IFAD
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ANNUAL PROGRESS REPORT

2023-24

COMMERCIAL AGRICULTURE & RESILIENT LIVELIHOODS ENHANCEMENT PROGRAM

KINGDOM OF BHUTAN

COMMERCIAL AGRICULTURE AND RESILIENT LIVELIHOODS ENHANCEMENT PROGRAMME

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CURRENCY EQUIVALENTS

Currency Unit		Ngultrum (BTN) *
USD 1.00	=	BTN 82.30

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

WEIGHTS AND MEASURES

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

1 kilogram	=	1000 gm
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^2

ABBREVIATIONS

ADAO	Assistant Dzongkhag Agriculture Officer
AFD	Administration and Finance Division
AI	Artificial Insemination
AIT	Artificial Insemination Technician
ALD	Agriculture Land Development
AOS	Annual Outcome Survey
APA	Annual Performance Agreement
ARDC	Agriculture Research and Development Centre
ASAP	Adaptation for Smallholder Agriculture Programme
ASF	African Swine Fever
AWPB	Annual Work Plan and Budget
B2B	Business to Business
BAIL	Bhutan Agro Industries Ltd.
BDBL	Bhutan Development Bank Limited
BES	Bhutan Ecological Society
BFDA	Bhutan Food and Drugs Authority
BTN	Bhutan Ngultrum
CAHW	Community Animal Health Worker
CAIT	Community Artificial Insemination Technician
CARLEP	Commercial Agriculture & Resilient Livelihood Enhancement Programme
CEO	Chief Executive Officer
CHBPP	Contract Heifer and Bull Production Program
CM	Component Manager
CMT	Contract Monitoring Tool
CMU	Central Machinery Unit
CSI	Cottage and Small Industries
CSV	Climate Smart Village
DAMC	Department of Agriculture Marketing and Cooperatives
DAO	Dzongkhag Agriculture Officer
DE	District Engineer
DFG	Dairy Farmer Groups
DHI	Druk Holding and Investment
DLO	Dzongkhag Livestock Officer
DNB	Department of National Budget
DoA	Department of Agriculture
DoL	Department of Livestock
DPA	Department of Public Accounts
DPO	Dzongkhag Planning Officer
DT	Dzongkhag Tshogdue
EDMO	Economic Development Officer
EF	Electric Fencing
EFC	Export facilitation Center
ES	Extension Supervisor
FA	Financing Agreement
FCBL	Food Corporation of Bhutan Limited
FG	Farmers' Group
FY	Fiscal Year
GBCL	Green Bhutan Corporation Limited
GCF	Global Climate Fund
GEF	Global Environment Facility
GEO	Gewog Extension Officer
GNHC	Gross National Happiness Commission
GoI	Government of India
GT	Gewog Tshogdue

HPS	Heifer Production Scheme
ICT	Information, Communication Technology
IFAD	International Fund for Agricultural Development
IFPP	Integrated Food Processing Plant
IoT	Internet of Things
JICA	Japan International Cooperation Agency
KIL	Koufuku International Limited
KM	Knowledge Management
LPG	Liquid Petroleum Gas
LSD	Lumpy Skin Disease
LUC	Land Use Certificate
M&E	Monitoring and Evaluation
MCC	Milk Collection Center
MCS	Milk Collection Sheds
MGF	Matching Grant Facility
MIS	Marketing Information System
MoAF	Ministry of Agriculture and Forests
MoF	Ministry of Finance
MPU	Milk Processing Unit
MSP	Multi-Stakeholders' Platform
MYRB	Multi Year Rolling Budget
NBIN	National Bovine Identity Number
NCAH	National Center for Animal Health
NCB	National Competitive Bidding
NDDC	National Dairy Development Center
NEC	National Environment Commission
NGOs	Non-Governmental Organizations
NMC	National Mushroom Centre
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
O&M	Operation and Maintenance
OPM	Office of the Programme Management
PCC	Plain Cement Concrete
PLC	Programme Letter of Credit
PPD	Policy and Planning Division
PPP	Public Private Partnership
PRR	Procurement Rules & Regulations
RAMC	Regional Agriculture Machinery Centre
RAMCO	Regional Agriculture Marketing and Cooperative Office
RGoB	Royal Government of Bhutan
RIMS	Results and Impact Management System
RLDC	Regional Livestock Development Centre
RMA	Royal Monetary Authority
RNR-EC	Renewable Natural Resources Extension Centre
SJI	Samdrup Jongkhar Initiative
SLM	Sustainable Land Management
SOE	Statement of Expenditure
TA	Technical Assistant
ToT	Training of Trainers
UHT	Ultra-High Temperature
VC	Value Chain

WA	Withdrawal Application
WHM	Wengkhar Hybrid Maize
WUA	Water Users' Association
YELP	Youth Engagement and Livelihood Program
LH	Lhuentse
MG	Mongar
PG	Pemagatshel
SJ	Samdrup Jongkhar
TG	Trashigang
TY	Trashiyangtse

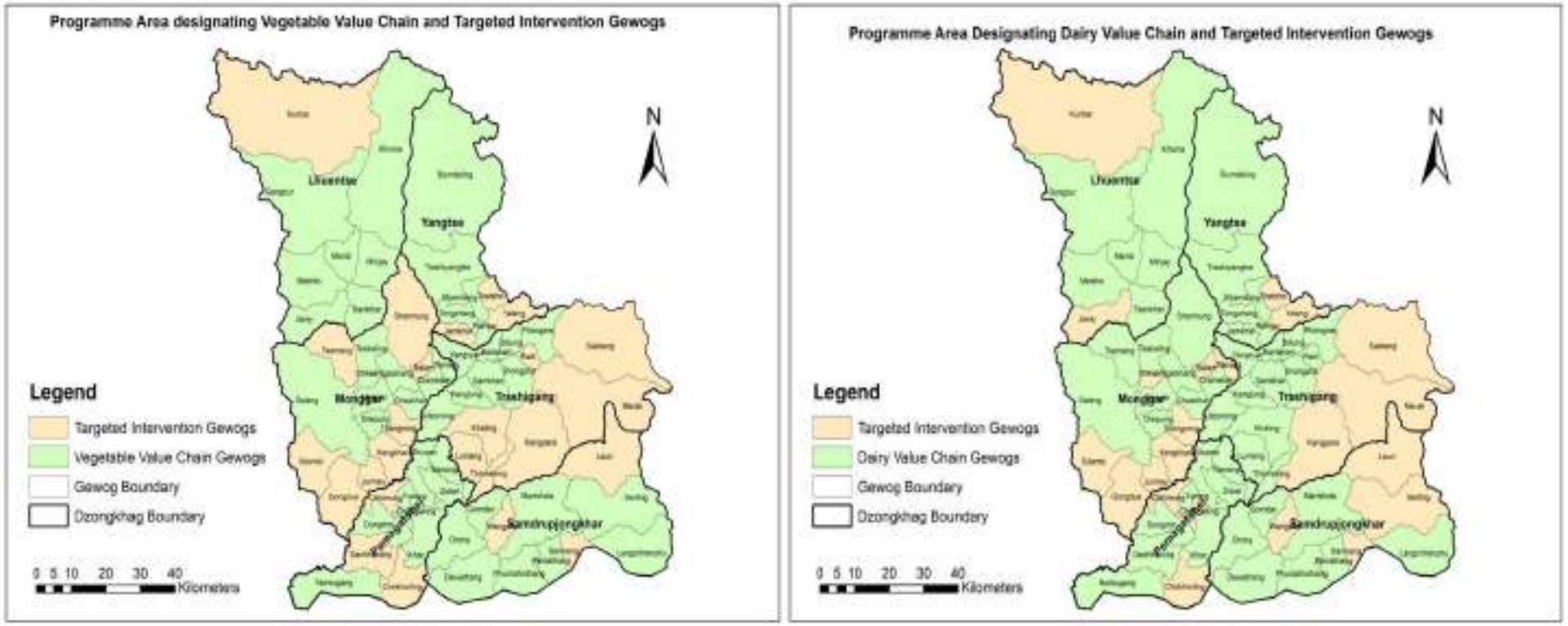


Figure 1. Map showing Programme areas

A PROGRAMME BACKGROUND

Commercial Agriculture and Resilient Livelihoods Enhancement Programme (CARLEP) is the eighth agriculture and rural development programme financed by the International Fund for Agricultural Development (IFAD). The Financing negotiation for CARLEP was held from 13-14 July 2015 followed by IFAD Executive Board approval in September 2015 and signing of Financing Agreement on 11 December 2015. In addition, the additional financing agreement was signed on 19th March 2020 and as a result, the project will be completed in December 2025.

The goal of the programme is to reduce poverty by 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 4 major components and eight sub-components with 27 broad activities. The three major components are: i) market-led sustainable agricultural production; ii) value chain development & marketing; and iii) institutional support and policy development. The programme is expected to benefit 28,975 smallholder households (HHs), of which 7,115 HHs will directly benefit from vegetable and dairy value chains. Although CARLEP is extended till December 2025 through the additional funding of IFAD-II, the overall goal and objectives remain unchanged except for some incorporations of entrepreneurship development through diverse agricultural activities.

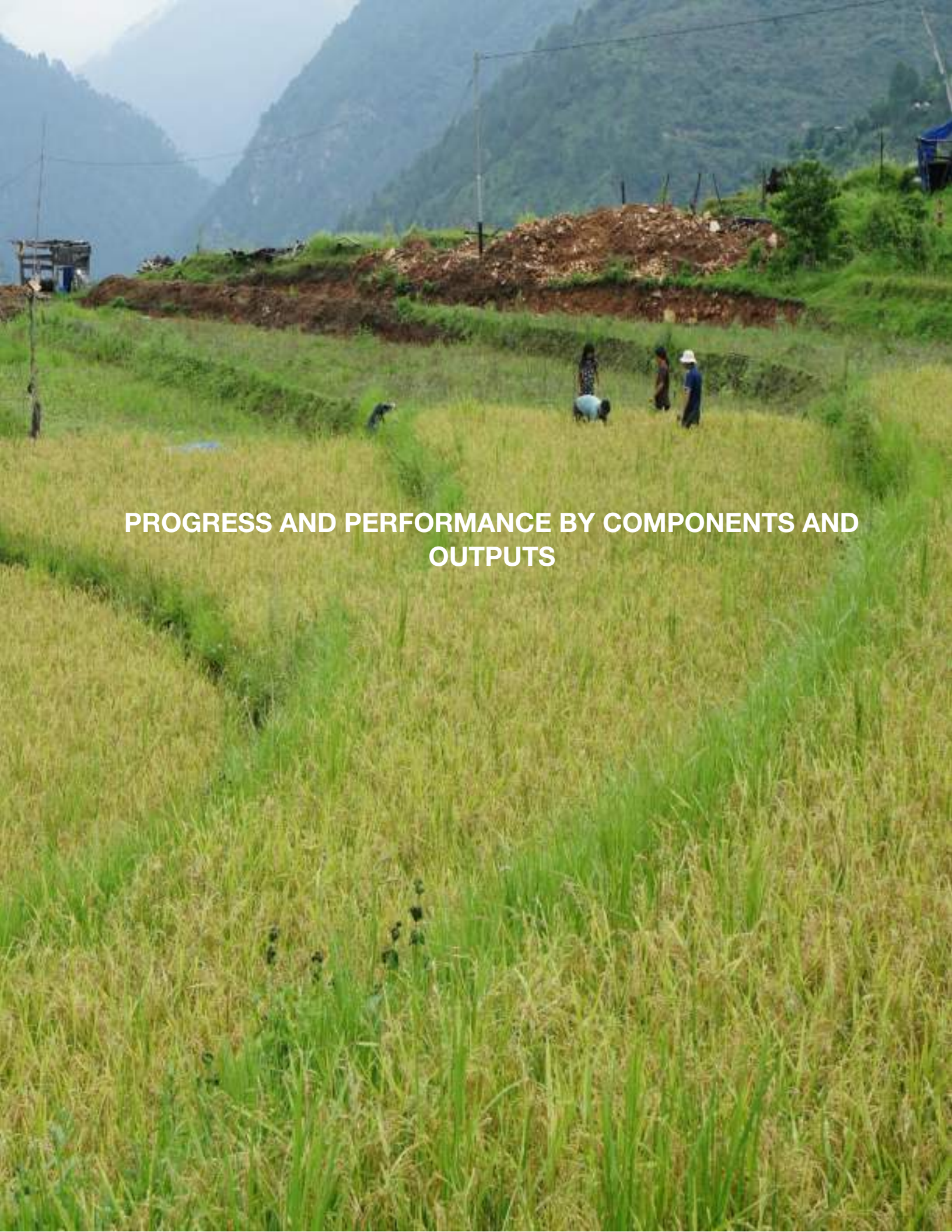
The main implementing partners are six Dzongkhags & concerned Gewogs, Regional Agricultural Marketing Cooperatives and Office (RAMCO), Agriculture Research and Development Centre (ARDC) Wengkhar, Regional Livestock Development Centre (RLDC) Kanglung and Koufuku International Limited (KIL) Chenery, Trashigang. In line with the programme objective, the implementation of a two-pronged approach has been adopted – i) Commercial or value chain approach to be focused in those Gewogs and 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 Services in liaising with the RGoB and other external agencies at the national level.

The total programme cost of US$ 31.526 million, over seven years, is financed by - IFAD (US$9.3 million), ASAP (US$ 5 million), RGoB (US$5.767 million), Beneficiaries (US$ 0.659 million) and a financing gap (USD 6 million). In addition, an IFAD has approved additional financing of US $10.28 million as loan and US$ 1.0 million as Debt Sustainability Framework Grant (DSF).

B CHANGES IN IMPLEMENTATION CONTEXT AND DESIGN

Two new outputs under additional financing: Output 1.5 for herbal, medicinal and aromatic plants (HMAP) collection and cultivation and Output 1.6 for aquaculture production (trout hatchery) was dropped due to limited interested beneficiaries for the uptake of these activities.



PROGRESS AND PERFORMANCE BY COMPONENTS AND OUTPUTS

COMPONENT 1:

MARKET-LED SUSTAINABLE AGRICULTURAL PRODUCTION

1. Output 1.1: Increased production resilience, diversification and innovation

1.1 Climate smart agriculture production and management

1.1.1 Market-linked intensification of Adzuki beans

Adzuki beans (*Vigna vulgaris*) play a crucial role in enhancing food and nutrition security for small-scale farmers while also supporting soil and environmental sustainability. In Bhutan, small landholders cultivate adzuki beans to meet their households' food needs. Although adzuki is considered a marginal crop due to its low economic value, its cultivation is gaining popularity owing to its substantial nutritional benefits. These benefits not only enhance household food security but also foster community resilience. As part of the crop intensification program, a total of 1,685 kilograms of adzuki bean seeds have been distributed, covering and area of 112.33 acres across 13 gewogs of Mongar, Lhuentse, and Pemagatshel dzongkhags benefiting 800 households as shown in Table 1.

Table 1. Detail of Adzuki bean intensification sites

Dzongkhag	Gewog	No of Households		Qty distributed (kg)	Area (acres)
		Female	Male		
Lhuentse	Gangzur	9	0	10	0.67
	Jarey	19	5	52	3.47
	Menbi	47	2	50	3.33
	Minjey	13	7	40	2.67
	Medtsho	23	8	103	6.87
Pemagatshel	Shumar	257	144	689	45.93
	Balam	26	11	50	3.33
	Jurmey	3	20	190	12.67
	Silambi	11	14	160	10.67
Mongar	Salling	13	4	35	2.33
	Chaskhar	6	1	7	0.47
	Tsakaling	28	14	113	7.53
	Gongdu	73	42	186	12.4
	TOTAL	**528**	**272**	**1685**	**112.33**

In addition to intensification efforts, ARDC-Wengkhar has set up a system to buy adzuki beans from farmers. Since there is no specific cost of production for adzuki beans, they have set a buy-back price of Nu. 120 per kilogram, based on the general production costs for similar crops like pulses and legumes. This program focuses on specific areas of far-flung Gewogs including Silambi, Gongdu, Tsakarling, and Narang gewogs for improvement of nutrition and households' income. So far, they have bought 1,920 kilograms of adzuki beans from 68 farmers in these areas.

Table 2. Detail of Adzuki bean buy back scheme

Dzongkhag	Gewog	No of Households	Seeds purchased (kg)	Amount (Nu)
Mongar	Tsakarling	14	781.5	93780
Mongar	Jurmey	22	681.5	81780
Mongar	Silambi	5	157	18840
Mongar	Narang	26	266	31920
Lhuentse	Jarey	1	34	4080
Total		**68**	**1920**	**230400**

Product diversification of adzuki beans is crucial as it meets market demands, caters to consumer preferences, and boosts overall business sustainability. Diversifying adzuki bean products allows businesses to explore new market segments and broaden their customer base. Reflecting this strategy, ARDC-Wengkhar teamed up with NPHSC-Lingmithang to create adzuki cookies and adzuki-quinoa cookies. These innovative products were presented at the annual Food and Art Fair held by Mongar Dzongkhag from October 15 to 17, 2023. This fair is a key event for promoting local products and celebrating the region's unique heritage.

Expanding adzuki bean product lines is vital for tapping into different market niches and fulfilling varied consumer tastes, which in turn, supports long-term business growth. The significance of diversifying adzuki bean products lies in addressing market needs, satisfying consumer preferences, and ensuring business sustainability. By creating a variety of adzuki bean-based products, businesses can access new markets and expand their customer reach. Enhancing the range of adzuki bean products is essential for meeting market demands, catering to consumer preferences, and promoting business sustainability. This approach enables businesses to explore new market opportunities and widen their customer base.

Figure 2. Products processed from Adzuki beans

1.1.2 Crop diversification

Climate Smart Villages (CSV) had been identified in the six eastern Dzongkhags with an aim to increase sustainable agricultural production by adapting to climate-smart technologies and building resilience to climate change. Introduction of heat-tolerant varieties of crops for cultivation by the farmers in the climate-smart villages is one such activity undertaken in this fiscal year 2023-2024 through the CARLEP fund support.

Heat-tolerant vegetables such as cauliflower (Pragati-40) and radish (35 days) were promoted to the climate-smart villages such as Ngarpontang under Thangrong Gewog and Tsekpa under Jurmey Gewog at Mongar Dzongkhag, Bongman under Khar Gewog at Pemagatshel Dzongkhag and Bainangkhar under Tongzhang Gewog, Trashiyangtse Dzongkhag (Table 3). The seeds were promoted through a cost-sharing (70:30) mechanism to the individual farmers in the CSV sites which will be cultivated in about seven acres of field. The seeds will help farmers produce vegetables during the summer season for their consumption and income generation.

Table 3. Heat tolerant vegetable seed beneficiary in CSVs

CSV sites	HH No.	Cauliflower (pkts)	Radish (pkts)	Beneficiary contribution (Nu)	Coverage area (Acre)
Ngarpontang	31	40	40	3400	2.9
Tsekkpa	17	22	22	1870	1.6
Bongman	13	20	20	1700	1.43
Bainangkhar	14	18	18	1530	1.3
Total	**75**	**100**	**100**	**8500**	**7.23**

Asparagus (***Asparagus officinalis***), a perennial vegetable, is also being cultivated by farmers, especially in the western part of the country. It is economically viable for both domestic and export markets. The climate in the climate-smart villages is suitable for asparagus production, as it is environmentally friendly and has low pest and disease incidence. Introducing different types of crops offers variety, ensuring sufficient nutrition and enhancing farmers' incomes.

Table 4. Asparagus seedling distribution in CSVs

CSV sites	Gewog	Dzongkhag	Household (no)	Seedlings (no)
Ngarpontang	Thangrong	Mongar	46	9,200
Tsekpa	Jurmey	Mongar	24	4,700
Bongman	Khar	Pemagatshel	14	2,000
Bainangkhar	Tongzhang	Trashiyangtse	29	4,820
Total			**113**	**20,720**

To support this initiative, farmers in the CSVs of Ngarpontang and Tsekpa in Mongar Dzongkhag, Bainangkhar in Trashiyangtse Dzongkhag, and Bongman in Pemagatshel Dzongkhag were provided with 20,720 asparagus seedlings. Demonstrations on planting were conducted in the presence of the farmers to ensure proper cultivation practices.

1.1.3 Promotion of soil improvement and plant protection technologies

The productivity of a crop depends heavily on the fertility of the soil and pests and diseases management. The health and sustainability of ecosystems are enhanced better by organic approaches in contrast to conventional synthetic methods. Furthermore, global warming and climate change have become major concerns due to population growth and technological advancements. The Climate Smart Villages (CSVs) are being showcased with organic soil improvement methods, such liquid manure, bokashi, BAMS and jeevamrut which are novel in the area, to tackle and aid with this problem (Figure 9). A group of 25 beneficiaries of Tsekpa village in Jurmey gewog under Mongar Dzongkhag actively participated in the initiative. Each participant received a plastic barrel

Figure 3. Hands on training on liquid manure preparation

and a container to facilitate their engagement. Practical sessions were conducted to demonstrate organic soil fertility and plant protection techniques, particularly focusing on bokashi, liquid manure, BAMS and jeevamrut. Comprehensive guidance was provided regarding the preparation and application of this technology.

Figure 4. Hand-on training on preparation of liquid manure and bokashi

Members actively contributed to collecting the necessary raw materials for the demonstration. Subsequently, each member was tasked with replicating the technology independently. A follow-up monitoring was conducted to verify the adoption of the technology by each household. A total of 2400 liters of jeevamrut was successfully prepared collectively. Participants were encouraged to integrate this eco-friendly approach into their future agricultural practices.

1.1.4 Apiculture

CARLEP also promoted apiculture (*Apis Cerena)* in areas where indigenous crops are popularly grown. Apiculture not only helps enhance income of the farmers, but it also helps in pollination of agricultural crops besides ensuring conservation of local bees. A total of 14 households at Pemagatsehl were supported with apiculture inputs for honey production and to increase on-farm diversity.

In addition, piloting of flow hive technology was initiated in Pemagatshel and Samdrup Jongkhar. Flow hive technology is advantageous in terms of easy harvesting of honey without causing much disturbances to honey bees besides ensuring hygienic harvest. With the support of CARLEP project, 7 households at Namchazor, Langchenphu gewog under Samdrup Jongkhar Dzongkhag and 1 household each at Pangthang Daza under Zobel gewog and Gonpowoong under Shumar gewog, Pemagatshel were distributed with a flow hive set for piloting. These households are already engaged in apiculture and currently produces around 8 bottles (750 ml bottle) of honey on an average by rearing *Apis Cerena* and an average of 2.5 bottles of honey by rearing *Trigona* species earning an annual average income of Nu. 8143.00 by the former and Nu. 11830.00 by the latter. The piloting of this technology on *Apis Cerena* will be assessed periodically and if proven successful, the technology will be up-scaled in other apiculture farmers on cost-sharing.

Figure 5. Demonstration and handover of flow hive to apiculture farmers of Namchazor

1.1.5 Solar dryer promotion

A greenhouse solar dryer represents an innovative and sustainable approach to drying fruits and vegetables, particularly valuable during the monsoon season. By harnessing solar energy, it creates a controlled drying environment, which offers numerous advantages such as increased efficiency, higher quality dried products, and reduced spoilage. This technology is especially beneficial for farmers and producers aiming to improve their post-harvest processes and add value to their produce.

In the financial year 2023-2024, 10 greenhouse solar dryer sets, each equipped with an exhaust fan, were provided to vegetable growers in the Mongar and Lhuentse Dzongkhags. Specifically, the Lhuentse Dzongkhag distributed eight sets of solar dryers to the Meadtsho, Gangzur, Khoma, Tshenkhar, and Meanbi Gewogs. Meanwhile, the Mongar Dzongkhag supported two sets in the Gongdue Gewog for drying cardamom, a crucial cash crop in the region. The drying of cardamom poses significant challenges for many farmers, and this support has greatly benefited them. In total, 10 households (including 6 female-headed households) have been assisted through this initiative, which operates on a cost-sharing model where 80% of the greenhouse cost is covered by the project and the remaining 20% is borne by the beneficiaries.

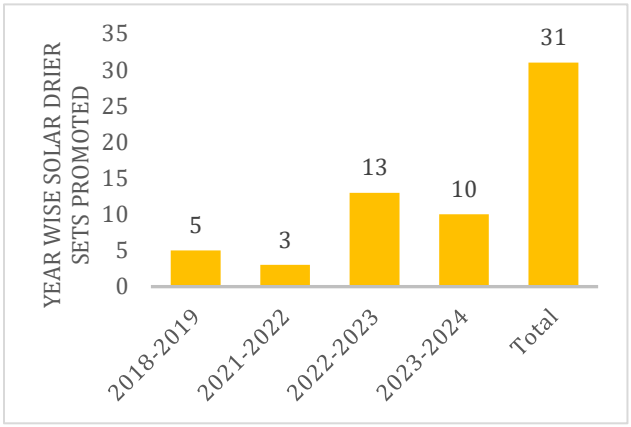


Figure 6. Year wise solar drier promoted

1.1.6 Poultry farm resilience

Support for small-scale poultry farming was provided to pro-poor and vulnerable households to enhance farm resilience, household nutrition, and income. During the financial year 2023-2024, inputs were provided to establish 101 backyard poultry farms aimed at generating income, improving family nutrition, and enhancing farm resilience. These interventions benefitted 101 pro-poor households, including 44 female-headed households, across six eastern Dzongkhags: Lhuentse, Mongar, Trashigang, Trashiyangtse, Pemagatshel, and Samdrup Jongkhar (Figure 7).

The poultry support program for rural farmers proved to be more than just an agricultural intervention. It demonstrated the power of resilience, community, and the unwavering spirit of individuals determined to build a better future for themselves and their families.

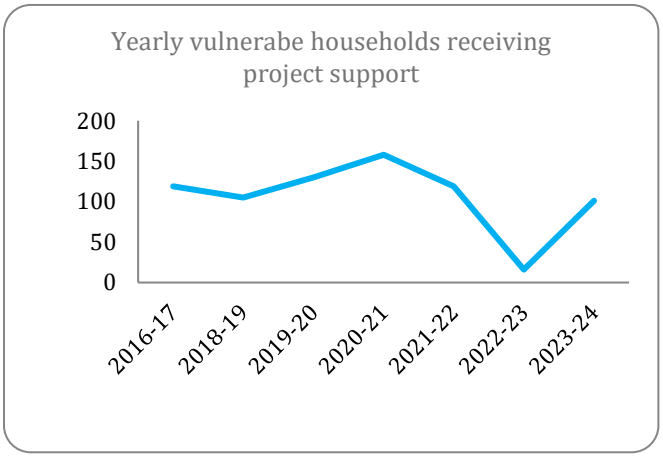


Figure 7. Year wise No. of vulnerable HH supported in establishing backyard poultry farming

1.1.7 Establishment of community-based seed production groups for hybrid maize

In February 2024, the National Maize Program, in partnership with the Geog Agriculture Sector in Udzorong, initiated community-based hybrid maize seed production of Wengkhar Hybrid Maize-1 (WHM-1) at

Lamzang, covering 0.33 acres. This collaboration aims to enhance the maize hybridization program and improve domestic seed systems, thereby increasing maize production. Given that this initiative is unprecedented in the country, capacity-building of farmers and relevant stakeholders were conducted through practical demonstrations and hands-on training. These demonstrations focused on essential agronomic practices such as land preparation, field layout, strategic planting of male and female parental lines, detasseling, emasculating, and bulk pollination (**Table 5** and **Figure 8**). Earlier this month, a field day on hybrid maize seed production was held, which included identifying physiological maturity, harvesting techniques, and post-harvest handling. A total of 320 kg of F1 hybrid seeds was produced (**Figure 9**). Participants noted that the WHM-1 hybrid features good cob size, medium height, and dark green stalks at maturity, and expressed interest in continuing seed production if parental lines were made available. Additionally, suitable areas for productivity assessment will be identified.

Figure 8. Farmers sowing hybrid parental line (Top) and overall field sown with male and female lines (Bottom)

Building on this success, the National Maize Program plans to expand seed production in January 2025, providing farmers with essential inputs and technical guidance on agronomic practices. Supported by the CARLEP-IFAD, this field day represents a significant step towards improving maize productivity and achieving self-sufficiency in the country.

Table 5. Beneficiaries who attended consultation, sowing of hybrid maize seed and detasseling

Particulars	No of households		
	Male	Female	Total
Consultation meeting on hybrid maize seed production	21	20	41
Demonstration on land preparation and sowing of male parental line	8	5	13
Demonstration on sowing of male parental line and tagging hybrid lines	6	10	16
Demonstration on de-tasseling and bulk pollination	8	12	20

Figure 9. Hybrid maize seed

1.1.8 International training on hybrid maize seed production and distribution in Bhutan

To enhance Bhutan's maize hybridization program and reinforce its seed systems, ARDC in collaboration with CIMMYT under the CGIAR Seed Equal Initiative carried out an international training workshop on quality seed production and distribution with a main focus on hybrid maize from November 13th to 15th, 2023 at ARDC Wengkhar, Mongar. The three-day workshop involved 30 participants from diverse organizations, including the National Seed Centre, College of Natural Resources, geog extensions from the eastern region, Bhutan Food and Drug Authority, and Agriculture Research and Development Centers (**Figure 10**). Dr. AbduRahman Beshir, a senior scientist and seed systems specialist for Asia at CIMMYT, based in Kathmandu, Nepal led the training sessions. Moreover, a maize breeder from CIMMYT-India, Maize pathologist from CIMMYT-Kenya and the Director for the Global Maize Program, CIMMYT also addressed the training on developing and maintaining inbred and breeders seed production, identification of major maize disease in Bhutan and fall armyworm management.

The comprehensive curriculum included courses on seed system components, basic maize breeding concepts, hybrid seed production principles, seed production and marketing roadmap development, hybrid seed pricing, seed quality control, and certification. A field visit along with a practical exercise at ARDSC Lingmethang enriched the learning experience. A significant outcome is the planned initiation of the inaugural hybrid maize seed production group in Udzorong, Trashigang scheduled for January 2023 in collaboration with extension, NSC and BDFA. This initiative, supported by CARLEP-IFAD and CIMMYT, reflects a dedicated effort to strengthen Bhutan's seed systems and enhance maize production for local farmers' benefit.

The training was carried out with financial support from CARLEP-IFAD (expenditure for participants) and CIMMYT (expenditure for the trainer).

Figure 10. Participant of the seed system training (left) and practical on de-tasseling (right))

1.1.9 Maintaining parental lines of hybrid maize for the production of hybrid seeds

Maintaining hybrid maize parental lines is crucial for ensuring genetic purity, high yields, and resistance to diseases and pests, which contribute to the adaptability and resilience of maize crops in various environments. These lines are essential for ongoing research and development, enabling breeders to

Figure 11. Seed production of male parent line (left) and female parent line (right)

create improved hybrids with desirable traits. They also hold significant economic value for the seed industry and farmers, protecting intellectual property rights and supporting a stable production of hybrid seeds. Therefore, the male and female parental lines of hybrid CAH1511 were sown on 6th November, 2023 and 20th November, 2023, respectively under the protected structure at ARDSC-Lingmithang during the winter season. Both lines were harvested, yielding 10 kg of female seeds and 4 kg of male seeds. Similarly, the maintenance of both male and female lines is currently in the vegetative stage at Wengkhar, with an expected harvest by the end of September 2024 **(Figure 11)**.

1.2 Increased outreach of extension services

1.2.1 Food and Art Fair in Mongar

The Dzongkhag Administration, Mongar organized the first ever Food and Art Fair for local produce from 15th to 17th October, 2023. It was organized with the objective to promote quality, standard and market linkage for local produce. The fair also gave a platform for all those interested individuals of all ages to display their talents and skills in various sub-sectors for three days. As an appreciation and encouragement, a certificates and cash prizes were awarded for the best participants during closing ceremony in four categories: Livestock Category, Agriculture Category, Processed Food Category, and Craft/ Art Category. Various products were

Figure 12. Food and Art Fair in Mongar Dzongkhag

displayed in 20 stalls and the farmers were able to generate Nu. 0.75 Million in three days through the sale of local produce. The fair was supported by CARLEP/IFAD.

1.2.2 Annual RNR product exhibition in Samdrup Jongkhar

Coinciding with the joyous celebration of His Majesty the Fifth King, Jigme Khesar Namgyel Wangchuck's birth anniversary, the RNR Exhibition unfolded on February 21, 2024, within the newly constructed Farmer Sales Outlet, funded by CARLEP-IFAD under Samdrupcholing Drungkhag, Samdrup Jongkhar. Samjong Cooperatives, comprising 19 members (7 females and 12 males) from 11 gewogs, collaborated harmoniously to showcase 37 distinct value-added products, meticulously crafted from locally sourced materials. Noteworthy was the individuality of each exhibited item, highlighting the diverse talents within the cooperative, and a remarkable absence of duplications. Financially supported by CARLEP-IFAD with a substantial sum of Nu.8 lakhs, this exhibition underlines a dedicated commitment to community development and economic empowerment. The primary goal was to provide significant benefits to Samjong Cooperative members by presenting their value-added products to the public. This strategic initiative aimed to offer a platform for these beneficiaries to promote their locally crafted goods, thereby stimulating economic growth and enhancing market visibility for the cooperative. Beyond commemorating the royal birth anniversary, the event symbolized collaborative endeavors, external backing, and an unwavering dedication to improving the socio-economic well-being of the involved rural communities.

Figure 13. Products processed form areca nut leaves

1.2.3 Cattle rally in Yangnyer, Trashigang

The Druk Chethuen Tshokpa Dairy group members and the community of Gongthung Village came together to celebrate and promote the theme of "Dairy Renaissance: Building Tomorrow's Future" in a highly successful cattle rally program funded by CARLEP. The event aimed to highlight the importance of the dairy industry in rural development and to showcase the advancements and opportunities in cattle farming. The event was inaugurated by the hon'ble Dasho Dzongdag, who emphasized the critical role of the dairy sector in enhancing local livelihoods and promoting sustainable agricultural practices. Special guests included CEO of COFUKO dairy processing plant, Regional Director of RLDC, agricultural experts, sector heads and representatives from local government bodies, who shared insights on the potential growth of the dairy industry.

The event was attended by over 150 participants, including local farmers, agricultural professionals, and community members. The positive feedback highlighted the event's role in educating farmers, promoting best practices, and encouraging community engagement in the dairy industry. Similar events in the future are essential to encourage farmers to venture into the dairy industry. The Gups who attended the event recommended organizing similar programs targeting all gewogs within the Dzongkhag for the best dairy cattle competition, to encourage all communities within the Dzongkhag

Figure 14. Cattle rally at Gongthung, Yangnyer

1.3 Innovation through Permaculture and Biogas

1.3.1 Development of Permaculture Model Farm

Permaculture is a holistic agricultural and social design approach that combines plants, animals, and people to create sustainable ecosystems. The LUC Thamdrang in Bhutan has been recognized as a model permaculture farm. Therefore, with fund support from CARLEP, ARDC Wengkhar in collaboration with Dzongkhag Agriculture Sector, has implemented various initiatives to further develop LUC Thamdrang into a model permaculture farm.

Figure 15. Water harvesting pond construction at LUC permaculture model farm

Integrating ponds into permaculture design aligns with principles of sustainability, resilience, and ecosystem health. This practice enhances the creation of productive and balanced landscapes through effective water management, increased biodiversity, 13 efficient nutrient cycling, microclimate regulation, and habitat creation. The farm has excavated ponds with a total capacity of approximately 591,430 liters (**Table 6**). Some ponds are connected by earthen drains, based on feasibility considerations. In addition, LUC Thamdrang has developed a kiwi orchard covering over 2 acres, which has been thriving for more than four years. To support the establishment of a food forest, over 128 kiwi seedlings were provided as replacements for those that had died. The kiwi orchard has also received trellising support (**Figure 16**) to improve fruit management and production.

Table 6. Dimension of natural water harvesting pond at LUC Thamdrang.

Length (m)	Breadth (m)	Height (m)	Volume (m3)	Volume (L)	Remarks
11.5	3.1	1.5	53.48	53475	Pond 1
10.5	4	1.5	63	63000	Pond 2
11.5	4.7	1.6	86.48	86480	Pond 3
5.7	3	1.5	25.65	25650	Pond 4
20.5	4	1.7	139.4	139400	Pond 5
12.5	3.5	1.5	65.63	65625	Pond 6
7	3.6	1.5	37.8	37800	Pond 7
15	5	1.6	120	120000	Pond 8
94.2	**30.9**	**12.4**	**591.43**	**591430**	

To promote soil fertility and plant protection, technologies such as the preparation and production of BAMS, compost, and jeevamrut were implemented, with the provision of Sintex tanks and black plastic sheets. Furthermore, various sizes of glass jars were supplied for seed storage, highlighting the importance of permaculture farms in generating sufficient seeds for sustainability from their fields.

Figure 16. Kiwi trellising at Permaculture model farm, Thamdrang

1.3.2 Installation of fixed Dome Biogas

Construction of family-sized (4-6 m^3) biogas was facilitated through subsidy support in the form of biogas appliances equivalent to 50 % of the unit cost. Biogas technology not only ensured the production of clean energy for cooking but also enabled household sanitation and production of bio-slurry fertilizer which can be productively used in vegetable farming. It was reported that biogas has significantly minimized the purchase of commercial gas cylinders besides reduction in firewood consumption from the forests. A total of 36 dome-shaped biogas digesters were installed in Lhuentse, Mongar, Samdrup Jongkhar and Trashigang as shown in Figure 17.

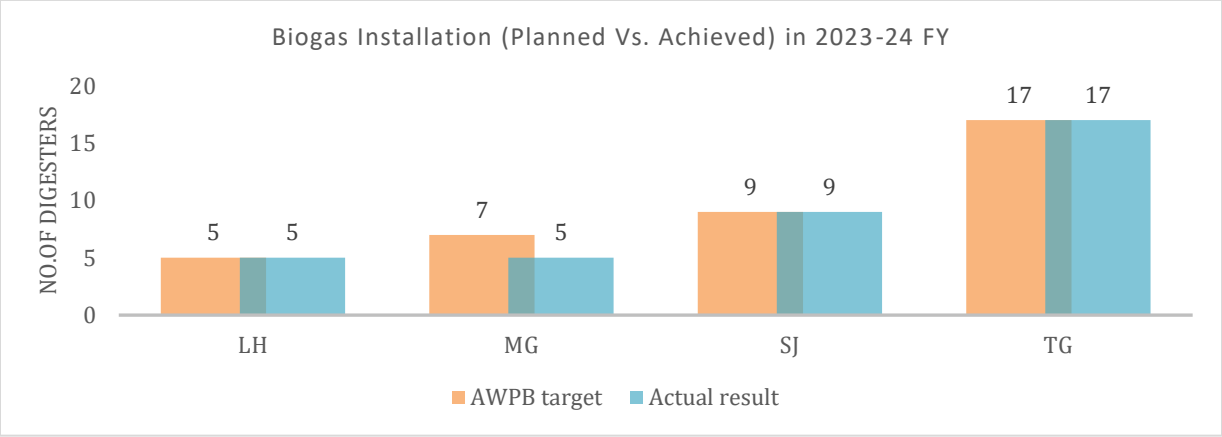
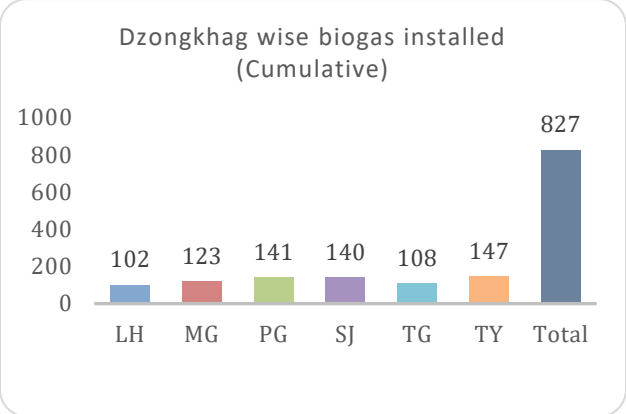


Figure 17. Biogas installed during 2023-24 FY: Planned Vs. Achieved



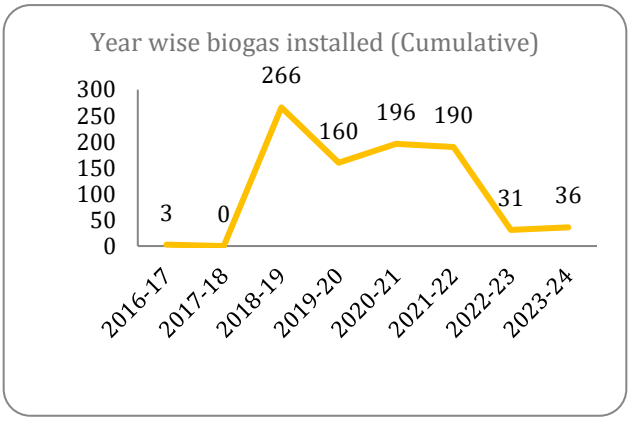


Figure 18. Cumulative Dzongkhag wise (Left) and year wise (Right) biogas installed

1.4 Resilient and water use efficient irrigation development

1.4.1 Efficient irrigation systems

Trashigang and Lhuentse Dzongkhags supported and implemented 82 and 46 sets of drips and sprinklers respectively reaching out to more than 120 households who are into vegetable commercialization. Most are installed inside greenhouses and in open areas where vegetable commercialization is identified.

Table 8. Efficient irrigation system installed during 2023-24 FY

	AWPB Target	Actual result
LH Agri	50	46
TG Agri	180	82
Total	**137**	**128**

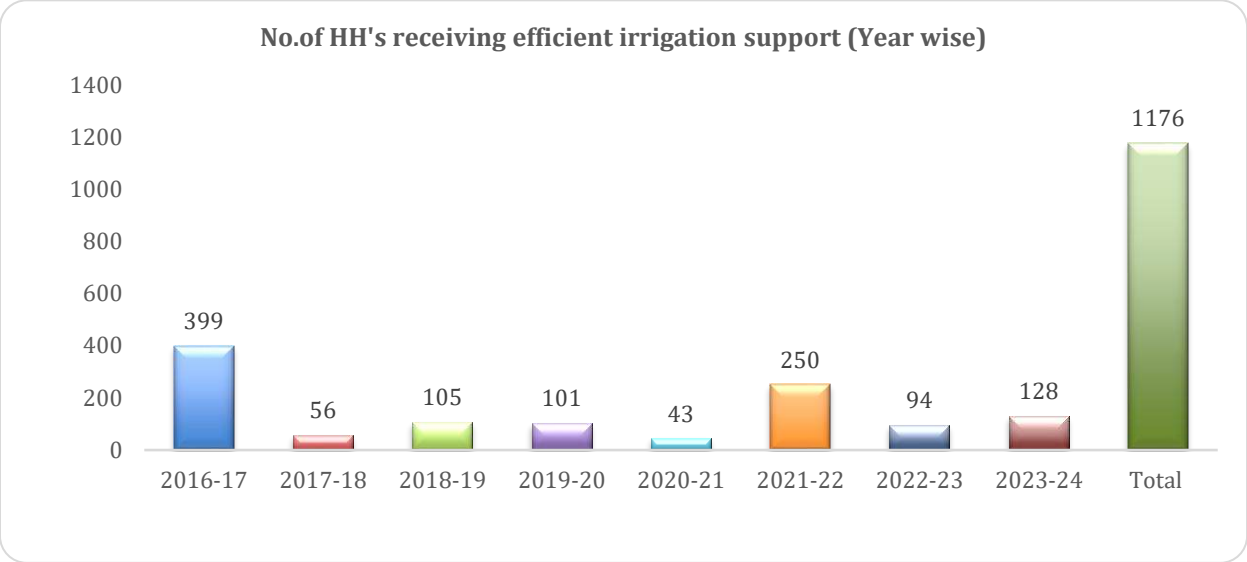


Figure 19. Year wise efficient irrigation supported (Cumulative)

1.4.2 Efficient Irrigation system in Fruit orchard

Automated drip irrigation systems provide many benefits for fruit orchards by significantly improving efficiency, productivity, and sustainability. These systems deliver water directly to the root zones of plants, ensuring precise water application that reduces wastage from evaporation, runoff, or wind. This targeted irrigation conserves water and maintains consistent soil moisture levels, which is vital for the healthy growth of fruit trees and higher yields. Moreover, because the foliage stays dry, the risk of fungal diseases and other pathogens is minimized. Automated systems also reduce the need for manual watering, saving labor and allowing workers to concentrate on other essential tasks. These systems can be programmed to irrigate at optimal times, further enhancing water efficiency. Although the initial setup cost is high, long-term savings on water bills, labor, and increased crop yields make automated drip irrigation a cost-effective investment.

These systems can be tailored to fit orchards of any size and can be integrated with smart technologies for real-time monitoring and adjustments. Remote monitoring and control add convenience, ensuring optimal irrigation management even when the orchard owner is not on-site. As shown in the table 8, efficient irrigation systems were installed on a 70:30 % cost-sharing in three citrus and kiwi orchards in Ngatsang and Tsakaling in Mongar, and Radhi in Trashigang covering a total area of 7.5 acres, with fund support from CARLEP-IFAD. The total cost for the materials was Nu. 0.33 million, with the beneficiaries contributing Nu. 0.098 million. These automated drip irrigation systems greatly enhanced the management efficiency, sustainability, and economic viability of fruit orchard

Table 9. Beneficiary for automated drip irrigation in orchard

Name	Village	Gewog	Dzongkhag	Area (acre)
Sonam Dorji	Demungla	Tsakaling	Mongar	3
Yangdon	Yadi	Ngatshang	Mongar	1.5
Kinzang	Tongthrang	Radi	Trashigang	3
Total				**7.5**

1.4.3 Rain water harvesting Technology

Roof-top rain water harvesting technology was promoted in areas where there is acute shortage of water during winter months. Under this scheme, the farmers were supported with rain water storage tank construction by supplying cement, rain gutter, reducer, pipes and skilled man power while the beneficiaries contributed locally available materials like sand, gravels and labor. During the financial year 2023-2024, a total of 44 units were established, benefiting 44 households (Table 10). Farmers have reported significant improvement in maintaining homestead nutrition gardens for household consumption, as well as an improvement in household sanitation after the intervention.

Table 10. Rain water harvesting unit established in the Dzongkhags

	AWPB Target	Actual result
MG Agri	13	13
PG Agri	20	31
Total	**33**	**44**

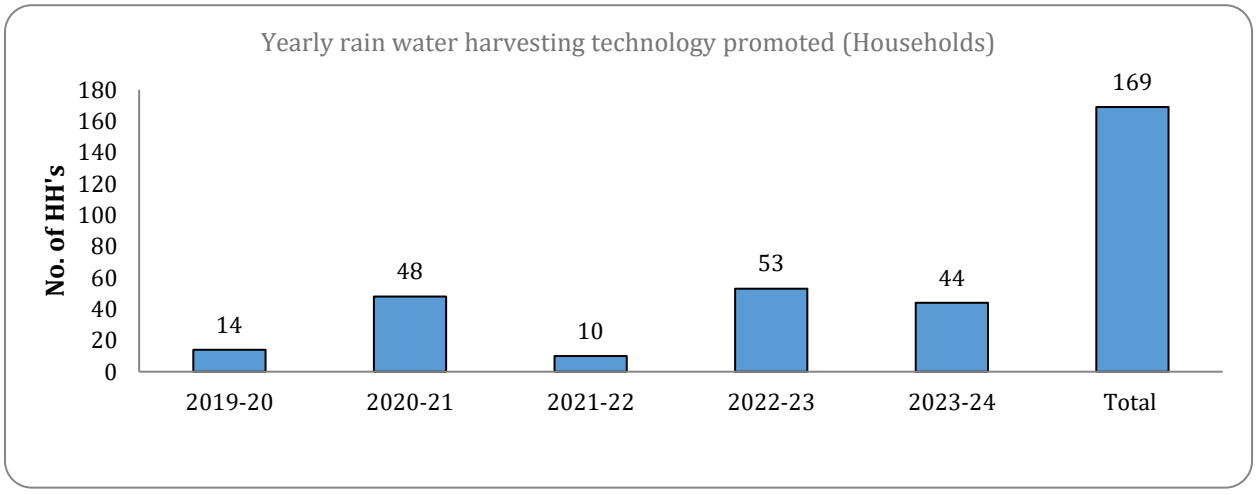


Figure 20. Cumulative year wise rain water harvesting technology promoted

2 Output 1.2: Vegetable Production intensified and expended

2.1 Supply of climate resilient vegetable seeds

Production input support for commercial vegetable growers as well as small-holders farmers are being continually supported to promote vegetable commercialization in the programme areas for meeting the demand for schools and Institutions feeding program. During FY2023-2024, a total of 591.14 acres were cultivated by supplying assorted vegetable seeds across all program Dzongkhags, reaching out to 3015 households (Female-1798).

The program primarily targeted vegetable groups and individuals who ventured into commercial production of assorted vegetables such as chili, onions, tomatoes, cauliflower, cabbage, broccoli and ginger, and those linked with school and hospital feeding programs as well as market within the locality and other Dzongkhags.

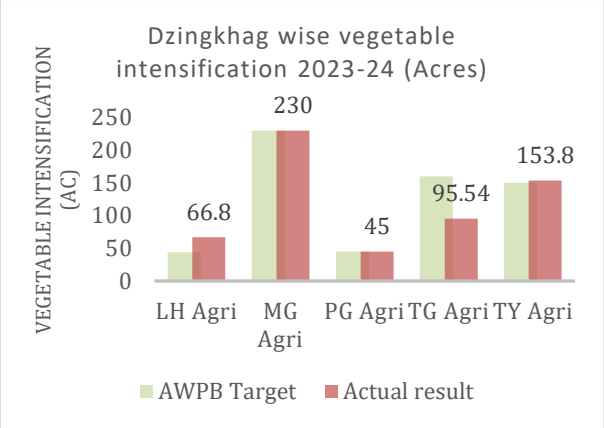


Figure 21. Vegetable intensification in 2023-24 (Planned Vs. Achieved)

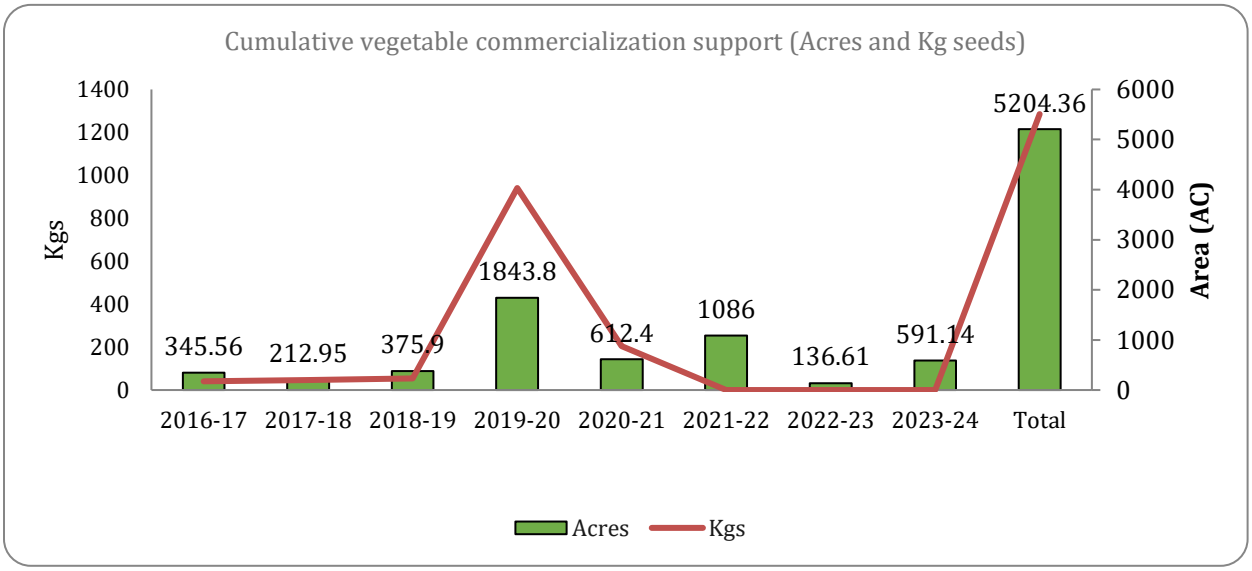
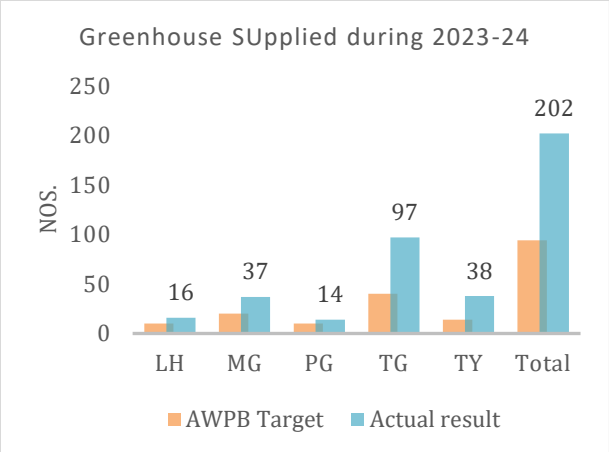


Figure 22. Year wise vegetable intensification support

2.2 Supply of greenhouses

Greenhouses were promoted with the objectives to obtain optimal production of vegetables by enhancing yields, quality improvement and extending the effective harvest period. Seasonality and weather conditions is known to largely influence vegetable farming in the region. Thus, in order to produce vegetables with limited environmental influence, protected agriculture have gained popularity in the Programme areas. While the intervention proved to be successful in general, the investment was reconsidered based on the IFAD Mission's recommendation to assess the sufficiency and reliability of water availability which should be a pre-requisite for approving and initiating any program supported interventions that require irrigation water as an input. During this reporting period, 135 greenhouse sets were distributed to the vegetable growers on cost sharing basis and 82 rolls of greenhouse plastics. Figure 23 (left) shows greenhouses planned versus the achievement during 2023-24 reporting period excluding the plastics supplied and the year wise green house subsidy provided to the farmers (right).



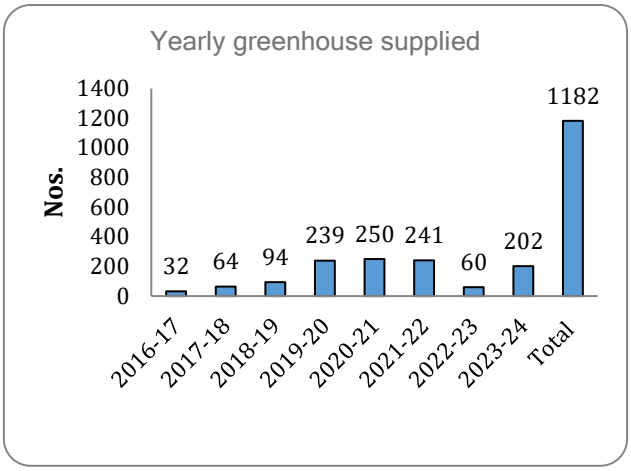


Figure 23. Greenhouse promoted during 2023-24 (Left); Year wise greenhouse supported (Cumulative (Right)

2.3 Vegetable production under protected structure

Vegetable cultivation in greenhouses is increasingly popular among farmers, addressing issues like excessive heat in traditional greenhouses by adopting modified structures. ARDC Wengkhar, in collaboration with the Dzongkhag Agriculture sector, developed a modified greenhouse (30 x 5 m) with increased height to mitigate heat buildup and enhance crop growth. These greenhouses, built on a cost-sharing basis, also includes advanced features such as trellising systems made of durable MS tubular rods and GI wire, and automated irrigation systems. The main focus of these greenhouses is to facilitate the cultivation of tomatoes and chilies, especially during the off-season.

The modified greenhouses have proven effective, with technical support and free seeds provided to farmers, along with hands-on training in essential cultivation techniques like pruning and pinching. This initiative resulted in a total tomato production of 1,414 kg across five greenhouses, marketed locally at Nu. 60 per kg. Additionally, the Lekshogang and Silambi sites produced 135 kg of chilies, sold at Nu. 50 per kilogram (**Table 11**).

While tomatoes are typically in demand year-round, traditional cultivation methods only allow for production during the warmer season. The modified greenhouses, however, create a protected environment that enables year-round tomato production. Therefore, this trial demonstrated significant harvests and income for the farmers, showcasing the economic viability and potential for year-round production with the modified greenhouse model.

Table 11. Tomato production at PA model sites

PA model site	Gewog	Tomato production (kg)	Chili production (kg)
Shali	Shumar	300	
Shongphu	Shongphu	154	
Lekshogang	Minjey	223	100
Nagor	Silambi	133	35
Chumdu	Yangtse	450	
Total		**1260**	**135**

2.4 Investment Model of Protected Citrus Cultivation

ARDC-Wengkhar has established citrus cultivation research within the protected structure to encourage young people to take up farming and to promote peri-urban farming in the country. It also aims to promote citrus farming at high altitudes. The structure can accommodate 64 plants, by maintaining the spacing of 2.5 x 2.5 m in a 60 m x 5 m size.

A socio-economic analysis of the project using the Net Present Value (NPV) method has shown that it is a worthwhile investment for large-scale promotion in the country. The model used a 12% discount rate to bring future costs to present time value. The analysis revealed a positive NPV of 237146.3 and an 18% Internal Rate of Return (IRR). This indicates that the project is worth pursuing, especially since the full initial investment is recovered by 10th year.

Table 12. Investment Model of Protected Citrus Cultivation

Year	Cost (Nu)	Benefit (Nu)	Net Benefit (Nu)	Discount Factor	Net Discounted Factor	Adjusted Net Discount Factor
0	392806	0	-392806	1	-392806	-392806
1	3555	0	-3555	0.892857143	-3174.1071	-395980.107
2	3659	0	-3659	0.797193878	-2916.9324	-398897.04
3	4430	92160	87730	0.711780248	62444.4811	-336452.558
4	4409	103680	99271	0.635518078	63088.5152	-273364.043
5	16805	115200	98395	0.567426856	55831.9655	-217532.078
6	7407	115200	107793	0.506631121	54611.2884	-162920.789
7	17615	115200	97585	0.452349215	44142.4982	-118778.291
8	10909	115200	104291	0.403883228	42121.3857	-76656.9054
9	4430	115200	110770	0.360610025	39944.7725	-36712.133
10	34717	115200	80483	0.321973237	25913.372	**-10798.7609**
11	4115	115200	111085	0.287476104	31934.283	21135.52207
12	10213	115200	104987	0.256675093	26947.548	48083.07006
13	4115	115200	111085	0.22917419	25457.8149	73540.88497
14	17909	115200	97291	0.204619813	19907.6662	93448.55116
15	49540	115200	65660	0.182696261	11995.8365	105444.3877
16	11909	115200	103291	0.163121662	16848.9996	122293.3872
17	4115	115200	111085	0.145644341	16178.9016	138472.2889
18	6407	115200	108793	0.13003959	14147.3971	152619.686
19	3115	115200	112085	0.116106777	13013.8281	165633.5141
20	33717	115200	81483	0.103666765	8447.07902	174080.5931
21	16930	115200	98270	0.092559612	9095.83304	183176.4261
22	2544	115200	112656	0.08264251	9310.17465	192486.6008
23	3115	115200	112085	0.073787956	8270.52302	200757.1238
24	14848	115200	100352	0.065882103	6611.40083	207368.5246
25	14940	115200	100260	0.058823307	5897.62471	213266.1494

26	2544	115200	112656	0.052520809	5916.78431	219182.9337
27	2565	115200	112635	0.04689358	5281.85837	224464.792
28	2544	115200	112656	0.041869268	4716.82422	229181.6162
29	3115	115200	112085	0.037383275	4190.10435	233371.7206
30	2115	115200	113085	0.033377924	3774.54252	237146.2631
			NPV (Nu)		**237146.2631**	
			IRR		**18%**	

2.5 Fruit Intensification through Focus Village Approach

The Agriculture Research and Development Center (ARDC) Wengkhar has implemented a fruit intensification program in various program areas. During the reporting year, the center identified and established 8.3 acres (Table 13) of focused citrus orchard in Sherimuhung Gewog in Mongar and Udzorong under Trashigang Dzongkhag, reaching out to 96 households (54 female).

Table 13. Citrus focus village

Village	Dzongkhag	Total HH	Total plants	Total area (Ac)
Sherimuhung	Mongar	49	683	4.2
Jomtsang	Trashigang	47	655	4.1
Total		**96**	**1338**	**8.3**

With an investment of Nu. 0.295 million and beneficiary contributing 30% the program has benefitted 96 households representing a significant step towards promoting local strawberry production and market access for farmers.

2.6 Fruit Intensification under Million Fruit Tree Program

For the third phase Million Fruit Tree Project (MFTP), a total of 7,367 numbers of temperate high value crops including kiwi and walnut were planted in the two eastern Dzongkhags (Table 14) benefitting 1,658 households (616 Female, 1042 Male) covering an area of approximately 65.43 acres. The subtropical seedlings (Avocado) of over 17403 have been planted across two Dzongkhag of Pemagatshel and Trashigang reaching out to 1529 households.

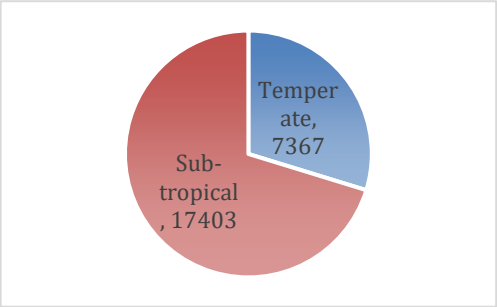


Figure 24. Temperate and sub-tropical fruit tree seedlings supplied during 2023-24 FY

Table 14. Details of temperate fruit seedlings planted in six eastern dzongkhags under MFTP 3rd phase

	Kiwifruit	Walnut	Avocado	F	M	No. of HHs
Temperate						
Trashigang	5361	946		577	1003	1580
Pemagatshel	182	878		39	39	78
Sub-tropical						
Trashigang			9201	353	598	951
Pemagatshel			8202	211	367	578
Total	**5543**	**1824**	**17403**	**1180**	**2007**	**3187**

2.7 Promote hot callusing techniques in private nursery Operator

Compared to other fruit crops, grafting walnuts in open conditions is challenging, with only a 20-30% success rate. In Bhutan, walnuts are grafted from February to March, but it's hard to keep the right temperature and humidity for the graft union. The best temperature for successful grafts is 27°C, with a relative humidity of 80-90%. Hot callusing technology aids in maintaining the graft union temperature at 27°C, which accelerates the callusing process between the stock and scion. Initial research conducted at Wengkhar demonstrated promising results, with a success rate exceeding 80%. This technology was subsequently implemented in farmers' fields in Bumpazor, Drepong Gewog, Mongar, with financial support from CARLEP-IFAD on a cost-sharing basis. It has been conducted with the established structure measuring 10 x 5 m, accommodates 1170 grafted walnut seedlings, showcasing effective space utilization through vertical farming. The application of hot callusing technology, coupled with drip irrigation, was meticulously managed and monitored through IoT-based automation. The graft success of 76% was achieved in on-farm. The total cost of the materials was Nu 0.214 million while the overall expenditure involving labor, electricity bill and other miscellaneous was Nu 0.270 million.

The investment analysis indicated a positive Net Present Value (NPV) and a higher Internal Rate of Return (IRR), confirming the technology's viability for enterprise development (Table 15)

Table 15. Investment analysis of walnut hot callusing technology in farmers field

Year	Cost (C)	Benefit(B)	Net Benefit(NB)	DF $(1+r)^{-t}$	Net (NBxDF)	DF ANDF
0	270896	0	-270896	1	-270896	-270896
1	22160	155575	133415	1	133415	-137481
2	22160	155575	133415	1	133415	-4066
3	22160	155575	133415	1	133415	129349
4	22160	155575	133415	1	133415	262764
5	22160	155575	133415	1	133415	396179
		IRR	**40%**	**NPV**	**396179**	

2.8 Promote T-bar kiwifruit trellis

In Bhutan, cultivation of exotic commercial kiwifruit fruit is new though wild kiwifruit is found aplenty. There is a high scope for kiwifruit cultivation as it is suitable in a wide range of areas in the country. It can also be grown organically due to the lack of any known serious pest or disease.

Moreover, kiwifruit stands out as one of the most promising high-value fruit crops in the region. Unlike other trees, kiwifruit trees as a perennial vine requires strong support system such as trellises for its strong framework and production that is sturdy enough to bear the weight of the heavy fruit, which could otherwise break the relatively weak vines. Therefore, the recommended approach for kiwifruit production involves the use of T-bar trellising.

To enhance kiwifruit production, T-bar trellising was promoted in Silambi and Radi Gewog covering 3.64 acres of kiwi orchard benefiting 19 farmers in Silambi and one farmer in Radi Gewog respectively. The total cost of the materials was Nu 1.16 million where 70% was supported by CARLEP and 30% was contributed by the beneficiaries.

Figure 25. Kiwi fruit trellising in farmers field

2.9 Farmers capacity development

2.9.1 Training on orchard Management and citrus canopy management

Effective citrus canopy management is crucial for citrus cultivation, influencing orchard productivity, fruit quality, and overall plant health. Thridangbi village in Saling Gewog, Mongar, was identified for this management due to its many citrus growers and aging orchards with sub-optimal fruit production.

With funding support from CARLEP, a two-day citrus canopy management training was held in February 2024 for 41 farmers (30 female, 19 male). The training covered pruning, basin making, manuring, Bordeaux mixture preparation and application, and provided 28 secateurs and 22 pruning saws on an 80:20 cost-sharing basis. CARLEP/IFAD has promoted fruit crops in nearly all households in the area, but many farmers lack orchard management skills. This training aimed to enhance their capacity for better future management of fruit crops.

Similar training was conducted in Muhung village, Sherimuhung Gewog, attended by 15 farmers (11 female, 4 male) from Muhung, Serzhong, and Senakhar villages. The practical sessions included pruning fruit trees (pear, peach, and persimmon), basin making, mulching, and trenching for effective manure application. The participants are expected to replicate to other farmers for similar implementation for better crop management.

Figure 26. Citrus training and pruning demonstration at Thridangbi

Figure 27. Orchard management training in pear at Muhung village, Sherimuhung

2.9.2 Hands-on Training on T-bar trellising for Kiwifruit Silambi, Mongar

A practical demonstration on T-bar trellising installation for kiwifruit was carried out at Silambi village from 12th-15th December, 2023. This initiative was supported by CARLEP, aimed to enhance the productivity and sustainability of kiwifruit farming while promoting a cost-sharing model among the community. It benefits 19 farmers owning a total of 315 kiwifruit plants. The beneficiaries contributed 30% of the total material cost, while CARLEP covered the remaining 70%.

To demonstrate the effectiveness of T-bar trellising, a practical demonstration was conducted in one household within the village. This served as a learning experience for all farmers along with the three extension personnel of Silambi, Radhi and Kangpara, equipping them with the knowledge and skills needed to carry out the subsequent trellising work independently (Figure 28).

Figure 28. Layout for T-bar installation (left) and installation of T-bars (right)

2.9.3 Training of Trainers on the establishment of commercial strawberry production with automated drip irrigation at Changkhala Village

The cultivation of strawberries presents a lucrative opportunity in the market due to its high value and demand. In the eastern region, Bhutan Agroindustry Limited (BAIL) has identified a significant demand for strawberries. Consequently, to promote market-linked cultivation of strawberries on a commercial scale, Changkhala village has been selected. Situated at an altitude of 2300 meters above sea level within Jarey Gewog, Lhuentse Dzongkhag, Changkhala village exhibits agro-climatic conditions, elevation, and landscape features similar to Tang village in Bumthang, where successful strawberry cultivation has been demonstrated. To ensure efficient and timely irrigation of the crop aimed at enhancing crop production, the installation of automated drip irrigation was demonstrated and installed across all sites from during May 2024. The demonstration was attended by the growers, ARDC staff and Gewog Extension officials of Lhuentse Dzongkhag. Additionally, contractual agreements were formalized between the growers and BAIL for the supply of their produce (Figure 29).

Figure 29. Straw berry farm Jaray Chankala

2.9.4 Hands-on Training on Installation and Management of Automated Drip Irrigation System at Tonglingpam, Radhi, Trashigang

A five-day hands-on training on the installation and effective management of an Automated drip irrigation system was conducted at Tonglingpam, under Radhi Gewog, Trashigang Dzongkhag from 16-20th January, 2024 which served as a pivotal step towards enhancing agricultural practices in the region. A total of 16 participants consisting of extension personnel under Trashigang Dzongkhag, beneficiaries and staff from ARDC Wengkhar took part in the training program. By targeting a kiwifruit orchard spanning 2.5 acres and accommodating 325 kiwifruit plants, the initiative aimed to demonstrate the practical application of modern irrigation techniques in agricultural settings. The training culminated in an inaugural ceremony attended by representatives from Radhi Gewog, including leaders from Local Government and Chiwog members, alongside the Program Director from ARDC Wengkhar. The presence of these stakeholders underscored the significance of the initiative, marking a milestone in the adoption of SMART irrigation systems within Trashigang Dzongkhag. The event not only celebrated technological advancement but also sparked interest among farmers, paving the way for wider adoption of modern agricultural practices in the region.

Overall, the training program catalyzed change, empowering participants with the knowledge and skills needed to embrace sustainable agricultural practices. By leveraging innovation and collaboration, the initiative heralded a new era of agricultural resilience, poised to address contemporary challenges while fostering growth and prosperity in the community (**Figure 30**).

Figure 30. ToT on automated drip irrigation

2.9.5 Hands on Training on Mushroom Cultivation

A two-day hands-on training on mushroom cultivation was held at ARDC Wengkhar from 5th to 6th December, 2023 attended by 40 participants comprising the staff of ARDC Wengkhar, Mongar Dzongkhag Administration and enthusiastic farmers. The hands-on training provided an immersive learning experience blending theoretical knowledge with practical skills designed to offer the participants with a holistic understanding of mushroom cultivation and identification.

Figure 31. Theoretical session on mushroom science, mushroom production and management and automation in mushroom farming

The training covered an overview of the diverse world of mushrooms, exploring their biological intricacies, and cultivation methods. Participants also delved into the fascinating realm of mycology, gaining hands-on experience in setting up a mushroom cultivation space and integration of automation in mushroom farming. They also learned how to assemble materials, sterilize substrates, and inoculate spawn, ensuring a solid foundation for successful mushroom growth especially for oyster mushrooms.

3. Output 1.3: Dairy production intensified and expanded

3.1 Improved dairy shed construction

CARLEP continues to support dairy farmers in constructing hygienic cow sheds to promote stall feeding and reduce overgrazing in forests. This initiative also facilitates clean milk production and proper management of cow dung for biogas production. The project provided dairy shed construction materials- 18 bags of CGI sheet and cement each, accounting to only 20-30 % of the cost while the beneficiary contribute major share of the cost (70-80) for sourcing of materials such as sand, stones, timber and labor costs.

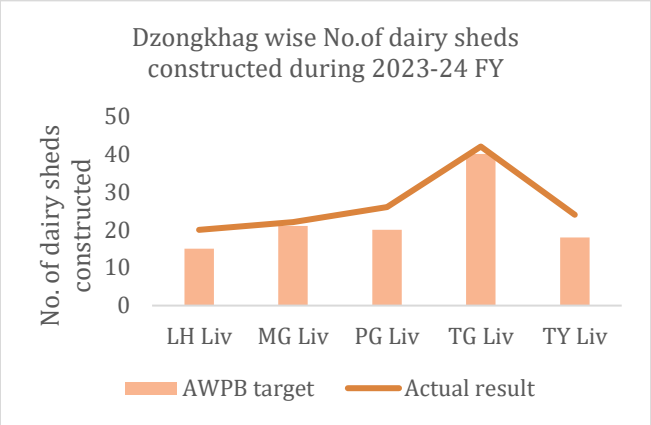
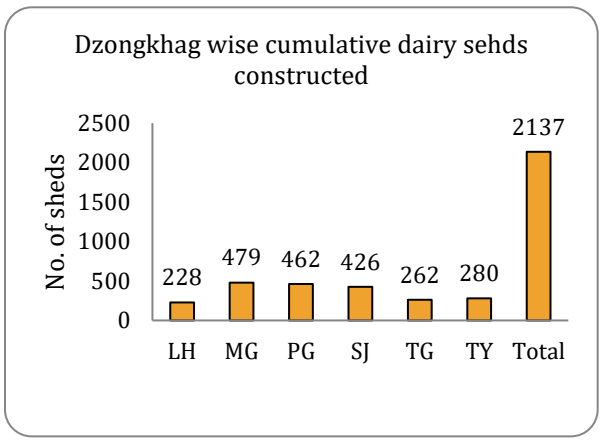


Figure 32. Dzongkhag wise No. of dairy sheds constructed in 2023-24 FY

Figure 32 shows 134 dairy sheds have been constructed by the dairy farmers spread across six Programme Dzongkhags during this reporting period and dzongkhag wise and year wise cumulative dairy sheds constructed.



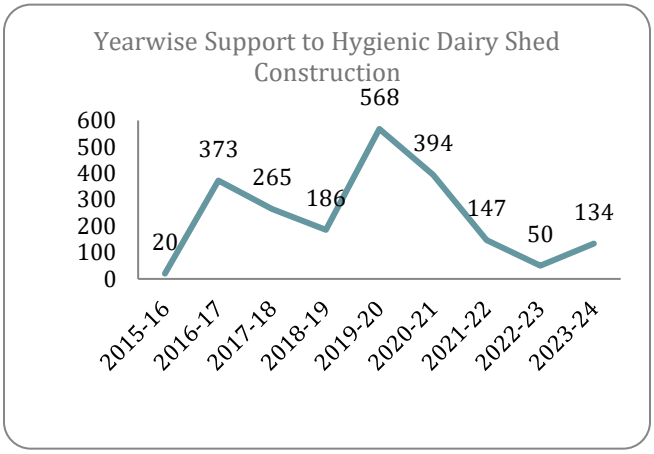


Figure 33. Dzongkhag wise and year wise dairy sheds constructed (Cumulative)

3.2 Supply of improved cattle breed

Increasing milk supply base is made possible through subsidised support to purchase of quality dairy cows and improving the genetics through breed upgradation. Dairy cows and Heifer importations was initiated pre-COVID-19 pandemic as a fast-track mechanism to increase the smallholder dairy herds thereby enhancing milk production. Post COVID-19, internal sourcing of dairy animals was carried out by the Dzongkhags whereby CARLEP supported 30 % of the cost, while the beneficiaries contribute for 70 %. Figure 34 shows Dzongkhag wise number of dairy cows supplied through 30 % CARLEP during this reporting period and cumulative number of dairy cows supplied over the years (Figure 35)

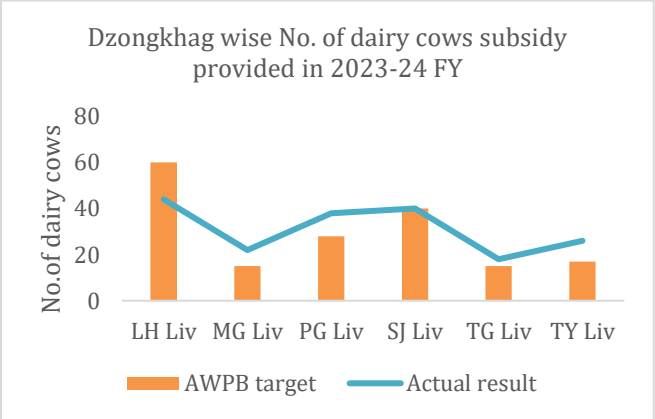


Figure 34. Dzongkhag wise dairy cows subsidy provided in 2023-24 FY

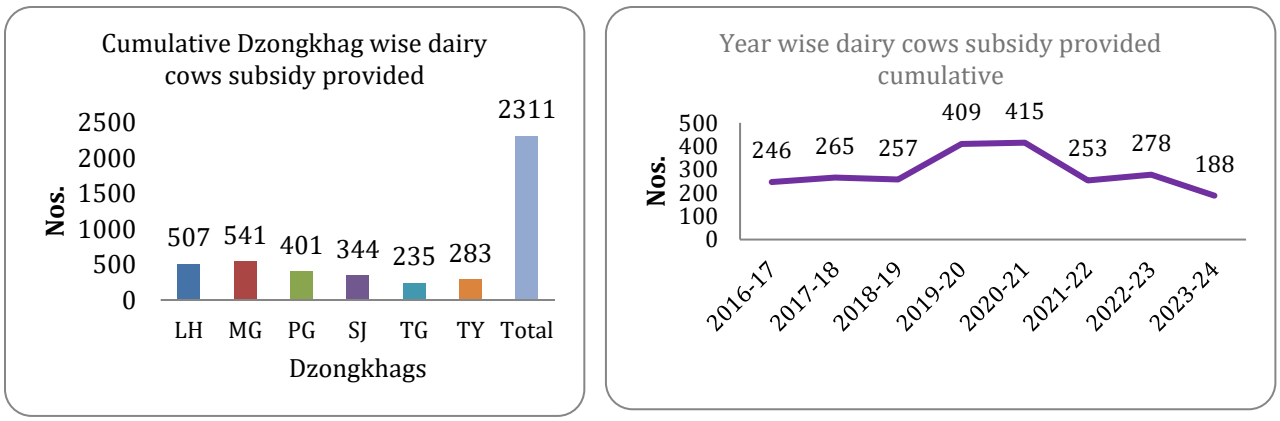


Figure 35. Cumulative No. of dairy cows subsidy provided (Dzongkhag wise and year wise)

3.3 Dairy equipment

Dairy value chain equipment, including milk cans, display chillers, deep freezers, butter churners, cream separators, and cool boxes are supplied to the dairy farmer groups in the Programme area. These equipment have benefited the groups in terms of storing fresh milk and dairy products before it gets delivered to the market. The details of equipment supply to the Dzongkhags is shown in Table 16.

Table 16. Type of dairy equipment supplied to dairy farmer groups

Dzongkhag	Deep freezer	Milk cans	Milk/Curd percolator	Digital bench scale	Cool box	Cream separator	Cheese vat	Butter churner	Display chiller
LH		20		1	5				
MG	4	2	1						
PG		50	10		50	8	1		
SJ	1	5		1	5	1		1	2
TY	1								
RAMCO									6
Total	**6**	**77**	**11**	**2**	**60**	**9**	**1**	**1**	**8**

3.4 Dairy breed enhancement program

3.4.1 CHBPP expansion

Breed intensification through CHBPP under Samdrup Jongkhar, and Yangneer and Radhi gewogs in Trashigang Dzongkhag. The program was expanded in Samkhar and Kanglung gewogs under Trashigang and Khar, Shumar and Zobel Gewogs in Pema Gatshel Dzongkhag. The potential site selection was carried out in collaboration with the respective Dzongkhag and Gewog Livestock sectors. The program was mainly aimed to achieve cattle breed intensification in the region in view of the rising demand for heifers and non-sustainability of dairy cow imports. A total of 2202 animals were selected and provided with the National Bovine Identification Number (NBIN) and registered under NDIS. These animals will be entitled for insemination with imported Jersey semen and sex sorted semen. Through the program, awareness was conducted for the dairyfarmers on various aspects including CHBPP & HPS guidelines, animal selection

criteria, roles as selected animal owners, heat detection in the cattle and AI timing and progenies born reporting system.

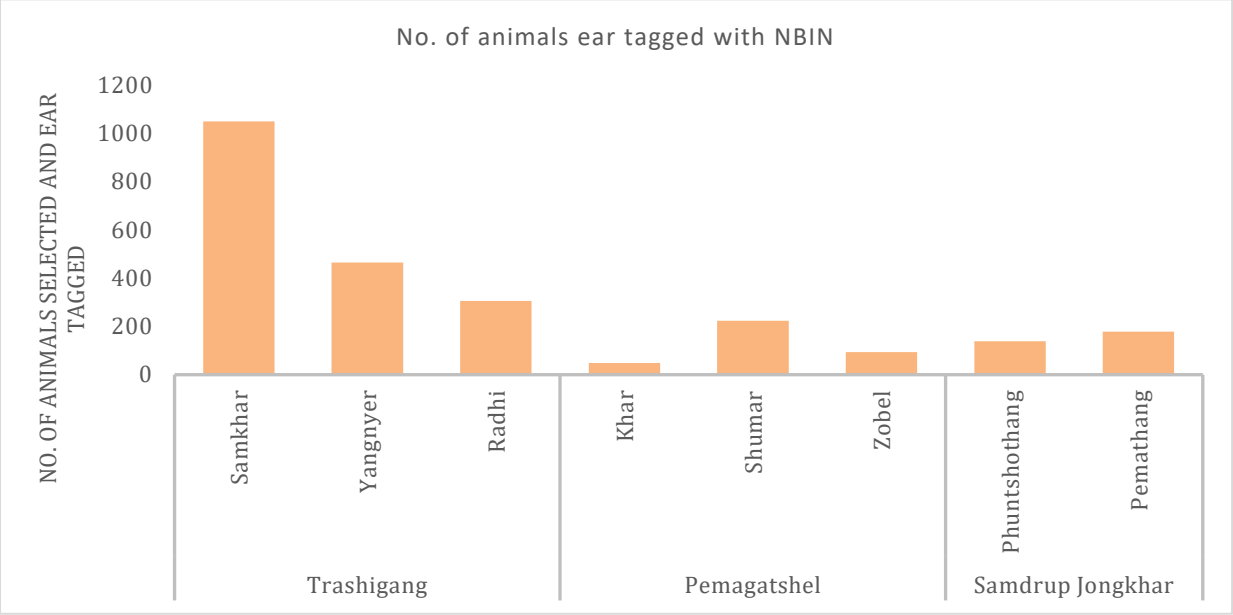


Figure 36. No. of animals selected for CHBPP

3.4.2 Supply of breeding bulls

Under dairy breed enhancement program, breeding bulls were supplied in areas inaccessible to Artificial Insemination (AI) for breed upgradation and improvement, thereby enhancing productivity. A total of 16 Jersey breeding bulls have been supported to the dzongkhags benefiting 20 dairy groups comprising of 420 members.

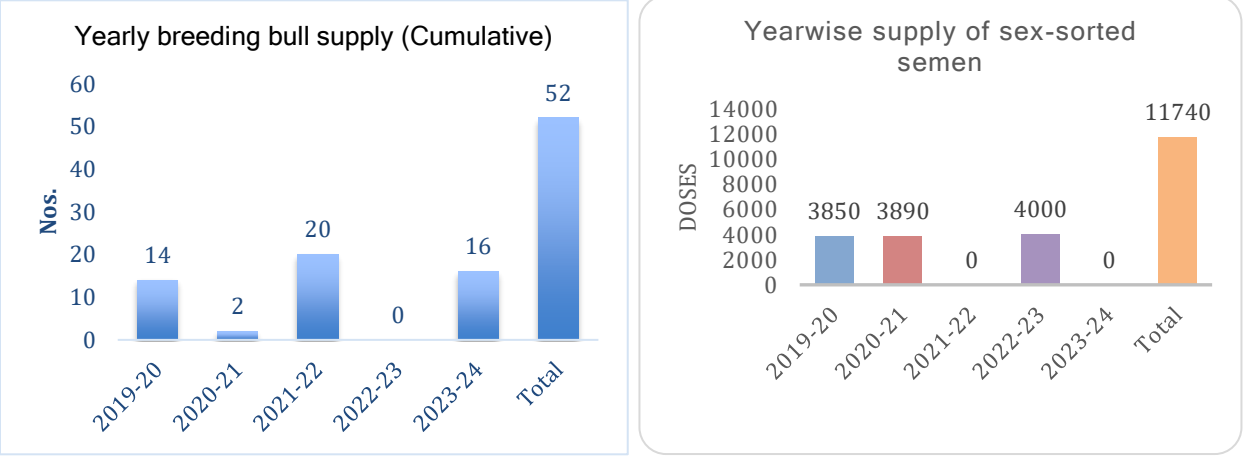


Figure 37. Breeding bulls supplied in 2023-24 (Left); Year wise doses of sex-sorted semen supplied (Right)

3.4.3 Supply, Installation and Commissioning of Liquid Nitrogen (LN_2) Plant at RLDC, Kanglung

For over a decade, an aging liquefied nitrogen facility, with a capacity of ten liters per hour, has struggled to meet the demand for liquid nitrogen across 52 gewog extension offices in six Eastern dzongkhags. Its limited production capacity and frequent breakdowns have often necessitated purchasing from private firms, incurring substantial costs. To address this issue, funding from the Commercial Agriculture and Resilient Livelihoods Enhancement Programme (CARLEP) totaling 11.715 million was utilized to acquire a new machine capable of producing 10 liters of liquid nitrogen per hour. This investment aims to ensure a consistent supply of LN_2 for preserving cattle semen. The process involves capturing nitrogen gas from the environment, compressing it, and cooling it to temperatures as low as -196 degrees Celsius. The implementation of this new facility is expected to bolster the Breeding Intensification Programme under the Department of Livestock, aligning with the objectives of the 13th Five-Year Plan. Its benefits are anticipated to extend to every dairy group and individual across the six Eastern Dzongkhags and beyond.

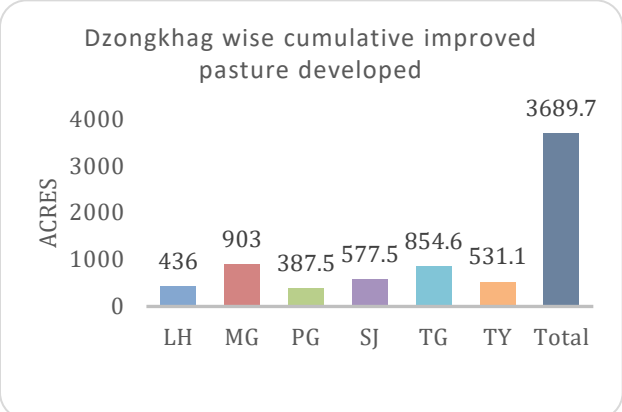
3.5 Feed and fodder development program

3.5.1 Improved pasture development

Pasture development in fallow and marginal land is being facilitated through the supply of improved pasture seeds. Sub-tropical (Ruzi, molasses and stylo) and temperate (Grass mixture which includes Italian Rye grass, Tall fescue, Cocksfoot, white clover) pasture seeds were supplied to the dairy groups. The amount of pasture seeds supplied versus area of improved pasture developed during 2023-2024 FY is indicated in Table 17. Figure 38 shows Dzongkhag wise and year wise cumulative improved pasture developed.

Table 17. Improved pasture development in 2023-24 (Acres)

	AWPB target (Ac)	Actual result (AC)
TG	176	160
TY	130	130
Total	**306**	**290**



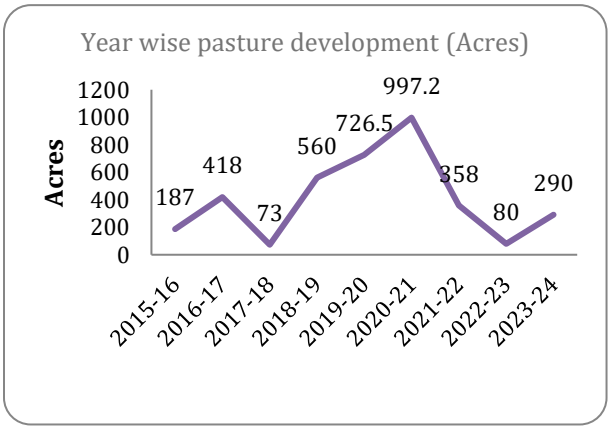


Figure 38. Cumulative Dzongkhag wise and Year wise pasture development

3.5.2 Fodder slips propagation (Napier)

Napier and Gautemala grass have become one of the major sources of forage for cattle in the eastern region. Until recently, Pakchong variety has been introduced for propagation in the farmers field as it has higher nutritive value besides higher biomass. During the FY 2023-24, 74.33 acres of fodder cuttings were propagated in fallow and marginal land by supplying 743,300 number of cuttings as shown in Figure 39.

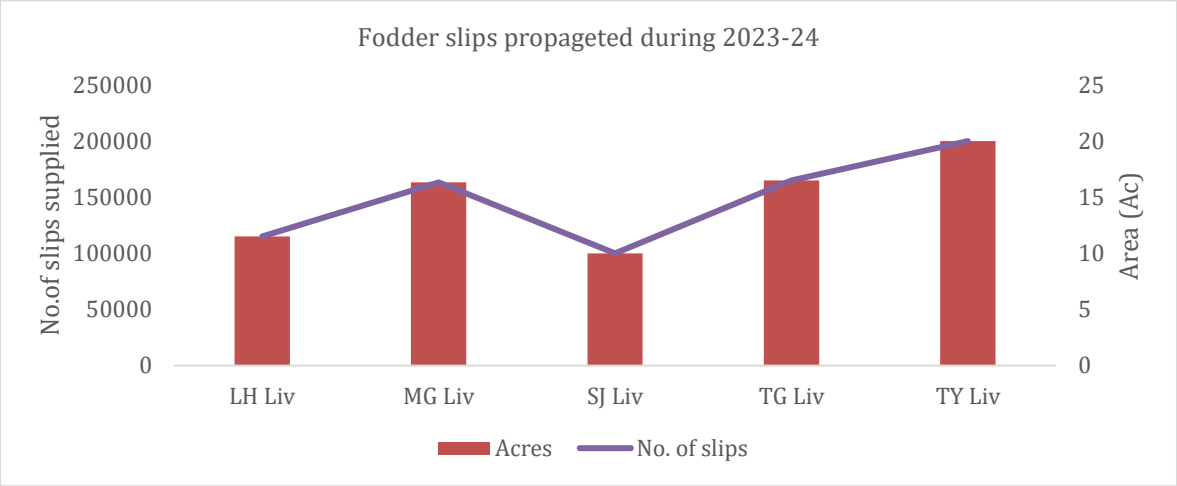


Figure 39. Fodder slips (Pakchong) distributed in 2023-24 FY

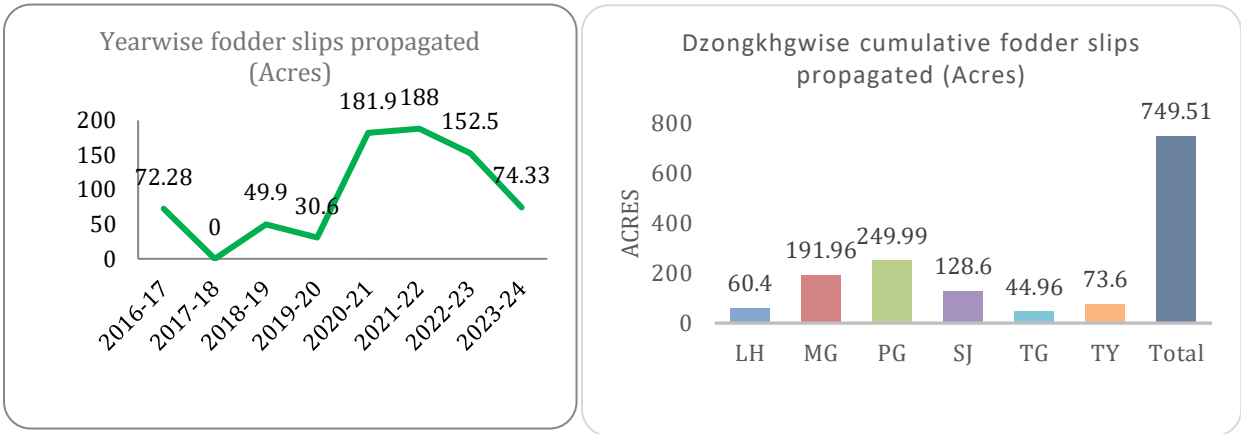


Figure 40. Cumulative year wise and Dzongkhag wise fodder slips propagated

3.5.3 Winter fodder promotion

Oat cultivation during winter, after agriculture crop harvest, has helped marginal farmers to utilize agriculture land effectively for winter fodder production. Naked oat is known for its high nutritive value and is considered as an important fodder for dairy animals. CARLEP has been promoting winter oat cultivation through supply of Oat seeds to dairy farmer groups. For example, 39,995 kgs of oat seeds were supplied to dairy groups, covering an area of 629 acres, during 2023-2024 FY alone for cultivation after crop harvest. The Dzongkhag wise quantity of seeds supplied and area

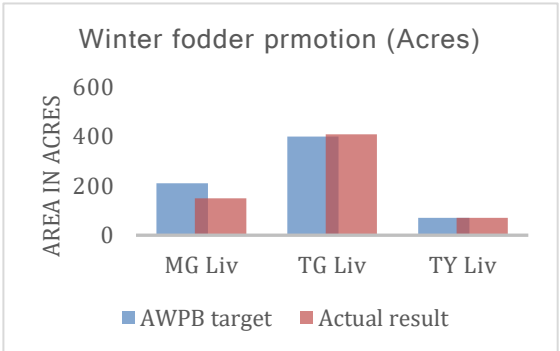


Figure 41. Oat cultivation (planned Vs. Actual Result) in 2023-24

under Oat cultivation is indicated in the Figure 41. So far, oat seeds covering an area of 5248.2 acres have been supported by the Programme (Figure 42).

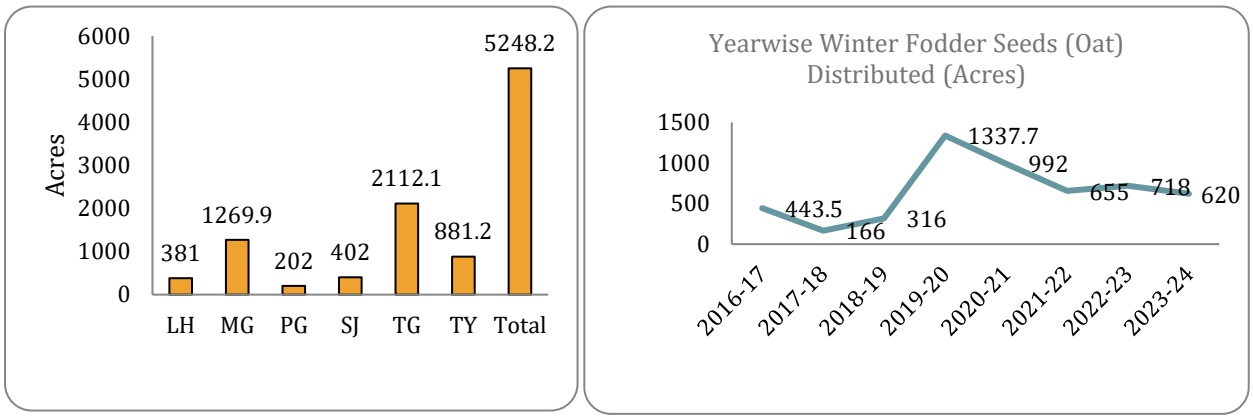


Figure 42. Dzongkhag wise cumulative oat cultivation (Left); Year wise oat cultivation (Right)

3.5.4 Crop residue enrichment

Fodder conservation such as silage making and maize stover/paddy straw treatment were carried out by dairy farmer groups mainly to enhance winter fodder base while at the same time maintaining optimum milk yield. With CARLEP supporting fodder conservation inputs, a total of 2375 MT of fodder were reported to have conserved for feeding dairy animals during lean season (winter) when the fodder resource is scarce. Dzongkhag wise amount of fodder conserved is as shown in the Table 18 below.

Table 18. Dzongkhag wise fodder conserved (MT)

	AWPB target	Actual result
LH	80	100
MG	125	125
SJ	2000	2000
TG	500	150
Total	**2705**	**2375**

3.6 Improved livestock service outreach

3.6.1 Refresher training of CAIT

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

For the fiscal year, 2023-2024, CAIT refresher course was conducted in two batches. The first batch was conducted at Lingmithang, Mongar Dzongkhag for 11 CAITs of Eastern Dzongkhags, w.e.f 18th March,

2024 and second batch was conducted at Tshatse/Dagor chiwog in Shumar Gewog under Pemagatshel dzongkhag w.e.f 12th June, 2024 for two weeks duration. The two weeks course is essential for the CAIT to refine skills, update / advance knowledge and keep abreast with latest / improved techniques in cattle reproductive biotechnologies. The program aligns with the Department's overall objective of up- scaling milk production through intensifying dairy breed improvement in the country.

Figure 43. Practical demonstration during CAIT training

3.6.2 Training of dairy farmers

Smallholder dairy farmers in the group were trained on dairy management, clean milk production and group mobilization. In this reporting period, 371 dairy farmers have been trained as shown in the Figure 44.

The importance of group mobilization and facilitation of drafting group by-laws has become crucial for the sustainability of the groups.

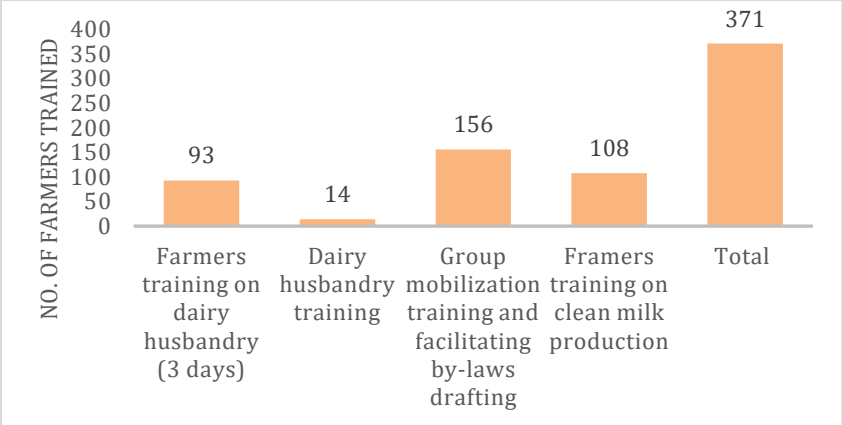


Figure 44. Farmers training conducted in 2023-24

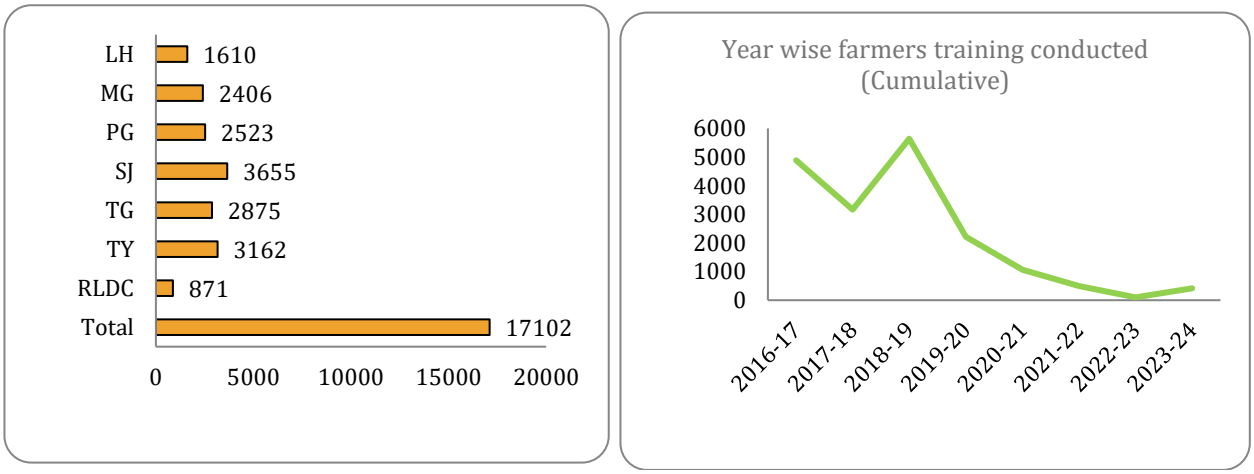


Figure 45. Agency wise and year wise cumulative number of farmers trained

3.6.3 Animal health refresher training for Livestock Extension Staff

The refresher training course for animal health workers in the Eastern Region was conducted with the objective of aligning their knowledge and skills with the 13th Five-Year Plan (13FYP) and standardizing animal health service delivery in the region. The training was aimed to enhance the participants' understanding of animal health, relevant guidelines, disease prevention and control plans and standard operating procedures. It is imperative that we standardize animal health service delivery. Standardization will ensure that the animal health services provided are consistent, efficient, and effective. It will also ensure that they meet the needs of our clients while adhering to the highest standards of animal health and increases the confidence of the clients and also build the trust. The training was organized by the Regional Livestock Development Center (RLDC) with the fund support from CARLEP and the resources from being from National Centre for Animal Health (NCAH), National Veterinary Hospital and RLDC. A total of 33 livestock field staff of six eastern dzongkhags and central farms attended the refresher course.

Figure 47. Practical training session

4 Output 1.4: Production related infrastructures

4.1 Renovation of irrigation canal

In this reporting period, 2.5 kms of irrigation canal was renovated at Khepachu under Lhuentse Dzongkhag with command area of 42 acres benefitting 48 households. The cumulative length of irrigation canal renovated thus far is shown in Figure 47.

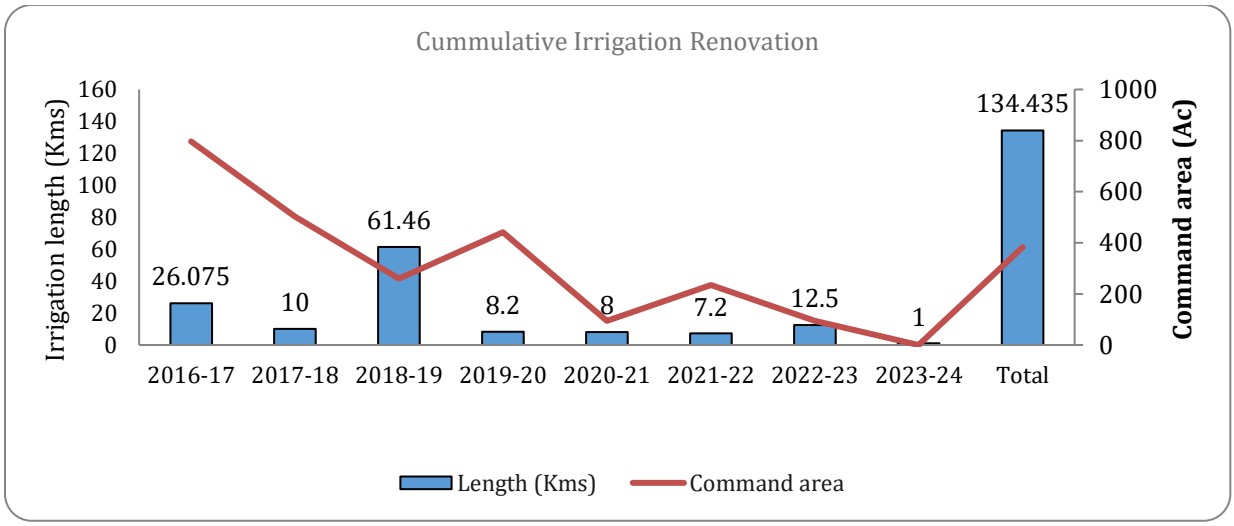


Figure 48. Year wise cumulative irrigation canal construction/renovation

4.2 Dry land irrigation

The program support dryland irrigation through tapping of spring water from the source to the production field edges with construction of reservoir tank and distribution points where required. The implementation followed a cost-sharing model, where beneficiaries contributed labor while the project provided materials, transportation costs, and wages for skilled labor. The prioritization of these activities was based on the potential of the location and the needs of the farmers, who lacked sufficient water for growing vegetables and other crops despite their interest in commercial agricultural production.

Table 19. Dry land irrigation scheme supported in 2023-24

Agency	No. of scheme	Length (Kms)	Command area (Ac)	HH coverage
LH	2	7.6	36.02	20
PG	2	3	20	24
TG	1	2.5	10	5
TY	2	4.1	14.14	19
Total	**7**	**17.2**	**80.16**	**68**

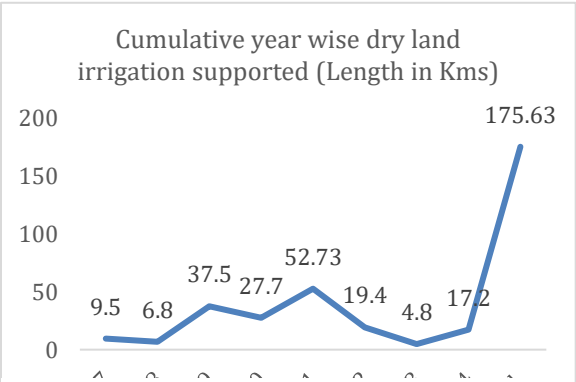


Figure 49. Cumulative year wise dry land irrigation supported

4.3 Fencing of agricultural land

Human-wildlife conflict is one of the major challenges faced by farmers in production enhancement. Farmers are losing significant portion of their crops to wild animals every year. The menace of crop depredation by wildlife has gained national importance in combating the challenges nationwide. As an immediate solution, electric, barbed wire and chain-link fencing is being promoted by the Programme to curb human-wildlife conflict and reduce crop losses. In this fiscal year, a total of 3.44 kms of chain-link fencing was supported against the planned target of 4.55 kms as shown in the Table. Trashigang Dzongkhag has installed 0.44 kms length of chain-link fencing in addition to 1.09 kms that was installed last financial year. Although chain-link fencing is effective and sustainable compared to other fencing, the investment cost is huge as the average expenditure incurred to fence little more than a kilometer was Nu. 1.34 million.

Table 20. Chain link fencing supported in 2023-24 (Kms)

	AWPB Target	Actual result
MG Agri	2	1
TG Agri	0.5	0.44
TY Agri	2	2
Total	**4.55**	**3.44**

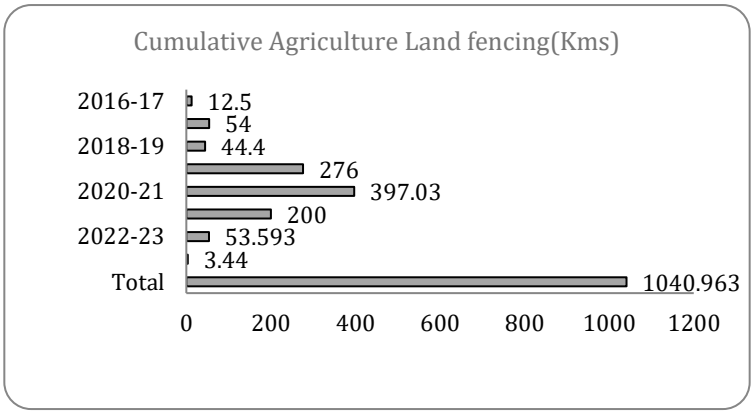
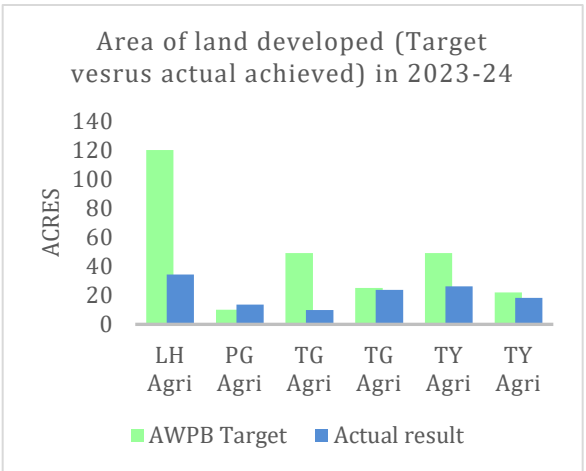


Figure 50. Cumulative year wise electric and chain link fencing installed

4.4 Land development, terracing and consolidation

The terrain of the land in 6 eastern Dzongkhags is characterized by steep slopes and surface stones making farm mechanization very difficult. Even the wet land terraces are too narrow and difficult for deploying farm machinery. In line with 12th FYP, CARLEP has prioritized land development as one major intervention for cereal intensification and vegetable commercialization. Agriculture Land Development (ALD) has been implemented based on three categories such as dryland terracing, Wetland consolidation and fallow land reversion. A total of 125.47 acres of land has been developed (wetland and dryland) in this fiscal year from the planned target of 275 acres (46% achievement). The Dzongkhag wise planned target and actual achieved is indicated in Figure 51 (Right) and the Figure 50 (Left) shows cumulative year wise agriculture land developed.



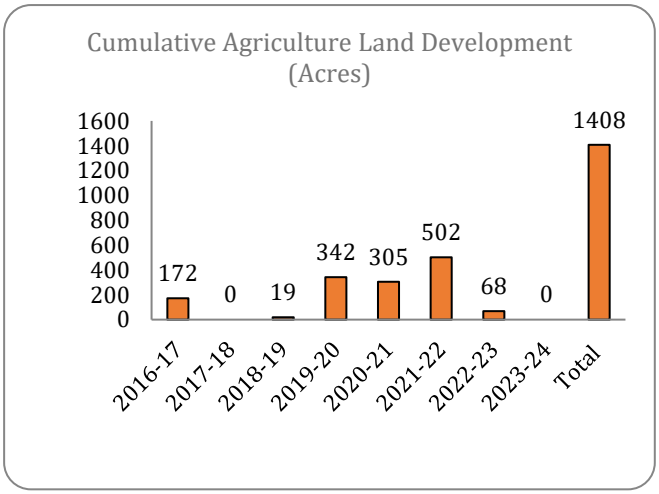


Figure 51. Area of land developed in 2023-24 (Right); Year wise cumulative land developed (Right)

4.5 Supply of chaff cutter

Chopping of fodder has always been labor intensive and time-consuming discouraging farmers to conserve fodder for use during lean season. As a solution, subsidy on chaff cutter was provided to dairy farmers to encourage fodder conservation and drudgery reduction, especially for women since women are involved more than men in tending cattle and household chores. A total of 134 chaff cutter sets were supplied to the dairy farmers on cost sharing mode (60% CARLEP support and 40% beneficiary contribution). This intervention has benefited 134 household out of which 40% were women beneficiaries. The Dzongkhag wise chaff cutter planned and achieved is shown in Figure 52 while Figure 53 shows cumulative progress.

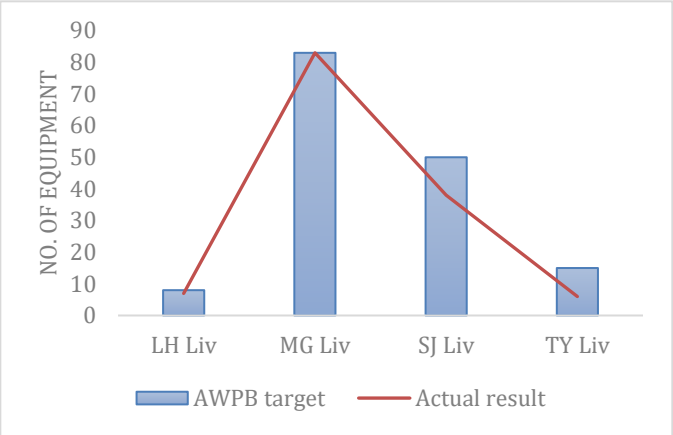
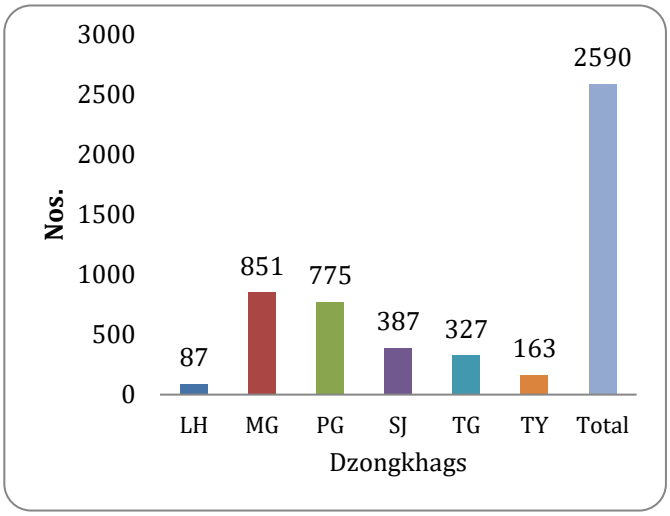


Figure 52. Chaff cutter supplied in 2023-24



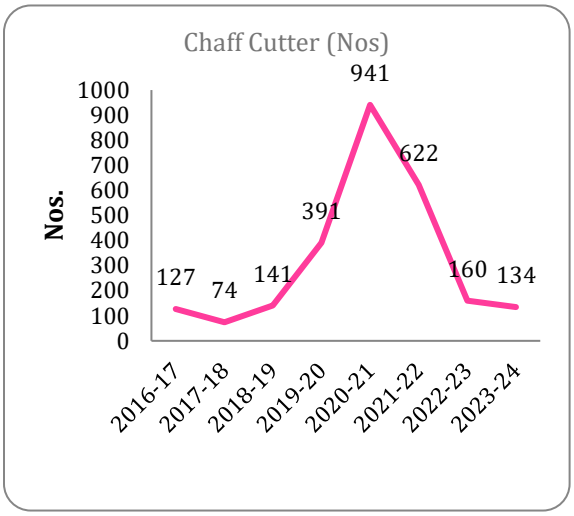


Figure 53. Cumulative Dzongkhag wise chaff cutter supplied (Left); Year wise cumulative chaff cutter supplied

COMPONENT 2:

VALUE CHAIN DEVELOPMENT AND MARKETING

5. Output 2.2: Agriculture commercialization and enterprise development strengthened

5.1 Support to agriculture enterprise development

Five youths were selected from the six eastern regions to spearhead smart mushroom enterprise in the current financial year (**Table 21**). The program operates on a cost-sharing mechanism, where beneficiaries contribute 30 % of the total cost. The program's overarching goals include increasing mushroom production and creating employment opportunities for youths, as locally produced mushrooms are organic and possess significant potential in local markets. This initiative is expected to contribute to the improvement of rural livelihoods.

Table 21. List of youths taking up mushroom enterprise

Name	Gender	Gewog	Dzongkhag
Sonam Wangdi	Male	Yalang	Trashiyangtse
Kezang Norbu	Male	Shongphu	Trashigang
Tshering Yangzom	Female	Samkhar	Trashigang
Dorji Wangchuk	Male	Drametse	Mongar
Jamyang Phuntsho	Male	Bartsham	Trashigang

Figure 54. Establishment of commercial mushroom enterprise

Prior to the enterprise development, the participants underwent a rigorous five-day training program on mushroom cultivation. A total of seven participants, selected from six eastern regions based on the criteria established by the selection committee, completed the training.

5.2 Promotion of market-linked commercial strawberry production

With fund support from CARLEP-IFAD, the Dzongkhag / Gewog Agriculture Sector, Bhutan Agro Industries Limited (BAIL), and ARDC Wengkhar has collaboratively established a commercial strawberry farm with an automated drip irrigation system in Changkhala village, Lhuentse Dzongkhag. This initiative benefits seven

households and aims to enhance strawberry production in the region. A mother block of 0.22 acres was established with 10,000 seedlings, providing a foundation for future propagation by the growers (**Table 22**). Additionally, training sessions were conducted to equip the farmers with the necessary knowledge on bed preparation, mulching techniques and plantation methods.

To ensure efficient water management and optimal crop growth, automated drip irrigation systems were installed across all participating farms. This technology will contribute to increased crop yield and improved resource utilization. The initiative's impact extends beyond the fields. Contractual agreements were established between the growers and BAIL, guaranteeing a reliable market for their future harvests. The established farmgate price for strawberries is Nu. 195 per kg, with a factory gate price of Nu. 200 per kg.

Table 22. Details of strawberry growers at Changkhala, Jarey Gewog

Name	House no	Seedlings(no)	Area (Acre)
Dechen Pelden	Chha-2-31	1428	0.03
Pema Tshomo	Chha-2-30	1428	0.03
Kinley Selden	Chha-2-19	1428	0.03
Pema Tshoki	Chha-2-26	1429	0.03
Norzin Lhamo	Chha-2-29	1429	0.03
Dechen Lhaden	Chha-2-18	1429	0.03
	Total	**8571**	**0.18**

6. Output 2.3: Community-driven strategic market infrastructure development

6..1 Construction of large market facility/aggregation Centers

Large market facility construction was supported by the project with the aim of formalizing agricultural value chains whereby different actors (Producers, traders, wholesalers, retailers and buyers) have access to market facilities. The construction was supported based on the need and feasibility studies of the infrastructures. In this reporting period, 4 large market facility was constructed in Pemagatshel and Samdrup Jongkhar Dzongkhag as shown in the Table.

Table 24. Type of market infrastructure constructed in 2023-24

Location	Type of market infrastructures	Qnty
Nganglam, Pemagatshel	Construction of Marketshed at Nganglam(spillover)	1
Tshatsi, Pemagatshel	Construction of Tshatsi Buram Processing Unit at Pemagatshel	1
Samdrup Choling, Samdrup Jongkhar	Construction of Farmers' Sales Outlet/ Vegetable Market at Samdrupcholing (Spill over activity)	1
Samdrup Jongkhar	Construction of "state of the art" Farmers' Sales Outlet in Samdrup Jongkhar Throm	1
Total		**4**

6.2 Investment support in dairy value chain infrastructure

Product aggregation plays a crucial role in channelizing fresh milk from farms to dairy processing units. Due to the smallholding nature of dairy farms and scattered settlements, multiple product aggregation points are unavoidable. In this reporting period, the program supported construction of 9 milk collection sheds (Figure 55) and 3 milk collection centers (Table 25). These facilities are expected to motivate farmers in collective marketing of dairy products besides improving hygiene. The cumulative Dzongkhag wise and year wise number of MCC and MCS constructed is shown in the Figure 56.

Table 25. MCC planned versus achieved in 2023-24

	AWPB target	Actual result
PG Liv	1	1
SJ Liv	1	1
TG Liv	1	1
Total	**3**	**3**

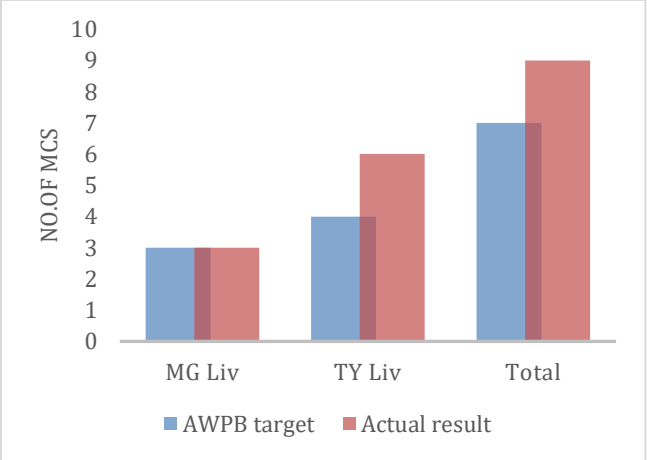


Figure 55. MCS planned versus achieved in 2023-24

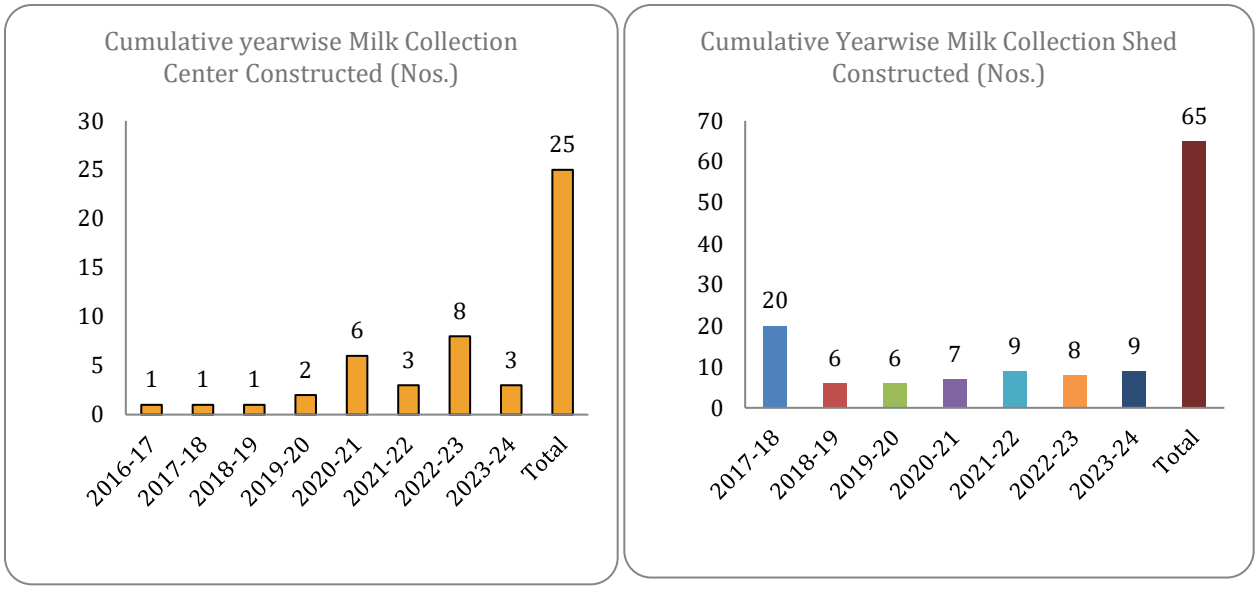


Figure 56. Cumulative MCC constructed (Left); Cumulative MCS constructive

6.3 Installation of solar bulk milk cooler at MCC Gomdhar

In order to diversify energy supply mix in MCC's, a 500 Liter capacity solar bulk milk cooler was installed in MCC, Gomdhar. A quick cost benefit analysis shows that a 500 liter capacity milk chiller run by solar energy can offset electricity cost of approximately Nu. 1050.00 per month.

Figure 57. Installation of solar bulk milk cooler with solar system at Gomdhar MCC

D CONVERGENCE AND PARTNERSHIP

Linking of individual farmer, farmer groups and cooperatives with Financial Institutions (FI's) saw significant contribution towards achievement of program objectives and outcome in terms of a greater number of farmers availing loan for agricultural investment. For instance, 30% support is provided by the Project to purchase improved dairy cows while majority (70%) is contributed by the farmers through credit facilities. The partnership with FI's enabled the project to supply 2306 dairy cows from the appraisal target of 2000 cows, contributing towards enhanced milk production.

Similarly, the success rate of the project intervention in dairy value chain has increased through partnership with Koufuko International Ltd. (Dairy Plant) in terms of easy market for fresh milk produced by the smallholder dairy farmers. KIL has the capacity to process 4000 Liter of milk per day in a single shift but can processes double the capacity provided the farmers produce enough milk. Thus, the marketing problem of fresh milk usually faced by the farmers in the past is almost non-existent, except in areas where the dairy groups are not linked to KIL because of long distance from the processing plant.

E BOTTLENECKS AFFECTING COMPONENT PROGRESS AND ACTION TAKEN

Cattle sourcing activities within the country have taken place to meet the dairy cattle demand for high yielding animals and this has posed great threat in spreading the zoonotic disease like Brucellosis. Further, due to the detection of several cases of Brucellosis in the region, the disease has become a concern for the livestock farmers and general public due to its zoonotic nature. Therefore, screening of animals was carried out by RLDC in collaboration with the Dzongkhags for early detection and rapid response. Surveillance was focused in the high-risk areas and dairy groups in the region. Now, brucellosis screening is made mandatory for any movement of animals from one place to the other.

Similarly, lumpy skin disease continues to be a threat to smallholder dairy farmers as the disease is known to significantly reduce milk productivity. The Department of Livestock has initiated vaccination of animals against LSD as a preventative measure.

Human-wildlife conflict is widespread in the Programme area and there are frequent reported cases of crop depredation by wildlife making it hard for the farmers to reap the hard work invested in farming. Although electric fencing proved to be successful, the management of the fencing lines has become a burden for the farmers and thus, unsustainable. As an alternate solution, chain-link fencing is being piloted and in the 13th FYP, major investment has been allocated for this activity.

F PROGRAMME SUSTAINABILITY

Considering the CARLEP Project closure deadline of December 2025, the OPM has started developing an annotated outline of CARLEP exit strategy. Some of the key exit strategies include:

F 1 Taking CARLEP success into development programs in 13th FYP

In order to ensure sustainability of the CARLEP Programme, the success of the CARLEP will be incorporated in the 13th FYP local government grants to secure program continuity in dairy and crop intensification and value chain establishment, expansion of dry land irrigation, market linked production planning for maize with feed companies and integrating apiculture with mustard and buckwheat intensification to gain synergy. Moreover, integrating climate and energy lessons through adoption of climate smart village (CSV) into the National Adaptation Plans will serve as entry point for securing global climate funds like GCF and GEF in upscaling/replication of CSV's across the country.

In addition, enterprise development will be pursued through national skilling and engagement program through financial literacy training, lead farmer and CAIT, dairy equipment repair Technician as service providers, private nursery and community-based seed growers for sustainable agriculture and livestock

inputs linked through NSC, Alpine Seeds or with export companies and linking with the Cottage and Small Industries Support Grants.

F 2 Strengthening the value chain linkages through self-financing mechanisms

Koufuku International as a center for dairy excellence will continue playing crucial role in expanding the dairy value chain and market linkages. As envisioned in Koufuko Internationals Corporate Strategy Paper to bringing onboard dairy farmers as shareholder, dairy farmers in the region will be able to invest more into dairy farming with minimal support from the Government. Similarly, some of the most successful dairy cooperatives, not linked to Koufuko, will come up with a mechanism on how to plough back group savings to their members, so that the members have easy access to fund for purchase of inputs and other expenses.

Contractual farming model, where the Processors invest in establishment of the production farms and the growers supply their produce to them, will propel the agriculture intensification program and market-linkages. Thus, reinvestment strategy should be developed for the replication of the contractual farming model already adopted in the region. For example, linking of pineapple growers with BAIL at Lingmethang.

CARLEP support to vegetable traders and aggregators has strengthened market connection between producers and retailers/consumers. Withdrawing of support could jeopardize the products reaching the market. To ensure sustained support to trader/aggregator association, they will explore avenues for innovative financing scheme through mobilizing from Trade support, rural banks such as CSI, CSR and Aggregators investment.

F 3 Innovative financing through public-private-partnership (PPP)

The PPP model will be pursued to encourage investment in agriculture commercialization through aggregating fruit intensification villages and linking up with import and export agencies and developing business partnership (like apple and citrus export business) and establishment of commercial farms through landscape approach utilizing fallow lands (Land bank concept) under PPP model and also systematically integrating development support and credit investment.

G PROGRAMME MANAGEMENT

G 1 CARLEP Annual Work Plan and Budget 2024-25 Preparation Workshop

On the 27th of February 2024, the Office of Programme Management organized a workshop on the formulation of the Annual Work Plan and Budget for the fiscal year 2024-2025. the workshop was attended by 42 participants, including Regional Heads of ARDC-Wengkhar, RLDC-Kanglung, RAMCO-Mongar and District Agriculture and Livestock sector heads. Also in attendance were Finance Officers, Koufuko International Limited, Focal Accountants and Economic Development and Marketing Officers from the six eastern districts. The primary objective of the meeting was to collaboratively devise the annual work plan and budget, aligning efforts with the overarching goal of CARLEP, which seeks to propel the transformation of subsistence-based rural agriculture into a sustainable, value-driven sector. This transformation is to be achieved through the promotion of climate-smart agricultural approaches and the fortification of community

Figure 58. Participants of the AWPB formulation workshop

and local institution capacities.

G 2 National Programme Steering Committee Meeting

The 8th Programme Steering Committtee Meeting was convened on 26th April 2024 at the Ministry of Agriculture and Livestock conference hall, chaired by the Honorable Dasho Secretary, MoAL. The Programme Director of CARLEP welcomed all the PSC members and expressed his gratitude for their attendance and continuous support to the Programme. The objectives of the meeting were to: Present the mid-year physical progress update for FY 2023-2024, present the financial progress update for FY 2023-2024 and fund status post FY 2023-2024 and endorsement of the Annual Workplan and Budgeting for FY 2024-2025. Key decisions taken during the meeting were:

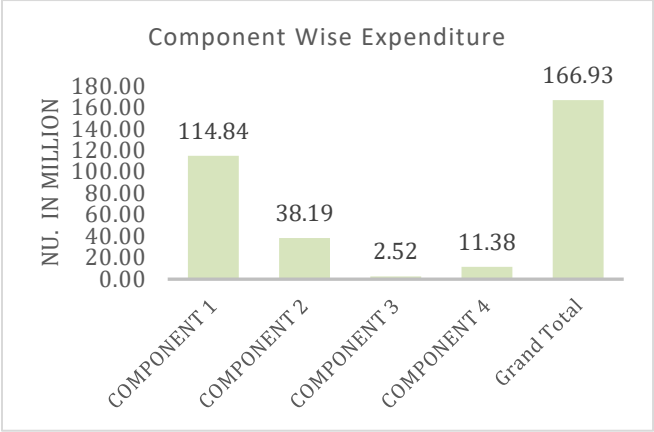
1. The Chair emphasized fast-tracking of KIL upgradation as the processing plant serves as an assured market for fresh milk produced by the dairy farmer groups in the east. Based on the recommendation of IFAD Supervision Mission, development of business and investment plan for KIL is underway and thus, upgradation will be executed during 2024-25 FY (Action: OPM, KIL)
2. In the wake of cross-border disease incursion in the country and its far-reaching economic consequences for the livestock farmers, the committee recommended for including budgetary support for biosecurity measures in Samdrup Jongkhar and Nganglam (Action: OPM, DoL, RLDC)
3. Similarly, the budget for MFTP program was decided to be secured under OPM (Action: OPM)
4. Based on the priority of farmers, the committee decided supporting mini power tiller on cost sharing from the perspectives of feminization of agriculture, curbing labor shortage and drudgery reduction (Action: OPM).
5. The Director, DoL raised the concern of non-uniform implementation of cost sharing guidelines for dairy cow subsidy with CARLEP supporting only 30% while the guideline says otherwise (70%). The Committee recommended CARLEP to follow Ministry's cost-sharing guidelines and accordingly re-cost in the AWPB 2024-25 proposal with the objective to fast-track milk production enhancement (Action: OPM).
6. In line to the DoL's effort to enhance dairy breed in the 13th FYP, the Director of DoL emphasized increasing budget allocation for the procurement of sex-sorted semen for implementation of vigorous breed enhancement program (Action: OPM, RLDC).
7. The overall budget initially proposed for PSC endorsement was Nu. 288.702 million. However, the Committee Chair recommended for alignment of the AWPB with the technical departments, keeping in view the 13th FYP, through bilateral discussions and thus, a revised budget of Nu. 322.203 has been proposed after realigning activities and budget.

G 3 Human resource management

The OPM has recruited Knowledge Management and Project Support Officer. However, the management still has shortage of Procurement Officer and M&E Officer whose task is being currently shouldered by the Livestock Component Manager and Agriculture Component Manager as CMT Focal. Four OPM staff have been trained on project monitoring and evaluation and also 5 project focal Accountants have been trained on project financial reporting system in Nepal.

G 4 Financial management

The financial achievement during FY 2023-2024 FY is 97.58%. The achievement is based on the annual revised planned target. The details of financial expenditure by component, category and fund source are shown in Figure 59-61



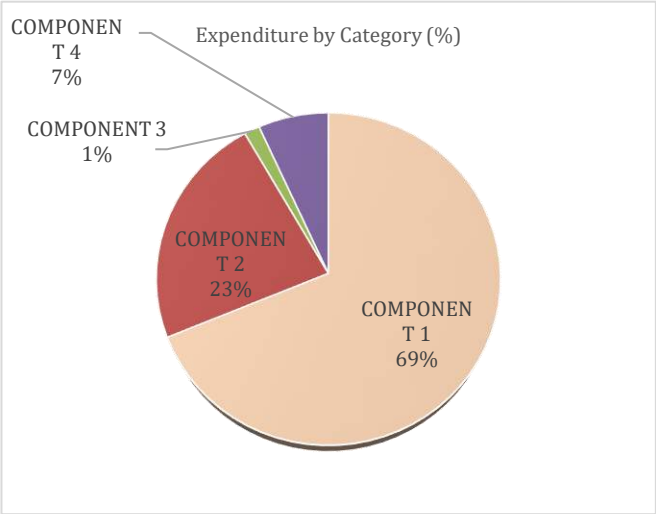
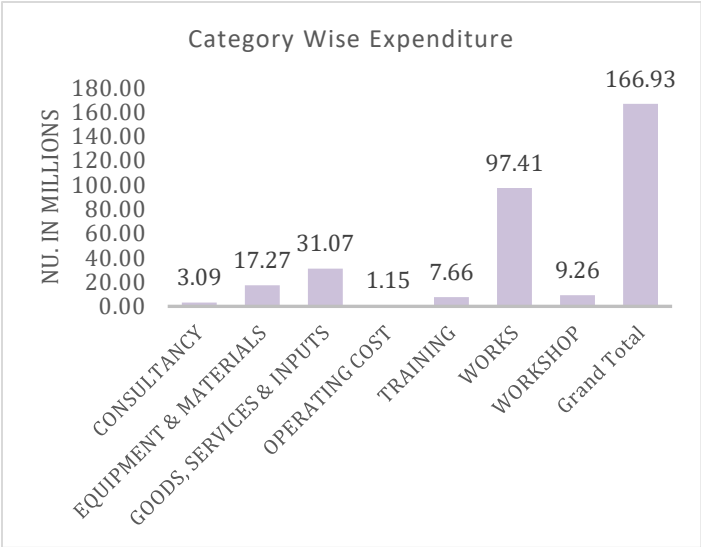


Figure 59. Expenditure by Component



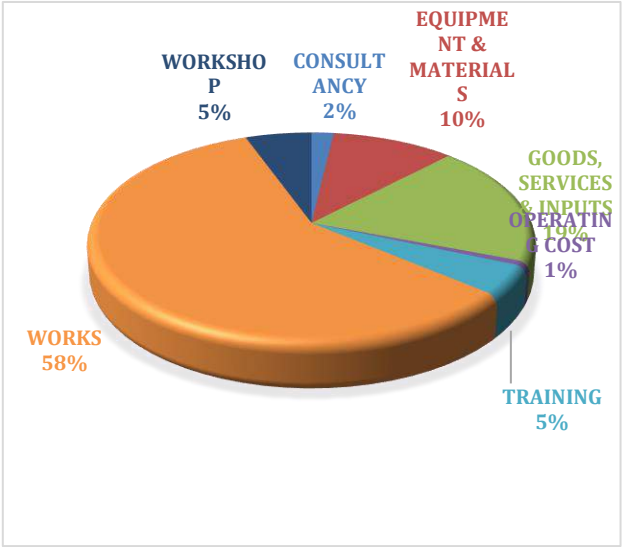
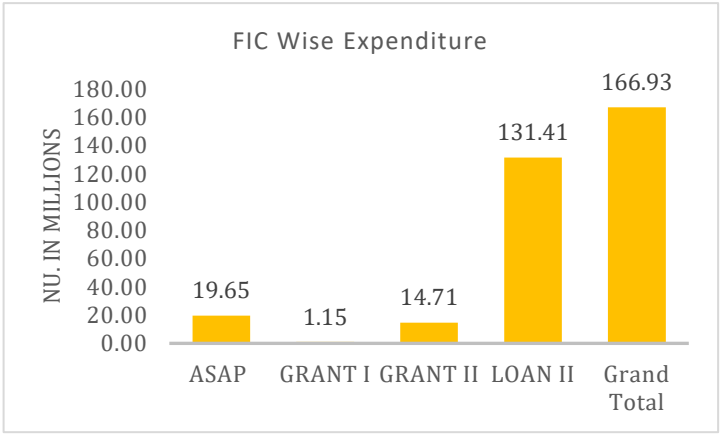


Figure 60. Expenditure by Category



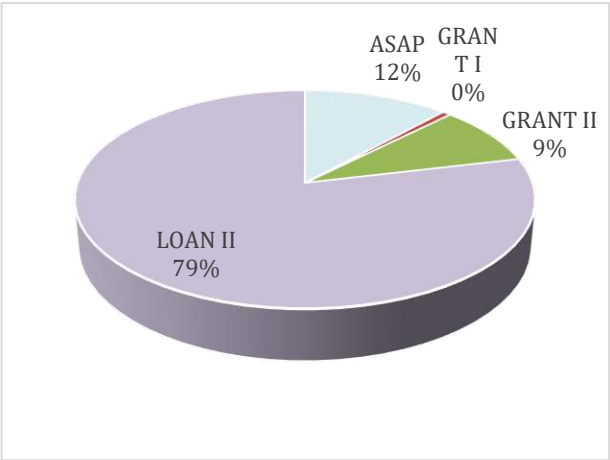


Figure 61. FIC Wise Expenditure

G 5 Procurement

All the procurement for works, goods and consultancy services were carried out by the respective implementing agencies following IFAD procurement manual and PRR 2023. The OPM ensured that each and every procurement undertaken by the implementing agencies are updated in the IFAD Contract Monitoring Tool (CMT). The OPM also facilitated implementing agencies in submission of prior review documents for procurement requiring No objection from IFAD. In isolated cases, there had been delays in obtaining no objection which affected the implementation of the activity as per the implementation milestone.

With the rolling out of End-End OPEN Procurement System, only two users at OPM have been assigned with the user credentials despite of procurement activities being carried out by the Procurement Officers of the project implementing agencies at the district level. In doing so, the Procurement Focal at OPM had faced challenges in obtaining the procurement documents from 6 districts and 3 regional centers for updating in the system. In order to enhance efficiency and to ensure all the procurement documents are updated real-time by the respective implementing agencies, the OPM proposed for assignment of OPEN user credentials to the district procurement Officers.

G 6 Training of Livestock and Agriculture Extension Officials

A 3-day training was conducted for the Livestock and Agriculture Extension Official on digital data collection tools (Kobo Toolbox app) with the objectives to: familiarize participants with the functionalities and features of KoboToolbox, Provide hands-on training on creating and designing data collection forms, Instruct participants on data collection techniques using mobile devices, Demonstrate data analysis and reporting using KoboToolbox and Address any queries and concerns regarding the platform. The training aimed to equip participants with the necessary knowledge and skills to effectively utilize the KoboToolbox platform for designing questionnaire, data collection and analysis. 36 participants from the field attended the training.

The outcomes of the training were: Participants gained a comprehensive understanding of KoboToolbox's features and capabilities, enabling them to leverage its potential for their data collection projects, through hands-on activities, participants developed practical skills in form design, data collection, and analysis using KoboToolbox, the training equipped participants with the knowledge to streamline their data collection processes, resulting in greater efficiency and accuracy, the interactive nature of the training fostered engagement among participants and encouraged active participation, and enhancing the overall learning experience.

Figure 62. Training participants in action

H M&E, COMMUNICATIONS, AND KNOWLEDGE MANAGEMENT

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

The programme recognizes the importance of Knowledge and its contribution to the following outcomes such as i) Improved programme performance and results through enhanced learning, knowledge sharing and dissemination/communication; ii) Enhanced information management system (IMS) to ensure better access to reliable information and knowledge iii) Improved engagement, partnership and collaboration with the programme implementing partners in KM. Since its inception, CARLEP has done substantial work related to knowledge management and dissemination including the compilation of stories, articles, pamphlets and audio-visual documentation.

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

- Enhancing Tomato Production through Protected Agriculture under Ramjar gewog, Trashi Yangtse by Karma Tobgay
- Bulb Onion; a New Cash Crop of Ngarupongtang Village, Thangrong Gewog
- Protected Agriculture – Empowering Lead farmer into commercial farming
- Transforming Horticulture in Eastern Bhutan: The Role of CARLEP-IFAD in Boosting Private Nurseries and Fruit Cultivation
- Growing Prosperity through Fruit Intensification and Expansion in Eastern Bhutan
- Seed of Success: The First Hybrid Maize Seed Production at Udzorong Achieves Success
- Impact of Community Artificial Insemination Technician in Dairy Farming at Goungthung
- Empowering Rural Livelihoods Through Dairy Development: The Ngatshang Gewog Experience
- Sustainable Rural Enterprise: The transformative impact of Zambalha Dairy Cooperative
- Transforming Dairy Farming: The Outsourcing of Improved Jersey Cows and Improved Cattle Shed in Remote Chiwogs.
- Economic Impact of Ficus Fodder Trees on Rural Communities.
- Transforming Agriculture Marketing in Eastern Bhutan: The Role and Impact of the Eastern Agricultural Marketing Cooperatives (EAMC)
- Hybrid Napier: A Promising Revenue Stream
- A Better Hope for Reducing Crop Loss and Year-Round Crop Production for Farmers of Udzorong
- Chain Link Fence; Crop Security & Enhanced Crop Production
- Readiness in livestock product supply to Gyalsung Project
- Locally Fabricated Steamer for Enhancing Mushroom Production
- Contract Farming; Commercial Automated Strawberry Farms Established in Changkhala Village
- Revolutionizing Kiwifruit Farming in Silambi Village through T-bar Trellsing system.
- Growing Prosperity through Fruit Intensification and Expansion in Eastern Bhutan
- Rain Water Harvest Pond Technology aids Yangnyer farmers in mitigating Climate Change
- Impact of Bio-gas in Rural Communities: Transforming Lives and Challenges
- Transforming Agriculture Through Irrigation: The Bikhar-Thramlo Experience
- Paddy production enhancement in Lem Chiwog with renovation of Tselamtse to Shontsham irrigation channel
- Advancing Walnut Propagation with Hot Callusing Technology: A promising Enterprise
- Overcoming Seasonal Challenges: The Role of Modified Protected Structure Greenhouses in Year-Round Vegetable Farming.
- SMART Irrigation - Simplifying Orchard Irrigation in Eastern Bhutan
- Empowering Out-of-School Youth through Mushroom Entrepreneurship: A Strategy for Socioeconomic Support at Lhuentse Dzongkhag
- From Dreams to Blossoms: The Success Story of Goedoedh Kheunjung Ling Horticulture Nursery.

- Youth-Driven Agricultural Innovation: *The Transformation of LUC Thamdrang into Bhutan's First Permaculture Model Village*
- Samsara Mushroom Farm's Success: The Power of IoT-based Automation

Likewise, the programme has also produced AOS 2023 and story of change _issue VI. All these KM Products were disseminated through various social media platforms i.e. IFADASIA Facebook page, CARLEP Facebook page, YouTube Channel (KMG Production-ARDC Wengkhar and OPM), Official WeChat Group, Official website and local channels to grasp wider audiences or farmers for more outreach and knowledge dissemination.

I GENDER

Gender mainstreaming and social inclusion are the critical entry points in the implementation of plans and Programmes. It is one of the major thematic areas of CARLEP in which women and marginalized section of the people are equally considered in the developmental activities ensuring no one is left behind. From the total beneficiaries of 72,216 farmers reported receiving project support in this fiscal year, there were almost equal proportion of male (49.7%) and female (50.3 %) beneficiaries which indicates positive outlook in involvement of women in project activities.

J SUMMARY OF LESSONS LEARNED

Despite strategic aspirations outlined in the National youth policy as well as investments in youth-targeted programs such as land provision under the LUC scheme and the YELP, interest of Bhutanese youth in agriculture remains low. Over 13 youth groups in CARLEP were provided land under the LUC program. Despite a few successful groups, there have been several issues associated with the scheme. Dropout rates in the LUC sites are generally high, which is mainly due to remoteness of land, lack of water availability and conflicts between the members. For future provision of land and investment by CARLEP, these factors must be considered to ensure efficient resource allocation as well as long-term engagement and success of young farmers.

Dairy value chain model, adopted with smallholder milk producers linking to Koufuko International Limited (Dairy Plant) based at Trashigang has been a successful model in the region. KIL serves as an assured market for fresh milk produced by the dairy farmers in the eastern region. As a lesson learnt, vegetable value chain development is also focusing on few crops such as pineapple and passion fruit marketing to the Agro Processing Unit at Lingmethang.

K CONCLUSIONS AND RECOMMENDATIONS FOR FOLLOW-UP

1. Through the experiences and lessons learned over the project years, following recommendations are critical to ensure greater success of the Programme.
2. Support agricultural production enterprises fetching quick returns and lower labor requirements to attract youths. Mushroom and poultry enterprises have proven to gain quicker returns with less labor requirements. The establishment of production enterprises will be stimulated through CARLEP Matching Grant Facility (MGF) which has been revised from earlier version by increasing the threshold, to increase an uptake by youths.
3. Continue training farmers in terms of crop and livestock management, financial literacy, book keeping and market assessment.
4. The recent outbreak of African Swine Fever (ASF) across the southern belt has affected the piggery farmers economically, and absence of preventative measures could bear a serious threat to the livelihoods of the pig farmers. Similarly, the poultry farming could also be jeopardized if the bio-security measures are not put in place. In addition, the outbreak of Lumpy Skin Disease (LSD) in cattle has been reported all over the country affecting smallholder dairy farmers. In this regard, it has become imperative for CARLEP to support the implementing agencies in terms of bio-security, prevention through vaccination and awareness creation to safeguard the smallholder dairy farmers who are dependent on dairy farming.
5. Based on the national priority in curbing human-wildlife conflict, chain-link fencing of farmland will

gain impetus, although expensive, which needs reprioritization of the work plan and budget by doing away with free supply of seed and seedlings and other scattered non-impactful activities. Over the years, major cause of land being fallowed is attributed to crop damage by wild animals besides other factors. This intervention will also minimize rural urban migration and attract youths in farming

ANNEXURES

1. Agency Wise Physical and Financial Progress Measured Against AWPB

Agency	Activity	Indicator	Physical Progress						Financial Progress		
			Planned Target	Actual Results	M	F	Household	Achievement %	Planned Budget	Expenditure	Achievement %
ARDC	Adzuki beans promotion	Acre	100	112	528				0.3	0.30	100.00
	climate smart agriculture technology promotion in CSVs	No. of sites	5	5	112	103	215	100	0.83	0.83	100.00
	Establishment of commercial mushroom enterprises through skilling and engagement	No. of units	5	7	7	2			1.8	1.80	100.00
	Establishment of hybrid maize community based seed production group	No of groups	1	1	42	40	82	100	0.7	0.70	100.00
	Fruits and nuts intensification of high value crops	No. of villages	3	4	58	90	148	133	1.6	1.60	100.00
	Market linked passion fruit intensification	Acres	5	9.59	5	2			1.05	1.05	100.00
	Million fruit tree plantation of prioritized crops	Nos.	25000	25133	2319	1664	3983	101	4	4.00	100.00
	Organize annual review and planning meeting and writeshop (technical backstopping)	No. of events	3	6	0	0	0	200	0.75	0.75	100.00
	Strengthen modified PA structure	No. of sites	5	5	0	0	0	100	0.5	0.50	100.00
	Support to irrigation, fencing and trellis for commercial plantations	No. of sites	4	4	11	11	22	100	1.5	1.50	100.00
	Support to permaculture model development at Thamdrang	No. of sites	1	1	3	0	0	100	0.8	0.80	100.00
LH Agri	AWPB planning, review and coordination workshop	No. of events	2	2	0	0	0	100	0.14	0.12	85.71
	Dry land irrigation	scheme	2	2	5	15	20	100	0.5	0.50	99.58
	Efficient irrigation system	No. of sets	50	46	16	30	46	92	0.5	0.36	72.06
	Establishment of solar drying facility	Sets	4	8	3	5	8	200	0.5	0.59	118.00
	Land development	Acres	120	34.17	6	20	27	28	1.5	1.50	100.00
	Oyster mushroom production	Nos. of bags	3000	2300	45	97	142	77	0.25	0.25	99.15
	Promotion of Heat Tolerant and commercial vegetable Varieties (cauliflower)	Acres	44	66.8	77	161	238	152	0.2	0.20	100.00
	Promotion of protected agriculture through supply of greenhouses (80% subsidy) 5X10	Sets	10	16	6	10	16	160	0.74	0.74	99.69
	Renovation of khepachu irriation canal-spillover	No. of scheme	1	1	17	31	48	100	4.65	4.12	88.69
	Support in Early Chilli production (HPH - 1069 veriety)	Acres	15	20	26	66	92	133	0.15	0.11	75.51
	WUA formation	Nos	3	2	4	25	29	67	0.18	0.14	76.72

Agency	Activity	Indicator	Physical Progress						Financial Progress		
			Planned Target	Actual Results	M	F	Household	Achievement %	Planned Budget	Expenditure	Achievement %
LH Liv	AWPB planning, review and coordination workshop	No. of events	2	2	25	5	0	100	0.14	0.11	78.57
	Breed improvement through sterilization of scrub bulls	No. of events	8	8	240	60	300	100	0.31	0.31	100.00
	Farmers training on dairy husbandry (3 days)	No. of farmers	110	93	27	66	93	85	0.13	0.11	81.54
	Fodder slips propagation (Napier/Pakchong slips)	Acres	16	11.5	26	26	52	72	0.378	0.38	100.00
	Installation of fixed dome biogas digester	No. of digesters	5	5	2	3	5	100	0.264	0.19	72.73
	Subsidy support for dairy shed construction	Nos.	15	20	9	11	20	133	0.58	0.48	83.28
	Subsidy support for improved dairy cows procurement	Nos.	60	44	10	19	28	73	1.86	1.09	58.60
	Supply of chaff cutter (banana chopping machine) on cost sharing	Nos.	8	7	1	6	7	88	0.135	0.11	82.96
	Supply of cow mat on cost sharing (60% project contribution)	Sets	78	90	30	15	40	115	0.17	0.16	92.35
	Supply of dairy equipment to DFG's and Processing Units	Sets	2	2	1	0	1	100	0.62	0.52	83.55
	Supply of inputs for crop residue enrichment	MT	80	100	9	34	43	125	0.116	0.11	93.10
	Support to vulnerable households for backyard poultry farming	No. of households	10	10	3	7	10	100	0.36	0.35	98.06
MG Agri	Chain link fencing support to permaculture model farm at LUC Themdrang	No. of Km	2	1	3	0	3	50	1.5	1.65	109.87
	Construction of integrated market shed at Gyelpozhing (Spillover activity)	No	1	0	0	0	0	0	2	2.00	100.00
	Dryland Terracing/stone collection	Acres	20	34.118	18	30	48	171	1.5	1.50	100.27
	Establishement of soalr drying facility	set	2	2	1	1	2	100	0.18	0.13	73.33
	Initiate and Demonstrate Roof rain water harvesting to support irrigation in Kitchen garden through supply of Sintex and HDP pipe	No. of unit	13	13	8	5	13	100	0.85	0.78	92.28
	Intensification of High value vegetable like Asparagus, Onion, Tomato, Tomatoes	Acre	230	230	422	788	1210	100	1.35	1.26	93.11
	Intensification/ upscaling of spices-ginger	Acre	30	5	19	32	51	17	0.2	0.17	86.50
	Pineapple commercialization	Acre	15	6	24	11	35	40	0.3	0.33	109.33
	Promotion of protected agriculture through supply of greenhouses (80% subsidy)	set	20	37	18	19	37	185	1.45	1.40	96.34
	Sector Coodination and Review Meeting	Nos	2	1	14	5	19	50	0.26	0.23	86.54
MG Liv	AWPB planning, review and coordination workshop	No. of events	2	2	13	9	22	100	0.26	0.26	100.00
	Construction of milk collection sheds	No. of infrastructure	3	3	0	0	0	100	1.1	1.10	100.00

Agency	Activity	Indicator	Physical Progress						Financial Progress		
			Planned Target	Actual Results	M	F	Household	Achievement %	Planned Budget	Expenditure	Achievement %
	Farmer field festival	No. of events	2	2	0	0	0	100	0.315	0.28	88.89
	Fodder slips propagation (Napier/Pakchong slips)	Acres	17	16.33	81	91	172	96	0.39	0.39	100.00
	Installation of fixed dome biogas digester	No. of digesters	7	5	2	3	5	71	0.2	0.16	78.00
	Promotion of fodder hydroponics: Input supply	No. of households	3	3	3	0	3	100	0.1	0.05	46.00
	Subsidy support for dairy shed construction	Nos.	21	22	3	19	22	105	0.69	0.69	100.00
	Subsidy support for improved dairy cows procurement	Nos.	15	22	10	12	22	147	0.66	0.41	62.71
	Supply of breeding bulls for dairy breed improvement	Nos.	7	6	0	0	0	86	0.15	0.10	64.67
	Supply of chaff cutter on cost sharing (60% project contribution)	Nos.	83	83	34	49	83	100	1.2	1.19	99.25
	Supply of cow mat (60 % project contribution)	Nos.	131	131	37	42	79	100	0.32	0.32	100.00
	Supply of dairy equipment to DFG's and Processing Units	Sets	14	14	0	0	0	100	1.01	1.01	100.00
	Supply of inputs for crop residue enrichment	MT	125	125	7	12	19	100	0.12	0.11	91.67
	Supply of product diversification equipment	Sets	1	1	0	5	0	100	0.267	0.26	98.50
	Support to vulnerable households for backyard poultry farming	No. of households	10	30	12	18	30	300	0.39	0.39	100.00
	Winter fodder intensification through supply of oat seeds	Acres	210	150	120	235	355	71	0.25	0.25	101.20
OPM	Annual Outcome Survey	No. of survey	1	1	0	0	0	100	0.7	0.45	64.29
	Coordination meeting with implementing agencies, RPIC and NPSC	No. of events	2	2	0	0	0	100	2.65	1.21	45.81
	Hiring of consultancy services for development of business and investment plan for KIL	No. of studies	1	1	0	0	0	100	1.667	1.67	100.03
	Human resource development (Ex-country)	No. of staff	9	9	9	0	0	100	1.567	1.44	92.09
	IFAD supervision mission and monitoring	No. of events	5	1	0	0	0	20	2.5	0.85	34.00
	Improvement of approach road to Wengkhar (Spill over)	Nos.	1	1	0	0	0	100	1.97	1.97	100.00
	Livestock enterprise development through Matching Grant support	No. of enterprises	4	1	1	0	1	25	0.6	0.15	25.00
	Pilot integration of solar energy for 3 MCC's for running the deep freezers, chillers, refrigeration and lighting systems (Diversifying energy supply mix)	No. of sites	3	1	0	0	0	33	1.48	1.48	100.00
	Procurement of Laptop	Nos.	12	19	0	0	0	158	1.03	1.32	128.54
	Product promotion	No. of events	2	1	0	0	0	50	0.3	0.06	19.67

Agency	Activity	Indicator	Physical Progress						Financial Progress		
			Planned Target	Actual Results	M	F	Household	Achievement %	Planned Budget	Expenditure	Achievement %
	Promotion of flow hive (honey on tap) technology for easy honey extraction	No. of flow hives	6	10	9	1	10	167	0.42	0.38	90.00
	Supply, installation and commission of LN2 production plant	No.	1	1	0	0	0	100	5.04	4.68	92.86
	Train extension officers for geo-tagging of beneficiaries through Kobotoolbox application installed in mobiles	No. of persons	70	36	28	8	0	51	0.66	0.50	75.15
	Training on knowledge management/ Documentation of success stories (Write shop)	No. of writeshops	1	1	23	4	27	100	0.5	0.39	78.00
PG Agri	AWPB planning, review and coordination workshop	No. of events	2	1	12	0	12	50	0.17	0.17	100.00
	Construction of Marketshed at Nganglam(spillover)	Nos	1	1	0	0	0	100	11.95	11.76	98.41
	Construction of Tshatsi Buram Processing Unit	Nos.	1	1	84	16	100	100	4.64	4.64	99.91
	Dry land irrigation at Thongo	No. of schemes	2	4	18	30	48	200	1	0.90	89.80
	Dry land terracing	Acres	10	13.5	8	5	13	135	0.8	0.80	100.00
	Farmers study tour to progressive farmers, Group and regional farms	No. of events	1	2	12	20	32	200	0.7	0.70	100.00
	Promotion of protected agriculture through supply of greenhouses (80% subsidy) 5X20	No. of set	10	14	11	3	14	140	0.8	0.75	93.75
	Promotion of rain water harvesting technologies	No. of units	20	31	15	16	31	155	1.99	1.84	92.51
	Supply of resilient seeds for vegetable commercialization cluster	Acres	45	45	194	388	582	100	0.5	0.49	98.40
	Upscaling/Intensification of pineapple production	Acres	7.6	4	21	24	45	53	2	1.00	50.00
PG Liv	AWPB planning, review and coordination workshop	No. of events	2	1	11	2			0.173	0.17	100.00
	Breed improvement through scrub bull sterilization	No. of campaign	1	1	53	22	75	100	0.14	0.11	80.71
	Construction of AI equipment storage sheds	No. of infrastructure	3	2	0	0	0	67	0.35	0.27	76.29
	Construction of MCC (Spillover Nanong)	No. of infrastructure	1	1	79	28	107	100	3.25	3.09	95.05
	Farmers training on apiculture for 3 days	No. of farmers	10	14	11	3	14	140	0.19	0.16	81.58
	Farmers training on clean milk production and dairy husbandry (3 days)	No. of farmers	300	0	0	0	0	0		0.00	0.00
	Fodder slips propagation (Napier/Pakchong slips)	Acres	30	0	0	0	0	0	0	0.00	0.00
	Group mobilization training and facilitating by-laws drafting	No. of groups	10	2	95	61	156	20	0.108	0.11	100.00

Agency	Activity	Indicator	Physical Progress						Financial Progress		
			Planned Target	Actual Results	M	F	Household	Achievement %	Planned Budget	Expenditure	Achievement %
	Infertility management of dairy cows	No.of events	1	1	38	32	70	100	0.113	0.11	100.00
	Livestock exhibition	No. of events	2	0	6	0	6	0	0.17	0.05	28.82
	Product diversification (Mozzarella, paneer, product standardization)	No. of groups	3	4	18	5	4	133	0.3	0.29	96.33
	Subsidy support for dairy shed construction	Nos.	20	26	18	8	26	130	0.694	0.58	84.01
	Subsidy support for improved dairy cows procurement	Nos.	28	38	22	16	37	136	0.66	0.45	67.55
	Supply of cow mat on cost sharing (60% project contribution)	Nos.	60	69	25	11	36	115	0.12	0.12	99.17
	Supply of dairy equipment to DFG's and Processing Units	Sets	6	4	58	16	74	67	0.72	0.69	96.25
	Supply of production inputs for local bee promotion	No. of households	10	14	13	1	14	140	0.45	0.45	100.00
	Support to vulnerable households for backyard poultry farming	No. of households	20	25	15	10	25	125	0.312	0.38	121.79
RAMCO	B2B meeting and linkages	No. of events	2	4	79	97	176	200	0.7	0.80	114.29
	Construction of Export facilitation center (Spillover)	Nos.	1	0	0	0	0	0	8.2	8.14	99.24
	Financial education and business literacy training	No. of participants	30	15	0	0	0	50	1.5	1.11	74.13
	Regional marketing planning and coordination workshop	No. of events	2	2	0	0	0	100	0.5	0.35	69.60
	Support Value addition equipment to DFG	Sets	15	20	21	1	22	133	0.56	0.50	89.29
RLDC	AWPB planning, review and coordination workshop	No. of events	2	3	0	0	0	150	0.63	0.62	97.94
	Brucellosis containment program	Events	1	0	0	0	0	0	0.45	0.00	0.00
	Capacity enhancement of CAIT	No. of CAHW	45	21	20	1	21	47	0.6	0.59	99.00
	CHBPP establishment and expansion	No. of cattle	2000	2202	0	0	0	110	0.4	0.39	98.00
	Improvement of parking space for LN2 plant building	No. of units	1	1	0	0	0	100	1.23	1.19	97.07
	Installation of 3-phase electric lines for new Ln2 plant	Nos.	1	1	0	0	0	100	0.14	0.18	130.00
	Knowledge and skills enhancement of livestock staffs on dairy animal health and diseases of public health importance	No. of staff	54	49	38	11	0	91	0.93	0.88	94.52
	Prcurement of digital visual artificial insemination gun for cattle cow artificial insemination gun with camera	No. of sets	3	0	0	0	0	0	0.29	0.00	0.00
	Purchase of Refrigerant	Lumpsum	1	1	0	0	0	100	0.2	0.20	99.00

Agency	Activity	Indicator	Physical Progress						Financial Progress		
			Planned Target	Actual Results	M	F	Household	Achievement %	Planned Budget	Expenditure	Achievement %
SJ Agri	Annual RNR product exhibition/ branding (along with food festival)	No. of events	3	1	0	0	0	33	0.8	0.75	93.25
	AWPB planning, review and coordination workshop	No. of events	2	2	12	13	11	100	0.18	0.13	70.00
	Construction of "state of the art" Farmers' Sales Outlet in Samdrup Jongkhar Throm	No.	1	1	0	0	0	100	2.8	3.25	116.14
	Construction of Farmers' Sales Outlet/ Vegetable Market at Samdrupcholing (Spill over activity)	No.	1	1	0	0	0	100	3.8	7.19	189.18
	Processing/ value addition/ certification and branding of 37 prioritized products of 6 gewogs to be brougt in the market	No. of products	20	37	11	0	0	185	6	5.86	97.68
SJ Liv	AWPB planning, review and coordination workshop	No. of events	2	2	33	4	17	100	0.18	0.17	94.44
	Construction of MCC (Spillover)	No. of infrastructure	1	1	157	59	216	100	0.84	0.90	107.14
	Fodder slips propagation (Napier/Pakchong slips)	Acres	8	10	22	6	28	125	0.16	0.16	100.00
	Infertility management of dairy cows	No. of cows	70	76	68	8	76	109	0.16	0.16	100.00
	Installation of biogas digester	No. of biodigesters	9	9	6	3	9	100	0.3	0.28	92.67
	Subsidy support for improved dairy cows procurement	Nos.	40	40	24	5	27	100	0.84	0.64	75.77
	Supply of breeding bulls for dairy breed improvement	Nos	10	10	196	50	246	100	0.21	0.15	71.90
	Supply of chaff cutter on cost sharing (60% project contribution)	Nos.	50	38	36	2			1.1	0.73	66.09
	Supply of dairy equipment to DFG's and Processing Units	No. of sets	6	1	16	6	22	17	0.26	0.26	100.00
	Supply of inputs for crop residue enrichment	MT	2000	2000	51	49	100	100	0.19	0.19	100.00
	Supply of product diversification equipment	Sets	1	1	16	6	22	100	0.27	0.27	100.00
	Support to vulnerable households for backyard poultry farming	No. of households	25	23	21	2			0.51	0.55	108.63
TG Agri	AWPB planning, review and coordination workshop	No. of events	2	4	28	5	33	200	0.23	0.20	86.96
	Construction material support for Onion curing shed	No. of sheds	9	8	4	8	12	89	0.25	0.19	74.40
	Dry land irrigation at Drewoong	No. of scheme	1	1	5	10	15	100	0.85	0.69	81.53
	Dryland Terracing, Surface stone collection	Acres	49	9.77	9	4	13	20	0.8	0.76	95.13

Agency	Activity	Indicator	Physical Progress						Financial Progress		
			Planned Target	Actual Results	M	F	Household	Achievement %	Planned Budget	Expenditure	Achievement %
	Efficient irrigation system(Drip Irrigation materials for PA)	No. of sets	180	82	40	42	82	46	1.4	1.65	117.93
	Production supports for vegetable commercialization	Acres	160	95.54	1000	900	1900	60	0.8	0.78	97.13
	Promotion of Passion fruit commercilization	Acres	15	16	10	5	15	107	0.25	0.20	80.00
	Promotion of Pineapple for commercilization	Acres	8.3	8.1	24	5	29	98	1.2	0.80	66.33
	Promotion of protected agriculture through supply of greenhouses (80% subsidy) 5X10	Sets	40	97	50	35	18	243	2	1.85	92.55
	Support for Chain link fencing	Kms.	0.5	0.44	7	3	10	88	0.36	0.35	96.11
	Wetland Consolodation	Acres	25	23.8	0	0	0	95	0.8	0.80	100.00
	WUA formation operation and maintenance	No. of WUA	2	4	128	82	210	200	0.08	0.08	98.75
TG Liv	AWPB planning, review and coordination workshop	No. of events	2	2	42	4	0	100	0.23	0.11	48.70
	Construction of MCC	No. of infrastructure	1	1	19	24	43	100	1.54	1.50	97.40
	Fodder slips propagation (Napier/Pakchong slips)	Acres	18	16.5	60	71	131	92	0.35	0.35	100.00
	Infertility management of dairy cows	No. of campaign	2	2	11	16	27	100	0.22	0.22	100.00
	Installation of biogas digester	Nos.	17	17	14	3	17	100	0.2	0.17	86.50
	Organize cattle rally for encouraging dairy farmers to rear improved dairy breed	No. of events	2	1	28	41	69	50	0.3	0.30	100.00
	Subsidy support for dairy shed construction	Nos.	40	42	27	15	42	105	1.23	1.01	82.11
	Subsidy support for improved dairy cows procurement	Nos.	15	18	9	9	18	120	0.6	0.36	59.33
	Supply of dairy equipment to DFG's and Processing Units	Sets	12	6	0	0	0	50	0.14	0.10	71.43
	Supply of improved pasture seed for pasture development	Acres	176	160	70	90	160	91	0.37	0.37	100.00
	Supply of inputs for crop residue enrichment	MT	500	150	186	162	348	30	0.77	0.77	100.00
	Winter fodder intensification through supply of oat seeds	Acres	400	409	185	162	347	102	0.59	0.59	100.00
TY Agri	AWPB planning, review and coordination workshop	No. of events	2	2	16	2			0.15	0.15	100.00
	Dry land irrigation (multi use scheme)	No. of schemes	3	2	10	9	19	67	1.58	1.39	88.26

Agency	Activity	Indicator	Physical Progress						Financial Progress		
			Planned Target	Actual Results	M	F	Household	Achievement %	Planned Budget	Expenditure	Achievement %
	Dryland Terracing	Acres	49	26.047	21	20	41	53	0.85	0.85	100.00
	Establishment of chain link fencing	Kms.	2	2	24	15	39	100	3.1	2.65	85.43
	Promote high yielding vegetable intensification	Acres	150	153.8	236	354	590	103	0.76	0.72	94.89
	Promote mulching plastic and green net	Acres	80	42	23	19	42	53	0.31	0.29	95.09
	Promotion of protected agriculture through supply of greenhouses (80% subsidy) 5X10	Sets	14	38	15	22	37	271	0.88	0.88	99.56
	Wetland terrace consolidation	Acres	22	18.188	9	7	16	83	0.75	0.75	99.90
TY Liv	AWPB planning, review and coordination workshop	No. of events	2	3	27	2			0.15	0.14	91.33
	Breed improvement through sterilization of scrub bulls	No. of campaign	3	2	165	173	271	67	0.5	0.41	82.60
	Construction of MCC at Jamkhar	No. of infrastructures	1	0	0	0	0	0	0.7	0.00	0.00
	Construction of milk collection sheds	No. of infrastructures	4	6	0	0	0	150	0.33	0.30	90.30
	Fodder slips propagation (Napier/Pakchong slips)	Acres	20	20	5	4	9	100	0.44	0.44	99.55
	Framers training on clean milk production	No. of farmers	108	75	26	49	75	69	0.068	0.07	100.00
	Subsidy support for dairy shed construction	Nos.	18	24	12	12	24	133	0.602	0.57	94.35
	Subsidy support for improved dairy cows procurement	Nos.	17	26	11	9	20	153	0.824	0.62	74.64
	Supply of chaff cutter on cost sharing (60% project contribution)	Nos.	15	6	3	3	6	40	0.257	0.19	73.15
	Supply of dairy equipment to DFG's and Processing Units	Sets	2	1	1	0	1	50	0.134	0.10	73.13
	Supply of improved pasture seed for pasture development	Acres	130	130	4	5	9	100	0.216	0.22	100.00
	Support to vulnerable households for backyard poultry farming	No. of households	60	13	6	7	13	22	0.45	0.45	99.56
	Winter fodder intensification through supply of oat seeds	Acres	70	70	114	112	226	100	0.103	0.10	100.00
Grand Total								**97.53% (Avg)**	**162.2**	**151.47**	**88.32 % (Average)**

2. Cumulative physical progress

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
1.1. Increased production resilience, diversification and innovation	**1.1.1. Climate smart agriculture production and management**									
	Upgrading of existing farmer groups (Agriculture)	No. of farmers Groups upgraded	300						75	25
	Upgrading of existing farmer groups (Livestock)	No. of farmers Groups upgraded	150						22	15
	Training of extension agents	No. of EAs trained	420	124	85	66	19	85	166	40
	Production inputs for farm resilience and diversification, Vegetable seed (Agriculture)	Area under farm resilience and diversification	7414	674	616.14	1974	2689	4663	6212.14	84
	Production inputs for farm resilience and diversification (Livestock - Poultry)	No of native poultry units promoted	300	125	101	57	44	101	1022	341
	Production inputs for farm resilience and diversification (Livestock - Piggery)	No. of native piggery units promoted	150					0	30	20
	Promotion of SLM techniques	Area under SLM	200					0	77	39
	Local germplasm collection, conservation and promotion	No. of lines	100					0	78	78
	Crop diversification(Cereals, oil seeds, pulses)	Area under diversification	3000	100	112	528	272	800	10765	359
	Promote integrated nutrition garden	Area under kitchen garden	100					0	116	116
	Green manure crops	Area under green manure	120					0	120	100
	Train CBSP farmers on hybrid maize	No. of people trained	70	30	82	42	40	82	118	169
	Oyster mushroom intensification	No. of bags	150	3000	2300	45	97	142	78026	52017
	Promotion of Pineapple for commercialization	Acres	0	30.9	18.09	69	40	109	26.75	#DIV/0!
	Provision of stress tolerant vegetable seeds	Area	3000	89	111.8	271	549	820	2495.8	83

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	1.1.2. Innovation through Permaculture & Biogas									
	Rain water harvesting	No. of HH	800					0		
	Tree crop seedlings	Area covered	300	33	44	23	21	44	169	56
	Inputs for permaculture (agriculture)	Sets of tools supplied	36	3	2	6	0	6	33	92
	Inputs for permaculture (livestock)	No. of units supported	36					0	14	39
	Bee Keeping	No. of household supported	600	26	38	33	5	38	558	93
	Nursery set up (Agriculture)	No. of nurseries set up	50					0	32	64
	Nursery set up (Livestock)	No. of nurseries set up	6					0	5	83
	Staff training on permaculture	No. of training	2					0	3	150
	Farmers training on permaculture	No. of farmers trained	250					0	205	82
	Permaculture materials & translation	No. of materials published	25					0	4	16
	Biogas digester	No. of biogas digester	1412	38	36	24	12	36	1026	73
	Capacity building on biogas technology	No. of training	76					0	13	17
	Support to LUCs	lumpsum	6					0	21	350
	Establishment of solar drying facility	#ERROR!	36	6	10	4	6	10	29	81
	1.1.3. Innovation through ICT									
	Hand-held tablets, software and soil test kits	No. of ICT tools introduced	100					0	32	32
	Training on report writing documentation and information sharing	No. of training conducted	5	1	1	23	4	27	4	60
	Pilot e-reporting system	No. of e-reporting system	1					0	1	100
	Information management dissemination	No. of publication	50					0	18	36
	1.1.4 Increase Outreach of Extension Services									

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	Strengthening & expansion of the Lead Farmer Model							0		
	Training of trainers (ToT) (Agriculture)	No. of ToT conducted	14					0	14	100
	Training of lead farmers	No. of lead farmers trained	240					0	250	104
	Development of training material and field manuals	No. of training materials developed	13					0	9	69
	Expansion of lead farmers	No. of lead farmers trained	1300					0	3339	257
	Farmer field festivals/field day	No. of Farmers field festivals convened	63	32	32	12	20	32	76	70
	AWPB planning and review workshop	No. of events	20	26	28	219	46	265	82	270
	Documentation and systematization	Documents produced	3	1	1			0	3	67
	Protected gear kits for extensions	No. of Kits supplied	100					0	161	161
	Demonstration inputs & equipment for lead farmers		0					0	0	#DIV/0!
	Low-cost greenhouse structure	Area covered under protected agriculture	130					0	4247	3267
	Supported plastic sheet for nursery	No. of poly-tunnels set up	35					0	105	300
1.2. Vegetable production intensified and expanded	**1.2.1. Inputs for vegetabe and and fruit tree production**									
	Vegetable commercialization (Supply of seeds and mulching plastic)	Acres	3000	629	591.14	1929	2591	4520	5204.36	173
	Efficient Irrigation technology (drip kits, Flexible pipe, sintex, sprinklet)	No. of sets	5400	230	128	56	72	128	6382	118
	Promotion of Passion fruit commercialization	Acres	0	20	25.59	15	7	22	52.34	#DIV/0!
	Supply of Kiwi seedlings	Acres	0					0	26.75	#DIV/0!
	Promotion of protected Agriculture Technology	No. of sets	60	94	202	100	89	189	1182	1970

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	1.2.2. Farmers capacity development (Agriculture)							0		
	Awareness and mobilization carried out (Agriculture)	No. of awareness & mobilization conducted	104					0	62	60
	Training on vegetable production techniques	No. of farmers training	390					0	93	24
	Retraining on vegetable production techniques	No. of farmers training	790					0	8	1
	Training on post-harvest management	No. of farmers trained on post-harvest management	390					0	1384	355
	Retraining on post-harvest management	No. of farmers retrained on post-harvest management	790					0	5	1
	Exchange visits for farmers	No. of exchange visits	18					0	12	67
	Training on preparation of bio pesticides	No. of farmers training conducted	20					0	8	40
	1.2.3. Support to ARDC and NSC							0		
	Training and certification of vegetable seed growers	No. of vegetable seed growers trained on seed certification	130					0	27	21
	Equipment and input support vegetable seed growers	No. of Equipment supplied to veg. seed growers	130					0	19	15
	Retraining of vegetable seed growers	No. of veg. seed growers retrained	195					0	6	3
	Seed processing units vegetable seed farm NSC	No. of seed processing units supported	2					0	1	50
	Glasshouse construction vegetable seed farms NSC	No. of glasshouse constructed	2					0	1	50
	Training & extension material developed	No. of training & extension materials developed	20					0	10	50

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
1.3. Dairy production intensified and expanded	**1.3.1. Dairy production inputs**							0		
	Milk cans	No. of Milk cans supplied	2000		77			0	1089	54
	Supply of improved cattle breed	No. of cross-breed cattle supported	2600	175	188	86	70	156	2311	89
	Improved dairy shed construction	No. of sheds constructed	2000	114	134	69	65	134	2137	107
	Dairy equipment, milking machine, milk chillers, etc.	No. of equipment supplied to dairy producer groups	147	42	98	76	22	98	534	363
	1.3.2. Dairy breed enhancement							0		#DIV/0!
	Breed intensification through sex sorted semen	No. of units	5100					0	7740	152
	Breed intensification through community breeding bull services	No.of bulls supplied	75	17	16	196	50	246	52	69
	Breed intensification through CHBPP	No. of breed intensification (Caattle identified)	2295	2000	2202			0	6104	266
	1.3.3. Improved livestock service outreach							0		
	Training on AI	No. of people trained	120	45	21	20	1	21	761	634
	CAHW model development and packaging	No. of CAHW model developed	2					0	1	50
	Training of trainers (ToT)	No. of ToT conducted on CAHW & lead farmers	2					0	1	50
	Training of CAHWs	No. of CAHWs trained	105					0	82	78
	Retraining of CAHWs	No. of CAHWs retrained	80					0	0	0
	Kits for AI practitioner	No. of Kits supplied	80					0	32	40
	Transport facilities for CAHWs	No. of CAHWs supported with transport facilities	75					0	0	0

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	Training on livestock husbandry	No. of dairy groups or individuals trained on livestock husbandry	150	110	93	27	66	93	510	340
	Retraining on livestock husbandry	No. of dairy groups or individuals retrained on livestock husbandry	420					0	9	2
	Training on clean milk production	No. of dairy groups or individuals trained on clean milk production	150	408	75	26	49	75	774	516
	Retraining on clean milk production	No. of dairy groups or individuals retrained on clean milk production	420					0	28	7
	Training on farm record keeping	No. of dairy groups or individuals trained on farm record keeping	65					0	74	114
	Retraining on farm record keeping	No. of dairy groups or individuals retrained on farm record keeping	420					0	18	4
	Establishment of LN2 plant	No. of infrastructure	2					0	0	0
	Training & Extension materials developed (Livestock)	No. training & extension materials developed on dairy production	78					0	1	1
	Awareness & Mobilization Carried Out (Livestock)	No. of Dairy groups sensitized and mobilized	95	10	2	95	61	156	32	34
	1.3.4. Support to Fodder & Feed Production							0		
	Perennial fodder in fallow and marginal land	Area of fallow & marginal land under perennial fodder	1633	415	364.33	268	293	561	3729.66	228
	Winter fodder crop demonstration and seed supply	Area under Winter fodder	1885	680	629	419	509	928	5257.2	279
	Training of feed producers	No. of feed producers trained	200					0	60	30
	Training on use of crop residues and feed/fodder	No. of training conducted	40					0	50	125

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	Collection of indigenous fodder germplasm	No. of germplasm	45					0	56	124
	Planting native species fodder	Area under native Fodder spp.	150					0	0	0
	TMR facilities for youth	No. of unit	5					0	0	0
	Inputs for hydroponic production	No. of site	50	3	3	3		3	35	70
	Inputs supply for fodder conservation such as silage making	MT	5000	2705	2375	253	257	510	7884	158
	supply of barbed wire for pasture fencing	Area of pasture land (Acres)	250					0	389	156
	1.3.5. Public health risk mitigation in relation to dairy value chain		0					0	0	
	Diagnostic equipment for regional centers	No. of sets	5					0	3	60
	Biosecurity for field staff	No. of sets	190					0	150	79
	Sero surveillance of animal diseases	No. of samples	2000		1857			0	3575	179
1.4. Production related infrastructures	**1.4.1. Irrigation improvement**							0		
	District engineers and extension agents (design and construction)	No. of DEs and EAs trained on climate resilient irrigation	100					0	20	20
	WUA formation	No. of schemes	33	5	6	132	107	239	52	158
	Preparation of manual for upgrading irrigation engineering norms Manual for upgrading Irrigation Engineering norms prepared	Manual for upgrading Irrigation Engineering norms prepared	1					0	0	0
	Irrigation Feasibility studies & surveys	No. of schemes	2					0	16	800
	Renovation of irrigation canal	Kms	3052	2.5	2.5	17	31	48	91.935	3
	Pilot irrigation schemes	No. of Pilots irrigation schemes developed	26					0	4	15

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	Quality control and supervision	No. of quality control and supervision conducted	12					0	0	0
	Dry land irrigation	No. of schemes	720	8	9	38	64	102	56	8
	Pump irrigation network up to field edge	No. of pump irrigation	20					0	4	20
	Water source protection/catchment area	No. of site	10					0	8	80
	1.4.2. Matching grant facilities							0		
	Fencing of agriculture land	Kms	5000	4.5	3.44	34	18	52	1184.463	24
	Land development: Wetland Consolidation, dry land terracing	Acres	1350					0	0	0
	Chopping machine (for dairy groups)	No. of chopping machines supplied	947	156	134	74	60	134	2291	242
	Small post-harvest equipment	No. of small post-harvest equipment promoted	730					0	46	6
2.1. Resilient vegetable and dairy value chain developed	**2.1.1. Resilient vegetable value chain developed**							0		
	Vegetable value chain plans prepared	Vegetable value-chain design & business plan in place	3					0	1	33
	Multi-stakeholder platforms and networks developed	No. of platforms & networking established	5	2	4	79	97	176	6	120
	Vegetable value chain equipment	No. of sets	3					0	0	0
	Value-chain equipment	No. of value-chain equipment promoted	12	15	20	21	1	22	71	592
	Value-chain infrastructure	No. of value-chain infrastructure put in place	8	2	1			0	30	375

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
2.2. Resilient dairy value chain developed	**2.2.1. Resilient dairy value chain developed**							0		
	Dairy value chain business plans prepared	Dairy value-chain design & business plan in place	3	1				0	1	33
	Construction of milk collection Center (MCC)	No. of MCC constructed	44	4	3	255	111	366	67	152
	Construction of milk collection shed (MCS)	No. of MCS constructed	180	7	9			0	53	29
	Milk processing unit (MPU)	No. of milk processing unit established	24					0	15	63
	Milk chilling van	No. of milk chilling van provided	4					0	3	75
	UHT plant at Dewathang	No.of plant	1					0	0	0
	Domestic market study for KIL	No. of studies	1	1	1			0	2	200
2.3. Support to entrepreneurs and young farmers	Awareness and mobilization		0					0	0	
	Development of business model and sustainability plan for service and O&M	No. of business model and sustainability plan developed	3					0	2	67
	Awareness on marketing groups	No. of Marketing groups sensitized	200					0	121	61
	Strengthening of existing marketing and cooperative capacity development packages	No. of marketing & cooperative capacity development packages strengthened	3					0	74	2467
	Formation of vegetable marketing groups	No. of vegetable marketing groups formed	230					0	29	13
	Formation of dairy marketing groups	No. of dairy marketing groups formed	150					0	20	13

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	Training in marketing & value-chain	No. of groups or individual farmers trained on marketing & value-chain	450					0	60	13
	Training in packaging & handling	No. of groups or individual farmers trained on packaging & handling	415					0	38	9
	Multi Stakeholders facilitation process	No. of stakeholders engaged or consulted	10					0	196	1960
	Development of training packages for agriculture entrepreneurs	No. of training packages developed for agriculture entrepreneurs	2					0	1	50
	Entrepreneur identification and engagement process	No. of entrepreneurs identified and engaged	1					0	2	200
	Enterprise developed	No. of enterprise developed	50	9	7	5	2	7	45	90
	Training provided to other groups and entrepreneurs	No. of groups, coops & entrepreneurs trained	50					0	34	68
	Business plan-based planning of market infrastructure	No. of market infrastructure developed based on business plan	3					0	6	200
	Development of business plans for 3 windows shops	No. of Developments windows shops convened	2					0	3	150
Output 3.1. Strengthened value chain and marketing knowledge and communication	Strengthening of the DAMC market information system	DAMC MIS strengthened	2					0	0	0
	Equipment related to Market Information System upgrade	No. of equipment supplied for MIS upgradation	4					0	3	75

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	Curricula for RNR Training & Education Institutes Developed	No. of curriculum developed	2					0	0	0
Output. 3.2 Climate change resilience and value chain lessons mainstreamed in agricultural polices and sector strategies	Participatory Policy Development Approaches Developed	No. of participatory policy development process or approach initiated	2					0	0	0
	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	3					0	0	0
	Regulatory Frameworks for PPP	A regulatory framework for PPP developed	2					0	0	0
	National/International TA	No. of TA recruited	4					0	0	0
	Support budget RNR training and education institutes	Amount supported	3					0	0	0
	Support budget climate resilience mainstreaming	Amount supported	4					0	0	0
	Support budget PPP regulatory framework	Amount supported	3					0	0	0
4.1. Project Management Unit	***Material & Equipment***							0		#DIV/0!
	Vehicles	No. of vehicles purchased	11					0	3	27
	Laptops	No. of laptops purchased	37	12	19			0	44	119
	Printer	No. of printers purchased	15					0	10	67
	Scanner	No. of scanners purchased	4					0	1	25

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	Photocopier heavy duty	No. of heavy duty photocopier purchased	3					0	1	33
	Office equipment	Sets of office equipment purchased	28					0	6	21
	Capacity Building		0					0	0	#DIV/0!
	Training on gender	No. of staff trained on gender	3					0	1	33
	Training on knowledge management	No. of staff trained on KM	4					0	3	75
	Training on monitoring and evaluation	No. of staff trained on M&E	5	4	4	4		4	6	120
	Training on financial management	No. of staff trained on FM	12	5	5	5		5	9	75
	Training and workshop for OPM staff	No. of training	12					0	0	0
	Coordination		0					0	0	#DIV/0!
	Coordination meetings with dzongkhags	No. of Dzongkhags coordination meeting held	20					0	18	90
	Food Corporation of Bhutan		0					0	0	#DIV/0!
	Material and equipment		0					0	0	#DIV/0!
	Materials and Equipment Procured for FCBL	No. of Materials and equipment procured by FCBL	6					0	2	33
	Monitoring & Evaluation		0					0	0	#DIV/0!
	Baseline and impact studies	No. of baseline & impact studies conducted	1					0	1	100
	Programme Supervision Mission	No. Of Mission	17					0	9	53
	Annual outcome surveys	No. of AOS conducted	7	1	1			0	6	86
	Other surveys/studies	No. of survey/studies conducted	9					0	2	22
	Mid-term review	Mid-term review conducted	1					0	1	100

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	Project completion report	PCR prepared	2					0	0	0
	MIS	No. of MIS	4					0	2	50
	Software development for M&E	No. of MIS	2					0	2	100
	Study tours and learning visits (Both in-country and overseas)	No. study tour	9					0	7	78
	Knowledge Management		0					0	0	#DIV/0!
	Printing and publications	No. of quality KM products published	12					0	31	258
	Setting up IMS (CARLEP Webpage)	Web page established	1					0	1	100
	Workshops and meetings	No. of workshops & meetings conducted	11					0	10	91
	OPM, Mongar		0					0	0	#DIV/0!
	National Program Director	No. of months Paid	126					0	108	86
	Finance Manager	No. of months Paid	126					0	108	86
	Accountant	No. of months Paid	126					0	108	86
	M&E and Gender Manager	No. of months Paid	126					0	108	86
	Project Support Officer	No. of months Paid	126					0	108	86
	KM Officer	No. of months Paid	126					0	108	86
	Component Manager (Agriculture Production)	No. of months Paid	126					0	108	86
	Component Manager (Livestock Production)	No. of months Paid	126					0	108	86
	Component Manager (Value-chain and Marketing)	No. of months Paid	126					0	60	48
	Dy. Manager-RAMCO	No. of months Paid	126					0	0	0
	Office Assistant	No. of months Paid	126					0	36	29
	Driver (x2)	No. of months Paid	252					0	60	24
	Liaison Office, Thimphu		0					0	0	#DIV/0!
	IFAD Focal Officer, PPD	No. of months Paid	126					0	0	0

Output	Sub-Activity	Indicator	Total program target (Appraisal)	AWPB Target	Actual Result	Households			Cumulative	Achievement %
						Male	Female	Total		
	IFAD Focal Officer, AFD	No. of months Paid	126					0	0	0
	Operating Cost, Project Management Unit		0					0	0	#DIV/0!
	Vehicle operation and Maintenance	No of Vehicles	0					0	2	#DIV/0!
	Maintenance of Building	Lump sum	0					0	2	#DIV/0!
	Maintenance of Equipment	Lump sum	0					0	2	#DIV/0!
	Utilities - telephone, internet, electricity, water, sewerage, fax, post, etc.	Lump sum	1					0	3	300
	Office supplies	Lump sum	0					0	3	#DIV/0!
	Travel and Meetings	Lump sum	11					0	11	100

3. Financial Progress

AGENCIES	BUDGET HEAD/SUB-ACTIVITY AS PER AWPB	FINANCIER/FIC	PLANNED BUDGET	EXPENDITURE	ACHIEVEMENT_%
ARDC	DEVELOP LUC THRAMDRANG TO PERMACULTURE MODEL FARM	ASAP	800000	799971.61	100.00
	ESTABLISHMENT OF COMMERCIAL MUSHROOM ENTERPRISES THROUGH SKILLING AND ENGAGEMENT	LOAN II	1800000	1799996.7	100.00
	ESTABLISHMENT OF HYBRID MAIZE COMMUNITY BASED SEED PRODUCTION GROUP	ASAP	700000	699999.9	100.00
	FRUITS AND NUTS INTENSIFICATION OF HIGH VALUE CROPS	LOAN II	1600000	1599999.9	100.00
	MARKET LINKED INTENSIFICATION OF ADZUKI BEANS	ASAP	300000	300000	100.00
	MARKET LINKED PASSION FRUITS INTENSIFICATION	LOAN II	1050000	1049775.7	99.98
	MILLION FRUIT TREES PLANTATION OF PRIORTIZED CROPS	LOAN II	4000000	3770319.5	94.26
	PROMOTION OF CLIMATE SMART TECHNOLOGIES	ASAP	830000	829891.58	99.99
	STRENGTHEN EXISTING MODIFIED PA STRUCTURES	LOAN II	500000	499999.27	100.00
	SUPPORT TO IRRIGATION AND TRELLIS FOR COMMERCIAL PLANTATIONS	LOAN II	1500000	1499984.3	100.00
	TECHNICAL BACKSTOPPING TO DZONGKHAGS AND GEWOGS AGRICULTURE EXTENSION IN PROJECT ACTIVITIES IMPLEMENTATION	GRANT II	750000	749730.4	99.96
LHUENTSE	AWPB PLANNING REVIEW AND COORDINATION WORKSHOP	GRANT II	280000	205811	73.50
	BREED IMPROVEMENT THROUGH STERILLIZATION OF SCRUB BULLS	GRANT II	310000	323983	104.51
	DRYLAND IRRIGATION	LOAN II	500000	497913	99.58
	DRYLAND IRRIGATION PIPE NETWORK	LOAN II	500000	360320	72.06
	ESTABLISHMENT OF SOLAR DRYING FACILITY	ASAP	500000	590000	118.00
	FARMERS TRAINING ON DIARY HUSBANDRY	ASAP	130000	106275	81.75
	FODDER SLIPS PROPAGATION NAPIER PAKCHONG SLIPS	LOAN II	380000	290735	76.51
	INSTALLATION OF FIXED DOME BIO GAS DIGESTER	ASAP	260000	263694	101.42
	LAND DEVELOPMENT	LOAN II	1500000	1500000	100.00
	OYSTER MUSHROOM PRODUCTION	ASAP	250000	247886	99.15
	PROMOTION OF HEAT TOLERANT AND COMMERCIAL VARITIES CAULIFLOWER	LOAN II	200000	200000	100.00

AGENCIES	BUDGET HEAD/SUB-ACTIVITY AS PER AWPB	FINANCIER/FIC	PLANNED BUDGET	EXPENDITURE	ACHIEVEMENT_%
	PROMOTION OF PROTECTED AGRICULTURE THROUGH SUPPLY OF GREEN HOUSE 80 PERCENT SUBSIDY 5X10	LOAN II	740000	737679.2	99.69
	RENOVATION OF KHEPACHU IRRIGATION CHANNEL(SPILLOVER)	LOAN II	4650000	4123931	88.69
	SUBSIDY SUPPORT FOR DIARY SHED CONSTRUCTION	LOAN II	580000	580494	100.09
	SUBSIDY SUPPORT FOR IMPROVED DAIRY COWS PROCUREMENT	LOAN II	1860000	1235753	66.44
	SUPPLY OF BANANA CHOPPING MACHINE ON COST SHARINGS	LOAN II	140000	112980	80.70
	SUPPLY OF COW MAT ON COST SHARING 60 PERCENT CONTRIBUTION	LOAN II	170000	165069	97.10
	SUPPLY OF DAIRY EQUIPMENT TO DFGS AND PROCESSING UNITS	LOAN II	620000	619090	99.85
	SUPPLY OF INPUTS FOR CROP RESIDUE ENRICHMENT	LOAN II	120000	111750	93.13
	SUPPORT IN EARLY CHILLI PRODUCTION HPH 1069 VARIETY	LOAN II	150000	113264	75.51
	SUPPORT TO VULNERABLE HOUSEHOLDS FOR BACKYARD POULTRY FARMING	ASAP	360000	316129	87.81
	WUA FORMATION	ASAP	180000	138096	76.72
MONGAR	AWPB PLANNING AND CORDINATION WORKSHOP	GRANT II	140000	95179	67.99
	AWPB REVIEW AND PLANNING WORKSHOP	GRANT II	520000	376272	72.36
	CONSTRUCTION OF KAJATHROM AT GYALPOZHING MONGAR	LOAN II	2000000	2000000	100.00
	CONSTRUCTION OF MILK COLLECTION SHED	LOAN II	1100000	1105000	100.45
	DAIRY EQUIPMENT	LOAN II		314378	#DIV/0!
	DRY LAND TERRACING AND STONE COLLECTION	LOAN II	1500000	1503818.1	100.25
	FARMER FIELD FESTIVAL	GRANT II	0	60000	#DIV/0!
	FARMER FIELD FESTIVAL	GRANT II	320000	220171	68.80
	FENCING SUPPORT FOR PERMACULTURE MODEL FARM AT LUC THEMBRANG	ASAP	1500000	1647800	109.85
	FODDER SLIPS PROPAGATION NAPIER PAKCHONG SLIPS	LOAN II	390000	341000	87.44
	INITIATE AND DEMONSTRATION ROOF WATER HARVESTING THROUGH SUPPLY OF SINTEX AND HDPE PIPE	ASAP	850000	783931	92.23
	INSTALLATION OF FIXED DOME BIO GAS DIGESTER	ASAP	200000	193746	96.87

AGENCIES	BUDGET HEAD/SUB-ACTIVITY AS PER AWPB	FINANCIER/FIC	PLANNED BUDGET	EXPENDITURE	ACHIEVEMENT_%
	INTENSIFICATION HIGH VALUE VEGETABLE ASPARAGUS ONION TOMATOES]	LOAN II	1350000	974064	72.15
	INTENSIFICATION OR UPSCALING SPICES GINGER]	LOAN II	200000	455122	227.56
	PINEAPPLE PRODUCTION	LOAN II	330000	327825	99.34
	PROMOTION OF FODDER HYDROPONICS INPUT SUPPLY	ASAP	100000	99000	99.00
	PROMOTION OF PROTECTED AGRICULTURE THROUGH SUPPLY OF GREEN HOUSE SUBSIDY	LOAN II	1450000	1396607	96.32
	SECTOR CORDINATION AND REVIEW MEETING	GRANT II		12635	#DIV/0!
	SOLAR DRYER AS PILOT PROJECT FOR CARDAMOM	ASAP	180000	131170	72.87
	SUBSIDY SUPPORT FOR DAIRY SHED CONSTRUCTION	LOAN II	690000	1097400	159.04
	SUBSIDY SUPPORT FOR IMPROVED DAIRY COWS PROCUREMENT	LOAN II	660000	93600	14.18
	SUPPLY INPUTS FOR CROP RESIDUE ENRICHMENT	LOAN II	120000	119240	99.37
	SUPPLY OF CHAFF CUTTER ON COST SHARING	LOAN II	1200000	1192000	99.33
	SUPPLY OF DAIRY BREEDING BULL FOR DAIRY BREED IMPROVEMENT	LOAN II	150000	130396	86.93
	SUPPLY OF DAIRY EQUIPMENT TO DFG AND PROCESSING UNITS	LOAN II	1010000	1050169	103.98
	SUPPLY OF PRODUCT DIVERSIFICATION EQUIPMENT	LOAN II	270000	266763	98.80
	SUPPORT TO VULNERABLE HOUSEHOLD FOR BACKYARD POULTRY FARMING	ASAP	390000	394000	101.03
	WINTER FODDER INTENSIFICATION T HROUGH SUPPLY OF OAT SEED	LOAN II	250000	303000	121.20
OPM	INCOUNTRY TRAVEL AND TRAINING	GRANT II		63720	#DIV/0!
	PRODUCT PROMOTION	GRANT II	300000	59552	19.85

AGENCIES	BUDGET HEAD/SUB-ACTIVITY AS PER AWPB	FINANCIER/FIC	PLANNED BUDGET	EXPENDITURE	ACHIEVEMENT_%
	REVIEW PLANNING AND COORDINATION OF PROGRAM IMPLEMENTATION	GRANT II	2400000	1167653.9	48.65
	IMPROVEMENT OF APPROACH ROAD TO WENGKHAR(SPILL OVER)	ASAP	1870000	1859248	99.43
	ANNUAL IFAD SUPERVISION MISSION AND MONITORING OF CARLEP ACTIVITIES	GRANT II	2500000	850807	34.03
	ANNUAL OUTCOME SURVEY	GRANT II	700000	450000	64.29
	CAPACITY DEVELOPMENT ON PROJECT FINANCIAL MANAGEMENT AND MONITORING AND EVALUATION TOOLS	GRANT II	1443000	1443000	100.00
	DEVELOPMENT OF BUSINESS AND INVESTMENT PLAN FOR KOUFUKO	GRANT II	2500000	1667500	66.70
	DOCUMENTATION AND DISSEMINATION OF SUCCESS STORIES AND CASES	GRANT II	700000	390048.93	55.72
	ENTERPRISE DEVELOPMENT THROUGH MATCHING GRANT SUPPORT	LOAN II	600000	150220	25.04
	INCOUNTRY TRAVEL AND TRAINING	GRANT II	300000	199988	66.66
	INTERNET AND TELEPHONE SERVICES	GRANT I		55000	#DIV/0!
	PERSONNEL EMOLUMENTS FOR CONTRACT EMPLOYEE	GRANT I	1000000	1097430	109.74
	PILOT INTEGRATION OF SOLAR ENERGY FOR 3 MCC	ASAP	1300000	1480400	113.88
	PROCUREMENT OF LATOPS	GRANT II	1300000	1324824	101.91
	PROMOTION OF FLOW HIVE TECHNOLOGY FOR EASY HONEY EXTRACTION	ASAP	420000	368520	87.74
	REVIEW PLANNING AND COORDINATION OF PROGRAM IMPLEMENTATION	GRANT II		892543.93	#DIV/0!
	SUPPLY INSTALLATION AND COMMISSION OF LN2 PRODUCTION PLANT	LOAN II	11820000	10633598	89.96
	SUPPLY OF LN2 PLANT EQUIPMENT	LOAN II		1177126	#DIV/0!
	TRAIN EXTENSION OFFICERS FOR GEO TAGGING THROUGH KOBOTOOLBOX APPLICATION	GRANT II	660000	656886	99.53
PEMAGATSHEL	AWPB PLANNING REVIEW AND COORDINATION WORKSHOP	GRANT II	340000	342863	100.84
	BREED IMPROVEMENT THROUGH STERILLIZATION OF SCRUB BULLS	ASAP	140000	112765.8	80.55

AGENCIES	BUDGET HEAD/SUB-ACTIVITY AS PER AWPB	FINANCIER/FIC	PLANNED BUDGET	EXPENDITURE	ACHIEVEMENT_%
	CONSTRUCTION OF AI EQUIPMENT STORAGE SHEDS	LOAN II	350000	266869	76.25
	CONSTRUCTION OF MARKET SHED AT NGANGLAM SPILLOVER	LOAN II	11950000	11762302	98.43
	CONSTRUCTION OF MILK COLLECTION CENTER AT NANONG SPILLOVER	LOAN II	3250000	3088562.4	95.03
	CONSTRUCTION OF TSHATSHI GURUM PROCESSING UNIT AT ZHINGRI NANONG	LOAN II	4640000	4636000	99.91
	DRY LAND IRRIGATION AT THONGO	LOAN II	1000000	851480	85.15
	DRY LAND TERRACING	LOAN II	800000	798390	99.80
	FARMERS STUDY TOUR TO PROGRESSIVE FARMERS GROUP & REGIONAL FARMS	ASAP	700000	595688	85.10
	FARMERS TRAINING ON APICULTURE	ASAP	190000	154765	81.46
	INFERTILITY MANAGEMENT OF DAIRY COWS	ASAP	110000	113000	102.73
	LIVESTOCK EXHIBITION	ASAP	170000	49162.5	28.92
	PRODUCT DIVERSIFICATION MOZZARELLA PANNER PRODUCT STANDARDIZATION	ASAP	300000	289157	96.39
	PROMOTION OF PROTECTED AGRICULTURE THROUGH SUPPLY OF GREEN HOUSE 80 PERCENT SUBSIDY	LOAN II	800000	764126	95.52
	PROMOTION OF RAIN WATER HARVESTING TECHNOLOGIES	ASAP	1990000	1841949	92.56
	SUBSIDY SUPPORT FOR DAIRY SHED CONSTRUCTION	LOAN II	690000	583244	84.53
	SUBSIDY SUPPORT FOR IMPROVED DAIRY COWS PROCUREMENT	LOAN II	660000	445232.94	67.46
	SUPPLY INPUTS FOR FODDER CONSERVATION & CROP RESIDUE ENRICHMENT	ASAP	400000	399700	99.93
	SUPPLY OF COW MAT ON COST SHARING 60 PERCENT PROJECT CONTRIBUTION	LOAN II	120000	118694	98.91
	SUPPLY OF DAIRY EQUIPMENT TO DFGS AND PROCESSING UNITS	LOAN II	720000	692849.68	96.23
	SUPPLY OF PRODUCTION INPUTS FOR LOCAL BEE PROMOTION	ASAP	450000	449940	99.99
	SUPPLY OF RESILIENT SEEDS FOR HARVESTING COMMERCIALIZATION CLUSTER	LOAN II	500000	498617	99.72

AGENCIES	BUDGET HEAD/SUB-ACTIVITY AS PER AWPB	FINANCIER/FIC	PLANNED BUDGET	EXPENDITURE	ACHIEVEMENT_%
	SUPPORT TO VULNERABLE HOUSEHOLDS FOR BACKYARD POULTRY FARMING	ASAP	380000	379836.25	99.96
	TRAINING ON GROUP MOBILIZATION	ASAP	300000	108410	36.14
	UPSCALLING INTENSIFICATION OF PINEAPPLE PRODUCTION	LOAN II	2000000	960000	48.00
RAMCO	REGIONAL MARKETING PLANNING AND COORDINATION WORKSHOP]	GRANT II	500000	203291.2	40.66
	B2B MEETING AND LINKAGE	LOAN II	700000	696250	99.46
	CONSTRUCTION OF LARGE MARKET FACILITY	LOAN II		7500000	#DIV/0!
	CONSTRUCTION OF TSHATSHI GURUM PROCESSING UNIT AT ZHINGRI NANONG	LOAN II		108639	#DIV/0!
	ESTABLISHMENT OF SEMI PROCESSED PEACH AND PLUM JAM ENTERPRISE AT TASHIGANG	LOAN II		493570	#DIV/0!
	EXPORT FACILITATION CENTRE AT NGANLAM SPILLOVER]	LOAN II	8200000	8200000	100.00
	FINANCIAL LITERACY TRAINING TO WEAK AND INTERMEDIARIES FGS AND COOPS	GRANT II	1500000	991944	66.13
	REGIONAL MARKETING PLANNING AND COORDINATION WORKSHOP]	GRANT II		155854.2	#DIV/0!
	SUPPORT VALUE ADDITION EQUIPMENT TO DFG	LOAN II	560000	495797	88.54
RLDC	CAPACITY ENHANCEMENT OF COMMUNITY ARTIFICIAL INSEMINATION TECHNICIANS	ASAP	600000	593695	98.95
	CHBPP ESTABLISHMENT AND EXPANSION	LOAN II	400000	391844	97.96
	INSTALLATION OF 3 PHASE POWER SUPPLY IN THE NEW LN2 PRODUCTION PLANT	LOAN II	140000	174940	124.96
	KNOWLEDGE AND SKILLS ENHANCEMENT OF EXTENSION STAFF ON DAIRY ANIMAL HEALTH ZOONOTIC DISEASES EVDP AND AMR	ASAP	930000	879418	94.56
	LN2 PARKING SPACE BLACKTOPPING	LOAN II	1230000	1185790	96.41
	PLANNING REVIEW AND COORDINATION WORKSHOP WITH PROJECT STAKE HOLDERS	GRANT II	630000	601520	95.48
	PURCHASE OF REFRIGERANT	GRANT II	200000	197064	98.53

AGENCIES	BUDGET HEAD/SUB-ACTIVITY AS PER AWPB	FINANCIER/FIC	PLANNED BUDGET	EXPENDITURE	ACHIEVEMENT_%
SAMDRUPJONGKHAR	CONSTRUCTION OF PROCESSING HOUSE OR PACK HOUSE PRIOR YEAR ADVANCE ADJUSTMENT	LOAN II		300000	#DIV/0!
	ANNUAL RNR PRODUCT EXHIBITION OR BRANDING (ALONG WITH FOOD FESTIVAL)	ASAP	800000	746058	93.26
	AWPB PLANNING REVIEW AND COORDINATION WORKSHOP	GRANT II	360000	347458	96.52
	CONSTRUCTION OF FARMERS SALLES OUTLET OR VEGETABLE MARKET AT SAMDRUPCHOLING SPILOVER	LOAN II	3800000	3389234	89.19
	CONSTRUCTION OF FIXED DOME BIO GAS DIGESTER 50 PERCENT SUBSIDY SUPPORT	LOAN II	300000	254831	84.94
	CONSTRUCTION OF MCC SPILOVER	LOAN II	710000	699754	98.56
	CONSTRUCTION OF PROCESSING HOUSE OR PACK HOUSE PRIOR YEAR ADVANCE ADJUSTMENT	LOAN II		606850	#DIV/0!
	CONSTRUCTION OF STATE OF ART FARMERS SALES OUTLET IN SAMDRUPJONGKHAR THROM	LOAN II	2850000	3252864	114.14
	FODDER SLIPS PROPAGATION NAPIER PAKCHONG SLIPS	LOAN II	160000	160000	100.00
	INFERTILITY MANAGEMENT OF DIARY COWS	ASAP	160000	156036.2	97.52
	PROCESSING OR VALUE ADDITION OR CERTIFICATION AND BRANDING OF 37 PRIORITIZED PRODUCT OF 6 GEWOGS TO BE BROUGHT IN THE MARKET	LOAN II	6000000	5861031	97.68
	SUBSIDY SUPPORT FOR IMPROVED DIARY COWS PROCUREMENT	LOAN II	840000	866117.2	103.11
	SUPPLY OF BREEDING BULLS FOR DIARY BREED IMPROVEMENT	LOAN II	210000	191661	91.27
	SUPPLY OF CHAFF CUTTER ON COST SHARING 60 PERCENT PROJECT CONTRIBUTION	LOAN II	1100000	879577	79.96
	SUPPLY OF DIARY EQUIPMENT TO DFGS AND PROCESSING UNITS	LOAN II	260000	255000	98.08
	SUPPLY OF INPUTS FOR CROP RESIDUE ENRICHMENT	LOAN II	190000	78322	41.22
	SUPPLY OF PRODUCT DIVERSIFICATION EQUIPMENT	LOAN II	270000	249895	92.55
	SUPPORT TO VULNERABLE HOUSEHOLD FOR BACKYARD POULTRY FARMING	ASAP	520000	179400	34.50
TRASHIGANG	MATERIAL SUPPORT FOR ONION CURING SHED	LOAN II	250000	186709	74.68

AGENCIES	BUDGET HEAD/SUB-ACTIVITY AS PER AWPB	FINANCIER/FIC	PLANNED BUDGET	EXPENDITURE	ACHIEVEMENT_%
	SUBSIDY SUPPORT FOR IMPROVED DAIRY COWS SOURCING	LOAN II	600000	101040	16.84
	AWPB PLANNING AND REVIEW WORKSHOP	GRANT II	460000	369363	80.30
	AWPB PLANNING REVIEW AND COORDINATION WORKSHOP	GRANT II		5399	#DIV/0!
	CATTLE RALLY FOR ENCOURAGING DAIRY FARMERS TO REAR IMPROVED DAIRY BREED	ASAP	300000	276342	92.11
	DRIP IRRIGATION MATERIALS FOR PA	LOAN II	1400000	2160875	154.35
	DRYLAND IRRIGATION	LOAN II	850000	693048	81.54
	DRYLAND TERRACING SURFACE STONE COLLECTION	LOAN II	800000	761381	95.17
	FODDER SLIPS PROPAGATION NAPIER PAKCHONG SLIPS	LOAN II	350000	353000	100.86
	INFERTILITY MANAGEMENT OF DAIRY COWS	ASAP	220000	164702	74.86
	INSTALLATION OF FIXED DOME BIO GAS DIGESTER	ASAP		282475	#DIV/0!
	MCC CONSTRUCTION	LOAN II	1540000	1382267	89.76
	PRODUCTION SUPPORT FOR VEGETABLE COMMERCIALIZATION	LOAN II	800000	776080	97.01
	PROMOTION OF PASSION FRUIT COMMERCILIZATION	LOAN II	250000	222994	89.20
	PROMOTION OF PINEAPPLE FOR COMMERCILIZATION	LOAN II	1200000	291000	24.25
	PROMOTION OF PROTECTED AGRICULTURE THROUGH SUPPLY OF GREENHOUSE	LOAN II	2000000	1851505	92.58
	SUBSIDY SUPPORT FOR DAIRY SHED CONSTRUCTION	LOAN II	1230000	155000	12.60
	SUBSIDY SUPPORT FOR DAIRY SHED CONSTRUCTION	LOAN II		902116	#DIV/0!
	SUBSIDY SUPPORT FOR IMPROVED DAIRY COWS SOURCING	LOAN II	600000	243790	40.63
	SUPPLY OF DAIRY EQUIPMENT TO DFG AND PROCESSING UNIT	LOAN II	140000	100699	71.93
	SUPPLY OF IMPROVED PASTURE SEEDS FOR PASTURE DEVELOPMENT	LOAN II	370000	297800	80.49
	SUPPLY OF INPUTS FOR CROP RESIDUE ENRICHMENT	LOAN II	770000	634674	82.43
	SUPPORT FOR CHAINLINK FENCING	LOAN II	360000	346890	96.36
	WETLAND CONSOLIDATION	LOAN II	800000	800000	100.00
	WINTER FODDER INTENSIFICATION T HROUGH SUPPLY OF OAT SEED	LOAN II	590000	570280	96.66
	WUA FORMATION OPERATION AND MAINTENANCE	ASAP	80000	79910	99.89

AGENCIES	BUDGET HEAD/SUB-ACTIVITY AS PER AWPB	FINANCIER/FIC	PLANNED BUDGET	EXPENDITURE	ACHIEVEMENT_%
TRASHIYANGTSE	AWPB PLANNING REVIEW AND COORDINATION WORKSHOP	GRANT II	150000	191401	127.60
	BREED IMPROVEMENT THROUGH STERILLIZATION OF SCRUB BULLS	ASAP	500000	481703	96.34
	CONSTRUCTION OF IRRIGATION CHANNEL AT KHESHINGRE, TOEDTSHO	LOAN II		938405	#DIV/0!
	CONSTRUCTION OF MILK COLLECTION CENTER AT JAMKHAR	LOAN II	700000	21936	3.13
	CONSTRUCTION OF MILK COLLECTION SHED AT KHAMDANG AND TOEDTSHO	LOAN II	330000	298171	90.35
	COORDINATION MEETING	GRANT II	140000	96110	68.65
	DRY LAND TERRACING	LOAN II	850000	850000	100.00
	DRYLAND IRRIGATION MULTI USE SCHEME	LOAN II	1580000	1393747	88.21
	ESTABLISHMENT OF CHAIN LINK FENCING	LOAN II	3100000	2648221	85.43
	FARMERS TRAINING ON CLEAN MILK PRODUCTION	ASAP	70000	68000	97.14
	FODDER SLIPS PROPAGATION NAPIER PAKCHONG SLIPS	LOAN II	440000	438400	99.64
	PROMOTE MULCHING PLASTIC AND GREEN NET	LOAN II	310000	294780	95.09
	PROMOTION OF HIGH YIELDING VEGETABLE INTENSIFICTION	LOAN II	760000	721138	94.89
	PROMOTION OF PROCTED AGRICULTURE THROUGH SUPPLY OF GREEN HOUSES	LOAN II	880000	876096	99.56
	SUBSIDY SUPPORT FOR DIARY SHED CONSTRUCTION	LOAN II	600000	602000	100.33
	SUBSIDY SUPPORT FOR IMPROVED DIRY COWS PROCUREMENT	LOAN II	820000	615211	75.03
	SUPPLY OF CHAFF CUTTER ON COST SHARING	LOAN II	260000	68367	26.30
	SUPPLY OF DAIRY EQUIPMENT TO DFG AND PROCESSING UNIT	LOAN II	130000	35466	27.28
	SUPPLY OF IMPROVED PASTURE SEED FOR PASTURE DEVELOPMENT	LOAN II	220000	216000	98.18
	SUPPORT TO VULNERABLE HOUSEHOLD FOR BACKYARD POULTRY FARMING	LOAN II	450000	448521	99.67
	WETLAND TERRACE CONSOLIDATION	LOAN II	750000	749269	99.90
	WINTER FODDER INTENSIFICATION T HROUGH SUPPLY OF OAT SEED	LOAN II	100000	102900	102.90
GRAND TOTAL			**171063000**	**166925362**	**97.58 % (Avg)**