Annual Performance Report

Supporting Climate Resilient and Transformational Change in the Agriculture Sector in Bhutan

December 2020
FOREWORD

It is a special privilege to write this foreword especially because Bhutan has been fortunate to implement a project titled “Supporting Climate Resilience and Transformational Change in the Agriculture Sector in Bhutan” graciously approved and generously funded by the Green Climate Fund (GCF) given Bhutan’s vulnerability to climate change. On behalf of the Royal Government and the people of Bhutan, I would like to express my sincere gratitude to the GCF Board, the donors and the Executive Director for according a special consideration and approving the project for supporting the small-holder farmers to adapt and mitigate climate change impacts in Bhutan.

In expressing gratitude to the GCF, it is a privilege to come up with the 2020 annual performance report not only as a requirement by the GCF but also to demonstrate efficient and effective use of the fund to bring about real impact on the lives of the small-holder farmers in Bhutan. Despite the challenges by the pandemic, the implementation of the activities has been making significant headway towards realizing the intent of the project.

As the world prepares for a new normal, the Gross National Happiness Commission aspires to implement the funded activities without any disruption and delays and achieve the project outcomes.

Thinley Namgyel
Secretary
Gross National Happiness Commission
Contents

Foreword 3
1. Project Landscape 5
2. Implementation Progress 6
3. Performance Against the GCF Investment Criteria 11
4. Project Outputs Implementation Status 24
5. Progress Update on the Logical Framework Indicators 33
6. Report on Challenges During Implementation 38
7. Implementation Challenges and Lessons Learned 38
These are the eight identified project dzongkhags for the implementation of the funded activities.
2
IMPLEMENTATION
PROGRESS
2.1 Key Highlights

The project received the first disbursement of USD 3,096,334 (US Dollar three million ninety six thousand three hundred thirty four) on 28th January 2020. The project was launched at an inception workshop on 3rd February 2020.

The implementation of the project coincided at a time of unprecedented challenges posed by the COVID-19 pandemic. Several lockdowns and travel restrictions have been implemented in many parts of the world. In Bhutan, the Royal Government imposed the first nation-wide lockdown on 11th August 2020 until 7th September 2020 followed by the second one on 20th December 2020 until 4th January 2021 to contain the spread of the virus. Despite the challenges, the responsible parties continued directing their efforts in implementing the activities and managed to achieve significant progress with an overall financial expenditure of over 75% of the first disbursement. In addition, the project had to be aligned with the government’s “building back better” pandemic response through the implementation of the Economic Contingency Plan (ECP) to generate employment opportunities for the people laid off by the affected sectors.

The ECP focused on agriculture and food security that provided impetus for the project to accelerate implementation and reinforce promoting resilient agricultural practices for effective recovery of the livelihood opportunities. Thus, given this overarching mandate, it is important to highlight some of the critical achievements derived in the first year of the project implementation in 2020 and are presented hereunder:

- The project began with the establishment of the Project Management Unit, Project Board (PB), Technical Advisory Coordination Committee (TACC), Component Managers and focal persons at the agencies and dzongkhags. The unit now has a full time Project Manager, Monitoring and Evaluation Specialist, Irrigation Engineer, surveyors, and a designated Finance Officer. It is supported by a Technical Officer recruited under the UNDP contract.

<table>
<thead>
<tr>
<th>USD 3,096,334</th>
<th>8,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>first tranche disbursement</td>
<td>Revalidation survey, design and estimates for 13 irrigation schemes (55.5km) initiated</td>
</tr>
<tr>
<td>3,972 farmers benefited from resilient agriculture</td>
<td>230.33 hectares under sustainable land management</td>
</tr>
</tbody>
</table>
In 2020, three PB and two TACC meetings were held, which provided support for implementing the project. The National Centre for Hydrology and Meteorology (NCHM) completed the assessment of the existing hydro-met database management system and its requirement aimed to enhance the systemic capacity in delivering effective and reliable climate advisory services. Extensive consultations were conducted with the agriculture field staff and researchers to assess the status of the existing weather and climate information services and identify the gaps. Further, consultations will continue in 2021 to understand the weather observation parameters to mainstream climate information into agricultural plans and programs that will add to informed generation of relevant agricultural technologies to support climate resilient development.

26 dzongkhag engineers were provided with hands-on training on climate resilient planning and design of the irrigation systems. The engineers spearheaded the revalidation of survey, design and estimates for upgradation of climate resilient design features for 13 irrigation schemes. Of these, the work is underway for eight irrigation schemes (55.5 km) while the rest will commence in the 1st quarter of 2021. A total of 3,972 farmers in eight project dzongkhags benefitted from the adoption training.
Engaging farmers in the consultation for SLM action planning at Namleythang in Dagana

of climate resilient agricultural (CRA) practices while 1,609, comprising of the agriculture extension officials, local government leaders and farmers, were trained and sensitized on CRA practices. 271 farmers were engaged by the National Seed Centre (NSC) to promote community seed production, multiplication and cultivation of climate resilient crops. In total, 230.33 hectares of agricultural land were brought under the sustainable land management practices. 930 farmers benefitted from this initiative and prevented their lands from getting washed away by soil erosion and landslides. The participatory sustainable land management (SLM) action planning was initiated in 12 villages of the eight project dzongkhags, which shall guide the project dzongkhags to upscale the SLM practices. Agroforestry practices were also promoted by planting green tea on 3.237 hectares of land benefitting 29 households. A member each from the 31 households have formed a cooperative to promote and scale up local green tea production in Trongsa. Women constitutes 90% of the cooperative members. The field investigation and geotechnical study to stabilize the slopes with counter measures for Reotala in Trongsa and Khagochen in Dagana were completed while the Boxcut slide in Sarpang was delayed by the pandemic and is expected to be completed in August 2021. Once the slides in these areas were stabilized, the market access for the farmers to sell their produce will be enhanced.
• 119 officials comprising of the engineers, road inspectors and surveyors, were trained and sensitized on using the “Guidelines on Design, Construction and Maintenance of Road Infrastructure Incorporating Climate Resilient Features (2019),” developed with financial support from the GEF – LDCF project “Enhancing Sustainability and Climate Resilience of Forest and Agriculture Landscape and Community Livelihoods” with technical support by the UNDP.

• Design of the impact evaluation and baseline survey was initiated to establish the baseline to monitor and assess the progress and effectiveness of the interventions in the eight project dzongkhags. However, the survey pretest, planned in December 2020, was delayed by the second nationwide lockdown. The baseline survey is planned in the 1st quarter of 2021 while a follow-up survey will be carried out towards the end of 2021.

• In the course of implementing the project, the risk assessment and mitigation measures were also explored and identified. Except for the unforeseen risks by the pandemic, risks assessed and mitigation measures identified at the project design phase remain unchanged. The risks were periodically monitored and assessed to identify critical challenges and the likely impacts on the implementation of the activities. The specific challenges encountered and the actions taken to address, including the lessons learned, are elaborated in Section 7.

In responding to the challenges posed by the pandemic, three PB meetings were convened and another one scheduled in December 2020 but had to be postponed due to the second nation-wide lockdown. Four quarterly progress review meetings and coordination workshops were conducted to review and integrate the changes to the annual work plan.
PERFORMANCE AGAINST THE GCF INVESTMENT CRITERIA
3.1 Impact Potential

3.1.1 Building Resilience and Livelihood of Most Vulnerable and Smallholder Farmers

As part of the inception workshop, the impact evaluation training was conducted for the central and local government partners. The training was designed to make the participants aware of the need to establish baseline and use it as a monitoring tool to assess the impact of the project on the beneficiaries.

3.1.2 Adaptation Impact through Weather and Climate Information Services

The assessment of the agromet network and the existing hydro-met database management system and IT infrastructure, including the aviation-met at the Paro international airport and glacial lake outburst flood early warning system, are expected to contribute to developing a robust, centralized hydro-met database management system and provide efficient and timely hydro-met information and services.
3.1.3 Adaptation Impact through Increased Resilience of Infrastructure and the Built Environment

Proper planning and design of the irrigation and roads are critical to ensure the sustainability of the infrastructures. Therefore, a hands-on training was conducted for the engineers to enhance their capacity in maintaining and operating irrigation infrastructures at the project sites. Activities such as water harvesting ponds and rainwater harvesting were also initiated to upscale sustainable water management.

Detailed geotechnical investigation and mitigation measures were identified to counter frequent prevalence of landslides at Reotala on the Trongsa-Gelephu primary national highway (PNH) and Khagochen on the Sunkosh-Dagana secondary national highway. The mitigation work will start in 2021.
3.1.4 Adaptation Impact through Promotion of Climate Resilient and Smart Agricultural Practices

Numerous activities were carried out to promote CRA practices such as prefabricated polyhouses, greenhouses, mulching, azolla, composting technology, agroforestry, and so forth. Sensitization workshops on CRA technology were conducted for the local government officials and farmers. The SLM action plans for the eight project dzongkhags were initiated to guide the investment strategies for combating land degradation and enhancing the productivity of the land by implementing the SLM interventions such as contour hedgerows, contour bunds, bench terracing, nutrient management, water source protections, plantations and check dams. 271 farmers were trained on community seed production and multiplication systems to scale up diversified climate resilient crops.

The project completed the first year of implementation and is well on track to achieve the results as laid out in the project document.

3.2 Paradigm Shift Potential

The project supports the Royal Government not only in building resilience but also in initiating the transition to climate-informed planning. In pursuing this, the climate-informed planning and policy support were instituted at the NCHM (at the national level) and Ministry of Agriculture and Forests (MoAF) (at the planning level). The institution of these two offices are expected to enhance availability of climate related data and mainstream them into the design and planning of the infrastructures. For
instance, the design of the irrigation schemes will incorporate the climate features that will ensure reliable water flow at all times.

This project is a model that intends to promote cross-sectoral and multilateral partnerships amongst the relevant agencies (MoAF, NCHM, Department of Roads (DoR), local governments and GEF-LDCF) to address the challenges posed by climate change. The project is expected not only to benefit in implementing the activities at the project dzongkhags but also in building the capacity of the officials at the central and local governments and the farmers in the communities. Over all, the implementation of the project has culminated in understanding the importance of climate-informed planning and adaptation to enhance resilience to climate change.

### 3.2.1 Potential for Replication, Knowledge-sharing and Learning

In the first year of implementing the project, information for designing climate-informed agriculture planning and advisory services were gathered. The project supported the NCHM in assessing its management capacity and upgrading climate advisory into national climate database, modeling and systems. The capacity of the district engineers’ were enhanced in strengthening the integration of climate resilient features into irrigation systems by providing them with hands-on engagement in survey, design and supervision. Most importantly, the project has inculcated the need to advocate climate change and innovate mitigation measures towards mainstreaming resilience concepts and practices into policies, plans and programs. In pursuing this, the local government officials and farmers are now aware of the importance of developing climate resilience in water, soil and irrigation management systems. Agricultural lands, that were at risk of land degradation and soil erosion, are now protected that will ensure securing food and improving livelihoods of the farmers.
3.2.2 Knowledge-sharing and Sensitization on Climate Resilient Road Construction Guidelines

Sensitization on the Guidelines on Design, Construction and Maintenance of Road Infrastructure Incorporating Climate Resilient Features (2019) was conducted for the engineers in the five regional offices1 (Thimphu, Lobesa, Trongsa, Lingmithang and Trashigang) covering 11 dzongkhags (Trongsa, Bumthang, Punakha, Gasa, Wangdue, Trashigang, Trashi Yangtse, Mongar, Lhuentse, Thimphu, and Paro). In 2020, the Royal Government co-financed the construction of 262.45 km of Gewog (Block) connectivity roads in six Gewogs (Bardo, Bjoka, Denchukha, Dumtoed, Lajab and Khebisa) of Dagana, Samtse, and Zhemgang integrating the EFRC features.

3.2.3 Potential for Community Mobilization and Long-term Capacity Building

In Bhutan, the seeds are supplied to the farmers by the government designated agencies. The NSC trained the farmers on community seed production and multiplication through a participatory approach for the registered seed growers. They are self-help groups, diversifying seed production and upscaling climate resilient seeds not only to generate socio-economic co-benefits but also for the long-term sustainability. These groups supply seeds to the NSC for sale and distribution to the farmers in the country.

The project will also provide training to the water-user association and road-user groups on maintaining irrigation and farm roads as part of promoting community engagement, ownership and sustainability.

1The Department of Roads under the Ministry of Works and Human Settlement has nine regional offices that cater to road construction and maintenance services across the country. They are located in Thimphu covering Thimphu, Paro and Haa; Phuentsholing covering Chukha and Samtse; Lobesa covering Gasa, Punakha and Wangdue; Sarpang covering Dagana, Tsirang and Sarpang; Tingtitibi covering Zhemgang; Trongsa covering Trongsa and Bumthang; Lingmithang covering Mongar and Lhuentse; Trashigang covering Trashigang and Trashi Yangtse; and Samdrup Jongkhar covering Samdrup Jongkhar and Pema Gatshel.
3.3 Sustainable Development Potential

According to the decentralization policy of the Royal Government, the funded activities are directly planned and implemented by the local governments (Dzongkhags and gewogs) by actively engaging the farmers except for the activities related to climate information and slope stabilization of roads. The implementation of the project will contribute to achieving three SDGs that are prioritized by the Royal Government in the current five-year plan (2018 – 2023): SDG 1 - No poverty, SDG 13 - Climate action and SDG 15 - Life on land.

3.3.1 Economic Co-benefits

The project will contribute to the long-term sustainability of agriculture development to enhance food security and livelihood and reduce poverty. This will be achieved by undertaking the following:

- Strengthening the resilience of the agricultural infrastructures such as irrigation schemes, roads and land;
- Strengthening the capacity of the farmers by mainstreaming climate resilient practices; and
- Enhancing the capacity of the technical agencies to provide necessary advisories to the farmers.
The project investment will complement the Royal Government’s COVID economic recovery plan in providing employment opportunities for the youths and encouraging them to take up farming. The impact surveys will be conducted to assess the impact of the project in 2023 and 2025.

3.3.2 Social and Environmental Co-benefits and Management Capacity

The project is designed to deliver larger environmental benefits besides the inherent socio-economic gains that is expected to accrue to the beneficiary communities. The incorporation of climate resilient features into irrigation and road construction intends to mitigate negative environmental impacts by reducing landslides and soil erosion while assuring enhanced agricultural production, guaranteed market access and providing opportunities for economic growth. The SLM interventions and resilient agricultural practices and technologies will contribute to building long-term adaptive capacity of the farmers.
Further, support is also provided to the development of community-based sustainable land and water management groups that will provide an inclusive platform for the communities to discuss, plan and implement activities by taking into consideration the social and economic benefits and ensure environmental sustainability.

### 3.3.3 Promoting Gender Equality and Empowerment of Women and Girls

According to the National Labour Force Survey (2018), farming population constitute 53.9% of the total labour force. Of this, 63.2% comprise of women. The interventions related to the climate advisory support services and resilient agricultural technologies prioritize the needs of women, youths and marginalized communities. An impact assessment survey will be undertaken in the mid-term and terminal reviews to assess the extent of the impact the interventions delivered.

### 3.4 Needs of the Recipient

The activities are aimed at enhancing the resilience of the smallholder farmers by training them on the adaptation measures to the risks and hazards posed by climate change, particularly in the variation in rainfall and frequent extreme weather events. The interventions were designed based on the vulnerability and needs of the beneficiaries and revalidated during the inception workshop attended by the dzongdags (Chief Executive) and officials from the planning, agriculture, private sectors and civil society organizations (CSOs). Subsequently, the first year was dedicated to setting up the management arrangements, community engagements, sensitization among the stakeholders and carrying out revalidation of irrigation and road infrastructures.
3.4.1 Addressing Requirements to Water Management and Irrigation Systems

Extensive consultations and needs assessment were carried out with the local government officials and beneficiaries prior to implementation. The community, forestry and environmental clearances were obtained by undertaking extensive advocacies during the consultative meetings with the local government and communities for the irrigation schemes based on the social and environmental safeguards and the rules and regulations of the Royal Government. The irrigation schemes were designed incorporating climate resilient features.

3.4.2 Co-financing and Financial Needs

As co-financer, the Royal Government has contributed funds to climate proofing of the farm and gewog connectivity roads which will enhance market access for the farmers. The Royal Government's contribution in cash and in-kind ensures ownership and sustainability of the project. In 2020, the Royal Government co-financed USD 10,048,476 (Cash contribution of USD 7,148,280 and in-kind USD 2,900,196).

3.4.3 Baseline Assessment Survey for Impact Evaluation

A detailed socio-economic and agriculture information is being collected to develop baseline for the household survey in the project dzongkhags and evaluate the impact of the interventions.

A preliminary assessment of the agromet stations across the country was also conducted to identify the technical requirements of the existing infrastructures and strengthen the design of the agromet services.
3.5 Country Ownership

3.5.1 Alignment to National Priorities and Ownership

The interventions are conceived to support the implementation of the Royal Government’s nationally determined contribution (NDC) adaptation priorities (Water security and climate proofing water distribution systems, promoting CRA, promotion of sustainable soil and land management technologies). Further, the project is also aligned to the 12th five-year plan of the Royal Government which is expected to contribute to achieving five national key result areas: Healthy ecosystem, water security, food and nutrition security, carbon neutral, climate and disaster resilient development, gender equality and women empowerment, and poverty eradication and inequality reduction.

3.5.2 Institutional Ownership

The project governance and implementation structures are developed in accordance with the national execution (NEX) manual agreed between the Royal Government and UNDP. The project is managed by the implementing partner or the nationally designated authority with the full responsibility delegated to an independent PMU. It is managed by a Project Manager, supported by the M&E Specialist, Irrigation Design Specialist, and surveyors while the Project Director, Finance Officer, Procurement Officer and support staff are deputed by the Royal Government. It is also supported by the Component Managers from the DoA, NCHM, DoR, National Soil Services Centre and Agriculture Engineering Division. Further, the project focal points were appointed in each responsible party to coordinate the implementation of the activities.
The PB was instituted to provide high-level guidance and oversight for the implementation of the project. It is chaired by the Secretary of the Gross National Happiness Commission and co-chaired by the UNDP Resident Representative. It comprises of the senior managers from the responsible parties, private sector and CSOs. In addition, it is supported by the TACC that comprises of technical experts from the responsible parties to provide technical guidance and recommendations in keeping with the standards of the Royal Government, GCF and UNDP including the social and environmental safeguards.

**RGoB resources contribution**

- Co-financing - USD 10,048,476
- Cash contribution - USD 7,148,280
- In-kind - USD 2,900,196

Field visit at Rinchengang irrigation site by Hon’ble Minister for Agriculture and Forests, Resident Representative of the UNDP, Athang-Thedtsho Member of Parliament, Directors and officials of the GNHC, DoA and Wangdue Phodrang dzongkhag
3.6 Efficiency and Effectiveness

3.6.1 Effectiveness to Deal with COVID-19 Response and Long-term Resilience

Most of the vegetable requirements depend on import and particularly so in winter. Thus, Bhutan had been frequently exposed to the external risks of disruption in the food supply chain and skyrocketing price of the vegetables. This had worsened in the pandemic situation and affected prices of the essential goods and services. As a result, agriculture has been given the central focus in the Royal Government’s ECP in boosting agriculture and achieving food self-sufficiency and security. While this initiative generated employment for the youths and laid off employees, it is also a long-term investment in the agriculture sector. An impact assessment will be conducted by the end of 2021.

The efficiency and effectiveness of the interventions also hinge on the competency of the farmers. Thus, capacity building is a top priority and pursued rigorously.

In order to achieve cost efficiency of the activities, it is critical for the beneficiaries to take ownership in terms of initiative and co-financing. For instance, in promoting protected agriculture, polyhouses were supplied on a cost-sharing basis with the project bearing 80% of the total cost. Further, the farmers also contribute knowledge in planning and labour in implementation and maintenance of the activities.
### 4. PROJECT OUTPUTS IMPLEMENTATION STATUS

<table>
<thead>
<tr>
<th>Project Output</th>
<th>Project Activity</th>
<th>Status$^{2}$</th>
<th>Implementation progress$^{3}$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 1.1 Developing and integrating climate risk data into crop and livestock planning at the national and sub-national levels.</strong></td>
<td></td>
<td>Activity Started - progress on track</td>
<td>(15%)</td>
</tr>
<tr>
<td><strong>1. Promote resilient agricultural practices in the face of changing climate patterns</strong></td>
<td>Progress (Milestone achieved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Completed field assessment of the existing 20 Class A agromet stations network in 20 dzongkhags and will be used to forecast, verify and quantify for informed agricultural planning and development of tailored climate products from 2022.</td>
<td>1. Carry out review and enhance existing crop and livestock loss collection and archival methodologies for consistent tracking and measurement of the losses and develop SoP by Q1-Q2 2021.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Completed assessment of existing hydro-met database and architectural computing systems of NCHM to develop a centralized hydro-met database for developing tailored climate products and produced assessment report and systemic specifications. The database will be used for generating weather and climate services through the following process: • Data collection, transmission and reception from the stations; • Storage, processing and data management; • Running models, analysis and verifications; and • Generation of the desired outputs/products. The climate advisories will be generated with support from the DoA (Agriculture specific advisories) and train the community on the application of these products and services. 3. Conducted in-house piloting at the NCHM to generate monthly seasonal forecast and verify medium range forecasting (3-10 days).</td>
<td>2. Train NCHM staff on the operation of centralized database system for the development of tailored climate products and information.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Challenges and issues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Field assessment of the stations completed but consultation delayed for 4 ARDCs and dzongkhag agriculture officials due to the pandemic. The consultation meeting aimed at reviewing the stations networks for enhancing agricultural practices. • NCHM staff not trained on the agromet services due to lockdowns and travel restrictions.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activity 1.2 Tailored climate information and related training to the local government and farmers to interpret and apply climate risk data to local and household level agricultural planning.</strong></td>
<td></td>
<td>Activity Started - progress on track</td>
<td>(10%)</td>
</tr>
<tr>
<td><strong>Progress (Milestone achieved)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Conducted awareness workshops, alongside the survey, on weather and climate services for 1,099 participants from the local government, agriculture officials and farmers in the selected gewogs of six project dzongkhags [Wangduephodrang (7 gewogs; 221 participants – 125 males, 96 females), Tsirang (6 gewogs; 205 participants – 132 males, 73 females), Dagana (5 gewogs; 162 participants, 93 males, 69 females), Punakha (5 gewogs; 170 participants, 86 males, 84 females), Zhemgang (4 gewogs; 126 participants, 46 males, 80 females), Trongsa (5 gewogs; 215 participants, 108 males, 107 females)].</td>
<td>1. Conduct 2 NCOFs in Q2 and Q4 2021 to guide the development and application of climate information in decision-making in climate-sensitive sectors. NCOF is a program where seasonal outlook for monsoon are discussed and disseminated with key stakeholders from agriculture, disaster, energy, environmental, tourism, hydropower, engineering, NGOs, media, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Small group survey conducted to understand the data, identify the gaps and needs of weather and climate services in agricultural planning and establish farmers’ awareness on the existing weather and climate services. 3. Climate modelling server set up for integration into the database and will be used for developing tailored climate products.</td>
<td>2. Institute a functional climate database at NCHM by Q3 2021, which will serve as platform and input for the development of tailored products and information.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Challenges and issues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The National Climate Outlook Forum (NCOF) scheduled in Q2 2020 but delayed due to the pandemic. 5. Conducted awareness workshops and surveys on weather and climate services in small gatherings in six dzongkhags but delayed in Samtse and Sarpang as they were designated pandemic red zones.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

1 Outputs and activities reported here should be aligned with the activities in the Logic Framework and Implementation Timetable of the project.

2 Activity not yet due; activity started-ahead of schedule; activity started – progress on track; activity started but progress delayed; activity start is delayed.

3 Implementation progress on a cumulative basis as of the date of the report.
### Project Output

**Activity 1.3 Scaling up climate-resilient agriculture practices, and training local entities in community seed production and multiplication and cultivation of climate-resilient crop alternatives.**

<table>
<thead>
<tr>
<th>Status¹</th>
<th>Implementation progress² (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Started</td>
<td>progress on track</td>
</tr>
</tbody>
</table>

#### Progress (Milestone achieved)

1. 3,972 farmers (2,084 males, 1,888 females) in eight dzongkhags benefitted from CRA practices including organic farming and seed multiplication and diversification program:
   - Improved composting technologies (6 males & 7 females)
   - Azolla (2 males & 3 females)
   - Integrated pest management and Biodigester (277 males & 326 females)
   - Rainwater harvesting - water storage tanks (14 males & 12 females)
   - Water harvesting – Silpualin lined earthen tank/ponds (128 males & 189 females)
   - Protected/alternate crop cultivation using polyhouses (395 males & 415 females)
   - Mulching materials for weeds suppression and water conservation (277 males & 249 females)
   - Solar drying technology for chilli (13 males & 32 females)
   - Green tea (8 males & 21 females)
   - Horticulture crops: Pineapple promotion (3 males & 4 females)
   - Seed multiplications production (121 males & 150 females)
   - Sensitization on CRA practices (840 males & 480 females).

2. 490 farmers (282 males, 334 females), including the associations, benefitted from organic farming such as bio-digesters (2 males & 4 females), bio-pesticides, and integrated pest management (275 males & 322 females), and composting (5 males & 8 females).

3. Conducted trainings and sensitization for 1,609 participants comprising of agriculture extension officials, local government leaders and farmers on CRA practices. In the first phase, trained 18 agriculture extension officials (16 males, 2 females) on CRA technologies in Q4, 2020 to enhance their knowledge, skills and abilities to plan and implement climate resilient technologies in the fields.
   - Conducted sensitization and awareness for the local government leaders and farmers [578 participants (354 males, 224 females) in Q2, 2020 and 742 (486 males, 256 females) in Q3 & Q4, 2020] to create awareness on the project objectives and climate change impacts on agriculture, water and land resources including the adaptation measures.
   - 271 farmers (121 males, 150 females) in 33 villages trained by the NSC on community seed production, multiplication and cultivation of climate resilient crop alternatives and implemented in six project dzongkhags (Wheat, paddy and beans in Punakha and Wangduephodrang, broccoli and cauliflower in Trongsa, paddy, beans and mustard in Dagana, Tsirang and Sarpang and paddy, ginger and turmeric in Sarpang) to augment the NSC in producing and supplying adequate quality seeds in the country.

4. Installed three-sprinkler irrigation system for germplasms at the ARDCs in Samtenling covering about 3.5 acres land as part of demo technology.

5. Designs of impact evaluation and baseline assessment survey is ongoing and will be completed by February 2021.

### Challenges and issues

6. Conducted training and sensitization for the local government leaders and farmers on the implementation of the planned activities.

7. Procuring polyhouse, mulching materials, water pumps, etc. delayed due to limited international trade and travel restrictions.

---

1. Promote improved composting technologies (eg. vermi-compost, heap compost, green manure, organic fertilizers, bio-digester etc.).
2. Promote biochar technology and fruit crops germplasm blocks.
3. Communities will be trained on various organic technologies and practices, integrated pest and disease management, climate resilient agricultural technologies and innovative farming techniques, soil and moisture conservation, protected agricultural technologies.
4. Climate resilient orchard development.
5. Promote community seed production system for traditional seeds to diversify climate resilient crops (2 farmers’ groups in each project dzongkhags).
6. Design impact evaluation and baseline assessment survey will be completed by Q1 2021.
Work on the 8 irrigation schemes with total length of 55.5 km were initiated
### Annual Performance Report

<table>
<thead>
<tr>
<th>Project Output</th>
<th>Project Activity</th>
<th>Status²</th>
<th>Implementation progress² (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 2.1 Enhancing climate-informed wetland and water management to support agriculture planning.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Progress (Milestone achieved)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Not implemented.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Challenges and issues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Planned formation and training of water user association (WUA) for 715 participants for the 9 schemes (Dungkarcholing, Khomshar, Jigmethangywu, Rukha, Manigang, Rinchengang, Pangkabijyuwa, Lachuyuwa and Mangchukha) in four project dzongkhags (Tsirang, Zhemgang, Punakha and Wangdue Phodrang) but delayed due to the pandemic.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Activity 2.2 Establishment of climate resilient irrigation schemes and water saving technologies for smallholder farmers in 8 target dzongkhags.** |                                                                                   |         |                             |
| **Progress (Milestone achieved)**                                               |                                                                                   |         |                             |
| 1. Hands-on training on detailed survey and design of irrigation schemes provided to 26 districts and site engineers by the AED in Paro from 9th to 23rd July 2020. |                                                                                   |         |                             |
| 2. The works for eight irrigations schemes with total length of 55.5 km, namely Khomshar (3.8), Thewar (4.6), Dungkarcholing (3), Rukha (8.8), Manigang-Kasichelgo (3.3), Rinchengsng (12), Pangkabijyuwa (14.9) and Lachuuyuwa (5.1) initiated in Q4 but the implementation slightly delayed due to the pandemic and continue in 2021. |                                                                                   |         |                             |
| 3. The revalidation surveys, design, drawing and estimates for another five schemes with total length of 31 km [Mangchukha (4), Sipsoo-Biru (7.8), Jigmethangywu (13.5), Tsainzigo (3.7), and Samcholing Kasameh (2) readied for tender but delayed due to the lockdowns. |                                                                                   |         |                             |
| 4. Community, forestry and environmental clearances for the Phangyul scheme obtained from the public of Kazhi and Phangyul Gewogs on 30th July 2020. The Terms of Reference (ToR) for the design, build, operate and transfer (DBOT) modality of 34 km Phangyul irrigation scheme drafted but pending further review, consultation and hiring consultant due to the pandemic. |                                                                                   |         |                             |
| 5. A project engineer and two field surveyors hired to conduct proper survey, design, drawing and estimates as well as supervise the construction for timely support to the dzongkhag engineers and guarantee the quality construction to comply with the ESMF. |                                                                                   |         |                             |
| 6. A supply order placed to Virtuosity, a Bentley company to procure irrigation design and modelling software but delayed due to the lockdown. |                                                                                   |         |                             |
| **Challenges and issues**                                                       |                                                                                   |         |                             |
| • The revalidation of the survey, design, drawing and estimate of the irrigation schemes took time as it requires extensive consultations with the communities, local government officials and detailed planning and design. Further, nationwide lockdowns and travel restrictions delayed the implementation. |                                                                                   |         |                             |
| • Most of the old irrigation schemes approved for renovation project are open channels but need climate resilient designs incorporation with HDPE pipes. The change in design took time due limited or no capacity of the dzongkhag engineers and limited irrigation engineers at the DoA to provide technical backstopping. Therefore, the DoA conducted a 2-week hands-on trainings for the dzongkhag engineers on planning and design of climate resilient irrigation schemes, followed by recruitment of project engineer to provide technical backstopping on quality assurance. |                                                                                   |         |                             |
| • Over all, the implementation was hindered by the lockdowns and travel restrictions. |                                                                                   |         |                             |
### Project Output

**Activity 2.3 Scaling up of sustainable land management (SLM) technologies to support soil and slope stabilization.**

**Progress (Milestone achieved)**

1. Rehabilitated 230.33 ha of agricultural land under SLM regime:
   - Bench terracing: 102.4 ha benefitting 210 households with 841 people (371 males and 470 females) across 8 project dzongkhags.
   - Terrace consolidation: 35.2 ha benefitting 61 households in 8 villages in 6 project dzongkhags.
   - Hedgerow: 90.13 ha in five villages in 4 project dzongkhags.
   - Counter bund (0.80 ha) and check dam (0.40 ha) constructed in Kapashing and Namlaythang, Dagan for 87 farmers (45 males and 42 females).
   - 1.4 ha orchard terracing carried out in Tsirangtoed & Puentenchu, Tsirang for 2 households (1 male and 1 female).

2. Carried out participatory SLM action plan in 12 villages of 8 project dzongkhags for 591 households with 587 farmers (269 males and 318 females). Continue consultations in other identified villages in 2021 and finalize the SLM action plan.

3. Established 2 acres dryland soil erosion plot at ARDC Yusipang to study and document the amount of topsoil washed away annually from the demo plots and recommend best SLM measures for future scale up.

4. Completed 12 water source protections, benefitting 324 households in 12 villages in eight project dzongkhags.

**Challenges and issues**

1. Delayed participatory SLM action plan for the dzongkhags due to the pandemic.
2. Increase in the unit cost (per acre) of hiring the machineries for land development (terracing) from USD 473 to USD 743 as private machines had to be hired while most of the government machines engaged in other national projects. Medium-size machines, with chain width of 2.2-2.5 meters, considered for terracing but not readily available in the market. The use of large-size excavators on steep slopes (20+degree) avoided as it results in higher riser formation and weak foundation of terrace.
3. More resources and time dedicated to take SLM interventions to the village or chiwog level in contrary to the traditional practice at the gewog centre. It felt necessary to conduct at the village or chiwog level to encourage more women to participate in land-use planning and SLM practices.
4. Season and time bound SLM interventions. Carried out hedgerow plantations during monsoon season whereas terracing and consolidation implemented during dry season. Some of the SLM activities delayed due to the pandemic and postponed until the next season.

<table>
<thead>
<tr>
<th>Project Activity</th>
<th>Status²</th>
<th>Implementation progress³ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Started -progress on track</td>
<td>(25%)</td>
<td></td>
</tr>
</tbody>
</table>
Training of farmers’ representatives for one day at in Tsirang and Namlaythang in Dagana on developing contour stone bunds and check dam construction
## Project Output

### Project Activity

<table>
<thead>
<tr>
<th>Activity 2.4 Capacity strengthening to farmers and extension officers on SLM technologies</th>
<th>Status²</th>
<th>Implementation progress² (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress (Milestone achieved)</td>
<td>Activity Started -progress on track</td>
<td>(20%)</td>
</tr>
</tbody>
</table>

1. Trained 12 machine operators and 230 farmers in 6 villages on agriculture land development. Trained farmers in 6 dzongkhags (Punakha, Wangdi, Zhemgang, Trongsa, Tsirang and Dagana) but 2 dzongkhags (Sarpang and Samtse) could not be trained due to the pandemic.
2. Conducted SLM site tour to 248 farmers (114 males and 134 females) from 4 dzongkhags (Punakha, Wangduephodrang, Tsirang and Dagana). The field visits for the 4 dzongkhags not undertaken due to the pandemic.
3. Trained 80 farmers for one day at Kapazing in Tsirang and Namlaythang in Dagana to develop contour stone bunds and check dam construction. 0.8 ha land brought under stone contour bund and 0.40 ha under check dam in 2 villages. Training not replicated in other dzongkhags due to the pandemic.
4. Printed and distributed 15 sets of SLM posters to the dzongkhag agriculture and extension officials.

**Challenges and issues**

- SLM training delayed by the pandemic.

### Activity 3.1 Slope stabilization along key sections of roads, critical for market access, and related technical capacity and knowledge products to support climate resilient road planning and construction going forward

<table>
<thead>
<tr>
<th>Progress (Milestone achieved)</th>
<th>Status²</th>
<th>Implementation progress² (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Complete geotechnical investigations and design of countermeasure structures for Reotala and Khagochen by Q1,2021. 2. Prepare contract documents, initiate procurement process and award the work for Reotala and Khagochen by Q2, 2021 and initiate mitigation works by Q3. 3. Conduct geotechnical investigations for Boxcut landslide. 4. Review ESMP for roads and carry out compliance monitoring.</td>
<td>Activity Started -progress delayed</td>
<td>(20%)</td>
</tr>
</tbody>
</table>

1. Slope stabilization at Reotala and Khagochen
2. Commissioned a local consultancy firm (M/S Alpha Geotech) to conduct geotechnical investigations and design countermeasure structures. No cost extension of 45 days until 15th Jan. 2021 sanctioned as the field works hampered due to incessant rainfall.
   - Completed field works for geotechnical and geophysical tests, bore hole drilling, soil testing and rock classification in Q4 2020 and provided recommendations for the countermeasure structures.
3. Slope stabilization of Box-cut
   - Commissioned an Indian consultancy firm (M/S Genstru Consultants Private Limited) to conduct geotechnical investigations and design countermeasures. Inception report submitted on 18th June 2020. A no-cost time extension approved until 31st August 2021.

**Challenges and issues**

- Delayed field due to the pandemic. The project team to reschedule the field visit in March-April 2021.

### Activity 3.2 Technical capacity building to support climate-risk informed and cost-effective slope infrastructure including stabilization, drainage and road construction & maintenance

<table>
<thead>
<tr>
<th>Progress (Milestone achieved)</th>
<th>Status²</th>
<th>Implementation progress² (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Carry out review and enhancement of road damage collection methodology and related SOPs for collection and reporting, to ensure consistent collection of road damage data and inclusion in national disaster loss and damage database by Q3-Q4 2021. 2. Train RUGs and local government on post-monsoon assessment of farm roads, including repair cost estimation in Q3, 2021.</td>
<td>Activity Started -progress on track</td>
<td>(15%)</td>
</tr>
</tbody>
</table>

2. Sensitized and trained 119 engineers, inspectors and surveyors (91 males, 28 females) on climate-resilient road features.

**Challenges and issues**

- Sensitization workshops in the remaining regional offices delayed due to the pandemic but will be continued in 2021.
Complete the geotechnical investigation and design of countermeasure structures for Reotala and Khagochen by Q1 of 2021
Prepare contract documents, initiate procurement process and award the work for Reotala and Khagochen by Q2 2021 and initiate mitigation works by Q3 2021.
5. PROGRESS UPDATE ON THE LOGIC FRAMEWORK INDICATORS

5.1 Progress Update on Fund-level Impact Indicators of the Logic Framework

<table>
<thead>
<tr>
<th>Fund-level impact Core indicators</th>
<th>Baseline</th>
<th>Current value</th>
<th>Target (mid-term)</th>
<th>Target (final)</th>
<th>Remarks (including changes, if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions</strong></td>
<td>0</td>
<td>Irrigation (0)</td>
<td>Irrigation (Total: 25,000 (12,240 males and 12,760 females))</td>
<td>Irrigation (Total: 14,340 (7,050 males and 7,350 females))</td>
<td>Detailed progress in section 2.3 Additional 587 farmers took part in the participatory SLM action plan. Trained and sensitized additional 1,609 farmers on CRA practices.</td>
</tr>
<tr>
<td>1.2 Number of males and females benefiting from the adoption of diversified, climate-resilient livelihood options (including fisheries, agriculture, tourism, etc.).</td>
<td>0</td>
<td>Irrigation (0)</td>
<td>SLM (Total: 930 (417 males and 513 females)). Resilient agricultural practices (Total: 3,972 (2,084 males and 1,888 females)).</td>
<td>SLM (Total: 103,346 (50,601 males and 52,745 females)). Resilient agricultural practices (Total: 64,591 (31,626 males and 32,965 females)).</td>
<td></td>
</tr>
<tr>
<td><strong>A2.0 Increased resilience of health and wellbeing, and food and water security</strong></td>
<td>0</td>
<td>0</td>
<td>Irrigation (Total: 5,000 (2,450 males and 2,550 females))</td>
<td>Irrigation (Total: 14,340 (7,050 males and 7,350 females))</td>
<td>Upgradation ongoing for eight irrigation schemes. Total beneficiaries will be updated after completion.</td>
</tr>
<tr>
<td>2.3 Number of males and females with year-round access to reliable and safe water supply despite climate shocks and stresses.</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A3.0 Increased resilience of infrastructure and the built environment to climate change</strong></td>
<td>Farm roads (0)</td>
<td>Climate resilience enhanced for 90 km of farm roads (USD 2.97 million), 140 km of GC roads (USD 7.214 million), 1 section of main road (USD 0.553 million) and 16 irrigation schemes (USD 4,000 million).</td>
<td>Climate resilience enhanced for 170.24 km of farm roads (USD 5.618 million), 232.22 km of GC roads (USD 11.966 million), 3 sections of main road (USD 2.019 million) and 32 irrigation schemes (USD 8.192 million).</td>
<td>Four farm roads tendered out but works are delayed due to the pandemic. Completed geotechnical investigation studies for Reotala and Khagochen. Mitigation works planned in Q3 2021.</td>
<td></td>
</tr>
<tr>
<td>3.1 Number and value of physical assets made more resilient to climate variability and change, considering human benefits (reported where applicable).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

4Per the approved methodology in and the Logic Framework in the Funding Proposal, please provide an update on the relevant indicators.
5As per the relevant indicators established in the Funding Proposal and the Performance Measurement Framework, including all indicators approved by the Board and relevant updates agreed with GCF, if applicable.
6As of 31st December of the relevant year.
7Related to the approved indicators and targets in the Logic Framework.
8Distribution between men and women based on the 2015 Agriculture Statistics for the 8 project Dzongkhas.
9i.e., Farmers may benefit from all interventions, or a combination of irrigation, SLM and resilient agriculture measures, reflecting the appropriateness of interventions for the location and landscape.
10Distribution between men and women based on the 2015 Agriculture Statistics for the 8 project dzongkhas.
CLIMATE RESILIENT ROADS

- 90 km of farm roads (USD 2.970 million)
- 140 km of GC roads (USD 7.214 million)
- 1 section of main road (USD 0.553 million)

SLM site at Namleythang in Dagana
5.2 Progress Update on Project/Programme Level Indicators of the Logic Framework

<table>
<thead>
<tr>
<th>Project/programme indicators (Mitigation/adaptation)</th>
<th>Baseline</th>
<th>Current value(^1)</th>
<th>Target (mid-term)</th>
<th>Target (final)</th>
<th>Remarks (including changes(^3), if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6.0 Increased generation and use of climate information in decision-making</td>
<td>0</td>
<td>0</td>
<td>3 tailored products to inform climate-resilient agriculture planning.</td>
<td>9 tailored products to inform climate-resilient agriculture planning (1 per Dzongkhag, 1 national level). (^{14})</td>
<td>Completed the assessments for 20 Class-A agromet station networks and existing hydromet database. The products will be available from 2022.</td>
</tr>
<tr>
<td>6.2 Use of climate information, climate-informed analyses in decision-making in sectors impacted by climate change.</td>
<td>0</td>
<td>0</td>
<td>1 disaster database for roads enhanced.</td>
<td>1 disaster database for roads enhanced.</td>
<td>Planned activity on disaster database on road damage collection methodology and related SOPS for collection and reporting in 2021.</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>20% of project beneficiaries receiving advisories, consider them in decision-making.</td>
<td>60% of project beneficiaries receiving advisories consider them in decision-making.</td>
<td>Planned follow-up impact surveys in 2021 and 2022. Value will be assessed only after the products are operational.</td>
</tr>
<tr>
<td>A7.0 Strengthened adaptive capacity and reduced exposure to climate risks</td>
<td>0</td>
<td>0</td>
<td>10% increase in crop yield for 20% of beneficiaries.</td>
<td>30% increase in crop yield for 70% of beneficiaries.</td>
<td>Crop yield cannot be assessed immediately. Hence, it will be assessed only after completion of interventions such as irrigation alongside other interventions such as resilient agriculture and SLM. The value for the target will be assessed in the subsequent years during the impact surveys.</td>
</tr>
<tr>
<td>7.1 Use by vulnerable households, communities, businesses and public-sector services of Fund supported tools, instruments, strategies and activities to respond to climate change and variability sectors.</td>
<td>0</td>
<td>0</td>
<td>10% increase in crop yield for 20% of beneficiaries.</td>
<td>30% increase in crop yield for 70% of beneficiaries.</td>
<td></td>
</tr>
<tr>
<td>Output 1. Promote resilient agricultural practices in the face of changing climate patterns</td>
<td>0</td>
<td>0</td>
<td>30% of project beneficiaries</td>
<td>70% of project beneficiaries</td>
<td>Ensure necessary foundation, database and groundworks are completed before coming up with robust and useful advisory services in year 1 and 2. Ascertain beneficiaries after climate services are developed and operational.</td>
</tr>
<tr>
<td>1.1. % of beneficiaries in targeted dzongkhag accessing improved climate services.</td>
<td>0</td>
<td>0</td>
<td>30% of project beneficiaries</td>
<td>70% of project beneficiaries</td>
<td></td>
</tr>
<tr>
<td>1.2. Increased institutional capacity for climate-informed agriculture planning.</td>
<td>Conducted survey prior to any training.</td>
<td>0</td>
<td>Average increase of scores by 30% from baseline</td>
<td>Average increase of scores by 60% from baseline</td>
<td>Developed existing institutional capacity of the MoAF and dzongkhags for climate-informed agricultural planning and integrate landscape management and community development.</td>
</tr>
<tr>
<td>1.3. Level(^{15}) of knowledge and adoption by beneficiary households of climate resilient and sustainable crop production practices.</td>
<td>Level = 1</td>
<td>1</td>
<td>Level = 2</td>
<td>Level = 4</td>
<td>Ascertain the level of knowledge and adoption by beneficiary households during the follow up impact surveys in subsequent years. The design of impact evaluation by using baseline survey in progress.</td>
</tr>
</tbody>
</table>

\(^1\) As per the relevant indicators established in the Funding Proposal and the Performance Measurement Framework, including relevant updates agreed with GCF, if applicable.

\(^2\) As of 31 December, of the relevant calendar year.

\(^3\) Related to the approved indicators and targets in the Logic Framework or relevant FAA.

\(^4\) Consistent with indicator of 12th Five Year Plan

\(^5\) Level of adoption is based on a scale where 1 = limited to no practice of climate-resilient sustainable crop production; Level 2 = households aware of practices and know how/where to get related technical support; Level 3 = households engaged with support activities and applying practices partially; Level 4 = households knowledgeable about climate-resilient practices and fully applying practices in their fields.
<table>
<thead>
<tr>
<th>Project/programme indicators (Mitigation/adaptation)</th>
<th>Baseline</th>
<th>Current value(^1)</th>
<th>Target (mid-term)</th>
<th>Target (final)</th>
<th>Remarks (including changes(^2), if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1. Change in knowledge, awareness and perception (KAP) on role of wetlands and sustainable water use.</td>
<td>Established through initial KAP survey in Year 1</td>
<td>TBD</td>
<td>20% increase over baseline.</td>
<td>70% increase over baseline.</td>
<td>Planned follow-up impact surveys in 2021 and 2022. Conduct awareness and sensitization programme.</td>
</tr>
<tr>
<td>2.2. Technical capacity of members of water user associations, dzongkhag engineers and agriculture extension officers for climate adaptive water and soil management is enhanced.</td>
<td>Conduct survey prior to any training.</td>
<td>TBD</td>
<td>30% average increase of scores from the baseline.</td>
<td>60% average increase of scores from the baseline.</td>
<td>Training delayed due to the pandemic but rescheduled in 2021.</td>
</tr>
<tr>
<td>2.3. Area of arable land under assured irrigation in targeted dzongkhangs.</td>
<td>0</td>
<td>0</td>
<td>Constructed reliable irrigation covering 3,000 ha of farmland for resilience to climate change.</td>
<td>Constructed reliable irrigation schemes covering 8,000 ha(^1) of farmland for resilience to climate change.</td>
<td>Construction of climate resilient irrigation in progress covering 520.8 ha of farmland.</td>
</tr>
<tr>
<td>2.4. Number of district level participatory SLM action plan for improved livelihoods.</td>
<td>0</td>
<td>0</td>
<td>4 district level participatory SLM action plans</td>
<td>8 dzongkhag level participatory SLM action plans.</td>
<td>Participatory SLM action planning underway in 12 villages in 8 project dzongkhangs.</td>
</tr>
<tr>
<td>2.5. Number of hectares made more stable through SLM practices and the impact of rainfall variability and related landslides.</td>
<td>0</td>
<td>230.33 ha of farmland rehabilitated and made stable through various SLM measures.</td>
<td>1,000 ha of farmland slopes made more stable through SLM measures.</td>
<td>2,380 ha of farmland slopes made more stabilize through SLM measures.</td>
<td>Farmers prefer land terracing over other technology. More awareness and advocacy needed to sensitize on the effectiveness of other SLM interventions.</td>
</tr>
</tbody>
</table>

Output 3. Reduce the risk and impact of climate induced landslides during extreme events that disrupt market access

| 3.1 Number of kilometres of farm roads and gewog connectivity roads that have been climate-proofed through upgrading and slope stabilization, and sections of main road stabilized. | Farm road N/A GC Roads 262.45 km | 90 km of farm roads 140 km of GC roads 1 section of main road | 170.24 km of farm roads 232.22 km of GC roads 3 sections of main road | Four farm roads tendered out but work delayed due to the pandemic. The construction of GC roads surpassed the overall project target as the government accorded high priority to improve road conditions in rural villages (Refer GNHC co-financing letter – Appendix 1). |
| 3.2. Level\(^2\) of integration of climate related information in national disaster loss and damage database. | Level = 1 NA Level = 2 Level = 4 | Assess the levels in 2021 during during review and enhancement of road damage collection methodology, database and related SoPs. |

---

\(^1\) Includes 4 new irrigation schemes, 32 existing irrigation schemes made more resilient to climate change and drip/sprinkler irrigation

\(^2\) Level of integration is based on a scale where 1 = limited to no integration; Level 2 = Impact assessment-based monitoring and documentation is collected and RUGs estimate road damages for farm roads and input into the disaster database; Level 3 = Climate relevant evidence is used to make the economic case for climate resilient road planning; Level 4 = Increased investment in climate resilient road planning options
Agriculture land brought under sustainable land management practices preventing from erosion and landslides

Land preparation at newly developed land at Wangling in Trongsa
6. REPORT ON CHANGES DURING IMPLEMENTATION (INCLUDE ACTUAL AND EXPECTED CHANGES)

There are no changes to institutional, management and operational aspects of the project at this point of reporting period.

7. IMPLEMENTATION CHALLENGES AND LESSONS LEARNED

<table>
<thead>
<tr>
<th>Challenge encountered</th>
<th>Type</th>
<th>Measure adopted</th>
<th>Impact on the project implementation</th>
<th>Lesson learned and Other remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay in establishing PMU.</td>
<td>Implementation</td>
<td>Interim Project Manager identified at the GNHC and MoAF</td>
<td>Minor / Solved</td>
<td>PMU set up on 26th March 2020.</td>
</tr>
<tr>
<td>Delay in fund release.</td>
<td>Implementation</td>
<td>Drafted and submitted AWP 2020 to the UNDP/GCF.</td>
<td>Minor / Solved</td>
<td>Fund for Q1-Q2 was released only on 18th March 2020.</td>
</tr>
<tr>
<td>Delay in incorporation of the budget into the government's budgetary system.</td>
<td>Financial</td>
<td>All budget proposals for the RGoB was submitted and presented as the budget bill to the Parliament, which was reviewed and passed by the joint session in February-March 2020. Subsequently, the RPs had to prepare budget incorporation process in the government's budgetary system.</td>
<td>Minor / Solved</td>
<td>Budget incorporated with MoF for Q1-Q2 of 2020 on the 1st week of April 2020 - Dzongkhags on 1st April 2020; DoA on 2nd April 2020; NCHM on 6th April 2020.</td>
</tr>
<tr>
<td>Delay in import and delivery of agricultural inputs and materials due to nationwide lockdown and limited trade affected the project commencement and implementation.</td>
<td>Procurement</td>
<td>Agricultural inputs and materials were enlisted under the RGoB's import list of essential items.</td>
<td>Moderate</td>
<td>Need to communicate project risks to the government for its support in times of pandemic as periodic assessment and follow-up with the partners proved very useful.</td>
</tr>
<tr>
<td>Capacity building and engaging international consultants/experts affected due to the pandemic.</td>
<td>Implementation</td>
<td>Conducted meetings/workshops in smaller groups and virtual meetings to discuss and keep the activities on track.</td>
<td>Moderate</td>
<td>Need to conduct regular virtual communication with the stakeholders to effectively deal in managing and mitigating the issues/ challenges the posed by the pandemic.</td>
</tr>
</tbody>
</table>

26Implementation; Legal; Financial; Environmental/Social; Political; Procurement; Other; AML/CFT; Sanctions; Prohibited Practices.
27Minor/Solved; Moderate; High.
<table>
<thead>
<tr>
<th>Challenge encountered</th>
<th>Type</th>
<th>Measure adopted</th>
<th>Impact on the project implementation</th>
<th>Lesson learned and Other remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of technical skills of the dzongkhag engineers on climate smart irrigation development.</td>
<td>Implementation</td>
<td>Conducted hands-on training for 27 engineers on planning and designing resilient irrigation schemes in Q2 2020.</td>
<td>Moderate</td>
<td>Hands-on trainings bring together experts and technical people to learn, discuss and agree on practical issues and plan way forward.</td>
</tr>
<tr>
<td>Delay in conducting field investigations due to travel restriction for the foreign workers/experts.</td>
<td>Implementation</td>
<td>Postponed field visit and investigation to March-April 2021 and granted no-cost extension to the Genstru Consultants Pvt. Ltd.</td>
<td>Moderate</td>
<td>Discuss and agree on no cost contract extension given the uncertainty posed by the pandemic.</td>
</tr>
<tr>
<td>Increase in tendered amount for the irrigation works.</td>
<td>Financial</td>
<td>Planned completion of survey and design for all 36 schemes by 2021 to understand the overall resource requirement against the allocated budget.</td>
<td>Moderate</td>
<td>Contingency budget to meet the inflation to be considered in the future projects.</td>
</tr>
<tr>
<td>Implementation hampered due to engagement of the project officials on COVID duty.</td>
<td>Implementation</td>
<td>Constant follow-up.</td>
<td>Minor / Solved</td>
<td>More follow up and communication channels are required.</td>
</tr>
<tr>
<td>Delay in recruitment of irrigation engineer due to shortage in the market.</td>
<td>Implementation</td>
<td>Fast-tracked recruitment by reducing the procedures.</td>
<td>Minor / Solved</td>
<td>Constant follow-up and partnership.</td>
</tr>
</tbody>
</table>
Coordination meeting with the responsible parties in Punakha and Wangduephodrang
Project Management Unit (PMU), GCF project
Gross National Happiness Commission (GNHC)
Post Box # 127
Thimphu, Bhutan
Tel: +975 2 332076

United Nation Development Programme (UNDP) Bhutan
Peling Lam, Kawangjangsa
Post Box # 162
Thimphu, Bhutan
Tel: +975 2 322 424
Fax: +975 2 328 526