in few Programme Dzongkhags such as Lhuentse

---

and Trashiyangtse in channelling fresh milk to the dairy plant (Koufuku) due to low production volume. However, the support to these areas will be intensified to enhance milk production for domestic consumption as well as supplying to the dairy plant at Chenari.

To further strengthen dairy value chain in the east, the Programme has supported subsidised purchase of 511 numbers of improved cows to enhance milk production (Refer case study 1 for details), provided subsidy for construction of 186 hygienic cattle sheds with silo pits for fodder conservation, conducted 69 dairy husbandry training benefiting 1094 households in which 91 % were female participants.

The vegetable production has reported increased in every production area but the linkage with the production area and the market remains the challenges in the current scenario. The programme such as commercial vegetable production; lead farmers; nursery establishment with supply of poly tunnel with water efficient technologies has contributed towards the enhancement of vegetable production in the programme area. The benchmark has set up to link the production farmers and the potential market of vegetables through the introduction of multi-stakeholders' Platform. Two rounds of multi-stakeholders have already initiated, and potential vegetable farming groups have already embarked on the commercialization of vegetable production and aggregation of the produce to achieve economies of scale, following value chain concept.

Minimum support Price (MSP) Will continue to be one of the strategies to support farmers in case the price of vegetables fluctuates far below the average cost of production. This is to ensure that farmers or farmer groups are able to sustainably engage themselves as one of the key value chain actors.

In this reporting period under component 1, the major achievement are 121 hectares of land bought under the cultivation of crop diversification with cereals, pulses and oil crops. 151 hectares of wet land bought under the regular supply of irrigation water; some have been dysfunctional since many years. Around 69% of households reported an increase in production (AOS 2019). 31 lead farmers have undergone extensive training at ARDC, Wengkhari in the research station and completed four cycles of five days each course. Further each lead farmers are expected to train and motivate improve farming system in the locality. 12 seed growers out of 19 had been linked with the National Seed Centre (NSC). 48 poly tunnel houses constructed as protected agriculture improvement.

**Output 1.1: Production resilience in agriculture increased and agriculture production diversified**

Market Led Sustainable Agriculture production is to sustainably increase resilient agricultural production by rural households. It has three outputs contributing to overall objectives. They are; production inputs for farm resilience and diversification, increase outreach of extension services, Resilient Water Use Efficient Irrigation Development and Intensification and Expansion of Vegetable Production through various capacity enhancement programs.

To enhance resilience and diversification for small holder marginal farmers, poultry and piggery backyard farms have been established through supply of native breeds. The interventions have been targeted to poor and vulnerable section of the society. A total of 27 native poultry units have been established benefiting 27 vulnerable households (56% female headed households) with the supply of 275 pullets. The Programme also supported 4 semi-commercial poultry farmers with a supply of 3000 pullets under Pemagatshel and Mongar Dzongkhags. This targeted intervention helped farmers to improve family nutrition besides earning additional income. Moreover, 26 native piggery units have been established and benefitted 34 poorer section of the farmers.

In the programme area under the initiative of ARDC, 5 youth farmers are trained on mushroom spawn production and supplied with required materials such as autoclave, fabricated laminar flow, rice cooker, spirit lamp, crate, refrigerator, panel heater etc. to initiate the enterprise but reported that 48% of project cost is borne by the beneficiaries themselves.

**Activity 1.1.1: Inputs support for crop production, Resilient and Diversification**

Commercial Agriculture Resilient and Livelihoods Enhancement Program (CARLEP) focuses is on Vegetable and Dairy value chain, however for the climate adaptation aspects, CARLEP is also supported on crop diversification and intensification. These activities have been implemented by all the implementing agencies based on the location where climate vulnerability is expected. The program being implemented mainly to mitigate the climate change impact and take measures for future risk. This is done through cultivation of resilient seeds, multiple cropping, crop rotation etc. Different resilient varieties seeds have been supported such as assorted vegetable seeds, wheat, buckwheat, barley, soybean and Quinoa for farm resilience, diversification and intensification.

Farmers have been also supported with greenhouse materials for production of high value vegetables for better income generation during off-season. Some fruit crops like pineapple, avocado, walnut, Mango, pears etc. are also supported to integrate with vegetables for optimum utilization of limited landholding.

Total 53.44 kgs of assorted vegetable seeds supported in six Dzongkhags with area of 375.9 acres under vegetable cultivation benefiting 6065 farmers (F-3022). Project also supported cereals, legumes and oil crops for crop diversification, intensification and resilience. Total 515 kg of oil seed, 250 Kg upland paddy, 250 hybrid maize and 235 kg of soybean supported benefiting 31 farmers (F-17) and 19 farmers (F-4) respectively. Similarly, cereals for crop diversification and intensification was supported covers 264.5 acres which has benefitted to 435 (F-269) vulnerable farmers.

Table 1. Dzongkhag wise data on assorted vegetable seeds supplied

<b>Dzongkhag</b>	<b>Qty. (Kg)</b>	<b>Area (Ac)</b>	<b>Male</b>	<b>Female</b>
<b>Lhuentse</b>	5.24	93.7	191	296
<b>Mongar</b>	9.2	67.6	578	733
<b>T/Yangtse</b>	11.1	107	1400	1378
<b>T/Gang</b>	9.4	40.3	3	9
<b>P/gatshel</b>	10.6	34	80	87
<b>S/Jongkhar</b>	7.9	33.3	791	519
<b>Total</b>	53.44	375.9	3043	3022

Horticulture crops such as Pear, peaches, walnuts, avocado, mango and guava were promoted and established for crop diversification and resilience program. Total 2772 fruit tree seedlings were supported to 157 farmers (F-31) covering a total area of 12.7 acres. Similarly, 21600 pineapple seedlings were supported to 110 farmers covering the area of 4.81 acres.

Total 48 sets of greenhouses were supplied to vegetable groups, commercial vegetable production sites (LUCs) and lead farmers replicated by Dzongkhags under lead farmers program. Support provided for commercial production sites (LUCs) are equipped with sprinklers and drip systems. It has benefited 144 farmers (F-83) including 12 LUCs across six eastern Dzongkhags.



## Mushroom Production Support

### *Promotion of mushroom spawn production as an enterprise in the region*

The shortage of spawn is one of the main constraints limiting mushroom development in the region. Currently, the mushroom spawn is supplied from Mushroom Spawn Production Unit (MSPU), ARDSC Khangma. However, the unit has not been able to meet the growing demand for spawn in the region and thus, mushroom growers usually source spawn from across the border which is relatively expensive.

Therefore, in order to address the mushroom spawn shortage and create gainful employment for youths, Mushroom Spawn Production Unit (MSPU) under ARDSC Khangma with support from CARLEP initiated spawn enterprise development in the region. In this regard, five interested youths were trained on spawn production techniques in 2017-18 FY. Subsequently, three potential youths were identified from the five interested youths trained in 2017-18. The youths were provided with five days of hands on training on oyster mushroom spawn production techniques.

The youths were provided with basic start-up production supports such as autoclave, low cost laminar air flow chamber, rice cooker, refrigerator and panel heater. The break-up of the cost of setting up each prospective youth entrepreneur shows that project support accounted for 52% of the cost compared to about 48% of beneficiary contribution

Table 2. Project support and beneficiary's contribution for spawn production

Project support			Beneficiary contribution		
Particular	Quantity (No/kg)	Amount (Nu.)	Particulars	Quantity (No/kg)	Amount (Nu.)
Autoclave (153 L)	1	1,63,500	Erka wall house	1	1,70,000
Fabricated laminar flow	1	5,000	Bowl/ sprayer bottle/ weighing balance	4	1,050
Rice cooker	1	10,300	Wooden rack shelves	4	3,000
Spirit lamp	1	200	Rubber band/ cotton	12	4,200
Crate	1	500	Beer bottle	1,000	1,000
Refrigerator	1	16,000	Spirit/ethanol	2	200
Panel heater	1	3,700	Wheat	200	8,000
Calcium carbonate	1	550	Labour	2	600
Total (Nu.)		1,99,750	Total (Nu.)		1,88,050
Total Cost (Nu.)		387,800			
% project support		52			
% beneficiary contribution		48			

The beneficiary contributed mainly with construction of house and other essential tools and equipment. For future expansion of the business, one spawn entrepreneur youth from Mongar is already linked to credit facilities.

### ***Promotion of mushroom production in the region***

Mushroom is considered to be one of the climate resilient crops. Hence, mushroom cultivation was further expanded in 2018-19. A total of 25,854 logs of Shiitake mushroom with 3,638 bottles of spawn were inoculated for 51 households and 14,800 bags of Oyster mushroom with 4,903 spawn bottles were promoted for 54 households (Table 3).

Of the 51 households, 5 were schools and 46 were farmers. Amongst the farmers, 4 were credit supported and the rest were self-financed farms. The beneficiaries include mushroom promoted in credit supported farms, groups and schools under School Agriculture Program (SAP). The details of mushroom promotion in the region are shown in Table 3. In terms of contribution, the project supported with spawn and the cost for other inputs such as substrates, shed and cultivation expenses were borne by beneficiary.



Figure 2. Shiitake (left) and Oyster (right)

Table 3. Shiitake and Oyster mushroom promoted in the region

Dzongkhag	Shiitake mushroom			Oyster mushroom			Remarks
	No. of billets	Individual	Others*	No. of bags	Individual	Others*	
Trashiyangtse	1,840	3 (2 M)	1	200	0	1	1 School
Mongar	10,241	17 (5 F/ 12 M)	3	3,400	3 (3 M)	5	3 RNR ECs, 1 School and 1 group of 8 members
Lhuentse	2,527	4 (2 F/2 M)	0	1,680	4 (1 F/4 M)	0	
Pemagatshel	4,876	8 (1 F/7 M)	2	840	1 (1 M)	0	
Trashigang	6,010	13 (6 F/7 M)	0	7,000	11 (5 F/6 M)	5	4 Schools and 1 RNR EC
S/Jongkhar	360	1 (1 F)	0	840	3 (1 F/2 M)	0	
<b>Total</b>	<b>25,854</b>	<b>45 (15 F/30 M)</b>	<b>6</b>	<b>14,800</b>	<b>23 (7 F/16 M)</b>	<b>13</b>	

*\*Others in the table refer to Schools, RNR ECs/ Groups; F and M in the table refers to female and male headed households.*

## Innovations through Permaculture and Biogas

### *Improvement of permaculture model at Wengkhar*

In order to step up on-station research on permaculture practices, ARDC Wengkhar tried to improve the model being established at the centre by gradually incorporating climate resilient practices or technologies into the model so that some of the potential technologies can be promoted for future replication to different Dzongkhags.

Therefore, in 2018-19, solar dryer and water harvesting pond models were improved. The heap composting using locally available plant biomass was initiated. The herbs and traditional crops germplasm block were further diversified, companion planting of tomato with medicinal herbs and annual flowers, and evaluation of traditional cereal crops were conducted.



Figure 3. Heap composting method (left) and solar dryer model (right)

### *Promotion of permaculture practices in Climate Smart Villages*

In 2018-19, ARDC Wengkhar implemented the need-based activities in 6 pilot villages based on the experiences gained from training of agriculture extension staff in Nepal. Towards this, ARDC Wengkhar organized post-training follow up meeting whereby the post-training follows up plan was finalized as per the knowledge and experiences gained from the training and in line with the interventions identified through the Participatory Vulnerability Assessment carried out during the initial stage.

Accordingly, the Extension staffs were provided with action plan (Table 4) and a brief implementation guide along with the required budget and production inputs to implement the planned post-training activities. The follow up plan implementation began with the training of farmers on permaculture concept and practices followed by post-training activity implementation in each site.

Table 4. *Permaculture activities implemented in CSVs sites*

CSV Site	Activities	Timeline
<b>Ngarpentang</b>	Train farmers on Permaculture concept, composting, use of bio-slurry/ cow urine in vegetable production and crop intensification (3 days)	February, 2019
	Promote legumes and vegetables, composting, use of bio-slurry/ cow urine in vegetable production	
<b>Jatsabi</b>	Train farmers on Permaculture concept, crop intensification, use of bio-slurry/ cow urine in vegetable production, composting (3 days)	February, 2019
	Promote composting, use of bio-slurry/ cow urine and crop intensification	
<b>Threphu</b>	Train farmers on Permaculture concept, composting, use of bio-slurry/cow urine in vegetable production and protected vegetable production (3 days)	February, 2019
	Promote composting, use of bio-slurry/cow urine in vegetable production and protected vegetable production	
<b>Dukti</b>	Train farmers on Permaculture concept, composting, use of bio-slurry/cow urine in vegetable production and crop intensification (3 days)	February, 2019
	Promote composting, use of bio-slurry/cow urine in vegetable production and crop intensification	
<b>Woongborang</b>	Train farmers on Permaculture concept, composting, use of bio-slurry/cow urine in vegetable production and crop intensification (3 days)	February, 2019
	Promote composting, use of bio-slurry/cow urine in vegetable production, crop intensification	
<b>Pangthang</b>	Train farmers on Permaculture concept, composting, use of bio-slurry/cow urine in vegetable production and crop intensification (3 days)	February, 2019
	Promote composting, use of bio-slurry/cow urine in vegetable production and crop intensification	

As such the production input supports such as 532 packets of vegetable seeds, 1025 kg of upland paddy, 1080 kg of soya bean seeds and 45 numbers of corn Sheller machines were provided (Table 5). The production inputs were provided mainly to bring about crop

diversification and intensification, and improve household resilience through enhanced food self-sufficiency and income.

Table 5. Production inputs support to CSVs sites

CSV Site	Vegetable (Pts)	Upland paddy (kg)	Soya bean (Kg)	Corn sheller (Nos.)
Jatsabi, Kurtoed, Lhuentse	40	50	66	3
Ngarpentang, Thangrong, Mongar	124	200	300	12
Woongborang, Dungmaed, Pemagatshel	50	100	72	4
Pangthang, Wangphu, Samdrup Jongkhar	150	75	342	14
Threphu, Kangpara, Trashigang	104	225	168	7
Dukti, Yallang, Trashiyangtse	64	375	132	5
Total	532	1025	1080	45

In addition, protected vegetable production and solar dryer technologies were promoted in Threphu for which 28 low cost playhouses and a complete set of 5 x 10 m greenhouse structures were distributed. Further, rainwater harvesting using plastic lined farm pond will be promoted in Threphu village.

### Support to Youth in farming under Land Use Certificate (LUC)

ARDC Wengkhar through fund support from CARLEP promoted protected vegetable production using drip irrigation system in 10 youth farms operated under Land Use Certificate (LUC) converting total land area of about an acre under protected production. The main crops grown in the greenhouse are tomato and chilli (Figure 4).

The basic start-up production support such as 2 sets of greenhouse structure (5x20 m), syntax tank (2000 L), drip irrigation set, mulching plastic, seeds, watering can and knapsack sprayer were provided as package. The break-up of the total cost of support provided to these youths show that project support accounted for about 74% (Nu. 2.09 Million) compared to 26% (Nu. 0.73 Million) of beneficiary contribution (Table 6).



Figure 4. Main crop cultivated under protected Agriculture

Table 6. Project support and beneficiary contribution

Particulars	Unit	Quantity	Rate (Nu.)	Amount (Nu.)
<b>Project support</b>				
Greenhouse (5x20)	Sets	20	79,150	15,83,000
Mulching plastic	Kgs	100	400	40,000
Drip irrigation materials	Sets	20	6,755	1,35,100
Watering can	No.	10	298	2,980
Knapsack sprayer	No.	10	2,650	26,500
Syntax tank (2000 L)	No.	10	14,000	1,40,000
Pruning saw	No.	15	849	12,735
Secateurs	No.	15	890	13,350
Seeds	Pkts.	1,148	2	2,825
Seedlings	No.	1,892	75	1,41,900
<b>Sub-total (Nu.)</b>				<b>20,98,390</b>
<b>Beneficiary contribution</b>				
Greenhouse installation	Men days	100	500	50,000
Peg preparation/ compost collection	Men days	189	500	94,600
Field preparation for model farm establishment	Men days	631	500	3,15,333
Planting/ watering/ mulching	Men days	63	500	31,533
Vegetable cultivation expense	Acre	9.5	25,500	2,42,250
<b>Sub-total (Nu.)</b>				<b>7,33,717</b>
<b>Total cost (Nu.)</b>				<b>28,32,107</b>

---

% Project support	74
% Beneficiary contribution	26

---

## **Activity 1.1.2: Resilient and Water Use Efficient Irrigation Development**

### **Efficient Irrigation**

Total 6 efficient irrigation schemes have been supported across six Dzongkhags in potential vegetable production areas and commercial sites. These production sites are very potential for both on and off-season vegetable production, however it was limited by availability of irrigation water. Establishment of these schemes have benefitted 293 farmers (F-169) covering total production areas of 146.3 acres in six Dzongkhags. Besides, farmers are also supported with 31 numbers of syntax tank for water reservoir and 32 numbers of watering cans for nursery watering. Efficient irrigation scheme was established through labour contribution from beneficiaries and project supported the materials cost. This program has been initiated under efficient irrigation, as most of the potential areas of vegetable production is limited by scarcity of water and thus; focused on trapping small streams and make it available in the village and use both for drinking as well as for vegetable production.

Under this program, vegetable groups are supported with 124 sets of water sprinklers and 19 sets of drip system covering the area of 0.33 acres. The drips are setup in the protected agriculture and sprinklers are used both in greenhouse as well as in open vegetable production areas.

### ***Spring water harvesting for dry land irrigation***

Ngarpentang village with dry sub-tropical climatic condition, located at 1400 masl under Thangrong Gewog is one of the 6 villages being identified to be adopted as Climate Smart Villages under the project. The community consists of 47 households with a total cultivated land area of about 149.5 acres. The acute shortage of irrigation water is the main constraint which has adversely affected the agriculture development in the community.

Hence, ARDC Wengkhari initially planned to support the community with rainwater harvesting infrastructure to address the irrigation water shortage. However, rainwater harvesting was not feasible as the area receives scanty rainfall. In view of this, stakeholder consultation was convened on 25<sup>th</sup> January, 2019 at the Conference hall, Mongar Dzongkhag involving Dasho Dzongdag, Gup, Dzongkhag Agriculture Officer,



Engineers and Project Management to discuss about the possibility to support the community with dry land irrigation through spring water harvesting.

Based on the outcome of the stakeholder meeting, ARDC Wengkhar mobilized a supplementary budget required and accordingly, the initial design and estimates were reviewed. As planned, the construction work commenced from March, 2019 and completed in June, 2019. The construction work was executed by the community members with material support from the project at a total cost of Nu. 3.18 Million. Accordingly, ARDC Wengkhar in collaboration with Gewog Administration and Dzongkhag facilitate formation of Water Users Association (WUA) for sustainable utilization and management of infrastructure.



Figure 5. Beneficiaries engaged in dryland irrigation development

### **Activity 1.1. 3: Irrigation renovation (Infrastructure Development)**

The program supports in developing climate resilient irrigation infrastructure in the six eastern Dzongkhags through renovation of existing dysfunctional gravity-based irrigation system. The irrigation renovation for financial year 2018-2019 was planned and implemented based on the Dzongkhag's priority and requirement. Total 4 existing schemes being initiated under three Dzongkhags. Total 17.2 km length have been renovated catering the irrigation facilities for 414 acres (151 Ha) commend areas. Renovation of 17.2 km dysfunctional channel will now ease total of 375 farmers (F-185) for their seasonal irrigation for paddy cultivation and during the off season for vegetable production.

For proper operation and management of the irrigation schemes, project also supported on new user group formation as well as strengthening the existing Water User Association. One Water User group is newly formed in one Dzongkhag with total

beneficiaries of 32 members (F-15) while one existing group each from Mongar, Trashiyangtse, Trashigang and two each under Lhuentse and Samdrup Jongkhar Dzongkhags were strengthened and benefitted total members of 295 (F-163).

Table 7. Information on Irrigation Renovation

Dzongkhags	No. of schemes	Commend area (Ac)	Cannel length (Km)	Beneficiaries	
				Male	Female
Mongar	1	95	3.5	45	40
T/Gang	2	174	3.5	118	120
S/Jongkhar	1	145	10.2	27	25
<b>Total</b>	<b>4</b>	<b>414</b>	<b>17.2</b>	<b>190</b>	<b>185</b>

### Output 1.2 Increased and expansion of vegetable production

The expansion of vegetable production is the part of the vegetable value chain development concept. Commercialization and formation of producer group are ways and means to increase the vegetable production.

#### Activity 1.2.1: Strengthening existing farmers group and establishment new groups

To enhance the capacity of the project beneficiaries, various farmers training was conducted across all six Eastern Dzongkhags. Training was focused to those farmers, vegetable groups and youth engaged in commercial vegetable production. It was conducted to enhance the skills on vegetable production and management to gain hands on practices. The content of the capacity development programs was on staggered vegetables plantation with crop management aspects, post-harvest management techniques and packaging and handlings of the produces. Total 82 training events was

conducted and attended by 2954 farmers (F-1805) from 57 vegetable groups across six Dzongkhags. Similarly, on vegetable post-harvest management, 44 training events organized and attended by 2362 farmers (F-1149) for improvement of vegetable quality and its shelf life.

Farmers exchange visit and farmers field festival are also considered as one of the important tools for dissemination of new technologies and exchange ideas and views for modern farming practices. It also gives farmers an opportunity and platform to see and

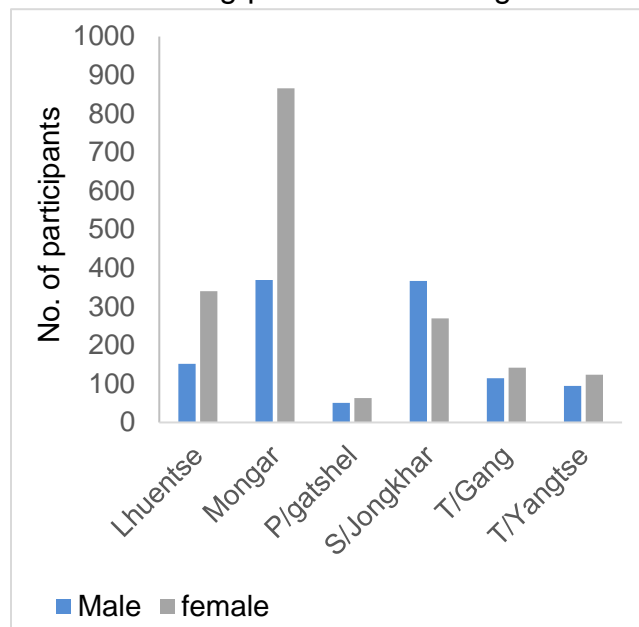


Figure 6. No. of farmers on vegetable production

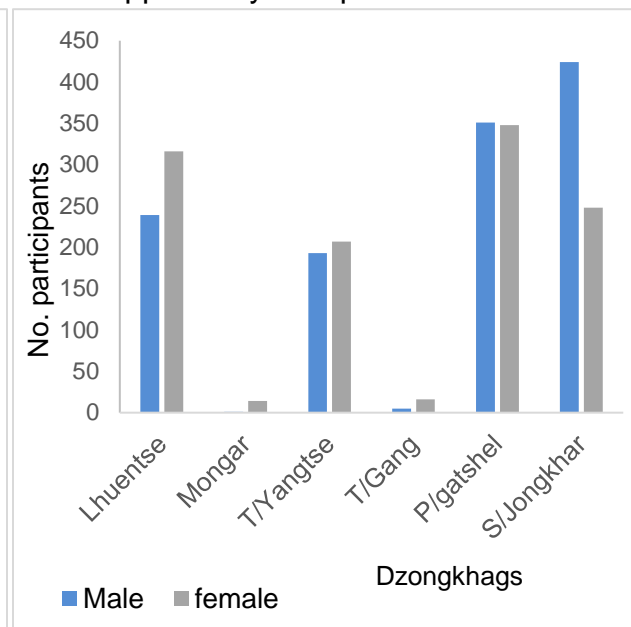


Figure 7. No. of farmers trained on post-harvest management

learn innovative ideas and best farming techniques among others. Farmers field festival showcase various new technology demonstrations in the field as well as organized a platform and display different agro based products for public awareness and dissemination of innovative ideas. Such program is also organized and conducted during important occasions and gatherings. The exchange visit was organized within or outside from respective Dzongkhags to learn new ideas and exchange views on improved farming practices. Total 11 exchange visit program was organized and attended by 158 farmers (F-69) across all implementing agencies. Likewise, 512 farmers (F-271) attended the farmers field festival conducted across six Dzongkhags in 12 different events where farmers learnt various technology showcase by different participants and farmer's groups.

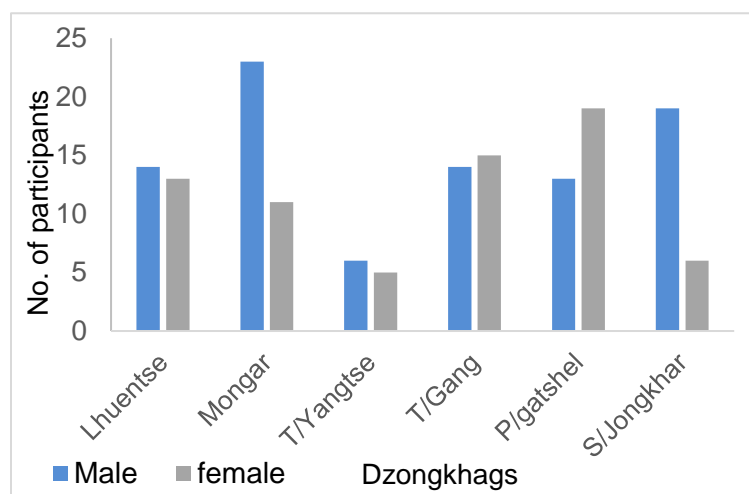


Figure 8. No. of farmers participating in exchange programme

The Group members were also enhanced the capacity on their daily group record maintenance through providing record and bookkeeping training across all the Dzongkhags. Through the training provided, the groups daily record maintenance skills are enhanced. Similarly, leadership management skills and functions are also enhanced for daily functioning groups. Total 17 trainings were organized in six Dzongkhags and attended by 577 farmers (F-313) from 17 farmer's

groups. Similar training was also supported to 16 farmer's groups that were weak and not performing well in terms of group activities. To this, the group strengthening program through group review and designated the clear roles and responsibilities for each member was conducted. Total 16 vegetable groups strengthened with 282 members (F-146) participants made aware of individual responsibilities for groups function.

Besides various capacity enhancement program, project also supported on awareness creation program for farmers on different production aspects considering all the climate vulnerability and risk. The awareness was conducted on vegetable value chain- how its business is conducted and who

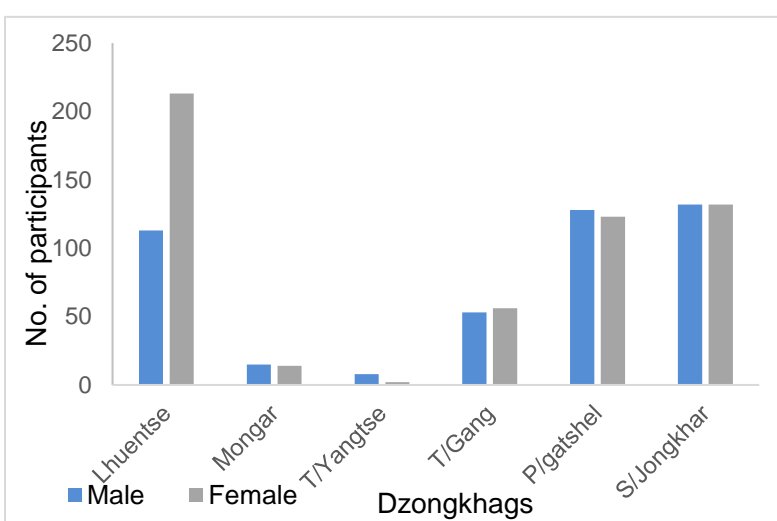


Figure 9. No of farmers participating on awareness program

all need to be involved for successful value chain. Further, participants were made aware on climate risk and vulnerability adaptation/measure such as permaculture practices and climate smart villages. Total 26 awareness events were conducted across all six Dzongkhags attended by 989 farmers (F-540).

## Activity1.2. 2: Post-harvest equipment

Farmers have been drying fruits and vegetables in open condition which is not hygienic. In this regard, National Post Harvest Centre (NPHC) developed an electric dryer. Although the electric dryer is hygienic compared to open drying but the former involves higher overhead cost and economically inefficient.

Hence, ARDC Wengkhar in collaboration with IFPP, Lingmethang developed an alternative technology for drying and initiated a research to study its effectiveness. Alongside technology development, ARDC Wengkhar with support from CARLEP, promoted 5 solar dryers (3 in Trashiyangtse, one each in Kangpara, Trashigang and Chokhorling, Pemagatshel) benefitting 72 households (50 female)

The greenhouse solar dryer models were installed on cost-sharing basis. To this effect, the beneficiary contribution was mainly in terms of collecting and procuring sawn timber to make drying shelves, iron nails, sand, gravel and labour for site preparation and installation of greenhouse while the project supported with greenhouse structure.

The break-up of the cost incurred for promotion of solar dryer in five sites show that project support through ARDC Wengkhar contributed 35% (Nu.1,99,090) compared to 53% of the cost by Dzongkhags and beneficiary contribution constituting about 11%.

Most of the sites have now started utilizing the dryers as shown in the picture below and the feedback received so far is encouraging. However, some beneficiaries have reported that using direct current would be more beneficial especially during the summer months.



Figure 10. Solar dryer and drying of chill in Yangtse supported by CARLEP

## Output 1.3 Dairy production increased

### Activity 1.3.1 Intensification and expansion of dairy production

#### Strengthening existing smallholder dairy farmer groups

Smallholder dairy farmers in the group were trained and retrained on wide range of topics including but not limited to dairy husbandry, product packaging and handling, clean milk production, farm record keeping, use of crop residues and fodder conservation. Dzongkhag wise number of farmers trained and type of training received is as given in Figure 11. In overall, 4956 number of farmers were trained in 2018-2019 fiscal year spread across 6 Programme Dzongkhags out of which almost 50% were women participants. This shows that women are equally participating in the Programme activities contributing to women empowerment and gender equity.

Besides capacity building program, awareness and mobilization program was also supported across six Eastern Dzongkhags. A total of 32 awareness programs were conducted with 1651 farmers (M-799, F-852) participating in the program.

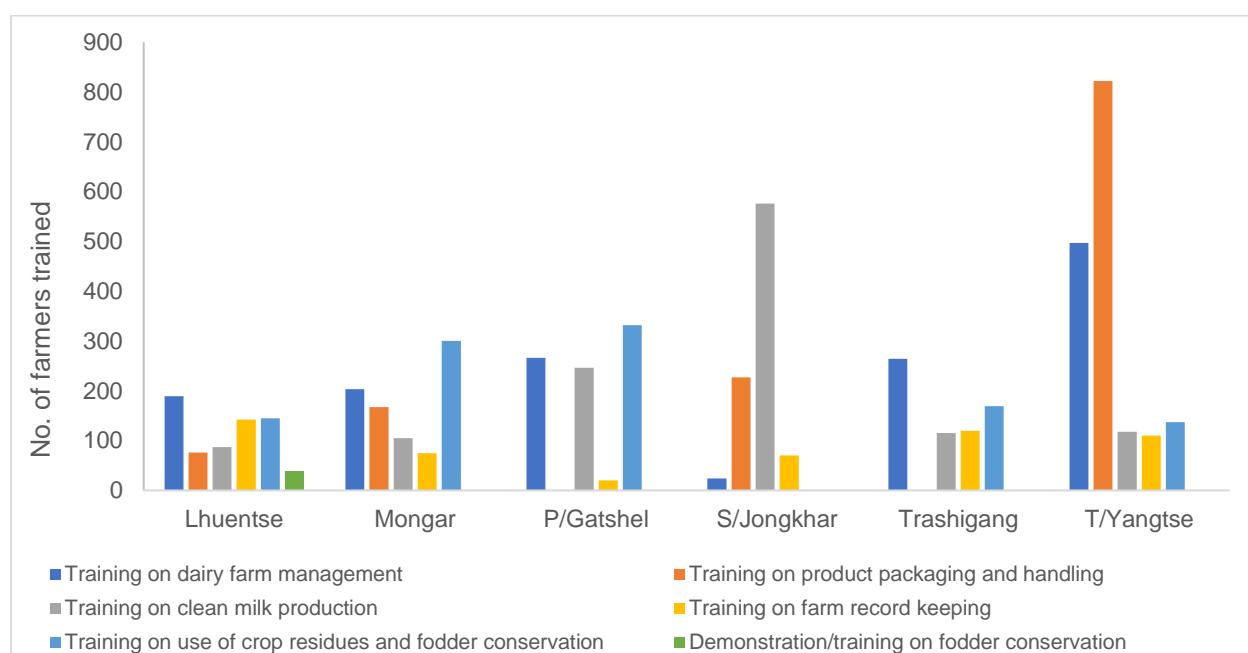


Figure 11. Dzongkhag wise number of farmers trained on each module

The graph above shows that Mongar and Pemagatshel Dzongkhags have trained a greater number of farmers on the use of crop residues and fodder conservation compared to other Dzongkhags while Lhuentse and Trashigang Dzongkhags focused more on dairy husbandry training. However, Samdrup Jongkhar Dzongkhag trained greater number of

farmers on clean milk production while Trashiyangtse Dzongkhag was centred towards training greater number of farmers on product packaging and handling. These clearly indicates that there are varied training needs of the farmers depending on the level of production phase farmers have reached.

**Improved service outreach**

24 Community Animal Health Workers (CAHW) were trained by RLDC to overcome the issue of inadequate extension service delivery in larger Gewogs and remote villages. RLDC also trained 107 number of feed producers with the aim of formulating low cost dairy feed and to encourage farmers to formulate Total Mixed ration (TMR) to cut down the cost on Karma Feed while at the same time maintaining optimum milk production. Training of Trainers (ToT) were also imparted to 46 Livestock Extension Agents to ensure further training of CAHW’s and replication of CAHW model in needy areas and enhancement of service delivery.

**Support for feed and fodder production**

To ensure that adequate fodder is available throughout the season for maintaining optimum milk production, fodder development in fallow and marginal land were initiated through supply of pasture seeds, fodder cuttings and fodder tree saplings. Moreover, subsidiary support on barbed wire was provided to fence pasture land aiming at sustainable fodder production. Dzongkhag wise perennial fodder developed, fodder cuttings and winter fodder production are indicated in Figure 12, 13 and 14 respectively.

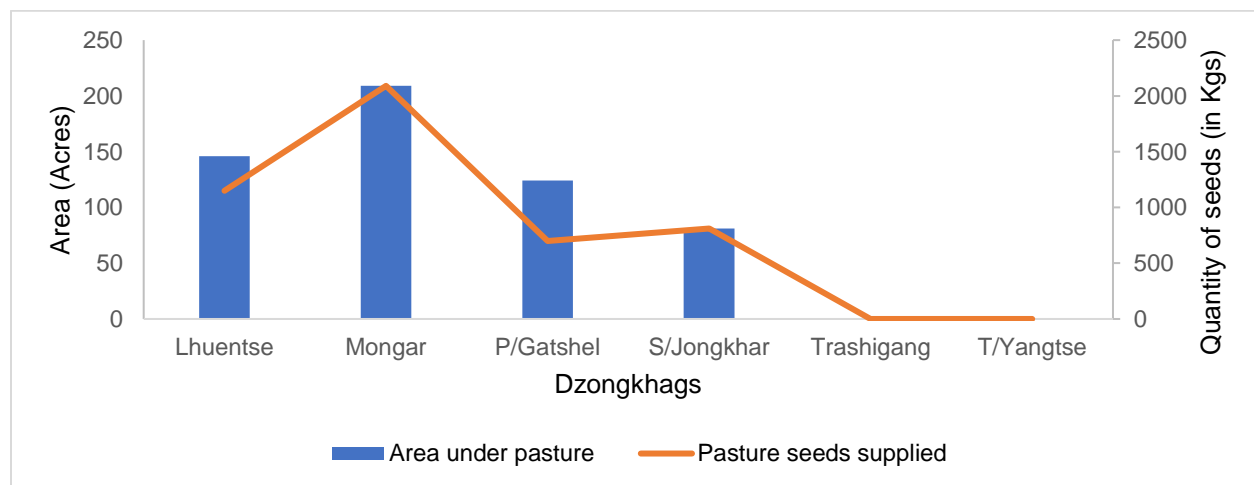


Figure 12. Dzongkhag wise perennial fodder in fallow and marginal land (Pasture seeds supplied Vs. area developed)

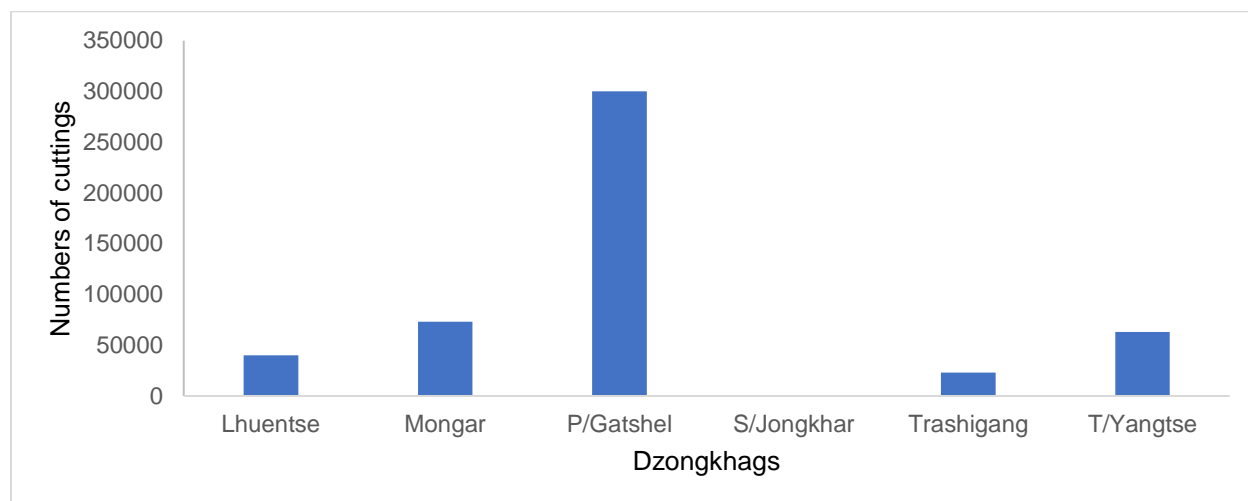


Figure 13. Dzongkhag wise fodder slips propagated (Nos.)

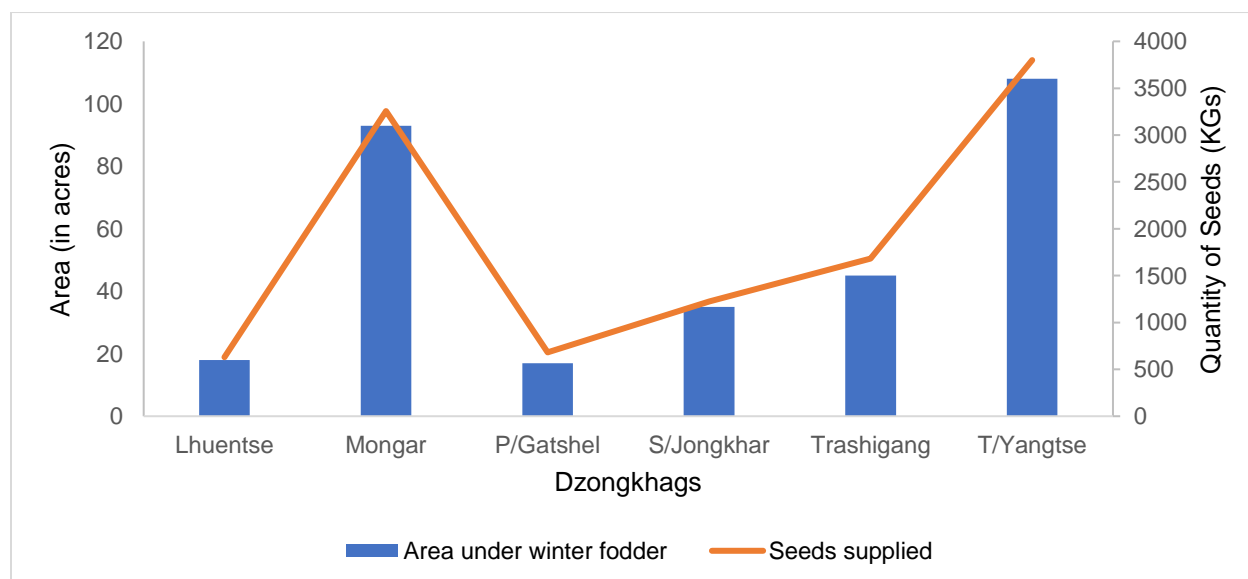


Figure 14. Dzongkhag wise winter fodder seeds supplied Vs. area under winter fodder

Mongar Dzongkhag has developed more area of pasture in fallow and marginal land followed by Lhuentse compared to other Dzongkhags, while Trashiyangtse Dzongkhag focused more on winter fodder promotion than other Dzongkhags. Likewise, Pemagatshel Dzongkhag's focus was on fodder slips (Napier and Guatemala) propagation in fallow and marginal land, which is comparatively higher (300,000 slips propagated) than the rest of the Dzongkhags. In addition, support to pasture fencing through subsidiary provision of barbed wire was provided to enable sustainable fodder production. This intervention has benefited 1873 households in the Programme Dzongkhags from which almost 48 % were women.



## Provision of dairy production inputs

CARLEP support to enhancement of milk production is pursued mainly through facilitation of purchase of improved dairy cows by providing subsidiary support, whereby the Programme contributed 30 % while the beneficiary contributed remaining 70 %. Through this support, 205 farmers have been benefited of which almost 49 % were women. Similarly, a total of 186 hygienic cattle sheds were constructed with CARLEP supporting 20 % of the cost while 80 % was borne by the beneficiary. The support to shed construction is to ensure improved management of dairy cows and most importantly targeted towards clean milk production. Dzongkhag wise support to purchase of improved cows and hygienic shed construction is given in Figure 15.

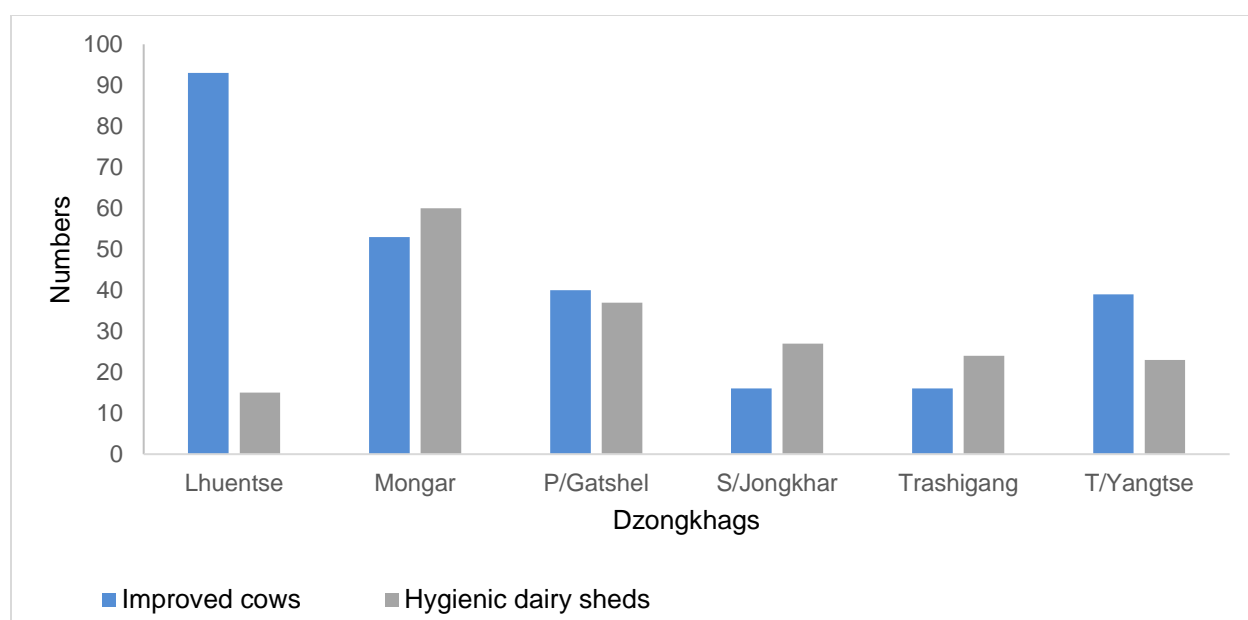


Figure 15. Graph showing Dzongkhag wise support to purchase of dairy cows and dairy sheds

The graph shows that Lhuentse Dzongkhag has purchased a greater number of dairy cows but the number of dairy sheds constructed is comparatively lower than other Dzongkhags. Similarly, shed construction does not correspond to the number of cows purchased for Samdrup Jongkhar, Trashigang and Trashiyangtse Dzongkhags. However, Mongar and Pemagatshel Dzongkhags have almost equal number of shed constructed versus improved cows purchased indicating satisfactory planning and implementation than other Dzongkhags. In essence, shed construction should be followed by purchase of improved cows not only to avoid underutilization of dairy sheds but to make the group members start contributing fresh milk to the group for maintaining economy of scale.

In order to facilitate dairy production, processing and marketing, dairy groups were supported with dairy equipment depending on the need of the groups. The types of equipment supplied is shown in Table 8.

Table 8. Dzongkhag wise dairy equipment supplied

<b>Equipment</b>	<b>LH</b>	<b>MG</b>	<b>PG</b>	<b>SJ</b>	<b>TG</b>	<b>TY</b>	<b>Total</b>
Milk cans	98	166	174	100	77	70	<b>685</b>
Butter churners	2	4	4		1		<b>11</b>
Cream Separator	2	4	3		2	1	<b>12</b>
Milk chiller	5						<b>5</b>
Chopping machine		2	33		100	6	<b>141</b>

Supply of milk cans to dairy groups was to ensure that milk quality is maintained while transportation from smallholder dairy farms to collection sheds and then to collection centres. In the past, farmers were using plastic buckets that were unhygienic which further contributed to milk quality deterioration. This intervention has benefited 419 farmers of which 51 % were female beneficiaries. Cream separators and butter churners were supplied to those dairy groups who were not in a position to channel fresh milk to processing centres instead engaged in traditional production of butter and cheese.

In areas where there is high milk volume, milk chillers were supplied to the dairy groups so that farmer groups can store milk before it gets delivered to processing plants. These interventions have benefited 2335 (49 % female beneficiaries) group members across the Programme Dzongkhags.

All these packaged interventions contributed to enhanced milk production as shown in Figure 10. For instance, overall milk production has significantly increased by about 390 % in 2018-2019 compared to 2017-2018 production year (An Increase from 1014 MT in 2016-2017 to 2955 MT in 2018-2019). Moreover, milk supply to KOFUKO dairy plant by nine farmer groups of Trashigang noticed an increasing trend from 2016 to 2018 (Figure 9) which is an indication that the Programme interventions have shaped the livelihood of farmers by enhancing their income. The milk supply trend by farmer groups to KOFUKO dairy plant is shown in Figure 4 below.

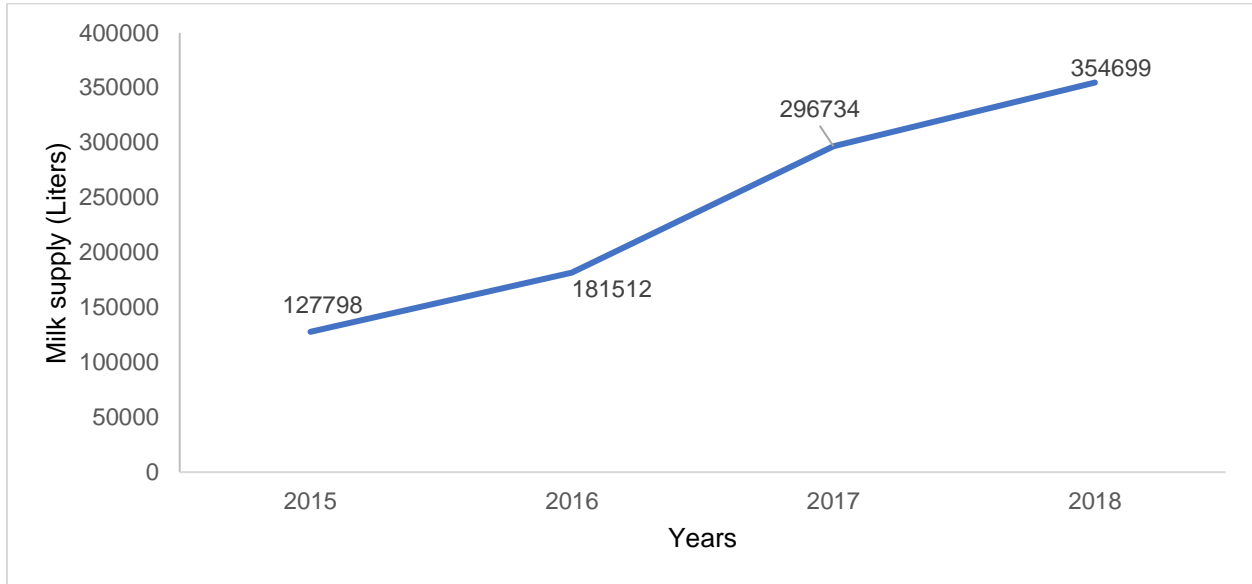


Figure 16. Milk supply trend by 9 groups of Trashigang to KOFUKO dairy plant

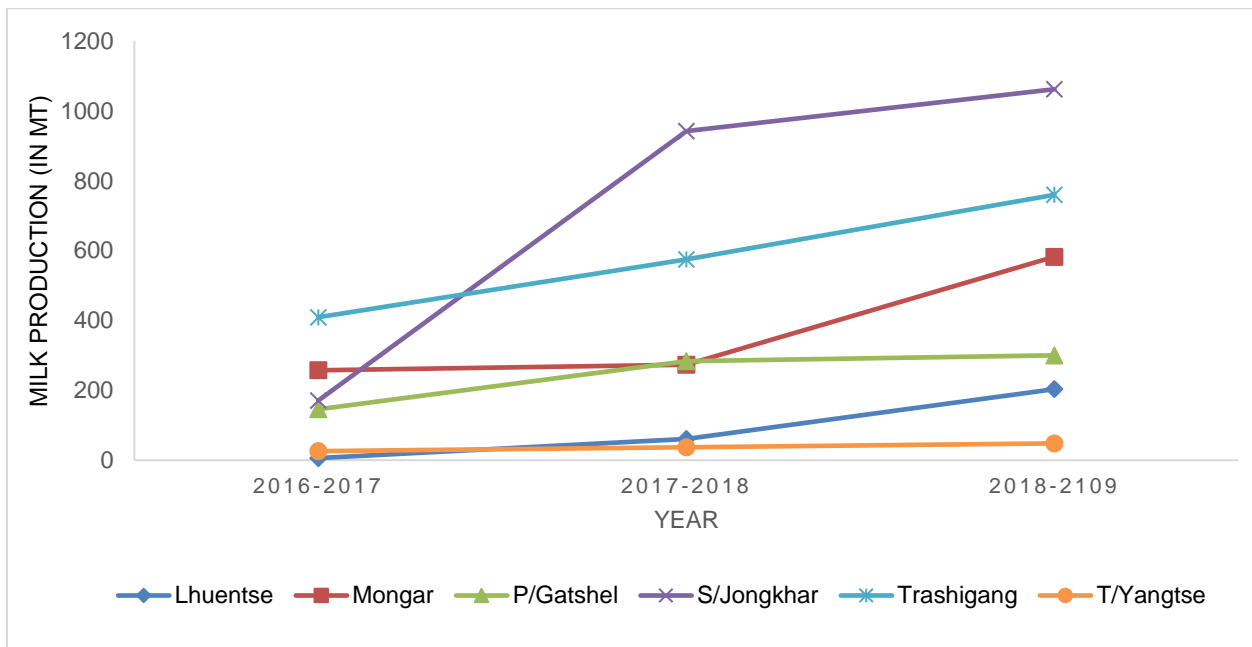


Figure 17. Dzongkhag wise milk production trend of dairy groups from 2016-2019 (Data source from RLDC, Kanglung)

The smallholder dairy farmers who are actively involved in dairy farming were also encouraged to integrate biogas in their farming system. The Dzongkhag wise number of biogas installed by the farmers is shown in Figure 18.

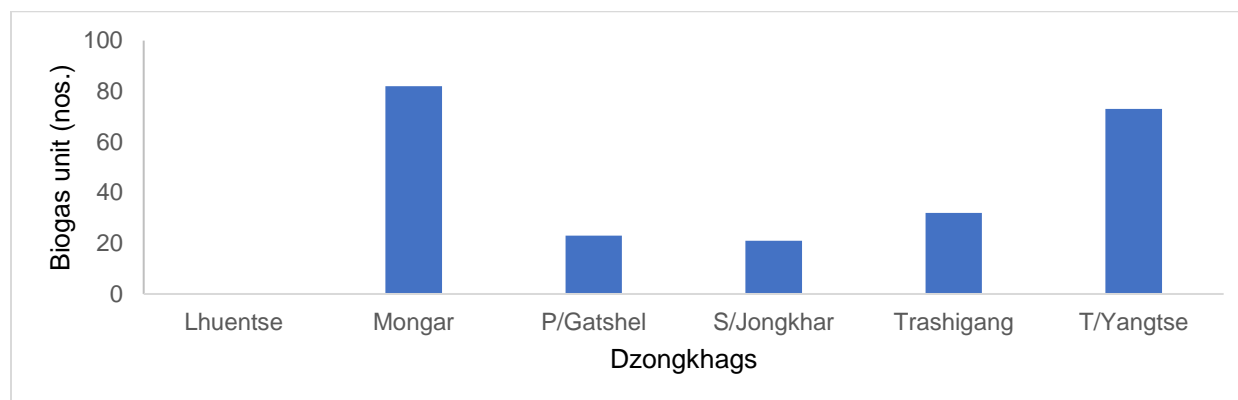


Figure 18. Dzongkhag wise biogas installed in 2018-2019

Almost 231 farmers (36 % female beneficiaries) have been benefited through the subsidy support on installation of fixed-dome biogas in terms of; manure management which otherwise emits methane to the atmosphere contributing to climate change, the methane is converted to heat energy used for cooking whereby farmers do not have to rely on LPG gas minimizing import pressure and cash outflow, reduction of firewood consumption reducing pressure on forests and use of potent bio slurry (by-products) in vegetable backyard thereby improving productivity.

## Component 2: Value Chain Development and Marketing

### Activity 2.2.1: Multi-stakeholder facilitation process (Value Chain Enhancement Meeting)

To create shared understanding, ownership, and collective action among traders, farmers, and other stakeholders involved in value chain, Multi-stakeholder platform (MSP) followed by business to business plan development was conducted at Mongar starting from 3rd May to 7th May, 2019. MSP and B2B plan were organized by Regional Agricultural Marketing and Cooperative Office (RAMCO) with fund support from Commercial Agriculture and Resilient Livelihoods Enhancement Programme (CARLEP)-IFAD as an immediate call for participatory and strategic planning approaches to develop innovative solutions that are more transformational, sustainable and effective means for market-led productions. Mr. Sanjeev Kumar Shrestha, IFAD consultant, facilitated the workshop to 65 participants including representatives from RAMCO, OPM CARLEP, ARDC, ADAOs, EAs, NPHC, BAFRA, BDBL, School Mess in-charge, traders, and Farmers' Groups (*Acronyms explained in glossary*). The workshop provided participants a platform to discuss the gaps and constraints in value chain. The workshop solely focused on vegetable value chain development in three eastern regions.



Figure 19. Participants on MSP at Mongar (5th May 2019)

Business to Business (B2B) Interactive meeting was held between 7 Farmers' groups (FG) of Balam gewog and the wholesaler (Mr Neten Dorji) to improve market-led productions.

B2B interaction was done among Balam's FGs and wholesaler as two of the groups were involved in previous year's B2B interaction. The objective of the B2B linkages was to update on previous year B2B linkages, address the constraints and gaps, and to provide innovative solutions to improve business for successful vegetable value chain. Balam gewog have formed 7 FGs solely for vegetable productions. Two groups were linked with the trader, Neten Dorji through B2B linkages last year and six more groups will be linked with the trader or other markets. B2B interaction brought together different producers and traders for friendly agreement contributing to the development of vegetable value chain.



*Figure 20. Participants during the B2B linkage interaction program*

### **Activity 2.2.3: matching grant guidelines**

RAMCO, OPM-CARLEP and few stakeholders worked together to draft matching grant guidelines based on Nepal's Matching grant guidelines sample. The objectives of MGF are to provide direct financial support to stimulate private investment in various stages of supply chain from inputs supply, production, and post-harvest management, processing / marketing and also support service market so as to facilitate and develop competitive supply chains and create overall growth in terms of market led production, sales turnover, income and employment including fostering growth of networks of competent market-based service providers. The draft is under review with supervision's mission member (Mr. Sanjeev Kumar Shrestha)

### **Output 2.3: Development of community driven market infrastructure**

In order to facilitate the dairy value chain, 5 milk collection Centres (3 nos. in Mongar Dzongkhag 1 each at Pemagatshel and Samdrup Jongkhar). It was constructed through initiative of RLDC, Kanglung. The location is based on the need of communities with production capacity and future prospective of expansion. The collection canters will be equipped with required facilities and then transport to better market after bulking in the centre.

## **Component 3: Institutional Support and Policy Development**

### **Outcome 3: Strengthened Agricultural Institutions and policies for improved and resilient and marketing practices**

In this reporting period not much has been done, in regards to policy matters, Office of the Programme Management take note to report at the end of the project phase.

#### **Activity 3.1.1: Improving Market information system**

RAMCO has established price board information at Mongar weekend market place to provide reliable price information to the customers. However, its utility and mass beneficiary impact are yet to be studied.

#### **C.1 Activities & Outputs: Main Achievements**

***The main achievements of the activities and outputs during the FY 2018-19 are as highlighted:***

The overall programme outreach in this reporting period is 46.716% (13536 HHs with target 28975) based on the log frame indicator (Without double counting of households).

- a) The cumulative achievement of Irrigation renovation is 16 irrigation schemes covering 888 ha (2194 Ac) of commend area benefiting 1340 households with length of 57 KM, but in this reporting period 4 Schemes completed covering 161.5 ha benefiting 240 households.
- b) A total of 768 improved/high breed cattle supplied to the farmers including 257 supplied during this fiscal year 2018-2019 (70: 30 beneficiary contribution).
- c) A total of 792 cattle shed with improved silo pits has been assisted through CARLEP including 186 this reporting period (90:10 beneficiary contribution).
- d) 121 Ha (301Ac) of farm land bought under the farm resilience and diversification in agriculture
- e) 53 numbers of poultry and piggery promoted to reduce rural poverty
- f) 6 existing farmer's groups are upgraded and promoted to encourage the bulking of agriculture produce for the better market place
- g) 200 plants of biogas promoted in the dairy farming communities
- h) 47 HHs are promoted apiculture in the south foot hilly area of farmers
- i) 31 lead farmers 4 cycles course completed through the ARDC and 17 lead expansion training conducted by Dzongkhag level implementing agencies

- 
- j) 151.03 Ha (414 Ac) bought under water facilities through irrigation renovation and water efficient initiative, 4 schemes physically completed in this fiscal year.
  - k) 137 numbers of vegetable training conducted with the involvement of 3759 HHs in which 2264 area female participants, estimated 15,098 MT vegetables produced (AOS 2019)
  - l) 12 seed growers are linked to National Seed Centre (NSC) for sustainable supply of seed to enhance the production
  - m) 69 dairy husbandry training conducted benefiting 1904 house with 999 female participants (Milk yield has increased both treatment and control group” as stated in the AOS report 2019)
  - n) 1131 sets of equipment supplied to farmer’s groups and dairy farmers (milk chiller 11, milk can 151, chopping machine 151)
  - o) 3 Multi-stakeholder platform (MSP) conducted
  - p) 1 International Technical Assistant (TA) fielded for MSP
  - q) 28 groups are registered and supported (20 Agriculture and 8 livestock group)
  - r) 180 farmers of groups and individuals are trained on marketing and post handling training
  - s) 1 marketing infrastructure constructed and completed at Trashigang
  - t) 5 milk collection Centre (MCC) constructed and completed
  
  - u) 125 sets of dairy equipment supplied (chillers 11, testing equipment 92, milk analyser 11, processing equipment 6)

### **C.1.2 Progress towards Component Outcome (s)**

The overview progress against the log frame target is 47.23% with covering 50703 households against the target of 84735, during this reporting period 15605 households has been covered. These figures are based on the progress report against each activity with the beneficiary list. The double counting household has been captured in the RIMS report.



Table 9. Cumulative achievements as per the log frame

Revised indicator	Target HHs	Cumulative past year (2)	Current achievement	Total	Achievement %
5000 direct beneficiary HHs in vegetable and dairy vegetable and dairy value chains report at least a 25% increase in HH assets and income, as compared to baseline (Disaggregated by HHs-head gender)	5000	4394	1459	5853	117.06
23180 smallholder HH supported in coping with the impacts of climate change (ASAP)	23180	18224	3665	21889	94.43
20000 HH have improved access to water for Agriculture production	20000	3439	2276	5715	28.57
23000 HH adopt technologies or practices with support coping with the impact of climate change (ASAP)	23000	20811	5636	26447	114.98
6000 HH adopt sustainable land management practices	6000	685	00	685	11.42
4500 HH organized into vegetable farming groups (Minimum 60% female members)	4500	337	1736	2073	46.07
2600 HH organized into dairy farming groups (with 50% female members)	2600	757	189	946	36.38
At least 140 commercial enterprises established are profitable by the end of the programme	140	0	30	30	21.34
115 marketing groups are operational in vegetable and dairy value chains by the end of the programme	115	15	70	85	73.91
200 agriculture enterprise (Including cooperatives) established and with business plan.	200	16	19	35	17.50
<b>Average</b>	<b>84735</b>	<b>48678</b>	<b>15080</b>	<b>63758</b>	<b>75.24%</b>

### C.1.3. Convergence and partnership

CARLEP is not a sole project assisting the plan programme in the east, there are 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. operate in the same

programme Dzongkhags as CARLEP. It is therefore important to synchronize or harmonize the annual work plan and budget (AWPB) among the projects and programmes to avoid duplication and to take advantage of synergy and complementing effects. In the first year, some of the managers were invented during the AWPB Preparation to harmonize work plan. During the supervision mission in the month of June 2019, a stake-holders workshop was organized among the development partners to thresh out the common issues and shared their vision and strategic plan and approaches.

#### **C. 1.4. Grant activities**

The two grants – IFAD grant and ASAP trust grant mainly supported the trainings, farmers group formation, supply of inputs such as seeds, seedlings, water harvesting technologies, permaculture, nursery, bio gas, organizing meeting workshop and lead farmers approach. IFAD grants are mostly supported with soft wire enhancement of entrepreneur through private partner promotion (PPP) model. In a way, grants activities are much achievable then the loan counterpart fund. With the grant assistant most of the staff availed the ex-country training to enhance the individual capacity. In total 135 persons has availed ex-country training, workshop and exposure visit, in this reporting period 56 person including 7 women participants attended and trained on capacity development.

Table 10. Details of the ex-country training and workshop attended through the ASAP grant

<b><i>Training topic</i></b>	<b><i>Country</i></b>	<b><i>Male</i></b>	<b><i>Female</i></b>
Hydroponic system	Thailand	01	02
Permaculture training	Nepal	13	02
Exposure visit (Veg)	Nepal	13	01
Study tour (Dairy)	Nepal	14	00
Project financial management training	Philippines	08	02
Total		49	07

#### **C.1.5. Constraints/bottlenecks affecting Component Progress and actions taken**

The geographical location of fur flung nature of village settlement has utmost constraint and bottleneck affecting the overall development in the region. With CARLEP intervention, some of the areas are provided with efficient irrigation, protected agriculture practices, irrigation renovation and training component to overcome the water issue of water shortage. Depletion of water sources is a serious threat to the high land settlement at the same time water table has been badly disturb through the development activities

specially the road network. Rainwater is providing the utmost nature's gift to the farming communities, at the same time it also brings the heavy destruction to crops and properties, if the volume is excess. This has all the result of climate change.

Some of the challenges faced by the agriculture sector are limited access to suitable agricultural land. At the same time there are pressing issue of empty households, remaining the fellow land and migrating people to urban areas.

#### **D. Progress towards programme purpose & goal**

The aim of the programme is to facilitate the transformation of a 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. There are increase in income for the farmers (The marginal income increases by 0.4% as compared to 2017 in AOS Report 2019). The production of milk has increased and certainly increased the income from the dairy sector. The targeted interventions through provision of input supports have helped crop diversification and enhanced income generation and enhancing farm resilience. The conservation of local crop varieties or native animal breeds will also contribute towards resilience building. The establishment of climate smart villages through participatory approach is way towards strengthening local capacity to adapt towards climate change impact. These interventions will directly contribute towards increased rural income and thus reduce rural poverty.

The commercialization of vegetable production and establishment of dairy cooperatives is expected to contribute towards the development of sustainable value chains in both the vegetable and livestock commodities. This is evident from enhanced vegetable and milk production in the programme areas. To sustain the value chain investments are being made in infrastructure development as well as 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 vegetable and dairy will help in establishment of sustainable value chain.

#### **E. Programme Sustainability**

The programme sustainability is the pioneer issue concerned in every donor funded, it governs from the highest governing body to the grass root implementing agencies with the transparency in individual`s mind of thought. Hence, under CARLEP, the programme sustainability is one of the priorities and therefore making careful considerations to sustain the programme impacts and benefits. The involvement of communities in irrigation

infrastructure management through establishment of 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 supply of post-harvest equipment under vegetable value chain. The farmers contribute 30% of the cost for purchase of crossbred cattle. Similarly, the beneficiaries contribute labour force and locally available raw materials for construction of dairy sheds while programme supports with other raw materials like cement, nails and corrugated iron (CGI) sheets for roofing. This is being implemented to instil a sense of ownership among the beneficiaries that will motivate farmers in continuing the activities beyond the project period. Therefore, the program management is emphasizing on programme sustainability through sensitization programs.

Further, the involvement of Public-Private-Partnership (PPP) is being seriously pursued especially for infrastructure with higher investments. In dairy value chain, the establishment of milk processing units on PPP model has been initiated. The linking of dairy groups from Trashigang Dzongkhag to Kufouku International Limited (Japan assisted programme) has assured milk market of the farmers. The programme will closely work with the company to sustain the dairy value chain. Similarly, the involvement of NGO like Samdrup Jongkhar Initiative will ensure the sustainability of impacts and benefits of climate change adaptation measures and resilient farming practices through adoption and expansion of farmer-farmer extension methodology (Lead Farmer approach). ARDC has worked out for most of the CARLEP funded activities with costing of beneficiary contribution, it worked out that some activities crop husbandry the beneficiary contribution more than project intervention. *See the attached report of ARDC.*

Nonetheless, the crucial factor in sustainability of the impact and benefits of the programme is access to market and the price of the produce. Thus, establishment of well-organized and systematic marketing channel is key to the sustainability of the programme impacts.

## **F. Programme Management**

The main activities undertaken under Component 4: Office of the Programme Management has conducted coordination activities such as preparation of Annual Work Plan and Budget as usual. A regular meeting and discussion with the Dzongkhags, Regional institutions sector heads (Agriculture, Livestock, Planning Officers, Budget and Account Officers) are mandatory for the OPM. In this reporting period trainings, exposure trip, workshop and meeting both in-country and ex-country with the international institutions was organized.

In the month of mid may, Annual Outcome Survey was carried out to assist the impact of the third-year result of the CARLEP implementation. The report has been shared with IFAD, Ministry, Dzongkhags and other implementing agencies. The report revealed that the average annual household income has been increased by 0.4% (AOS 2017 to 2018).

Table 11. Some of the major activities which do not reflect in the main progress reports

<b>Date of commence</b>	<b>Activity</b>	<b>Outcome/impact</b>
13 <sup>th</sup> July 2018	Meeting	NPSC held at Thimphu chaired by Honourable Dasho Secretary, MoAF
3 <sup>th</sup> Aug 2018	Audit	Office of the Programme Management received Royal Audit for 2017-2018 FY
15 <sup>th</sup> Sept 2019	Party election	Primary round of Bhutan election begun
11 <sup>th</sup> Sept 2018	Annual progress report	Submission of annual progress report to IFAD and received the acknowledgement after 2 days
4 <sup>th</sup> Dec 2018	FCBL	FCBL component manager withdrawn from the Office of the Programme Management, Mongar
1 <sup>st</sup> Jan 2019	RPIC/AWPB	Conducted RPIC meeting and prepared AWPB 2019-2020 FY at Samdrup Jongkhar
21 <sup>st</sup> Jan 2019	National Flower exhibition	A national flower exhibition held at Samdrup Jongkhar spearheaded by MoAF
27 <sup>th</sup> Feb 2019	RNR Conference	A two days RNR conference held at Mongar chaired by the Honourable Minister of MoAF/Director General of Livestock
22 <sup>nd</sup> March 2019	M&E roll out training	Conducted M&E training to all the sector heads and roll out training on planner facilitated by Mikael Kouttu
1 <sup>st</sup> June 2019	IFAD Mission	Received IFAD Supervision and design mission from 1 <sup>st</sup> - 15 <sup>th</sup> June 201

## F.1. Financial Management

The total financial achievement during FY 2018-19 was 76% with an increase of 12% compared to last year's progress achievement of 64%. This increase has been contributed through the training of the financial officers in the districts at various levels of training. CARLEP accounts are sent to the Philippines for financial management training and several rounds of financial related in-country training and workshops are held to improve the financial management system under the CARLEP. The detail achievement report is attached in the annexure.

Table 12. Consolidated financial progress for FY 2018-2019

Agency	Total budget allocation	Total budget utilization	Financial achievement %
OPM	35,155,000	27,404,826	78%
FCBL			
ARDC	26,090,000	23,966,864	92%
RLDC	30,396,000	23,418,404	77%
RAMCO	27,635,000	10,043,280	36%
Mongar	23,906,000	18,577,330	78%
Lhuentse	17,006,775	16,057,000	94%
Trashigang	12,630,000	10,459,679	83%
Trashiyangtse	11,972,000	10,872,884	91%
Samdrup Jongkhar	9,895,000	7,464,631	75%
Pemagatshel	14,796,000	11,186,698	76%
<b>Grant total</b>	<b>209,481,775</b>	<b>159,451,614</b>	<b>76%</b>

## F.2. Procurement

The procurement plan is based on the IFAD guideline and implemented as per the plan. In every Annual Work Plan 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 get the funds released in the OPM. In general, all the implementing agencies are not complacent with procurement procedures both the Government and IFAD.

## F.3. M&E, Communications, and Knowledge Management

Knowledge Management is considered as an integral part of CARLEP, wherein, the lessons, experiences, learnings and outcomes of the programme are to be documented, shared, replicated and adopted.

The major emphasis on the knowledge management in 2018-19FY is given in the documentation of any successful/impeding cases that the implementers have faced in the activity execution phase.

A total of 18 case stories which have been authored by the extension officers are featured in the 3<sup>rd</sup> issue of the Stories of Change. The publication has the compilation of success and failure stories while implementing the programme activities.

Similarly, the 23 extension officers (inclusive of agriculture extension officers, livestock extension officers, focal person from the 4 central agencies) were provided hands on training at Trashigang. Further, the audio-visual documentation is given the due importance. With the in-house capacity of Programme office and ARDC Wengkhari, several videos on 'Introduction to CARLEP, a tutorial video on lead farmers approach' are produced.

#### **F.4. Gender**

Gender mainstreaming and social inclusion are the critical entry points in the holistic implementation of CARLEP activities. It is one of the major thematic areas of CARLEP in which the women and the marginalized section of the people are equally considered in the developmental activities' partners.

Concurrently, gender mainstreaming is considered as the cross-cutting issues, whereby, each and every activity executed under CARLEP targets for the equal participation and equal benefits for both men and women.

For the total beneficiaries of 58890 HHs in which 30019 are female households' beneficiaries. It indicates 50.974% are female and only 49.053% are male.

## **H. Summary of Lessons Learned**

Preparation of the Annual Work Plan and Budgeting is an essential part of the project phase. In general, Bhutanese people are poor in planning and implementation, in the next coming season, CARLEP will have different planning phase like orientation, planning and review phase so that all the plans are not generic as done in the past. In the review phase, the real need base and the project outcome and objective will be realigned. This will also not guide by the project cost tab but keep as the guideline to orient towards the project objective and goal.

Multi-Stakeholders Platform (MSP) has lately introduced in the past year, it will be vigorous and expanded as a major activity in the vegetable and dairy value chain

---

concept. RAMCO will spearhead the programme but all other stakeholders have to be proactive to improve the system at greater possible. This will benefit weaker section of farmers where group concept will be formalizing and implement.

Reporting is relatively poor in whole chain of CARLEP from the grass root (Extension Staff) to the Dzongkhag then to the OPM per say. It is indeed not to blame the system but the officer in-charges not able to comply in time with accuracy of data recording in the system. During our monitoring visit at the site the work execution is quite satisfactory but narration of the report found quite poor in general. Therefore, write-shop is kept as the continuous activity to be carried out under the CARLEP funding.

## **I. Conclusions and Recommendations for follow-up**

The overall physical outreach is satisfactory with 47.23% and whereas financial achievement is 67% based on the expenditure. Henceforth we commend to follow the value chain concept with MPS and B2B linkage. The focus approach will continue for commercialization for vegetable and dairy improvement in the programme area.

The planning phase has been improved that all the implementing agencies are authorized to prepare work plan based on the farmer`s need, concerning environment, implementation capacity in line with vegetable and dairy value chain.

The reporting system will be improved, All the Gewog Extension staff will be trained on the M&E system and reporting will be channelized. The AWPB has been revisited sitting with all the District and Gewog staff, visiting every Dzongkhags in collaboration with central agencies. This will bring the CARLEP activities more transparency and complacent, while implementing the activities in the field.

In order to follow up the IFAD Mission recommendations, a budget provision has been allocated in the Management unit.



**Table 13. Annual Progress Report (FY 2018-19)**

Component/Outcome	Indicator	Unit	2018-2019		-	Cumulative	Appraisal Target	%	
			AWP & B	Actual	%	cumulative			
<b>Component 1: Market-led Sustainable Agriculture Production</b>									
<b>Output 1.1. Increased production resilience and diversification in agriculture</b>									
<b>1.1. A</b>	<b>Climate Smart Agriculture Production and Management</b>								
1	Upgrading of existing farmer groups	No. of farmers Groups upgraded	No.	9	6	66.67	19	6	316.67
2	Training of extension agents	No. of EAs trained	No.	30	27	90	46	200	23.00
3	Production inputs for farm resilience and diversification (Agriculture)	Area under farm resilience and diversification	Acre	52	264	507.7	1162.01	194	598.97
4	Production inputs for farm resilience and diversification (Livestock - Poultry)	No of native poultry units promoted	No.	70	27	38.57	277	368	75.27
5	Production inputs for farm resilience and diversification (Livestock - Piggery)	No. of native piggery units promoted	No.	38	26	68.42	46	240	19.17
6	Production inputs for farm resilience and diversification (Livestock - Goat)	No. of goat promoted	Nos.				54	0	
7	Production support fund	Amount supported	Nu.					0	
8	Promotion of SLM techniques	Area under SLM	Acres				76.5	150	51.00
9	Land development	Area under land development	Acres				128.14	300	42.71

10	Local germplasm collection, conservation, and promotion	No. of lines	No.				67	70	95.71
11	Crop diversification (Cereals, oil seeds, pulses& fruits)	Area under diversification	Acre	12	33	275	798.35	3000	26.61
<b>1.1. B</b>	<b>Innovation through Permaculture &amp; Biogas</b>								
1	Farm-level rainwater harvesting infrastructure	No. of infrastructure established	No.	2	0		3	12	25.00
2	Seed and seedlings	Area covered	Acre	50	60.78	121.6	111.51	72	154.88
3	Tools for permaculture	Sets of tools supplied	No.	7	7		7	12	58.33
4	Inputs for permaculture (livestock)	No. of units supported	No.				14	30	46.67
5	Bee Keeping	No. of household supported	No.	36	47	130.6	7	30	23.33
6	Inputs for permaculture (agriculture)	No. of units supported	No.					0	
7	Nursery set up	No. of nurseries set up	No.				31	2	1550.00
8	Training course on permaculture	No. of training conducted	No.	1	1	100		1	0.00
9	Staff training on permaculture	No. of staff trained	No.					0	
10	Farmers training on permaculture	No. of farmers trained	No.				176	120	146.67
11	Permaculture materials & translation	No. of materials published	No.				1	4	25.00
12	Biogas digester	No. of biogas digester promoted	No.	330	200	60.61	12	12	100.00
13	TA biogas	No. of TA recruited	No.				0	0	
14	SLM practices	Area coverage	Acre				32	12	266.67
<b>1.1. C</b>	<b>Innovation through ICTs</b>								

1	Hand-held tablets, software, and soil test kits	No. of ICT tools introduced	No.					100	0.00
2	Training on tablet-based soil monitoring technology	No. of training conducted	No.					4	0.00
3	Training on report writing documentation and information sharing	No. of training conducted	No.				2	0	
4	Pilot e-reporting system	No. of e-reporting system	No.				1	0	
5	Information management dissemination	No. of publication							
<b>1.1. D</b>	<b>Increase Outreach of Extension Services</b>								
<b>1.1. D.1</b>	<b>Strengthening &amp; expansion of the Lead Farmer Model</b>								
1	Training of trainers (ToT)	No. of ToT conducted	No.				4	17	23.53
2	Training of lead farmers	No. of lead farmers trained	No.	40	35	87.5	136	355	38.31
3	Development of training material and field manuals	No. of training materials developed	No.	2	2	100	3	11	27.27
4	Farmer-to-farmer trainings	No. of F-F training conducted/No of farmers trained	No.				43	60	71.67
5	Lead model scaling-up training	No. of lead model scaling-up trained	No.	30	17	56.67	12	0	
6	Farmer field festivals	No. of Farmers field festivals convened	No.	5	12	240	24	0	
7	Workshops (planning, review, evaluation)	No. of Workshops conducted	No.	6	10	166.7	9	4	225.00
8	Documentation and systematization	Documents produced	No.				3	0	

9	Protected gear kits for extensions	No. of Kits supplied	No					362	0.00
<b>1.1. D.2</b>	<b>Demonstration inputs &amp; equipment for lead farmers</b>								
1	Production inputs	Area under production inputs	Acre	40	50	125	10.18	130	7.83
3	Poly-tunnels	No. of poly-tunnels set up	No.	40	48	120	106	40	265.00
<b>1.1. E</b>	<b>Resilient &amp; Water Use Efficient Irrigation Development</b>								
<b>1.1. E.1</b>	<b>Training on Climate Resilient Irrigation</b>								
1	District engineers and extension agents (design and construction)	No. of DEs and EAs trained on climate resilient irrigation	No.	6	1	16.67	34	0	
2	Water Users Associations (O&M)	No. of WUAs trained on Climate resilient irrigation	No.	2	7	350	12	0	
3	Preparation of manual for upgrading irrigation engineering norms	Manual for upgrading Irrigation Engineering norms prepared	No.				7	0	
<b>1.1. E.2</b>	<b>Irrigation Infrastructure</b>								
1	Feasibility studies	No. of Feasibility studies conducted	No.				2	2	100.00
2	Renovation of irrigation infrastructure	Irrigation Infrastructure renovated (Area coverage)	Acre	202	414	205	1715.49	864	198.55
3	Pilot irrigation schemes	No. of Pilots irrigation schemes developed	No.	4	4	100	149	0	
4	Quality control and supervision	No. of quality control and supervision conducted	No.	4	4	100		0	

5	Promotion of water use efficient technologies	No. of improved irrigation system	No				12	47	25.53
6	Formation and strengthening of water user associations	No. of water user association formed	No				22	30	73.33
<b>1.1. F</b>	<b>Strengthening of Local Institutions on Smallholder's Climate Resilience</b>								
1	Awareness on climate smart Agriculture	No. of awareness conducted	No.				6	12	50.00
2	Development of business model and sustainability plan for service and O&M	No. of business model and sustainability plan developed	No.	1	0			0	
3	Upgrading of farm roads to climate resilient standards	No. or length of farm roads upgraded to climate resilient standards	No./Km	1	0		35.6	0	
4	Capacity development of existing farmer groups, WUG and RUG	No. of FGs, WUGs and RUGs trained	No.	1	5	500	34	18	188.89
5	Updating of O&M models for irrigation and farm roads	No. of O&M models developed for irrigation & farm roads	No.	6	4	66.67	58	0	
<b>1.1. G</b>	<b>Technical Assistance (C1)</b>								
1	Recruitment of National TA done	No. of TA recruited	No.					0	
<b>Output 1.2: Intensification &amp; Expansion of Vegetable Production</b>									
<b>1.2. A</b>	<b>Development of training and extension material</b>								
1	Training & extension material developed	No. of training & extension materials developed	No.	2	2	100	2	3	66.67

<b>1.2. B</b>	<b>Capacity Development of Vegetable Production Groups</b>								
<b>1.2. B.1</b>	<b>Awareness &amp; Mobilization</b>								
1	Awareness and mobilisation carried out	No. of awareness & mobilization conducted	No.	9	26	288.9	50	54	92.59
<b>1.2. B.2</b>	<b>Training on Production Techniques &amp; Post-harvest Management</b>								
1	Training on vegetable production techniques	No. of farmers training conducted	No.	200	82	41	95	120	79.17
2	Retraining on vegetable production techniques	No. of farmers training conducted	No.	9	0		32	0	
3	Training on post-harvest management	No. of farmers trained on post-harvest management	No.	200	44	22	289	120	240.83
4	Retraining on post-harvest management	No. of farmers retrained on post-harvest management	No.	600.0 0	0.00		266	0	
5	Exchange visits for farmers	No. of farmers sent on exchange visits	No.	13	11	84.62	65	10	650.00
<b>1.2. B.3</b>	<b>Commercial production by farmers groups</b>								
1	Commercial production by farmers groups promoted	Area under commercial production	Acre				310.1	58	534.66
<b>1.2. C</b>	<b>Vegetable Seed Research &amp; Production</b>								
1	Developing packages of practice (extension material)	No. of extension materials produced on vegetable see production	No.	2	1	50	1	2	50.00

2	Training and certification of vegetable seed growers	No. of vegetable seed growers trained on seed certification	No.	20	19	95	17	65	26.15
3	Equipment and input support vegetable seed growers	No. of Equipment supplied to veg. seed growers	No.	7	2	28.57	44	65	67.69
4	Retraining of vegetable seed growers	No. of veg. seed growers retrained	No.				12	0	
5	Seed processing unit's vegetable seed farm NSC	No. of seed processing units supported	No.				2	0	
6	Glasshouse construction vegetable seed farms NSC	No. of glasshouse constructed	No.				2	0	
<b>1.2. D</b>	<b>Provision of Vegetable Production Inputs</b>								
1	Provision of stress tolerant vegetable seeds	Quantity of vegetable seeds supplied	Kg/Pkts	4	10	250	724.18	180	402.32
2	Water efficient irrigation	Area under water efficient irrigation system	Acre	900	252	28	1039.78	840	123.78
3	Small post-harvest equipment	No. of small post-harvest equipment promoted	No.	290	13	0.045	2124	0	
<b>Output 1.3: Intensification &amp; Expansion of Dairy Production</b>									
<b>1.3. A</b>	<b>Development of training &amp; extension materials</b>								
1	Training & Extension materials developed	No. training & extension materials developed on dairy production	No.	3	0		2	3	66.67
<b>1.3. B</b>	<b>Capacity Development of Dairy Production Groups</b>								
<b>1.3. B.1</b>	<b>Awareness &amp; Mobilization</b>								

1	Awareness & Mobilization Carried Out	No. of Dairy groups sensitized and mobilized	No.	16	28	175	27	50	54.00
<b>1.3. B.2</b>	<b>Training on Good Dairy Management Practices</b>								
1	Training on livestock husbandry	No. of dairy groups or individuals trained on livestock husbandry	No.	29	36	124.1	62	75	82.67
2	Retraining on livestock husbandry	No. of dairy groups or individuals retrained on livestock husbandry	No.	59	0		18	0	
3	Training on clean milk production	No. of dairy groups or individuals trained on clean milk production	No.	38	26	68.42	67	150	44.67
4	Retraining on clean milk production	No. of dairy groups or individuals retrained on clean milk production	No.	50	0		54	0	
5	Training on farm record keeping	No. of dairy groups or individuals trained on farm record keeping	No.	36	7	19.44	130	65	200.00
6	Retraining on farm record keeping	No. of dairy groups or individuals retrained on farm record keeping	No.	42	0		36	0	
<b>1.3. C</b>	<b>Improved Services Outreach through CAHWs &amp; Lead Farmers</b>								
<b>1.3. C.1</b>	<b>CAHW Model</b>								
1	CAHW model development and packaging	No. of CAHW model developed	No.	1	1	100	2	2	100.00
2	Training of trainers (ToT)	No. of ToT conducted on CAHW & lead farmers	No.	1	1	100	2	2	100.00



3	Training of CAHWs	No. of CAHWs trained	No.	20	22	110	113	60	188.33
4	Retraining of CAHWs	No. of CAHWs retrained	No.	26	0			0	
5	Kits for AI practitioner	No. of Kits supplied	No.				64	80	80.00
6	Transport facilities for CAHWs	No. of CAHWs supported with transport facilities	No.	15	20	133.3		30	0.00
7	Stipend for CAHWs	Amount disbursed	Nu.	45				90	0.00
<b>1.3. D</b>	<b>Support to Fodder &amp; Feed Production</b>								
1	Perennial fodder in fallow and marginal land	Area of fallow & marginal land under perennial fodder	Acre	145	560	386.2	730.8	1500	48.72
2	Winter fodder crop demonstration and seed supply	Area under Winter fodder	Acre	28	301	1075	965.11	230	419.61
3	Training of feed producers	No. of feed producers trained	No.	10	60	600	90	15	600.00
4	Chopping machine (for dairy groups)	No. of chopping machines supplied	No.	57	151	264.9	48	57	84.21
5	Training on use of crop residues and feed/fodder	No. of training conducted	No.	34	25	73.53	16	40	40.00
<b>1.3. E</b>	<b>Provision of Dairy Production Inputs</b>								
1	Milk cans	No. of Milk cans supplied	No.	1105	511	46.24	869	0	
2	Cross-breed cattle	No. of cross-breed cattle supported	head	190	257	135.3	776	790	98.23
4	Shed construction	No. of sheds constructed	unit	215	186	86.51	965	770	125.32
5	Equipment dairy production groups	No. of equipment supplied to dairy producer groups	No.	267	458	171.5	17	0	
6	Refrigerators for schools	No. of refrigerators supplied to schools	No.					75	0.00
<b>Component 2: Value Chain Development &amp; Marketing Support</b>									

<b>Output 2.1: Development of Resilient Vegetable &amp; Dairy Value Chains</b>									
<b>2.1. A</b>	<b>Strengthening of FCBL for Value Chain Development</b>								
1	Design of organizational strategy, business plan and capacity development plan	Organizational development strategy, business plan and capacity development plan in place	Strategy & Plan				1	1	100.00
2	Capacity development activities	No. of staff trained on value chain development	No.	11	0		346	4	8650.00
<b>2.1. B</b>	<b>Vegetable value-chain design and business plan</b>								
1	Vegetable value chain plans prepared	Vegetable value-chain design & business plan in place	Plan				1	3	33.33
<b>2.1. C</b>	<b>Dairy value-chain design and business plan</b>								
1	Dairy value chain business plans prepared	Dairy value-chain design & business plan in place	Plan				1	3	33.33
<b>2.1. D</b>	<b>Value Chain Development, Strengthening and Expansion</b>								
1	Multi Stakeholders facilitation process	No. of stakeholders engaged or consulted	No.	1	3	300	6	4	150.00
<b>2.1. E</b>	<b>Technical Assistance (C2)</b>								
1	National/External TA	No. of National/External TA recruited	No.	1	1	100		72	0.00
<b>Output 2.2: Agricultural Commercialization &amp; Enterprise Development strengthened</b>									
<b>2.2. A</b>	<b>Support to Agriculture Enterprise Development</b>								

1	Support to Agriculture Enterprise Development	No of Agriculture Enterprises supported	No.					200	0.00
<b>2.2. B</b>	<b>Support to Marketing Groups</b>								
1	Awareness on marketing groups	No. of Marketing groups sensitized	No.				73	20	365.00
2	Strengthening of existing marketing and cooperative capacity development packages	No. of marketing & cooperative capacity development packages strengthened	No.	1	1	100		1	0.00
3	Development of training material for dairy processing	No. of training materials on dairy processing developed	No.				3	2	150.00
4	Identification of marketing groups	No. of marketing groups identified	No.					0	
<b>2.2. C</b>	<b>Training on Marketing Groups</b>								
1	Formation of vegetable marketing groups	No. of vegetable marketing groups formed	No.	25	20	80	18	130	13.85
2	Formation of dairy marketing groups	No. of dairy marketing groups formed	No.	15	8	53.33	13	90	14.44
3	Training in marketing & value-chain	No. of groups or individual farmers trained on marketing & value-chain	No.	130	180	138.5	40	450	8.89
4	Training in packaging & handling	No. of groups or individual farmers trained on packaging & handling	No.	142	100	70.42	39	415	9.40
5	Social inclusion fund	Amount of fund disbursed	Million Nu.					3.25	0.00

<b>2.2. D</b>	<b>Support to Entrepreneurs</b>								
1	Development of training packages for agriculture entrepreneurs	No. of training packages developed for agriculture entrepreneurs	No.	1	0	0	1	2	50.00
2	Entrepreneur identification and engagement process	No. of entrepreneurs identified and engaged	No.					1	0.00
<b>2.2. E</b>	<b>Other Trainings to Groups, Cooperatives &amp; Entrepreneurs</b>								
1	Training provided to other groups and entrepreneurs	No. of groups, coops & entrepreneurs trained	No.	60	14	23	68	0	
<b>2.2. F</b>	<b>Multi-stakeholder Platforms &amp; Network development</b>								
<b>2.2. F.1</b>	<b>Multi-stakeholder platforms and network development</b>								
1	Multi-stakeholder platforms and networks developed	No. of platforms & networking established	No.	1	3	300	2	3	66.67
<b>Output 2.3: Development of Community-driven Market Infrastructure</b>									
<b>2.3. A</b>	<b>Planning &amp; Design</b>								
1	Business plan-based planning of market infrastructure	No. of market infrastructure developed based on business plan	No.	1	1	100	2	3	66.67
2	Development of business plans for 3 windows shops	No. of Developments windows shops convened	No.				2	2	100.00
<b>2.3. B</b>	<b>Vegetable Value-chain, Post-harvest &amp; Market Infrastructure &amp; Equipment</b>								
1	Value-chain equipment	No. of value-chain equipment promoted	No.	1	1	100	6	3	200.00

2	Value-chain infrastructure	No. of value-chain infrastructure put in place	No.	5	1	20	2	3	66.67
3	Transportation (Vehicle)	No. of vehicles purchased	No.					0	
<b>2.3. C</b>	<b>Dairy Value-chain Post-harvest &amp; Market Infrastructure &amp; Equipment</b>								
1	Construction of milk collection sheds	No. of milk collection shed constructed	No.	17	0	0	33	90	36.67
2	Equipment of milk collection sheds	No. of equipment set up in milk collection sheds	No.					114	0.00
3	Construction of milk collection centres with chilling facilities	No. of milk collection centres with chilling facilities	No.	5	5	100	67	0	
4	Milk chillers	No. of milk chillers supplied	No.	2	11	550	20	24	83.33
5	Milk quality test equipment	No. of milk quality testing equipment supplied	No.	8	92	1150	28	24	116.67
6	Milk Analyser	No. of milk analysers supplied	No.	1	11	1100		24	0.00
7	Milk processing unit	No. of milk processing unit established	No.	1	1	100	22	0	
8	Milk processing equipment	No. of milk processing equipment supplied	No.	1	5	500		0	
9	Milk chilling van	No. of milk chilling van provided	No.	1	0	0		4	0.00
<b>Component 3: Institutional Support &amp; Policy Development</b>									
<b>Output 3.1: Strengthened Value-Chain &amp; Marketing Knowledge and Communication</b>									
<b>3.1. A</b>	<b>Strengthening of the DAMC Market Information System</b>								

1	Strengthening of the DAMC market information system	DAMC MIS strengthened	MIS	1			1	2	50.00
2	Equipment related to Market Information System upgrade	No. of equipment supplied for MIS upgradation	No.	1			4	0	
<b>3.1. B</b>	<b>Curriculum development of RNR Training and Education institutes</b>								
1	Curricula for RNR Training & Education Institutes Developed	No. of curriculum developed	No.					2	0.00
<b>Output 3.2: Mainstreaming Climate Change Resilience &amp; Value Chain Development Lessons into agricultural policies and sector strategies</b>									
<b>3.2. A</b>	<b>Participatory policy development and monitoring approach</b>								
1	Participatory Policy Development Approaches Developed	No. of participatory policy development process or approach initiated	No.					2	0.00
<b>3.2. B</b>	<b>Mainstreaming climate resilience and value chain development lessons in agricultural policies</b>								
1	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.					3	0.00
<b>3.2. C</b>	<b>Development of a regulatory framework for PPP</b>								
1	Regulatory Frameworks for PPP	A regulatory framework for PPP developed	Frame work					2.5	0.00
<b>3.2. D</b>	<b>Technical Assistance (C3)</b>								

1	National/International TA	No. of Nationals/International TA recruited	No.					8	0.00
2	Support budget RNR training and education institutes	Amount supported	No.					3	0.00
3	Support budget climate resilience mainstreaming	Amount supported	No.					4	0.00
4	Support budget PPP regulatory framework	Amount supported	No.					3	0.00
<b>Component 4: Project Management, Coordination and M&amp;E</b>									
<b>4.1.</b>	<b>Project Management Unit</b>								
<b>4.1. A</b>	<b>Material &amp; Equipment</b>								
1	Vehicles	No. of vehicles purchased	No.				1	2	50.00
2	Laptops	No. of laptops purchased	No.		9		10	12	83.33
3	Printer	No. of printers purchased	No.				10	5	200.00
4	Scanner	No. of scanners purchased	No.	1	0		1	2	50.00
5	Photocopier heavy duty	No. of heavy-duty photocopier purchased	No.				1	2	50.00
6	Office equipment	Sets of office equipment purchased	Set	15	15	100	6	5	120.00
<b>4.1. B</b>	<b>Capacity Building</b>								
1	Training on gender	No. of staff trained on gender	No.	1	0		1	1	100.00
2	Training on knowledge management	No. of staff trained on KM	No.	1	0		1	1	100.00
3	Training on monitoring and evaluation	No. of staff trained on M&E	No.	1	1	100	1	1	100.00

4	Training on financial management	No. of staff trained on FM	No.	1	1	100	1	6	16.67
<b>4.1. C</b>	<b>Coordination</b>								
1	Coordination meetings with dzongkhags	No. of Dzongkhags coordination meeting held	No.	6	2	33.33	5	7	71.43
<b>4.1. D</b>	<b>Food Corporation of Bhutan</b>								
<b>4.1. D.1</b>	<b>Material and equipment</b>								
1	Materials and Equipment Procured for FCBL	No. of Materials and equipment procured by FCBL	No.				3	205	1.46
<b>4.1. E</b>	<b>Monitoring &amp; Evaluation</b>								
1	Baseline and impact studies	No. of baseline & impact studies conducted	No.				1	1	100.00
2	Programme Supervision Mission	No. Of Mission	No.	2	2	100	4	14	28.57
3	Annual outcome surveys	No. of AOS conducted	No.	1	1	100	2	3	66.67
4	Mid-term review	Mid-term review conducted	Mission	1	1	100		1	0.00
5	Project completion report	PCR prepared	Report					1	0.00
<b>4.1. F</b>	<b>Knowledge Management</b>								
1	Printing and publications	No. of quality KM products published	No.	1	1	100	6	7	85.71
2	Setting up IMS (CARLEP Webpage)	Web page established	No.				1	1	100.00
3	Multi-stakeholder platform and networking	No. Of platforms & networks established	No.					0	



4	Workshops and meetings	No. of workshops & meetings conducted	No.	2	3	150	3	4	75.00
<b>4.2. A</b>	<b>OPM, Mongar</b>								
1	National Program Director	No. of months Paid	Months	12	12	100	44	84	52.38
2	Finance Manager	No. of months Paid	Months	12	12	100	44	84	52.38
3	Accountant	No. of months Paid	Months	12	12	100	32	84	38.10
4	M&E and Gender Manager	No. of months Paid	Months	12	12	100	42	84	50.00
5	Project Support Officer	No. of months Paid	Months	12	12	100	44	84	52.38
6	KM Officer	No. of months Paid	Months	12	12	100	44	84	52.38
7	Component Manager (Agriculture Production)	No. of months Paid	Months	12	12	100	44	84	52.38
8	Component Manager (Livestock Production)	No. of months Paid	Months	12	12	100	32	84	38.10
9	Component Manager (Value-chain and Marketing)	No. of months Paid	Months	12			44	84	52.38
10	Dy. Manager-RAMCO	No. of months Paid	Months				44	84	52.38
11	Office Assistant	No. of months Paid	Months				24	84	28.57
12	Driver (x2)	No. of months Paid	Months				88	168	52.38
<b>4.2. B</b>	<b>Liaison Office, Thimphu</b>								
1	IFAD Focal Officer, PPD	No. of months Paid	Months				44	84	52.38
2	IFAD Focal Officer, AFD	No. of months Paid	Months				44	84	52.38
<b>4.2. C</b>	<b>Operating Cost, Project Management Unit</b>								
1	Vehicle operation and Maintenance	No of Vehicles	LPS	5	2	40	2.896		
2	Maintenance of Building	Lump sum	LPS				1.593		
3	Maintenance of Equipment	Lump sum	LPS				0.17		

---

4	Utilities - telephone, internet, electricity, water, sewerage, fax, post, etc.	Lump sum	LPS				1.44		
5	Office supplies	Lump sum	LPS	11	11	100	8.44		
6	Travel and Meetings	Lump sum	LPS	2	2	100	5.79		

**Annexure 1: List of OPM Staff**

Sl. No.	Name	Designation	Contact No.	E-mail ID
1	Mr. Dorji Wangchuk	PD	641650/17663138	<a href="mailto:dorjiwangchuk@moaf.gov.bt">dorjiwangchuk@moaf.gov.bt</a>
2	Mr. Karma Tenzin	M&E Officer	17645356	<a href="mailto:ktnzin2005@gmail.com">ktnzin2005@gmail.com</a>
3	Mr. Ugyen Wangdi	CM, Agriculture	17546756	<a href="mailto:uwangbidung@gmail.com">uwangbidung@gmail.com</a>
4	Mr. Norbu	CM, Livestock	17922538	<a href="mailto:norbu1@moaf.gov.bt">norbu1@moaf.gov.bt</a>
5	Mr. Sangay Choda	PSO	17858497	<a href="mailto:Sanrigs858@gmail.com">Sanrigs858@gmail.com</a>
6	Ms. Chhimi Lhamo	Gender & KM Officer	17517091	Chhimilhamo22019@gmail.com
7	Mr. Jigme	FO	17360359	<a href="mailto:Jigme8222@gmail.com">Jigme8222@gmail.com</a>
8	Mr. Ugyen Wangchuk	Accounts Assistant	17695654	<a href="mailto:Uwangs5088@gmail.com">Uwangs5088@gmail.com</a>
9	Mr. Ugyen Tshewang	Driver	17647990	<a href="mailto:Utshewang67@yahoo.com">Utshewang67@yahoo.com</a>
10	Mr. Kelzang Namgyal	Driver	17823794	

**Annexure 2: List of Program Partners**

Sl. No.	Name	Designation	Contact No.	E-mail ID
<b>Ministry of Agriculture &amp; Forests (MoAF)</b>				
1	Dasho Rinzin Dorji	Hon'ble Secretary	326735/17142434	<a href="mailto:rinzindorji2@moaf.gov.bt">rinzindorji2@moaf.gov.bt</a>
2	Mr. Kencho Thinley	Chief, PPD	322545/17118384	<a href="mailto:kthinley@moaf.gov.bt">kthinley@moaf.gov.bt</a>
3	Mr. Sonam Dorjee	Chief, AFD	323594/17596040	<a href="mailto:sdorjee@moaf.gov.bt">sdorjee@moaf.gov.bt</a>
4	Mr. Khampa Tshering	Chief, HRD	17662696	<a href="mailto:khampatshering@moaf.gov.bt">khampatshering@moaf.gov.bt</a>
5	Mr. Sangay Chopel	PO, PPD/ Liaison Officer, CARLEP	17127478	<a href="mailto:schopel@moaf.gov.bt">schopel@moaf.gov.bt</a>
6	Ms. Dechen Choeden	AO, AFD/ Liaison Officer, CARLEP	17654130	<a href="mailto:dchoden@moaf.gov.bt">dchoden@moaf.gov.bt</a>
<b>Department of Agriculture (DoA)</b>				
1	Ms. Kinlay Tshering	Director	02-322805	<a href="mailto:kinlaytshering@moaf.gov.bt">kinlaytshering@moaf.gov.bt</a>
2	Mr. Ganesh B Chhetri	Specialist	02-321291	<a href="mailto:gbchhetri@maof.gov.bt">gbchhetri@maof.gov.bt</a>
3	Mr. Wangda Dukpa	Chief, ARED	17645472	<a href="mailto:wdukpa@moaf.gov.bt">wdukpa@moaf.gov.bt</a>
4	Mr. Karma Tshethar	Chief, ED	17593718	<a href="mailto:ktshethar@moaf.gov.bt">ktshethar@moaf.gov.bt</a>
<b>Department of Livestock (DoL)</b>				
1	Dr. Tashi Samdrup	DG	17114221	<a href="mailto:tsamdud@moaf.gov.bt">tsamdud@moaf.gov.bt</a>
2	Dr. N. Dahal	Chief, Health	17738158	<a href="mailto:dahalnp07@yahoo.com">dahalnp07@yahoo.com</a>
3	Dr. N.B.Tamang	Specialist	17866132	<a href="mailto:nbtamang1967@gmail.com">nbtamang1967@gmail.com</a>
<b>Department of Agricultural Marketing &amp; Cooperatives (DAMC)</b>				
1	Mr. Ugyen Penjore	Director	77607034	<a href="mailto:upenjore@moaf.gov.bt">upenjore@moaf.gov.bt</a>
2	Mr. Choni Dendhup	Specialist	17637032	<a href="mailto:cdendup@moaf.gov.bt">cdendup@moaf.gov.bt</a>
3	Mr. Sonam Norbu	Specialist	17999988	<a href="mailto:snorbu@moaf.gov.bt">snorbu@moaf.gov.bt</a>
4	Mr. Pema Yuden	Chief, MDD	17789457	<a href="mailto:pyuden@moaf.gov.bt">pyuden@moaf.gov.bt</a>
5	Mr. Tshering Wangmo	Chief, CDD	17113935	<a href="mailto:twangmo@moaf.gov.bt">twangmo@moaf.gov.bt</a>
<b>Ministry of Finance (MoF)</b>				
1	Dasho Nim Dorji	Hon'ble Secretary	02-322717	<a href="mailto:ndorji@mof.gov.bt">ndorji@mof.gov.bt</a>

2	Mr. Choeten Wangchuk	DG, DPA	335720/17607590	<a href="mailto:cwangchuk@mof.gov.bt">cwangchuk@mof.gov.bt</a>
3	Mr. Lekzang Dorji	Director, DNB	324992/17619332	<a href="mailto:lekzang@mof.gov.bt">lekzang@mof.gov.bt</a>
4	Ms. Deki Wangmo	Chief, DNB	16938950	<a href="mailto:dwangmo@mof.gov.bt">dwangmo@mof.gov.bt</a>
<b>Food Corporation of Bhutan Limited (FCBL), Phuentsholing</b>				
1	Mr. Naiten Wangchuk	Chief, Research	17666061	<a href="mailto:naitenwangchuk@moaf.gov.bt">naitenwangchuk@moaf.gov.bt</a>
2	Mr. Kezang Dorji	GM, Finance	77219444/17376897	<a href="mailto:Kezdorji@gmail.com">Kezdorji@gmail.com</a>
3	Mr. Dawa Tshering	Manager, Finance	17825618	<a href="mailto:dawadeal@yahoo.com">dawadeal@yahoo.com</a>
<b>Agriculture Research &amp; Development Centre (ARDC), Wengkhari</b>				
1	Mr. Lhap Dorji	PD	17644921	<a href="mailto:Lhapdorji@moaf.gov.bt">Lhapdorji@moaf.gov.bt</a>
2	Mr. Sonam Gyeltshen	Dy. CRO	77301004	<a href="mailto:sonamgyeltshen@moaf.gov.bt">sonamgyeltshen@moaf.gov.bt</a>
3	Ms. Tashi Gylemo	Accountant	17526576	<a href="mailto:Tashigyelmo56@gmail.com">Tashigyelmo56@gmail.com</a>
<b>Regional Livestock Development Centre (RLDC), Kanglung</b>				
1	Dr. Tshering Dorjee	PD	17172662	<a href="mailto:Tsheringdorjee2007@yahoo.com">Tsheringdorjee2007@yahoo.com</a>
2	Mr. Karma Jamtsho	Sr. Accountant	17906326	<a href="mailto:Karmajamtsho2010@gmail.com">Karmajamtsho2010@gmail.com</a>
<b>Regional Agricultural Marketing &amp; Cooperatives (RAMCO), Mongar</b>				
1	Mr. Dorji Rinchen	Specialist	17628743	<a href="mailto:drinchen@moaf.gov.bt">drinchen@moaf.gov.bt</a>
2	Mr. Karma Tenzin	Asst MO	17275103	<a href="mailto:karmatenz@moaf.gov.bt">karmatenz@moaf.gov.bt</a>
<b>Lhuentse Dzongkhag</b>				
1	Dasho Jambay Wangchuk	Dzongdag	17619345/545101	<a href="mailto:jambaywabqchuk@lhuentse.gov.bt">jambaywabqchuk@lhuentse.gov.bt</a>
2	Dasho Kinley Dorji	Dzongrab	17611304	<a href="mailto:kdorji@lhuntse.gov.bt">kdorji@lhuntse.gov.bt</a>
3	Mr. Dorjee	DAO	17670357	<a href="mailto:dorjee@lhuentse.gov.bt">dorjee@lhuentse.gov.bt</a>
4	Mr. Sonam Phuntsho	ADAO	17700688	<a href="mailto:chwzangla@gmail.com">chwzangla@gmail.com</a>
5	Mr. Dawa Dorji	DLO	17948802	<a href="mailto:Dawadorji172@gmail.com">Dawadorji172@gmail.com</a>
6	Mr. Phurpa Tshering	ADLO	17681429	<a href="mailto:ptshering@lhunste.gov.bt">ptshering@lhunste.gov.bt</a>
7	Mr. Pema Wangchuk	Accounts Officer	17231089/545103	<a href="mailto:pwangchuk@lhuentse.gov.bt">pwangchuk@lhuentse.gov.bt</a>
9	Mr. Dawa Tshering	Planning Officer	17630288/545182	<a href="mailto:dawatshering@lhuentse.gov.bt">dawatshering@lhuentse.gov.bt</a>
10	Mr. Kelzang Lhendup	DE	17610251/04545128	<a href="mailto:klhundup@lhuentse.gov.bt">klhundup@lhuentse.gov.bt</a>

11	Ms. Choden	CARLEP Accountant	17458257/04545161	<a href="mailto:choden@lhuentse.gov.bt">choden@lhuentse.gov.bt</a>
<b>Mongar Dzongkhag</b>				
1	Dasho Ugyen Sonam	Dzongdag	17610306/641100	<a href="mailto:usonam@mongar.gov.bt">usonam@mongar.gov.bt</a>
2	Dasho Choida Jamtsho	Dzongrab	04-641267	<a href="mailto:dzongrab@mongar.gov.bt">dzongrab@mongar.gov.bt</a>
3	Mr. Khampa	DAO	17791577	<a href="mailto:khampa@mongar.gov.bt">khampa@mongar.gov.bt</a>
4	Mr. Phub Dorji	ADAO	17887316	<a href="mailto:Dorjiphub123@gmail.com">Dorjiphub123@gmail.com</a>
5	Mr. Tenzin Dorji	DLO	17682162	<a href="mailto:tenzindorji111999@gmail.com">tenzindorji111999@gmail.com</a>
6	Mr. Norbu Tshering	ADLO	17703751	<a href="mailto:norbu75@gmail.com">norbu75@gmail.com</a>
7	Mr. Sangay Thinley	AO	17764903/641259	<a href="mailto:Sthinley@mongar.gov.bt">Sthinley@mongar.gov.bt</a>
8	Mr. Ugyen Wangchuk	BO	17695654	<a href="mailto:uwangs5088@gmail.com">uwangs5088@gmail.com</a>
9	Mr. Chimmi Namgyal	PO	17973812/641337	<a href="mailto:cnamgyel@mongar.gov.bt">cnamgyel@mongar.gov.bt</a>
10	Mr. Sonam Tashi	DE	17770792/641367	<a href="mailto:stashi@mongar.gov.bt">stashi@mongar.gov.bt</a>
11	Mr. Wangpo	CARLEP Accountant	17829357	<a href="mailto:swangpo@mongar.gov.bt">swangpo@mongar.gov.bt</a>
<b>Pema Gatshel Dzongkhag</b>				
1	Dasho Phuntsho	Dzongdag	17607425	<a href="mailto:drukphunstho@gmail.com">drukphunstho@gmail.com</a>
2	Dasho Karma Wangdi	Dzongrab	17131850	<a href="mailto:kwangdi@gmail.com">kwangdi@gmail.com</a>
3	Mr. Tashi Phuntsho	DAO	17931522	<a href="mailto:tphunstho@moaf.gov.bt">tphunstho@moaf.gov.bt</a>
4	Mr. Tsheing Dorji	ADAO	17656688	<a href="mailto:tdorji@pemagatshel.gov.bt">tdorji@pemagatshel.gov.bt</a>
5	Mr. Thinley Rabten	DLO	17618970	<a href="mailto:thinleyrabten@samdrupjongkhar.gov.bt">thinleyrabten@samdrupjongkhar.gov.bt</a>
6	Mr. Sangay Tenzin	ADLO	17302959	<a href="mailto:Sangaytenzin@pemagatshel.gov.bt">Sangaytenzin@pemagatshel.gov.bt</a>
7	Mr. Yeezer	AO	17912647	<a href="mailto:yeezer@pemagatshel.gov.bt">yeezer@pemagatshel.gov.bt</a>
8	Mr. Tshering Dhendup	BO	17891344	<a href="mailto:Tsheringdhendup221@gmail.com">Tsheringdhendup221@gmail.com</a>
9	Mr. Kuenzang	PO	17291146	<a href="mailto:Samten806@pemagatshel.gov.bt">Samten806@pemagatshel.gov.bt</a>
10	Mr. Sonam Jamtsho	DE	17906527	<a href="mailto:sjamtsho@pemagatshel.gov.bt">sjamtsho@pemagatshel.gov.bt</a>
11	Mr. Kezang Phunstho	CARLEP Accountant	17788424	<a href="mailto:kphunstho@pemagatshel.gov.bt">kphunstho@pemagatshel.gov.bt</a>
<b>Samdrup Jongkhar Dzongkhag</b>				

1	Dasho Tharchen Lhendup	Dzongdag	17760188	<a href="mailto:dzongdag@samdrupjongkhar.gov.bt">dzongdag@samdrupjongkhar.gov.bt</a>
2	Dasho Pema Dorji	Dzongrab	17646518	<a href="mailto:dzongrab@samdrupjongkhar.gov.bt">dzongrab@samdrupjongkhar.gov.bt</a>
3	Mr. Chorten Gyeltshen	DAO	17668400	<a href="mailto:chortengyeltshen@samdrupjongkhar.gov.bt">chortengyeltshen@samdrupjongkhar.gov.bt</a>
4	Mr. Chorten Tshering	ADAO	17890431	<a href="mailto:ctshering@samdrupjongkhar.gov.bt">ctshering@samdrupjongkhar.gov.bt</a>
5	Mr. B.N Sharma	DLO	17732032	<a href="mailto:BNsharma@samdrupjongkhar.gov.bt">BNsharma@samdrupjongkhar.gov.bt</a>
6	Mr. Chopel	ADLO	17647874	<a href="mailto:chopel@samdrupjongkhar.gov.bt">chopel@samdrupjongkhar.gov.bt</a>
7	Mr. Lekden	AO	17113275	<a href="mailto:lekden@samdrupjongkhar.gov.bt">lekden@samdrupjongkhar.gov.bt</a>
8	Ms. Choki Nima	BO	17849642	<a href="mailto:budgetofficer@samdrupjongkhar.gov.bt">budgetofficer@samdrupjongkhar.gov.bt</a>
9	Mr. Ngawang Chopel	PO	17616184	<a href="mailto:planning@samdrupjongkhar.gov.bt">planning@samdrupjongkhar.gov.bt</a>
10	Mr. Chador Phuntsho	DE	17116828	<a href="mailto:de@samdrupjongkhar.gov.bt">de@samdrupjongkhar.gov.bt</a>
11	Mr. Tenzin	CARLEP Accountant	17813979	<a href="mailto:tenzin@samdrupjongkhar.gov.bt">tenzin@samdrupjongkhar.gov.bt</a>
<b>Trashigang Dzongkhag</b>				
1	Dasho Chekey Gyeltshen	Dzongdag	17646518/04 521555	<a href="mailto:cgyeltshen@trashigang.gov.bt">cgyeltshen@trashigang.gov.bt</a>
2	Dasho Wangchuk Namgay	Dzongrab	04 521155	<a href="mailto:dzongrab@trashigang.gov.bt">dzongrab@trashigang.gov.bt</a>
3	Mr. D C Bhandari	DAO	17896844/77338232	<a href="mailto:dcbhandhari@trashigang.gov.bt">dcbhandhari@trashigang.gov.bt</a>
4	Mr. Suraj Gurung	ADAO	17572373	<a href="mailto:sgurung@trashigang.gov.bt">sgurung@trashigang.gov.bt</a>
5	Mr. Naina Singh Tamang	DLO	17701339	<a href="mailto:tamang_nsing@yahoo.com">tamang_nsing@yahoo.com</a>
6	Mr. Kuenga Dechen	ADLO	17664603	<a href="mailto:kingadechen@gmail.com">kingadechen@gmail.com</a>
7	Mrs. Tandin Wangmo	AO	17514783	<a href="mailto:twangmo@trashigang.gov.bt">twangmo@trashigang.gov.bt</a>
8	Ms. Pem Dekar	BO	17609530/04 521492	<a href="mailto:pdekar@trashigang.gov.bt">pdekar@trashigang.gov.bt</a>
9	Mr. Wangchuk	PO	17801734	<a href="mailto:wangchuk@trashigang.gov.bt">wangchuk@trashigang.gov.bt</a>
10	Mr. Lekjey	DE	17831152/04 521295	<a href="mailto:lekjay@trashigang.gov.bt">lekjay@trashigang.gov.bt</a>
11	Ms. Samten Om	CARLEP Accountant	17711346/04 521234	<a href="mailto:wangs3108@gmail.com">wangs3108@gmail.com</a>

<b>Trashy Yangtse Dzongkhag</b>				
1	Dasho Thuji Tshering	Dzongdag	17608432/04-781100	<a href="mailto:thujitshering@gmail.com">thujitshering@gmail.com</a>
2	Dasho Sonam Wangdi	Dzongrab	17318383	<a href="mailto:ldorji@trashiyangtse.gov.bt">ldorji@trashiyangtse.gov.bt</a>
3	Ms. Kuenzang Peldon	DAO	16910622	<a href="mailto:kuupeen@gmail.com">kuupeen@gmail.com</a>
4	Mr. Chimmi Dakpa	ADAO	17948653	<a href="mailto:C_dakpa2007@yahoo.com">C_dakpa2007@yahoo.com</a>
5	Mr. Phurpa Tsheirng	DLO	17633265	<a href="mailto:phurpatshering@yahoo.com">phurpatshering@yahoo.com</a>
6	Mr. Cheki	ADLO	17554013	<a href="mailto:cheki@trashiyangste.gov.bt">cheki@trashiyangste.gov.bt</a>
7	Mr. Rinchen Dorji	AO	77285558/ 04-781136	<a href="mailto:rdorji@trashiyangtse.gov.bt">rdorji@trashiyangtse.gov.bt</a>
8	Mr. Kezang	BO	77704733/04-781136	<a href="mailto:kelzang7@yahoo.com">kelzang7@yahoo.com</a>
9	Mr. Tashi Rabten	DE	77616363/04-781101	<a href="mailto:twongbhu@gmail.com">twongbhu@gmail.com</a>
10	Mr. Dorji Phurpa	CARLEP Accountant	17647643/04-781172	<a href="mailto:dorjipts8@hotmail.com">dorjipts8@hotmail.com</a>







Office of the Programme Management

CARLEP\_IFAD

Wengkhar, Mongar, 43001,

Post box no. 146

Tele: 00975 04 641236 Fax: 00975 04 641237

E-Mail: [carlep2016@gmail.com](mailto:carlep2016@gmail.com)

website: [www.carlep.gov.bt](http://www.carlep.gov.bt)