Strengthening institutional and technical capacities for enhanced transparency in implementation and monitoring of Bhutan?s Nationally Determined Contribution (NDC)

Part I: Project Information

GEF ID
10669

Project Type
MSP

Type of Trust Fund
GET

CBIT/NGI
☐CBIT
☐NGI

Project Title
Strengthening institutional and technical capacities for enhanced transparency in implementation and monitoring of Bhutan?s Nationally Determined Contribution (NDC)

Countries
Bhutan

Agency(ies)
FAO

Other Executing Partner(s)
TBD

Executing Partner Type
Government

GEF Focal Area
Climate Change

Taxonomy
Focal Areas, Climate Change, United Nations Framework Convention on Climate Change, Capacity Building Initiative for Transparency, Climate Change Mitigation, Financing, Climate Change Adaptation, Climate finance, Influencing models, Strengthen institutional capacity and decision-making, Stakeholders, Partnership, Type of Engagement, Gender Equality, Gender Mainstreaming, Sex-disaggregated indicators, Capacity, Knowledge and Research, Knowledge Generation, Learning, Knowledge Exchange, Capacity Development

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 2

Climate Change Adaptation

Climate Change Adaptation 1

Duration

36 In Months

Agency Fee($)

168,766.00

Submission Date

9/15/2020

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CCM-3-8	GET	1,776,484.00	1,895,600.00
	Total Project Cost ($)	**1,776,484.00**	**1,895,600.00**

B. Indicative Project description summary

Project Objective

By 2024, Bhutan is submitting reports consistent with the requirements of the Paris Agreement?s Enhanced Transparency Framework (ETF), including more up-to-date inventories of emission sources and sinks using advanced IPCC guidance and information necessary to track progress against priority actions identified in Bhutan?s NDC.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
Component 1. Enhancing institutional frameworks, knowledge and capacities for the preparation, reporting and use of transparency information	Technical Assistance	Outcome 1.1 Strengthened institutional frameworks to enable the preparation and reporting of transparency information[1]. Outcome 1.2 Strengthened knowledge and capacities for the use of transparency information in policy processes. [1] Transparency information primarily refers to the BTR reporting requirements, including national GHG inventory, reporting on climate finance, institutional arrangements, uncertainty assessment, and tracking progress against NDC targets, as well as the technical review process.	1.1.1 Institutional arrangements and procedures reviewed and formalized, including for NDC tracking (mitigation and adaptation), GHG inventory and climate financing support. 1.1.2 Partnerships with key training institute(s) identified and established to support capacity building and knowledge creation on a continuous basis. 1.1.3 National Environment Information Management System (EIMS) and sectoral information systems upgraded in line with ETF requirements, including alignment between various sector information systems. 1.2.1 Analysis of gender gaps undertaken and framework to mainstream gender into ETF reporting and future NDC updates developed. 1.2.2 Analysis to assess near and long-term impacts of key climate change policies and measures developed. 1.2.3 System and guidelines developed to track/tag climate change financing in national budgetary framework to monitor, evaluate and report climate finance. 1.2.4 ETF reporting best practices are prepared and shared with national and local stakeholders as	GET	720,000.00	795,600.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
Component 2. Establishing system to monitor and report on NDC mitigation targets, including strengthening of MRV system	Technical Assistance	Outcome 2.1 System in place to monitor and report on NDC mitigation targets and continuous improvements to GHG[1] inventories and data quality. [1] Greenhouse gas.	2.1.1 Gaps for transition from the 1996 to latest IPCC guidelines of the GHG inventory report identified, including identifying new sources of emissions, data collection mechanisms that need to be established, country-specific emission factors, and analysis of the impact of emissions. 2.1.2 Sector specific inventory guidelines and protocols developed, including national level emission factors for select sector(s). 2.1.3 System established to track implementation and progress in achieving NDC mitigation targets. 2.1.4 Relevant institutions and stakeholders trained on the inventory guidelines and protocols, and on the NDC tracking system, in view of the preparation of ETF reports. 2.1.5 Data collected by national and local stakeholders from public and private sectors in preparation of the biennial transparency report (BTR).	GET	674,986.00	200,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
Component 3. Strengthening capacity to monitor and report on NDC adaptation actions.	Technical Assistance	Outcome 3.1 Technical capacities for monitoring and reporting progress in the implementation of NDC adaptation actions developed.	3.1.1 Framework and indicators for monitoring and reporting on NDC priority adaptation actions under the ETF developed in line with the NAP[1] process. 3.1.2 Relevant institutions trained on monitoring and reporting on NDC priority adaptation actions, in view of the preparation of ETF reports consistent with latest UNFCCC guidance.	GET	220,000.00	727,673.00
				Sub Total ($)	**1,614,986.00**	**1,723,273.00**

[1] National Adaptation Plan.

Project Management Cost (PMC)		
GET	161,498.00	172,327.00
Sub Total($)	**161,498.00**	**172,327.00**
Total Project Cost($)	**1,776,484.00**	**1,895,600.00**

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	National Environment Commission (NEC) and other government agencies	In-kind	Recurrent expenditures	345,600.00
Donor Agency	Green Climate Fund (GCF) via NEC	Grant	Investment mobilized	1,500,000.00
GEF Agency	Food and Agriculture Organization of the United Nations (FAO)	In-kind	Recurrent expenditures	50,000.00
			Total Project Cost($)	**1,895,600.00**

Describe how any "Investment Mobilized" was identified

The investment mobilized was identified during the project identification (May-September 2020) through consultations with partners and key stakeholders. It includes, namely, USD 1.5 million in financing from the GCF-funded National Adaptation Plan (NAP) project. This amount does not include any recurrent expenditures.

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	Bhutan	Climate Change	CBIT Set-Aside	1,776,484	168,766	1,945,250.00
			Total GEF Resources($)		**1,776,484.00**	**168,766.00**	**1,945,250.00**

E. Project Preparation Grant (PPG)

PPG Required

☐

PPG Amount ($)

50,000

PPG Agency Fee ($)

4,750

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	Bhutan	Climate Change	CBIT Set-Aside	50,000	4,750	**54,750.00**
				Total Project Costs($)	**50,000.00**	**4,750.00**	**54,750.00**

Core Indicators

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	60			
Male	140			
Total	200	0	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

The direct beneficiary number was estimated through expert judgment and based on current and desired future involvement of personnel from the various sectors (including the public and private sector, civil society, academia). Currently, it is estimated that less than 50 staff have participated in technical working groups/training related to reporting under UNFCCC. This number will be increased to at least 200 to ensure that the necessary national capacity is in place. The percentage of women currently is estimated to be below 25%; and will be increased to at least 30%.

Part II. Project Justification

1a. Project Description

?**1)** ***Problem, root causes and barriers to be addressed***

Background

1. *Geography and territory*: Bhutan is a landlocked country bordered with China in the north and India surrounds the remaining borders. The country has a total area of 38,394 km2 and 70.46% of the area is forested.[1][1] The geographical feature of Bhutan is mountainous lying on the slopes of eastern Himalaya. Geopolitically located in South Asia, the country is characterised with rugged mountains, glaciers and moraines, deep valleys, ravines, waterbodies, drainage basins, and waterfalls. The southern plain is the extension of the Bengal-Assam plains of India, with the Duar plains referred to as the northern plain of Bengal-Assam, extending 12 to 16 kilometres into Bhutan?s territory. The inner part of Bhutan or middle ranges from watersheds between the principal rivers. These ranges extend from northwest to southeast in western Bhutan and northwest to southwest in eastern Bhutan. The northern frontier of Bhutan lays the chains of high peaks, with Kula Kangri as the principal summit (7,497 meters).

2. *Climate*: Climate in Bhutan differs substantially across the geographical zones determined by topography, altitude, and elevation. The southern plain, at the foothills of the Himalayas, is influenced by subtropical climate with heavy rain and high humidity. It is influenced by monsoon with 70% of precipitation falling during the summer (June-September). This zone is at the altitude of 200-2,000 meters and has temperatures of around 15 to 30 degree Celsius all year round. The central valleys possess hot summer and cold winter. This region ranges from 2,000 to 4,000 meters in altitude and is characterized by temperatures of 15 to 26 degree Celsius during the monsoon season (June through September) and -4 to 15 degree Celsius in the winter season. The mountainous Himalaya is described by severe winter and cool summer.

3. *Demography:* Bhutan?s population is estimated at 727,145 in 2017 with a population density of 19 persons per km2, making the country one of the least populated countries in Asia.[2][2] Although the country has vast natural resources available such as forests, rapid urbanization and limited land available to support such increase are one of problems faced by the country. The country has made

sustainable development a priority, in line with its philosophy of ?Gross National Happiness?. Bhutan opened up to the world for international visitors in the 1970s, and tourism in the country is founded on the principle of high-value, low-volume.

4. *Agriculture:* Due to its geographical features, Bhutan has limited arable land. Cultivated agricultural land and meadows account for 2.9% and 4.1% respectively. Nevertheless, agriculture is the dominant sector in Bhutan providing livelihood, income and employment to 69% of the population.[3][3] Agriculture, livestock rearing, and forestry accounted for 17.37% of GDP in 2017.[4][4] Agriculture in Bhutan commonly applies subsistence farming encompassing 1-4 acre (0.4-1.6 hectares) of landholding in average. Main commodities of the country are cereal produce such as maize, buckwheat, and rice. Despite a large diversity of carbohydrate options, rice remains the highest of preference among Bhutanese.

5. Having a unique landscape, farming system in Bhutan varies greatly depending on the topography, agroecological zone (AEZ), and variety of crops produced in the country. For instance, strip cropping is applied following the topography of a landscape. In some cases, agroforestry is carried out in purpose of producing crop yield and providing fodder for livestock. Various approaches in agriculture have been implemented in order to align with the sustainability principle such as climate-smart agriculture (CSA), sustainable land management (SLM) technologies and organic agriculture. However, the country faces challenges to cope with the climate variability due to a lack of climate monitoring and advisories capacities. These restrict the country to fully predict the threats, impacts and possible solutions to better manage agricultural production, such as understanding the pest and disease cycle, crop sowing and crop yield stability. Some factors that have direct impacts include the loss of land fertility due to erosion and runoff, late rainfall and landslide. Other challenges faced by the sector for planning and investment in agriculture include limited capacities at the institution level especially in commercial marketing, rural infrastructure, farm input supply, research and extension support, road infrastructure, and policy and planning issues.

6. *Biodiversity and Forests:* Bhutan?s biodiversity includes 300 species of medicinal and aromatic plants including 105 endemic species, 46 species of Rhododendrons, and 200 species of mammals. 27 of mammals are globally threatened, including the Snow Leopard, Bengal Tiger, Takin, and Asian Elephant.[5][5] The protected area system in the country is more popularly known as the Bhutan Biological Conservation Complex (B2C2). In a nutshell, the conservational landscape comprises of all protected areas (including buffer zones) and its connecting biological corridors. Presently, there are

five national parks, four wildlife sanctuaries, one nature reserve and nine biological corridors. The B2C2 covers almost 20,000 sq km which corresponds to 51.32% of the country?s area.

7. *Energy:* The country?s terrain enables large-scale generation of hydropower, the main source of energy in the country. Hydropower accounts for a third of Bhutan?s exports, primarily to neighbouring India.[6][6]

8. *Land degradation:* The main causes of land degradation in Bhutan have been identified as forest fires, excessive use of forest resources, overgrazing, unsustainable agricultural practices, poor irrigation management system, infrastructure development without proper environmental measures, mining, industrial development and urbanization. Bhutan?s per capita fuel wood consumption is one of the highest in the world. Forest management units (FMU) have been established to ensure sustainable timber harvesting based on management plans that take account of growing stock and annual harvest.[7][7]

Climate Change Impacts

9. Bhutan is highly vulnerable to the adverse impacts of climate change. In addition to being a landlocked and least developed country with a fragile mountainous environment, high dependence of the population on agriculture and the significant role of hydropower for economic development increases the vulnerability. The country also faces increasing threats from climate hazards and extremes events such as flash floods, glacial lake outburst floods, windstorms, forest fires and landslides.

10. Climate projections for Bhutan indicate increases in temperature and monsoonal rainfall, as well as extreme temperatures and increasing frequencies of extreme rainfall. Changes in the seasonal distribution are also projected, with a decrease in winter and an increase in monsoon rainfall. Observations show that annual average temperatures have been increasing between 1996 and 2018 and are expected to continue to increase. IPCC?s fifth assessment report states that over the mid-term (2046-2065), an increase of 2-4?C is projected for the South Asia region with the warmest temperatures concentrated in amongst others Bhutan. Mean annual temperature in Bhutan is expected to increase by 0.8-1.0?C before 2039 and by 2.0-2.4?C before 2069. Rainfall, as the basis for water resources for agriculture during the winter to summer period, is becoming scarcer. In the future, mean annual precipitation in Bhutan is projected to increase by ~6% in the 2010-2039 period, with an increasing amount of rainfall during the monsoon season. The upward trend and projected increase for monsoon

rainfall are significantly more pronounced when compared to winter and annual rainfall trends, indicating that the majority of the increased precipitation will occur during the monsoon season.[8][8]

11. These changes are expected to lead to an increase in the occurrence and magnitude of extreme events such as windstorms, flash floods and landslides. In addition, increasing temperatures lead to the formation of supra-glacial lakes due to the accelerated retreat of glaciers, resulting in high risks of Glacial Lake Outburst Floods (GLOF), to more frequent outbreaks of pests and diseases, drying up of water sources, shift in vegetation and increasing forest fire outbreaks.

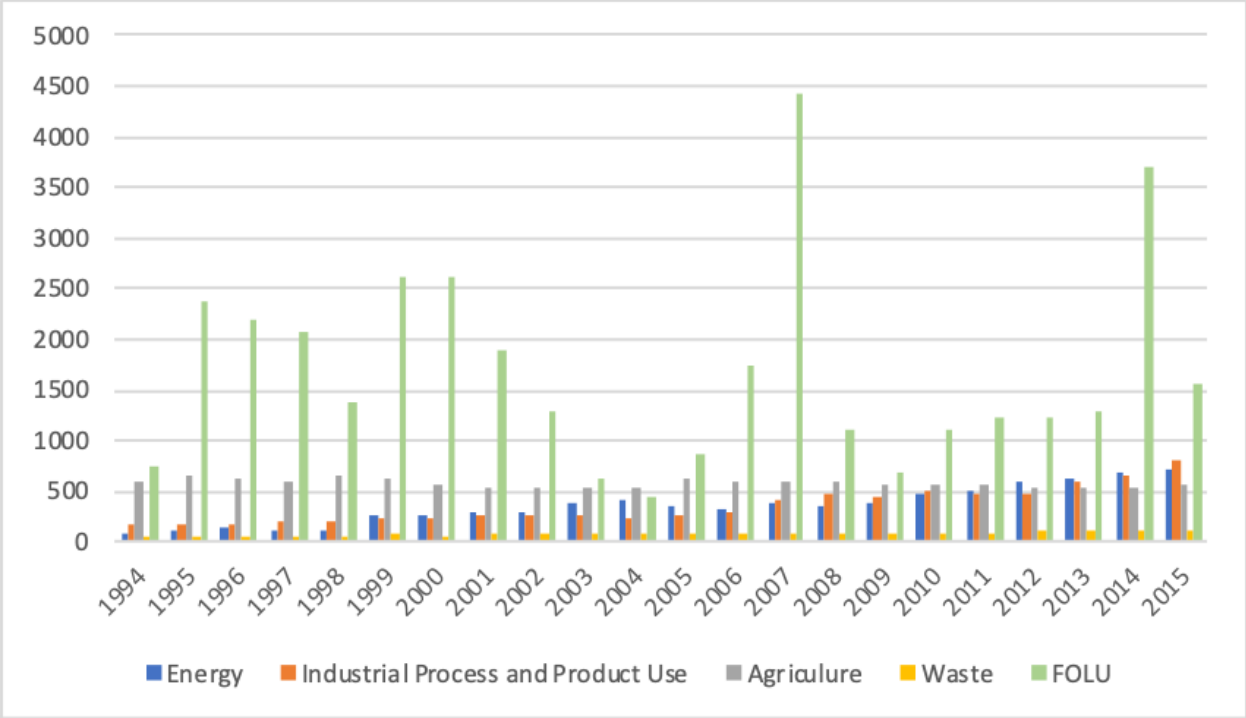
12. Bhutan?s mostly rainfed agriculture is also impacted by climate change. Observed changes are already affecting water availability and agricultural productivity for smallholders. Increasing temperatures and declining rainfall and longer dry periods contribute to crop failures and/or decreased yields, as well as more land being left fallow. Only 18% of the arable area is under assured irrigation and the remaining is dependent on monsoon rains, with total crop production therefore almost entirely dependent on rainfall variability. In 2007, Gray Leaf Spot disease in maize caused a maize harvest loss of over 50% for farmers above 1800m, and in 1996 farmers in high altitude areas lost between 80-90% of rice to rice blast epidemic. These diseases were recorded for the first time in high altitude areas, which is attributed to unprecedented favourable conditions triggered by increases in seasonal temperatures and humidity.[9][9]

13. Climate change is expected to lead to an increase in the frequency of natural disasters and impact on human health. Furthermore, Bhutan?s forests and biodiversity are expected to be impacted by climate change. Bhutan?s forests are vulnerable to moisture stress, rising temperatures, and human disturbances which could lead to habitat loss for important plant species like *Taxus*, *Magnolia*, *Tetracentron* and endangered bird species such as hornbills. Other threats to biodiversity that could be exacerbated due to climate change include loss of agrobiodiversity, invasive alien species (IAS), forest fires and bio-cultural loss.[10][10]

Greenhouse Gas (GHG) Emissions and Sinks

14. According to the second national GHG inventory and draft third national GHG inventory, Bhutan is and continues to be a net sink for greenhouse gases due to its significant forest cover and low level of economic activities. According to the ongoing assessment of Bhutan?s third national GHG inventory,

the total GHG emissions for 2015 are estimated at 3,750.56 Gg of CO_2 equivalent including the emissions from forestry and other land uses. The figure is dwarfed by removals from forestry activities estimated at 9,421.01 Gg of CO_2e, which is the total sink capacity of Bhutan?s forest. The total national net emissions for Bhutan in 2015 are estimated at 5,670.45 Gg (or 5.67 million tonnes) of CO_2e for inventory year 2015, which is the net balance carbon budget of the country.[11][11]



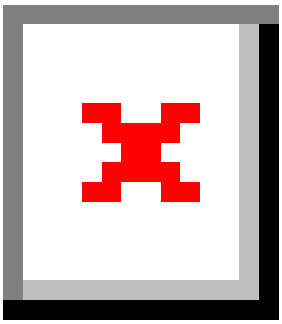


Figure 1: GHG emissions from sources without removals (Gg of CO2e) (*Source: Draft Third National Communication*)

15. As per the draft third national GHG inventory, Forestry and Other Land Use (FOLU) contributes about 41.77% to the national net emissions (30.41% from forestry, 5.90% non-CO_2 emissions from biomass and 5.45% from conversion of forest land to non-forest land), activities from Industrial Processes and Product Use (IPPU) contributed 21.23%, Energy 18.87%, Agriculture 14.74% and Waste 3.37% respectively. Although Bhutan?s national net emissions have remained almost constant over the period with inter-annual fluctuations, emissions from energy and industrial processes and product use are showing a rapidly increasing trend. According to the NDC, during the period 2000?2013, emissions from the energy sector increased by 191.6% from 0.270 to 0.79 million tons of CO_2e. During the same period, emissions from industrial processes increased by 154.3% from 0.24 to 0.6 million tons of CO_2e. Emissions from waste management also increased by 247.54% from 0.047 to 0.16 million tons of CO_2e. In the agriculture sector, emissions from the livestock sub-sector are the largest source, primarily caused by the production of methane and nitrous oxide through enteric fermentation and manure management, followed by N_2O emissions from managed soils.

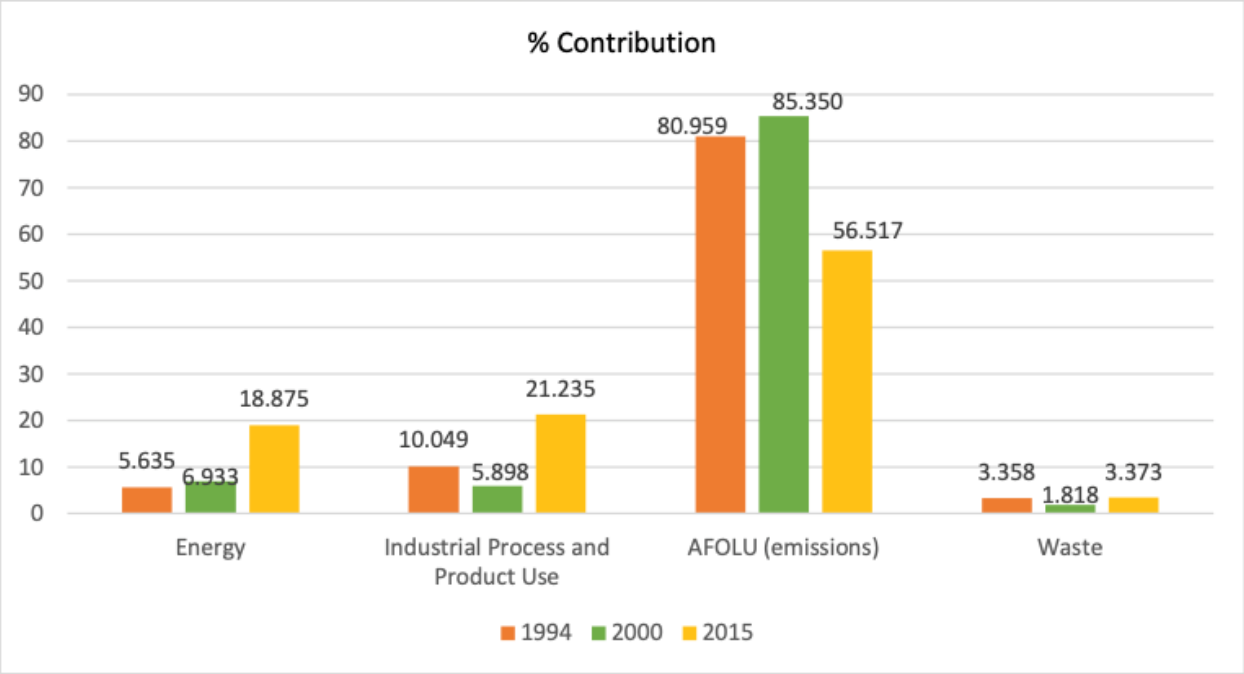


Figure 2: Sectoral % contribution of GHG emissions to national net emissions (1994, 2000 & 2015) (*Source: Draft Third National Communication*)

16. Additionally, Bhutan has the potential to offset up to 22.4 million tons of CO_2e per year by 2025 through the export of electricity from clean hydropower projects.[12][12]

17. Bhutan?s Nationally Determined Contribution (NDC) under the Paris Agreement sets forth a clear framework for action to address both the impacts and drivers of climate change. Under its NDC, Bhutan has committed to remaining carbon neutral. Meeting this commitment will require strengthened monitoring and reporting systems and processes pursuant to the requirements of the Enhanced Transparency Framework (ETF).

Enhanced Transparency Framework (ETF)

18. The Paris Agreement was adopted at the 21st Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) in December 2015 and entered into force on 4 November 2016. The landmark agreement aims to strengthen the global response to the threat of climate change by limiting a global temperature rise in the 21st century to a maximum of 2?C above pre-industrial levels and to try to limit the temperature increase to 1.5? C. Additionally, the Paris

Agreement aims to strengthen the ability of countries to respond and adapt to climate change. The agreement requires all parties to communicate associated national commitments via Nationally Determined Contributions (NDCs). A country?s NDC establishes targets for sector-specific greenhouse gas (GHG) emissions and sinks, as well as intended efforts to achieve those targets. NDCs are submitted at least 5 years prior to the start of the 5-year period covered by an NDC. Under the agreement, all parties commit to providing information on mitigation targets and efforts via national communications (NCs), with interim updates submitted via biennial update reports (BURs).

19. Article 13 of the Paris Agreement describes a planned Enhanced Transparency Framework (ETF) for measurement, reporting, and verification (MRV) associated with UNFCCC commitments. The Intergovernmental Panel on Climate Change (IPCC) has issued *Guidelines for National Greenhouse Gas Inventories* (2006) and their *2019 Refinement*, which explain standards and good practices related to MRV for climate change, particularly under UNFCCC. Also, detailed modalities, procedures and guidelines (MPGs) for the ETF have been established. The MPGs apply to all Parties, while allowing flexibility for developing countries that do not have the capacity to comply with the full requirements.

20. Under the ETF, BUR reporting will be superseded by reporting of the biennial transparency report (BTR). BTRs will be submitted by all Parties every two years. First BTRs must be submitted by 31 December 2024. Information submitted as part of the BTR will be subject to a two-step process. This review process will include an international technical expert review and a facilitative, multilateral consideration of efforts to implement and achieve NDC targets. For developing countries, this review process will apply only to the mandatory elements of the BTR. The content of the BTRs will include the following mandatory and optional information:

Box 1: Reporting elements of the BTR

Mandatory elements (for developing countries)

o National inventory report on anthropogenic emissions by sources and removals by sinks of GHGs;

o Information necessary to track progress made in implementing and achieving NDCs;

Other elements

o Information related to climate change impacts and adaptation (with clear linkages to the adaptation communications, which may be submitted as a component of or in conjunction with a BTR);

o Information on financial support, technology development and transfer as well as capacity building support needed and received as well as provided or mobilized; and

o Flexibility options chosen, relevant capacity constraints and improvement timeframes (for Least Developed Countries (LDCs) and Small Island Developing States (SIDS)).

21. With the ETF and MPGs, regular reporting requirements to the UNFCCC have increased to ensure the transparency and contribution of Parties to the Paris Agreement. Bhutan will be required, with some flexibility due to its current status as an LDC, to undertake regular periodic GHG inventory and prepare MRV associated with climate change mitigation (CCM) activities included as part of its NDC. In order to facilitate international aggregation of information and periodic global GHG stocktaking, country-level mitigation-related MRV entails reporting on (i) carbon stocks and GHG fluxes (GHG emissions and removals); and (ii) progress on mitigation-related actions established in a country?s NDC. In addition, Bhutan will also be encouraged to prepare regular assessments of climate change and climate change impacts as well conduct measurement and reporting (M&R) associated with climate change adaptation (CCA) priorities identified in the NDC. The types of information that may be relevant to the mitigation and adaptation elements of the BTR are provided in Table 1 below.

Table 1: Information Collected and Reported for Climate Change Mitigation and Adaptation

	Mitigation (committed under Paris Agreement)	**Adaptation** (encouraged under Paris Agreement)
Status	? Carbon stocks ? GHG fluxes	? Climatic vulnerabilities ? Climate change impacts
Progress	? Actions to conserve or increase carbon stocks ? Actions to reduce GHG emissions and to increase GHG removals	? Actions to reduce exposure and vulnerability ? Actions to increase adaptive capacities

22. For tracking mitigation contributions under the NDC, the process of MRV helps countries to understand their key sources and sinks of emissions, report on their national and international mitigation commitments, design effective mitigation strategies, monitor emissions trends, and unlock new sources of finance to tackle climate change by demonstrating impact and good governance practices.[13][13] Mitigation-related MRV is conducted for four standard sectors: (i) Agriculture, Forestry and Other Land Use (AFOLU), which comprises both Agriculture as well as Land Use, Land Use Change and Forestry (LULUCF), (ii) Industrial Processes and Product Use (IPPU), (iii) Energy, and (iv) Waste. Each sector encompasses standard categories and sub-categories, though parties are encouraged to identify and conduct MRV on nationally relevant and appropriate sub-categories. Within each category, emissions and removals are estimated for each relevant GHG (e.g., CO_2, CH_4, N_2O). An overview of the key elements of the MRV framework under the Paris Agreement?s ETF is included in Annex D of this PIF.

23. Generally, the process of monitoring and reporting adaptation actions in a systematic way is not as commonly practiced as MRV of mitigation activities. While reporting on adaptation is not a mandatory element of the ETF and the MPGs at this stage, there may be benefits for countries such as Bhutan to start building capacity for these types of monitoring and reporting activities. Defining a national monitoring framework for adaptation helps to clarify the overall purpose of adaptation and the types of indicators to understand whether adaptation actions are leading to improved resilience over time in a given country context. Monitoring and evaluating adaptation actions to address needs or priorities identified in the NDC also helps to understand whether and to what extent adaptation activities are effective relative to other possible actions and allows for improvement of adaptation policies and measures over time. Finally, reporting actions taken by government and partners to adapt to changes in climate and associated technical, capacity and financial gaps and needs provides a strong basis to

improve adaptation efforts over time and appeal for resources from the UNFCCC financial mechanism and other sources.

Bhutan?s NDC

24. Bhutan submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC in 2015, which was ratified by the National Assembly in 2016. Bhutan?s first NDC reiterated the commitment to remain carbon neutral on the pledges made at the 2009 Conference of the Parties at Copenhagen, Denmark. The Government of Bhutan pledged to remain carbon-neutral by ensuring that its forests sequester more carbon than is emitted through other actions.

25. Bhutan?s NDC identified the following nine priority actions for low GHG emission development.

NDC priority actions for **mitigation**	Primary sector
1. Sustainable forest management and conservation of biodiversity to ensure sustained environmental services. ? Sustainable management of forest management units (FMUs), protected areas, community forests, forest areas outside FMUs, and private forests ? Enhancing forest information and monitoring infrastructure through national forest inventories and carbon stock assessments ? Forest fire management and rehabilitation of degraded and barren forest lands	Forestry

2. Promotion of low carbon transport system. ? Improving mass transit and demand side management of personal modes of transport ? Exploring alternative modes of transport to road transport such as rail, water and gravity ropeways ? Improving efficiency in freight transport ? Promoting non?motorized transport and non?fossil fuel powered transport such as electric and fuel cell vehicles ? Improving efficiency and emissions from existing vehicles through standards and capacity building ? Promoting use of appropriate intelligent transport systems	Energy (Transport)
3. Minimize GHG emission through application of zero waste concept and sustainable waste management practices. ? Enhancement of the three R principles including the conversion of waste to resources ? Improving the current system and infrastructure for waste management	Waste
4. Promote a green and self reliant economy towards carbon neutral and sustainable development. ? Improvement of manufacturing processes in existing industries through investments and adoption of cleaner technology, energy efficiency and environmental management ? Enhance and strengthen environmental compliance monitoring system ? Promote investment in new industries that are at higher levels in the value chain, and green industries and services. ? Promote industrial estate development and management in line with efficient, clean and green industry development objectives	Energy, IPPU
5. Promote clean renewable energy generation. ? Pursue sustainable and clean hydropower development with support from CDM or other climate market mechanisms to reduce emissions within Bhutan and the region by exporting surplus electricity	Energy (Hydropower)

6. Promote climate smart livestock farming practices to contribute towards poverty alleviation and self sufficiency. ? Organic livestock farming and eco?friendly farm designs ? Improvement of livestock breeds, including conservation of native genetic gene pool/diversity ? Expansion of biogas production with stall feeding ? Agro?forestry or agro?silvo pastoral systems for fodder production	Agriculture (Livestock)
7. Promote climate smart agriculture to contribute towards achieving food and nutrition security. ? Organic farming and conservation agriculture ? Development and promotion of sustainable agricultural practices ? Integration of sustainable soil and land management technologies and approaches	Agriculture (Crops)
8. Energy demand side management by promoting energy efficiency in appliances, buildings and industrial processes and technologies.	Energy, IPPU
9. Integration of low emission strategies in urban and rural settlements through green buildings, sustainable construction methods and climate smart cities.	Energy, IPPU

26. Furthermore, the NDC identified ten priority adaptation needs. These priority areas were based on the 2006 National Adaptation Programme of Action (NAPA), as well as the vulnerability assessment of the Second National Communication (2011).

NDC priority **adaptation** needs	Primary sector
1. Increase resilience to the impacts of climate change on water security through Integrated Water Resource Management (IWRM) approaches. ? Water resources monitoring, assessment, and mapping ? Adoption and diffusion of appropriate technologies for water harvesting and efficient use ? Climate proofing water distribution systems ? Integrated watershed and wetland management	Water
2. Promote climate resilient agriculture to contribute towards achieving food and nutrition security. ? Developing and introducing climate resilient crop varieties and conservation of plant genetic resources ? Developing and institutionalising surveillance of crop pests and diseases ? Enhancement of national capacity to develop and implement emergency response to agricultural pest and disease outbreaks/epidemics ? Establishment of cold storage facilities at sub?national regions ? Improving and increasing investment in irrigation systems and management ? Initiating crop insurance programs against climate induced extremes ? Promotion of sustainable soil and land management technologies and approaches	Agriculture (Crops)
3. Sustainable forest management and conservation of biodiversity to ensure sustained environmental services. ? Sustainable management of forest management units (FMUs), protected areas, community forests, forest areas outside FMUs, and private forests	Forestry

4. Strengthen resilience to climate change induced hazards. ? Improved monitoring and detection of hydromet extremes using remote sensing and satellite?based technologies and approaches ? Continual assessment of potentially dangerous glacial lakes and improvement of early warning system for GLOFs ? Develop a monitoring, assessment, and warning systems for flash flood and landslide hazards and risks ? Forest fire risk assessment and management ? Assessment and management of risk and damage from windstorms on agricultural crops and human settlements. ? Enhancement of emergency medical services and public health management to respond to climate change induced disasters ? Enhancing preparedness and response to climate change induced disasters at the national and local levels	Various, Disaster Risk Reduction (DRR)
5. Minimize climate?related health risks. ? Strengthening integrated risk monitoring and early warning systems and response for climate sensitive diseases ? Promotion of climate resilient household water supply and sanitation	Health, Water
6. Climate proof transport infrastructure against landslides and flash floods, particularly for critical roads, bridges, tunnel and trails.	Transport
7. Promote climate resilient livestock farming practices to contribute towards poverty alleviation and self sufficiency. ? Climate change resilient farm designs and practices ? Livestock insurance against climate induced extremes	Agriculture (Crops, Livestock)
8. Enhancing climate information services for vulnerability and adaptation assessment and planning. ? Improvement of hydro meteorological network and weather and flood forecasting to adequate levels of temporal and spatial scales ? Development of climate change scenarios for Bhutan with appropriate resolution for mountainous situation	Various

9. Promote clean renewable and climate resilient energy generation. ? Diversifying energy supply mix through promotion of renewable energy (solar, wind, small hydro, biomass) other than large hydro and creating investment opportunities ? Ensuring energy security during the lean dry season through water storage and reservoirs ? Protecting catchment areas for hydropower through watershed and sustainable land management approaches	Energy
10. Integrate climate resilient and low emission strategies in urban and rural settlements. ? Promotion of climate smart cities ? Improvement of storm water management and sewer systems ? Environmental management and safeguards of development activities	Various

27. Bhutan?s first NDC calls on international support to ensure success in implementing the strategies, plans and actions for low GHG development. International support will also be needed to address the adverse impacts of climate change that are already starting to take place in the country, given the scale of funding required to address both development needs and the additional burden of mitigation and adaptation. Furthermore, Bhutan is currently preparing its Second NDC formulation, expected to be submitted in 2021. The process is divided into two phases. Phase I is to stock?take the implementation progress of the first NDC, identify gaps and challenges and recommendation for the Second NDC. The second phase is to provide detailed analysis of the priority sectors and prepare the Second NDC.

Barriers, needs and gaps related to ETF reporting in Bhutan

28. Currently, Bhutan?s experience with the types of reporting required under the ETF is still limited, and MRV-related activities in Bhutan are primarily conducted as part of the reporting to UNFCCC as well as measurement of forest-related emissions and sinks under the UN-REDD program. Bhutan lacks a comprehensive MRV system needed to fulfil their obligations under the Paris Agreement. The barriers to an effective implementation of ETF requirements in Bhutan include the following.

o *Barrier 1: Absence of systematic and comprehensive coordination and information sharing mechanism for ETF reporting.* Bhutan currently lacks systematic coordination among relevant ministries and other stakeholders at national and local levels that would enable collection and sharing

of data in line with the ETF requirements. Existing climate change institutions and coordination mechanisms lack a clear definition of roles and responsibilities and protocols for regular and systematic collection and sharing information. The past experiences of developing the National Communications have shown a primary gap in the institutional arrangements in GHG inventory system and a lack of continuity in the working group members as they frequently assume new roles or are transferred to different institutes. There is also limited sharing of climate change information and research among Bhutan?s research institutions and universities.

o *Barrier 2: Lack of adequate data and information system on GHG emissions and mitigation and adaptation actions*. Although the different sectors have put in place data management systems as part of previous GHG inventories, these systems are not yet integrated nor do they follow common data protocols. These limitations have been recognized by stakeholders from all sectors consulted during the PIF development. The main reason for this is the absence of clear, formalized systems, procedures and protocols as well as frameworks for the sustainable creation of knowledge and capacities. Data is collected by different sectoral agencies and projects based on the needs for national and international reporting, but is not systematically updated and managed in a shared database. The Environment Information Management Systems (EIMS) and GHG inventory data management system developed and housed at NECS is still in its initial stage, and needs to be further developed and integrated to include additional gases and sub?sector allocations. Sectoral information systems need to be upgraded in line with ETF requirements, including sector-specific GHG inventory requirements. Climate change data and information remain limited in the country, in particular with regard to the agriculture and livestock sectors. There is limited data and information to provide robust analysis of land use issues; including gender-disaggregated data. This is evident in the fact that adaptation and mitigation targets in the NDC and relevant national policies are still stated in general terms and not yet as specific indicators and targets; and by the absence of gender-sensitive/responsive indicators and targets. With better data collection and integration, there is an opportunity not only for meeting the ETF requirements, but for more informed and evidence-based planning and decision-making, which will help the country track progress against and meet its NDC targets.[1] There is also potential to use the forestry sector experience in MRV and GHG inventory to inform and develop capacity of other sectors.

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[1] Royal Government of Bhutan (2017). Forest Carbon Partnership Facility Grant, Mid-Term Review and Request for Additional Funding.

o *Barrier 3: Limited experience with and knowledge of measuring, reporting and verification (MRV) systems for emissions from all GHG emitting sectors*. As identified during the development of the Third National Communication (TNC), Bhutan lacks capacity and experience in inventory compilation, and this was found to be a critical constraint in all the processes related to the National Communications. Bhutan has a limited number of professionals with experience and knowledge of MRV systems. The country does not currently have an established system of generating reports that can be adequate to meet the frequency and content of the reporting obligation under the Paris Agreement. Data collected by the different sectors does not always meet the required quality and standards for GHG inventory. Collection, compilation and development of GHG inventory reports have been mostly project-based and rely on external consultants. Only a limited number of national experts could be engaged in MRV activities related to UNFCCC reporting, and only few were trained on the 2006 IPCC

Guidelines. Capacity building needs to be extended to a wider group of professionals beyond the NTWG members; and capacity needs to be developed to be able to prepare reports without the support of outside consultants. Currently, national experts in the technical working groups mostly provide or validate specific, ad hoc information, but without going into detail. Also, Bhutan does not yet have a solid quality assurance and quality control (QA/QC) process in place outside the ad hoc technical working groups and validation workshops. Furthermore, for all sectors except forestry, reporting is currently done using Tier 1 (non-country specific) emission factors. Additionally, more detailed activity data is required to support refinement of inventory estimates and enhance the quality and accuracy of future emission inventories. Lastly, national stakeholders and institutions have not yet been trained on and prepared for the additional reporting requirements under the MPGs, such as reporting on climate finance, institutional arrangements, uncertainty assessment, technical review process, and tracking progress against NDC targets.

o *Barrier 4: Limited capacity to monitor, evaluate and report on adaptation actions outlined in the NDC.* The country?s institutions and agency staff still have limited capacity for systematic monitoring and reporting of adaptation actions in line with the ETF. As highlighted in Bhutan?s GCF National Adaptation Plan (NAP) proposal, a comprehensive inventory of existing adaptation initiatives and practices would enable departments and ministries not only to meet their reporting obligations under the ETF but also to incorporate adaptation into their planning and investment decisions and, potentially, access additional international climate finance. While adaptation/resilience indicators will be developed by the GCF NAP Readiness project, there is a need for more specific work on NDC adaptation indicators and linking these with the NAP. The NAP indicators are anticipated to be broad and covering all sectors. The CBIT project will be able to focus on specific sectors that need strengthening, such as with regard to specific indicators and targets and monitoring capacity for the AFOLU sector. There is also a need to integrate the adaptation platform developed by the GCF NAP project with other sectoral information systems for both adaptation and mitigation, as well as with the EIMS.

29. In line with the above, the Technology Needs Assessment (TNA)[15][14] and the National Capacity Self Assessment (NCSA)[16][15] highlighted the following barriers and issues with regard to the implementation of the UNFCCC.

Table 2: Bhutan TNA and NCSA barriers and issues that can be addressed by CBIT

Description of barriers	How this can be addressed by CBIT	Relevant project outputs in alternate CBIT scenario
Barriers to adaptation identified in the TNA		

Description of barriers	How this can be addressed by CBIT	Relevant project outputs in alternate CBIT scenario
Information and technology barriers: ? General lack of awareness, education and information disseminated on new available technologies and their benefits to the farmers, which hinders its uptake. ? Lack of information on better water management techniques, including drip and sprinkler.	? Improve information sharing and data management with regard to adaptation interventions, to support dissemination and uptake of adaptation technologies.	Outputs 1.1.1, 1.2.1 and 1.2.2
Institutional barriers: ? Poor coordination and line of communication between the Department of Agriculture and the Dzongkhag Administrations.	? Enhance institutional arrangements and coordination among sectors and agencies at different levels.	Outputs 1.1.1, 1.2.1, 1.2.2 and 1.2.3
Financing barriers: ? Limited funding for technology development and technology transfer.	? Enhance data and information management related to adaptation to support planning and decision-making and attract additional investment.	Outputs 1.1.1, 1.2.1, 1.2.3, 2.1.5-6, 3.1.1-3
Issues and challenges in implementation of Rio Conventions identified in the NCSA		

Description of barriers	How this can be addressed by CBIT	Relevant project outputs in alternate CBIT scenario
Issues and challenges identified in the NCSA: ? Coordination in environmental management systems both at national and local levels. ? Inadequate capacities of relevant environment agencies and mechanisms. ? Lack of data and information on environment, such as air and water quality. ? Maintaining the level of high environmental quality while achieving growth.	? Strengthen institutional mechanisms for environmental management. ? Enhance implementation capacity of NEC and MoAF to effectively function as national focal agencies. ? Strengthen information and monitoring systems. ? Strengthen environmental financing mechanisms by supporting enhanced information management, planning and decision-making.	Outputs 1.1.1, 2.1.1, 2.1.3, 2.1.5-6, 3.1.1, 3.1.3

30. Addressing these barriers will enable Bhutan to produce more timely and accurate reports for UNFCCC processes and particularly the reporting requirements under the Paris Agreement ETF. In turn, the findings of reports will support the country to monitor activities efficiently and to make timely decisions with regard to mitigation and adaptation planning.

2) Baseline scenario and associated baseline projects

National plans and policies

31. Bhutan has made various high-level commitments for climate change adaptation and mitigation both domestically and internationally. In 2009, the Royal Government of Bhutan committed to remaining carbon-neutral by ensuring that its forests sequester more carbon than is emitted through other actions. As explained above, this commitment was reiterated in 2015 in the country?s NDC.

32. The Climate Change Policy of the Kingdom of Bhutan 2020 envisages to provide strategic guidance to ensure that Bhutan remains carbon neutral and protects the wellbeing of the people of Bhutan by adapting to climate change in an efficient and effective manner. Additionally, the policy also aims to address challenges and opportunities such as international support in the form of finance, technology, capacity building, research and awareness arising from recent developments in national and international arena of climate change, which will be critical in implementing climate actions.

33. In its 12th Five Year Plan (2018-2023), Bhutan prioritizes climate change and sustainable development. Under the plan?s National Key Result Area 6 (Carbon Neutrality, Climate and Disaster Resilience), the following programmes are to be implemented under the lead of the National Environment Commission Secretariat (NECS):

? Climate smart and disaster resilient development
? Strengthening waste prevention and management
? Strengthening water security and enhancing management
? Implementation of bilateral and multilateral environment programmes
? Enhancement of disaster risk reduction and management
? Weather and climate services for building climate resilience
? Hydrology, cryosphere and water resources information and early warning services
? Promote use of alternative renewable energy
? Safe, reliable eco-friendly and sustainable surface transport
? Local Government programme on carbon neutral, climate and disaster resilient development

34. Other plans and policies related to climate change are summarized below.

Policy or plan	Relevant aspects for NDC implementation
? Economic Development Policy (2010, updated in 2016)	Includes several measures to promote ?green growth? for industrial development.
? The National Food and Nutrition Security Policy of the Kingdom of Bhutan, 2014	The stability of food and nutrition security is undermined by climate change induced disasters like flash floods, GLOF, forest fires, etc. The National Food and Nutrition Security Policy promotes improved irrigation technology, such as piped irrigation rather than open irrigation channels. It gives importance to organic and nature farming over chemical-induced production. Furthermore, it promotes pasture development and sedentary livestock management instead of free-grazing and over grazing.
? National Strategy and Action Plan for Low Carbon Development (2012)	This long-term national strategy comprises various scenarios analysing development paths from 2005 until 2040. Based on these scenarios, the action plan articulates short and medium-term interventions for various development sectors to achieve sustainable economic growth through green and low-carbon growth. The strategy identifies Low-Emission Development Strategies (LEDS) in the areas of Waste management, Green economy, Renewable energy, and Agriculture, such as: zero waste concept; improving manufacturing processes; enhancing environmental compliance monitoring system; integrating emission cutback schemes in urban and rural establishments; green/sustainable buildings; developing mass hydropower capacity by having support from Clean Development Mechanism (CDM) and other international climate markets to reduce emissions within Bhutan and across borders by exporting surplus electricity; climate-smart livestock farming practices; organic livestock farming; expanding the production of biogas; and sustainable soil and land management technologies.[17][16]
? The National Environment Protection Act (NEPA) (2007)	NEPA enshrines that the country?s interventions ? policies and programs ? are within the principles of sustainability, middle path, polluters pay, precautionary, etc. NEPA empowers institutions such as NEC to monitor the implementation on the ground, advise management accordingly.
? National Forest Policy (2011)	The revised Forest Policy of 2011 serves as the main guiding policy framework for forest management and nature conservation in Bhutan. It recognizes the important role of people and community in the sustainable forest management and climate change mitigation and adaptation.

? Bhutan Transport 2040: Integrated Strategic Vision	Developed in 2013 with support from ADB, the Bhutan Transport 2040 Vision has the overall goal to provide the entire population with a safe, reliable, affordable, convenient, cost-effective, and environment-friendly transport system in support of strategies for socioeconomic development.
? Renewable Natural Resources (RNR) Strategy 2040	The RNR Strategy 2040 development is at its initial stages. FAO is the key partner supporting the development of the Strategy 2040. The focus will be on the importance of informed decisions ? there should be adequate information systems (generation and dissemination), based on good science; use of technology in the food system to be more efficient and effective; and all food related interventions must be demand-driven ? markets should be considered for any interventions proposed.
? National Environment Strategy (NES) (1998)	First published in 1998, the NES identifies and describes the main approaches for sustainable development in Bhutan. The strategy is currently under review. The revised NES will, among others, focus on low-carbon and climate resilient development.[18][17]
? Bhutan Water Vision and Policy (2003)	Establishes Bhutan?s water vision and describes the approach and context of water resources management from a broad, multi-sectoral perspective with recognition of the responsibility of the various sectors in policy implementation. The policy advocates for integrated water resources management (IWRM) to address existing and emerging water issues, including those related to climate change.
? 12th Five Year Plan of Bhutan (2018-2023)	The plan elaborates a range of issues in relation to NDC. The national key result areas that are identified having a direct relation to NDC are: ? Carbon neutrality, climate and disaster resilient which includes enhancing climate change mitigation and adaptation, strengthening preparedness and responses to both natural and man-made disasters ? Food and nutrition security which include expansion and strengthening of irrigation system, establishing network of post-production and marketing facilities, strengthening research and extension service, encouraging cultivation of fallow land ? Infrastructure, communication, public service which include leveraging ICT as an enabler and an industry ? Gender equality to mainstream gender

Institutional mechanisms

35. The Gross National Happiness Commission (GNHC) is responsible for the formulation and implementation of the country?s Five-Year Plan and for formulating relevant policies. It is comprised

of the Prime Minister as the Chairperson, Secretaries of each of the government ministries, and the Secretary of the GNHC as the members. The GNHC is also the National Designated Authority (NDA) for the GCF and hosts the Operational Focal Point for GEF.

36. The National Environment Commission (NEC), chaired by the Honourable Prime Minister or Minister designated by the Prime Minister, was established as the main high-level, multi-sector coordinating body on environmental issues. It also acts as the National Climate Change Committee (NCCC) and is responsible for the overall coordination of climate change matters in the country. The NEC Secretariat (NECS) plays a key role in promoting sound environmental policies and investments. In addition, a Climate Change Coordination Committee (C4) was established in 2016 (after revamping the Multisectoral Committee on Climate Change) as a forum to discuss and coordinate action on climate change in Bhutan and make recommendations to the NEC/NCCC. It has 15 senior executive level members, representing governmental agencies, private sector, and civil society organizations, and is chaired by the Secretary of NEC.[19][18] The NEC is the national focal point for the UNFCCC. As part of its mandate to produce Bhutan?s National Communications (NCs) and Biennial Update Reports (BURs), the NEC also reports on Bhutan?s REDD+ actions to the UNFCCC. The NEC is the overall national GHG coordinating agency, and each sector provides the required data to the NEC for national and international reporting.[20][19]

37. The Ministry of Agriculture and Forests (MoAF) is the agency responsible for collecting agriculture, livestock and forest related data for UNFCCC reporting. MOAF is responsible for developing policies, strategies and programs of the sector, implemented by its technical departments. The Constitution states that, for all times to come, the country must maintain 60% of the area under forest cover; every citizen is responsible but institutionally MOAF is the lead agency. MOAF has established a protected areas system linked by biological corridors for the free movement of wildlife; it is responsible for the national forestry inventory, wildlife research, and developing Forest Management Units (FMU) for harvesting scientifically; it calculates the annual allowable cut; it is responsible for forest fires, rangeland management, improved irrigation technology, etc. The sector engages with over 60% of the population who are directly engaged in farming.

38. The Ministry of Economic Affairs (MoEA) is the ministry of Bhutan responsible for the management of the economy in the country. Among others, it is responsible for industry and trade, geology and mining, renewable energy and hydropower.

39. The Ministry of Information and Communication (MoIC) is responsible for promoting the development of reliable and sustainable information, communications and transport networks and systems and facilitating the provision of affordable and easier access to associated services. It hosts, among others, the Department of Civil Aviation and the Road Safety and Transport Authority.

40. The National Center for Hydrology and Meteorology (NCHM) is an autonomous scientific and technical organization of the Royal Government of Bhutan responsible for understanding the behaviours of atmosphere, its interaction with cryosphere and water bodies, the weather and climate and distribution of country?s water resources. It is the nodal agency responsible for the generation of information and delivery of products and services related to weather, climate, cryosphere and water resources in Bhutan.

41. The central Mainstreaming Reference Group (MRG) was formed, under the lead of NEC and GNHC, to institutionalize the mainstreaming of environment, climate and poverty concerns into planning. The group is multi-sectoral in nature with representation from policy, planners, environment specialists, finance experts and NGOs and is seen as a relevant body to provide expertise on policy making, advocate cross-cutting issues at all levels of planning and implementation. As of June 2016, 20 local MRGs have been established in all 20 districts to facilitate mainstreaming of cross-cutting issues in the local development plans and programmes.[21][20]

UNFCCC reporting

42. Bhutan submitted its First Greenhouse Gas Inventory to the UNFCCC in 2000. In 2011, it submitted the Second National Communication (SNC). The preparation of the GHG inventory for the SNC in 2011 was a consultative process among analysts within relevant sectors and agencies in Bhutan and coordinated by the NECS. A National GHG Inventory Team was formed and trained on the use of the Revised 1996 IPCC GHG Guidelines and UNFCCC Software. Subsequently the sectoral working groups of the inventory team collected activity data from national sources, other secondary sources, such as published research, statistical reports, and related studies as necessary. Emission factors were based on IPCC default values and conversion coefficients, and adjusted to reflect local conditions, where necessary and possible. The SNC also included preliminary climate change scenarios and a vulnerability assessment, assessing the impact of climate change on the five key sectors water, agriculture, energy, forestry and biodiversity, and health.[22][21]

43. Under the UN-REDD Program, a National Forest Monitoring System and National Forest Inventory were developed. The process was led by the Department of Forests and Park Services of MoAF with key support from UNDP, FAO and the Forest Carbon Partnership Facility (FCPF) of the World Bank. A National REDD+ Taskforce was established with three distinct Technical Working Groups (TWGs), consisting of all key stakeholders, with representation of all technical agencies and governmental and non-governmental entities. The national REDD+ readiness process involved setting up national institutional arrangements, carrying out local stakeholder consultations, capacity building, designing MRV and national carbon accounting systems, developing reference emission levels, and benefit sharing, safeguard and grievance mechanisms.

44. With technical support from FAO, Bhutan submitted its National Forest Reference Emission Level (FREL) and National Forest Reference Level (FRL) to UNFCCC in 2019. The main aim of the FREL/FRL was to take stock of emissions and removals from the forest sector and set a baseline to measure future (additional) performances. Necessary documentation including standard operating procedures (SOP) for field measurements were prepared. Moreover, Bhutan received support from FAO and the UN-REDD Programme to work with Collect Earth, a tool that enables data collection through Google Earth. This has enabled Bhutan to assess IPCC LULUCF and REDD+ reporting while supporting the development of the National Forest Inventory (NFI) in carrying out field measurements.[23][22] A national NFI data management system and quality assurance and control protocols were developed. Bhutan also worked with SEPAL, the cloud based remote sensing data processing platform of FAO, which allowed them to generate maps and outputs for the FREL/FRL. The proposed FREL for Bhutan is 0.55 million tonnes of CO_2e per year. The total annual net sequestration from sustainable forest management, conservation and enhancement is 8.76 million tonnes of CO_2e and, therefore, the proposed FRL for Bhutan is 8.76 million tonnes of CO_2e per year.[24][23]

45. Through this process, Bhutan has developed important technical in-country capacity for MRV, remote sensing and data analysis in the forestry sector, with capable and motivated staff in the Department of Forests and Park Services. Due to its historically low deforestation, it is unlikely that Bhutan will be able to benefit from results-based payments for forestry-related activities under UNFCCC. However, by establishing a strong registry, the country could target private investments and other market-based mechanisms to channel funding to maintain and enhance its forest management performance. A national, web-based monitoring system that ensures availability of high-quality, reliable and frequently updated data on forests has been developed with support from FAO and capacity building and knowledge transfer has been taken place. The first version has been released with the country http://bhutanforestportal.org/ and it would be beneficial to establish a permanent process of updating this forest data as a transparency tool for Bhutan.

46. The NEC is currently coordinating the preparation of the Third National Communication (TNC) to the UNFCCC planned to be submitted in September 2020. The process of TNC preparation was akin to the SNC as both were prepared in a consultative manner involving all the relevant sectors and agencies from government, private sector and civil society. A National Thematic Working Group (NTWG) was constituted for GHG inventory, mitigation and vulnerability and adaptation (V&A) assessment. Bhutan?s third GHG inventory contains information on emissions from sources including Energy, IPPU, AFOLU and Waste and removals by sink for the inventory year 2015 for the three main gases carbon dioxide (CO2), methane (CH_4) and nitrous oxide (N_2O) using the 2006 IPCC Guidelines and associated Good Practice Guidance. Carbon monoxide (CO) and nitrogen oxides (NOx) was calculated for forestry and other land uses only. All the methodologies and tools used for GHG inventory reporting followed the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC, 1997) Good Practice Guidance, and Uncertainty Management in National Greenhouse Gas Inventories (IPCC, 2000). The methodologies used were from Tier 1 using the default emission factor except for Forestry and Other Land Use where higher-tier method and country specific emission was applied to estimate the emissions.

47. The NTWG collected, analysed and managed the data as well as estimated the emissions and removals of GHGs. Sectoral and Sub-Category Leads were identified for the inventory preparation. Each Sub-Category Lead coordinates, compiles, assesses and computes the activity data for their respective sector and reports to Sectoral Lead. The Sectoral Lead validates and reports to the National Inventory Report (NIR) Coordinator who coordinates and reports to the National Coordinator. The National Coordinator reports to the Climate Change Division that further reports to Climate Change Coordination Committee and finally to NEC for endorsement and approval.

48. The preparation of the NIR for the TNC was based on a quality assurance and quality control (QA/QC) plan starting from the activity data collection to the estimation of emissions and removals and involved internal as well as external reviews. The activity data collection was based on questionnaires sent to the responsible agencies including the private sector and the data thus submitted were verified with available national statistics. Several data sources were identified and used in the preparation of the GHG inventory and were mostly based on the published information from National Statistical Bureau (NSB). The estimates were subject to several rounds of external validation workshops where the Technical Working Group presented the findings to a wider stakeholder group comprising government agencies, non?government organizations and private sector. Additionally, the NTWG also has a member representation from NSB.

49. During the transition to the 2006 IPCC Guidelines, several challenges were encountered and more detailed capacity building is needed for the various groups and sectors involved. In particular, training

on the 2006 IPCC Guidelines needs to be extended to a wider group of professionals beyond the NTWG members. As highlighted in the TNC, Bhutan lacks capacity and experience in inventory compilation, and this was found to be critical constraint in all the processes related to the National Communications. In the INC, SNC and the TNC (and the BUR), Bhutan has relied on IPCC default conversion factors, emission factors and default uncertainty figures in the estimation of GHG emissions and removals. Bhutan has also generally used Tier 1 methodologies due to the lack of accurate and reliable country specific information. While this is accepted in the IPCC Guidelines, to improve accuracy and comparability, it is felt important to develop country specific emission factors and uncertainty data and use higher tier approaches in the next inventory period. Of particular importance are developing country specific emission factors for enteric fermentation, updating landuse/ landcover maps on an annual basis, develop country specific soil carbon estimates based on soil types, climatic zones, etc., build on experiences from Forest and Non-forest soil C content, etc. Additionally, the availability of detailed activity data would support refinement of inventory estimates. Addressing these areas through additional capacity strengthening and development of dedicated observation networks will enhance the quality and accuracy of future emission inventories.

50. Based on the assessment in the SNC, the TNC further prioritized human health, water resources, sustainable agriculture, forest & biodiversity, and energy as part of the V&A assessment. The climate projections for the country have been assessed for two future time periods, a short-term period (2021-2050) and a long-term period (2070-2099). The projections consider two socioeconomic scenario representing trends ? Representative Concentration Pathways (RCP) of high emission (RCP 8.5) and intermediate emission (RCP 4.5) of the IPCC fifth assessment report (2014). The climate baseline and projections for Bhutan is based on CMIP 5 GCMs[25][24] for 2030-2050 and 2070-2099. For the purpose of climate modelling, NCHM used temperature and rainfall data from Climatic Research Unit (CRU), University of East Anglia, United Kingdom as a proxy for tracing historical climate change in Bhutan. The CRU data was validated against the available observed data from the 15 climate stations of the available time period. This is the best alternative in case of lack of historical observed data.

51. Furthermore, the NECS is in the process of developing Bhutan?s first Biennial Update Report (BUR) due for submission in April 2021 through a consultative process. In order to institutionalize the National Inventory Report (NIR) of the BUR, the NTWG and its members constituted under the TNC continues to serve as NTWG for the BUR as well. The NIR will use 2019 as the inventory year.

52. Like for the TNC, the development of GHG inventory report for the BUR mostly relies on external consultants. Only a limited number of national experts have been engaged and mostly provide *ad hoc* inputs. Furthermore, for all sectors except forestry, reporting is done using Tier 1 (non-country specific) emission factors.

Adaptation planning

53. The country prepared a National Adaptation Programme of Action (NAPA) under the UNFCCC in 2006, which it updated in 2012. Alongside Glacier Lake Outburst Floods, windstorms and cyclones were identified as the main climate hazards. Priority actions were identified, which were then implemented through three UNDP GEF NAPA projects (see Section 6. Coordination).

54. In 2016, the Global Climate Change Alliance (GCCA) supported the development of the State of Climate Change Report for the Renewable Natural Resources (RNR) sector, based on secondary data and information. GCCA also supported the development of Sector Adaptation Programme of Action (SAPA), which was endorsed in 2014. The RNR Sector Adaptation Plan of Action (SAPA) identified two key priorities: (i) Data and knowledge management covering areas of research to assess the impacts of climate change on agriculture and food security, water resources and biodiversity; and (ii) Capacity in addressing climate change: There is a lack of national capacity in terms of institutional, infrastructure, human, and technical capacity in dealing with climate change and its effects on forest and biological diversity, food security and water resources. Furthermore, the GCCA supported the development of a Data Centre to provide an overview of the impacts of climate change on the RNR sector based on a landscape as a complex system with multiple interacting sectors.[26][25]

Existing information and data management systems

55. NECS, MoAF and the National Statistical Bureau (NSB) all host some relevant climate change information on their websites. In addition, climate related data is available with the National Centre for Hydrology and Meteorology (NCHM).[27][26]

56. The National Environment Protection Act (NEPA), 2007 establishes the legal requirement to periodically produce a status report on the environmental condition in the country and also to establish an environmental information system at the national level. The NEPA authorizes NECS to produce periodic environmental status reports and to manage the environmental information system. The current EIMS housed at NECS is built on the driver-pressure-state-impact-response framework used in developing State of the Environment reports to assess the state and trend of the environment in the thematic areas of land, water, air and biodiversity. Climate change and waste management are considered as cross cutting issues.

57. The different sector agencies have developed data and information management systems. These systems are still in their early stages and need to be further developed and integrated. Through the CBIT project, these systems will be developed to meet multiple requirements, including sector-specific and GHG inventory specific requirements. Some of the relevant information system are:

a. Forest information reporting and monitoring system maintained by the Department of Forest and Park Services (DoFPS)

b. Power Data Management System, Department of Hydropower and Power Systems

c. Energy Data Directory

d. Hydromet Database Management System, National Center for Hydrology and Meteorology

e. CountrySTAT-Bhutan, Ministry of Agriculture and Forests

f. Agriculture and Livestock Information System

g. Industrial Information System

h. Waste Inventory

Donor-funded initiatives

58. In the baseline, a number of donor-funded projects are planned or are being implemented to support Bhutan?s commitment to climate change adaptation and mitigation as outlined in the NDC. The most relevant baseline projects are described in the table below. Coordination with GEF-funded and other additional initiatives is described in Section 6. Coordination.

Project or initiative	Linkages with the CBIT project
FAO	
The FAO Representation in Bhutan is providing technical assistance to the Royal Government of Bhutan in several areas, in particular with regard to improving food security and nutrition and implementing carbon-neutral and climate-resilient agricultural practices. FAO has also provided technical assistance to the Renewable Natural Resources (RNR) Census 2018 (2017-2019, USD 51,000). In addition to the technical assistance for the development of the REDD+ FRL and National Forest Monitoring System described above, FAO has implemented a project on Strengthening the Role of Communities in Climate Change Mitigation through Participatory Forest Management in Bhutan, providing valuable lessons on community-based forest management (2014-2016, USD 175,000). FAO is supporting the preparation of a project proposal to the GCF on Enhancing Climate Resilience of Water Sources in Bhutan (see below). In addition, FAO is leading several GEF CBIT projects globally and in the region, including the CBIT Global AFOLU Project and country projects in Afghanistan, Bangladesh, Cambodia, and Mongolia.	The proposed CBIT project will build on lessons and experiences from the CBIT Global AFOLU Project and other CBIT projects implemented in the region that have already started detailed project preparation or implementation. Opportunities for exchange and joint capacity building will be sought with these projects. Data and coordination mechanisms from the RNR census will be taken into account. Lessons learned and experiences from the REDD+ activities will also be taken into account.

UNDP	
Building on the achievements of the LECB Programme, UNDP is currently implementing the **NDC Support Programme** (?Gender Responsive NDC Implementation in Bhutan?). This programme, implemented from January 2019 to June 2021 (USD 802,500), is assisting Bhutan in evidence-based planning, design and implementation, integrated climate governance, developing capacities to design climate-friendly investment opportunities, as well as support public-private partnerships for NDC implementation. The key focus areas include the following: ? Integrated Governance: Formalize and strengthen institutional frameworks, including gender-responsive approaches. ? Mitigation Actions: Conduct analysis of gender issues in relevant policies and strategies for priority NDC sectors; develop gender action plans; implement key recommendations/analyses identified in sectoral NDC roadmaps to address technical barriers to inclusive NDC implementation. ? Climate Finance: Design gender-responsive financial mechanisms to scale up NDC actions in support of economic diversification. ? Private Sector Engagement: Systematic engagement of private sector on inclusive NDC investment opportunities.	The CBIT project will build on the capacity developed under this programme for NDC implementation, in particular with regard to gender issues, and private sector engagement. It will complement this initiative by further developing capacity for MRV. The CBIT project will contribute to the dissemination of the NDC Support Programme?s outcomes through the National Environment Information Management System (EIMS) and through its capacity development activities.

GCF

Adaptation Planning support for Bhutan (NAP readiness project) GCF approved readiness proposal, through UNDP. This USD 2.7 million GCF readiness project (implemented from 2019 to 2021) is coordinated by UNDP-Bhutan through NEC. The outcomes of this project include: ? Enhanced coordination, learning and knowledge management for an iterative NAP process. ? Technical capacity enhanced for the generation of climate scenarios and impact assessment. ? Vulnerability assessments undertaken and adaptation options appraised and prioritised. ? NAP formulated, and capacity for implementation and monitoring established. The formulation and implementation of Bhutan?s NAP is led by the NECS, through the Climate Change Division, in collaboration with the GNHC and other partners such as the Ministries of Agriculture and Forests, Economic Affairs, Health, Home and Culture Affairs, the National Centre for Hydrology and Meteorology, civil society organizations (CSOs), and academia. Some of the outputs relevant to the CBIT project include: ? Institutional capacity and inter-sectoral coordination strengthened for adaptation planning and implementation. ? Knowledge management systems to strengthen climate responsive planning. A protocol for management of data and information will be developed to streamline and harmonize and standardize management of data and information. An adaptation platform for information and knowledge management will be developed to support climate responsive planning and the NAP process. ? A participatory and result-based M&E framework will be prepared to review and monitor the implementation of the NAP. ? Screening tools to facilitate the integration of climate change adaptation into development planning applied. ? Design and implementation of training for scientific and technical communities in partnership with national training institutes and universities. ? Appropriate tools applied for climate risk and impact assessment of key sectors at national level and interface with local level via ongoing initiatives.	The CBIT project will build on the coordination mechanisms, capacity, knowledge management and M&E systems established under the NAP readiness project. In particular, it will closely coordinate with this project under its Component 3 in order to avoid overlap and fill relevant gaps. Through the CBIT project, knowledge management systems developed under the NAP project will be linked and integrated with the National Environment Information Management System (EIMS).

Supporting Climate Resilience and Transformational Change in the Agriculture Sector in Bhutan GCF approved funding proposal, through UNDP. Gross National Happiness Commission (GNHC) as Executing Entity. USD 18 million in GCF funding (approved 2019, anticipated to be implemented 2020-2025). The project seeks to enhance the resilience of smallholder farms to climate change, especially variation in rainfall and frequent occurrence of extreme events, through three complementary outputs: ? Promote resilient agricultural practices in the face of changing climate patterns. ? Integrate climate change risks into water and land management practices that affect smallholders. ? Reduce the risk and impact of climate change induced landslides during extreme events that disrupt market access. Among others, the project will include the following activities: ? Developing and integrating climate risk data into crop and livestock planning at the national and sub-national levels. ? Tailored climate information and related training to local government and farmers to interpret and apply climate risk data to local and household level agriculture planning. ? Scaling up climate-resilient agriculture practices, and training local entities in community seed production and multiplication and cultivation of climate-resilient crop alternatives.	The CBIT project will aim to build on the capacity and knowledge on climate risk data and assessment, and climate-resilient practices in the agriculture sector, developed under this project.

World Bank	
Preparation of Strategic Program for Climate Resilience (SPCR) This USD 1.5 million World Bank grant (2017-2021) for the preparation of the Strategic Program for Climate Resilience (SPCR) will support Bhutan to formulate a long-term plan to improve climate resilience. The SPCR builds on ongoing initiatives and activities throughout Bhutan while providing a structure to incorporate climate resilience into development planning across sectors and stakeholder groups, putting in place a coordination mechanism and process of engagement on climate issues building on existing institutions, and developing a roadmap to build capacity and increase investment opportunities in the future. The project is supported through a preparatory grant fund provided by the Climate Investment Fund (CIF) through the Pilot Program for Climate Resilience Program (PPCR).	The CBIT project will engage with this project in order to build on the coordination mechanisms, capacity building, and monitoring developed by this project.

3) Proposed alternative scenario with a brief description of expected outcomes and components of the project

59. The GEF alternative scenario is to develop and implement a comprehensive capacity building program that ensures that, by 2024, Bhutan is submitting reports consistent with the requirements of the Paris Agreement?s Enhanced Transparency Framework (ETF), including more up-to-date inventories of emission sources and sinks using advanced IPCC guidance and information necessary to track progress against priority actions identified in Bhutan?s NDC.

60. Under ***Component 1. Enhancing institutional frameworks, knowledge and capacities for the preparation, reporting and use of transparency information***, the project will aim to strengthen institutional frameworks to enable the preparation and reporting of transparency information[1] (***Outcome 1.1***). This will address some of the barriers highlighted in the NCSA and TNA with regard to the lack of environmental management systems, coordination and information management at national and local levels. First, the project will review and formalize institutional arrangements and procedures for ETF reporting in Bhutan, including for NDC tracking (mitigation and adaptation), GHG inventory and climate financing support (*Output 1.1.1*). This will be done through a gap analysis and in consultation with all stakeholders. The analysis will cover institutional arrangements/procedures including in-house capacity and financial resources, mandates, coordination mechanisms, and data sharing protocols and formats. It will build closely on the guidelines and protocols developed under the

NAP process, but with a broader view of the institutional frameworks required to fulfil the reporting obligations under the Paris Agreement. The institutional arrangements will include coordination among different ministries and sectors, and with all relevant stakeholders, including inter-sectoral/ministerial/non-state sectors cooperation mechanisms and technical support systems. Protocols for regular and systematic coordination and sharing of information, roles and responsibilities will be defined. The project will ensure that ETF-related data sharing processes are integrated with broader inter-sectoral and national coordination for data sharing and management. Coordination with the ongoing Third National Communication, BUR and GCF readiness processes will be ensured, to avoid duplication and enhance synergies with regard to institutional coordination mechanisms. The CBIT project will build on existing data management systems and platforms and will aim to ensure a coherent approach to MRV between sectors. In particular, the CBIT project will build on existing mechanisms such as the National Thematic Working Group (NTWG), the Sectoral Leads and the National Inventory Coordinator constituted under the TNC and BUR; but will aim to further strengthen their institutionalization and broader representation through a clear definition of procedures, roles and responsibilities. To complement this, partnerships with key training institute(s) will be identified and established to support capacity building and knowledge creation on a continuous basis (*Output 1.1.2*). These partnerships with local research/academic institutions, to be identified during project preparation and/or implementation, will support technical capacity and knowledge development in areas such as GHG inventory and NDC tracking. This may also involve linking local universities with reputable institutes outside of Bhutan. This output will be linked with the training activities under Components 2 and 3 and will contribute to the sustainable creation of knowledge and capacities in Bhutan.

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[1] Transparency information primarily refers to the BTR reporting requirements, including national GHG inventory, reporting on climate finance, institutional arrangements, uncertainty assessment, and tracking progress against NDC targets, as well as the technical review process.

61. Furthermore, the project will upgrade the National Environment Information Management System (EIMS) and sectoral information systems in line with ETF requirements, including alignment between various sector information systems (*Output 1.1.3*). Sectoral information systems include systems such as the Forest Information Management and Reporting System, Energy Data Directory, Industrial Information System, Waste Inventory, Agriculture and Livestock Information System, and Power Data Management System. These will be better aligned, upgraded and integrated with the EIMS at NEC, including through the development of relevant data protocols, interfaces, guidelines/manuals and standard operating procedures (SOPs) for data management and uploading. The systems will be developed to meet multiple requirements, including sector-specific and GHG inventory specific requirements. The adaptation platform developed under the GCF NAP Readiness project will also be integrated with the EIMS and sectoral information systems. Relevant institutions will be provided with the equipment and software necessary for decentralized data collection, storage, and uploading in line with data protocols developed under Components 2 and 3. This output will be closely coordinated with the activities under Components 2 and 3, and will lay the foundations for integrated data collection and management in all key transparency areas (inventories, mitigation, adaptation, and support received)

which will also inform future NDC targets. User guides and on-the-job training modules will be developed for the information systems as necessary. The EIMS will serve as the central repository not only for MRV data, but also for the guidelines, procedures and protocols, and training materials developed by the project as well as other related initiatives.

Also under Component 1, the project will strengthen knowledge and capacities for the use of transparency information in policy processes (***Outcome 1.2***). First, the project will undertake an analysis of gender gaps in ETF reporting, and will develop a framework to mainstream gender into ETF reporting and future NDC updates (*Output 1.2.1*). This will further enhance ongoing efforts to incorporate gender aspects into Bhutan?s second NDC under UNDP?s NDC Support Programme. Current TNC and BUR processes have not yet incorporated gender considerations or gender-disaggregated data/indicators (such as gender-specific needs and priorities with regard to mitigation strategies). The outcomes of this analysis will be incorporated into the indicators and data protocols developed under Components 2 and 3; as well as the assessment of climate change impacts and policies and climate financing tracking system under Outcome 1.2. Second, an analysis of the near and long-term impacts of key climate change policies and measures will be developed (*Output 1.2.2*). This will include an analysis of Business-As-Usual and ex-ante scenarios of selected sectoral and climate policies and strategies.[1] Furthermore, a system and guidelines will be developed to track/tag climate change financing in national budgetary framework to monitor, evaluate and report climate finance (*Output 1.2.3*). This output will be linked with the institutional frameworks developed under Outcome 1.1, as well as the NDC tracking system under Outcomes 2.1 and 3.1.

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[1] An analysis of mitigation co-benefits of adaptation may also be included.

62. Lastly, the project will contribute to regional and global efforts to share and scale up relevant ETF best practices and lessons learned. Accordingly, ETF reporting best practices will be prepared and shared with national and local stakeholders as well as with other CBIT countries and the CBIT Global Coordination Platform (*Output 1.1.5*). Information on the established ETF systems will be disseminated to relevant institutions and stakeholders in order not only to increase knowledge and awareness, but also to promote the use of ETF data for national and sub-national planning and decision-making. This may be done through seminars, knowledge products and other means. 1. The CBIT project will provide valuable lessons learned to other countries in Asia and globally, in particular through Output 1.2.2 on quantification of climate change impacts and policies; and Output 1.2.3 on establishing a system to track/tag climate change financing in national budgetary framework. These will be shared with other LDC and middle/upper income countries through various international fora such as the LDC Consortium in Asia, the regional CBIT network, and the global AFOLU ETF network.

63. Under Component 1 also, the project will strengthen capacities for assessment and quantification of climate policies and investments, in order to enhance capacities for monitoring and reporting on NDC targets (***Outcome 1.2***). For this, a training on quantification of climate change impacts and

quantification of climate policies and measures will be developed and implemented (*Output 1.2.1*). This will include an analysis of Business-As-Usual and ex-ante scenarios of selected sectoral and climate policies and strategies. Furthermore, a system and guidelines will be developed to track/tag climate change financing in national budgetary framework to monitor, evaluate and report climate finance (*Output 1.2.2*).

64. Under ***Component 2. Establishing a system to monitor and report on NDC mitigation targets, including strengthening of MRV system***, the project will aim to further develop capacity and establish comprehensive MRV systems for mitigation actions, ensuring accuracy of data and verification, and establish a system to monitor and report on NDC mitigation targets in line with UNFCCC guidelines[1]. This will enable Bhutan to have a system in place to track implementation and progress in achieving NDC mitigation targets, and to implement continuous improvements to its GHG inventories and data quality (***Outcome 2.1***). The project will build on the data and methodologies developed under the TNC and REDD+, as well as the ongoing BUR and second NDC processes. The experience in the forestry sector in MRV and GHG inventory will be used to inform and develop capacity of other sectors. In particular, capacity will be developed further to fulfil Transparency, Accuracy, Consistency, Comparability and Completeness (TACCC) principles of GHG inventories in all sectors and establishing country and sector specific emission factors. Data protocols and standards (including quality-assurance and quality-control protocols) will be established, and field monitoring systems will be improved. This will lay the foundations for the future BTR reporting in 2024 and beyond. Activities under this outcome will draw from the IPCC guidelines, FAO?s *Estimating Greenhouse Gas Emissions in Agriculture: A Manual to Address Data Requirements for Developing Countries* (2015), as well as other tools and resources available via FAO?s Mitigation of Climate Change in Agriculture (MICCA) program and other sectoral guidelines.[2]

[1] During project preparation, activities will be prioritized considering the project resources and based on first the requirements of the MPGs, such as tracking progress against NDC targets.

[2] http://www.fao.org/3/a-i4260e.pdf and http://www.fao.org/in-action/micca/resources/tools/en/.

65. In line with this, the project, with the participation of all sectors, will identify gaps for transition from the 1996 to latest IPCC guidelines of the GHG inventory report, including identifying new sources of emissions, data collection mechanisms that need to be established, country-specific emission factors, and analysis of the impact of emissions (*Output 2.1.1*). Sector specific inventory guidelines and protocols will be developed to enhance the data collection process and ensure the data consistency and methodological approach (*Output 2.1.2* ? exact scope to be defined during PPG). This will include the

scoping and development of national data collection and management protocols. Depending on the priorities identified during the project preparation phase, this output may also include developing national level emission factors for select sector(s) (agriculture and livestock, industry, transport, forestry, and/or waste) building on the IPCC good practice guidelines and existing practices. Recommendations will be made to improve data collection and management and develop a QA/QC plan. This output will be closely linked with the upgrading of the EIMS and sectoral information systems under Output 1.1.3. As part of this process, a regular and systematic documentation and archiving process will be established to ensure sustainability of the inventory, including quality assurance and quality control. Protocols will be established to define how, when, where, and by whom required data will be collected. Methodological guidelines on data sampling and data handling will also be formulated.

66. Furthermore, a system or framework will be established to track implementation and progress in achieving NDC mitigation targets (*Output 2.1.3*), including the establishment of indicators in line with UNFCCC guidelines. This may also involve collaboration with local research/academic institutions based on the partnerships established under Output 1.1.2. Based on the developed guidelines and protocols, the project will develop and implement a comprehensive capacity development program to train relevant institutions and stakeholders on the inventory guidelines and protocols (including on the use of the latest IPCC guidelines and its software), and on the NDC tracking system, in view of the preparation of ETF reports (*Output 2.1.4*). The trainings will build on the partnerships established under Output 1.1.2 and will aim to reach a wide audience within government and research institutions to ensure that solid capacity is developed within these institutions. Data will then be collected by national and local stakeholders from public and private sectors on inventory of emission sources and sinks and emission reduction activities consistent with latest IPCC guidance, in preparation of the biennial transparency report (BTR) due for submission in 2024 (*Output 2.1.5*).

67. Lastly, under ***Component 3. Strengthening capacity to monitor and report on NDC adaptation actions***, the project will collaborate closely with the GCF readiness projects to develop technical capacities for monitoring and reporting progress in the implementation of NDC adaptation actions (including disaster risk reduction and early warning) (***Outcome 3.1***). A framework and indicators for monitoring and reporting on NDC priority adaptation actions under the ETF will be developed in line with the NAP process (*Output 3.1.1*). Nationally appropriate adaptation indicators will be established, building on existing national indicators, including the SDGs and, where relevant, on FAO?s *Tracking Adaptation in Agricultural Sectors: Climate Change Adaptation Indicators*.[1] This may focus on specific sectors that need further strengthening as identified in the NAP process. The framework will be integrated with the information systems developed under Output 1.1.3, in close coordination with the GCF NAP project. Finally, relevant institutions will be trained on monitoring and reporting on NDC priority adaptation actions, in view of the preparation of ETF reports consistent with latest UNFCCC guidance (*Output 3.1.2*). The training will build on the partnerships established under Output 1.1.2 and will also involve aspects on data collection and the use of ETF data for national and sub-national planning and decision-making.

[1] http://www.fao.org/3/a-i8145e.pdf.

[1] http://www.fao.org/3/a-i8145e.pdf.

4) Alignment with GEF focal area and/or Impact Program strategies

68. The proposed project is aligned with the Capacity Building Initiative for Transparency (CBIT) under the GEF-7 Climate Change Mitigation Focal Area Strategy to support projects that build institutional and technical capacity to meet the enhanced transparency requirements in the Paris Agreement. In line with the CBIT Programming Directions, the project aims to:

? Strengthen national institutions for transparency-related activities in line with national priorities;

? Provide relevant tools, training and assistance for meeting the provisions stipulated in Article 13 of the Agreement; and

? Assist in the improvement of transparency over time.

5) Incremental cost reasoning and expected contributions from the baseline, the GEFTF, LDCF/SCCF, CBIT and co-financing

69. The project will build on the baseline described above, and fund incremental costs to build additional capacity for monitoring and reporting on climate change mitigation and adaptation in Bhutan. In particular, the project will develop capacity of national institutions and staff to prepare reports consistent with the requirements of the ETF, including more up-to-date inventories of emission sources and sinks using advanced IPCC guidance and information necessary to track progress against priority actions identified in Bhutan?s NDC. The GEF project will fund the incremental costs of developing standards, protocols and mechanisms for sharing of information and data; enhancing institutional frameworks and procedures; training for national and local experts, government staff and other stakeholders; transferring experience and knowledge in MRV among sectors and sub-sectors, improving data management systems; and establishing long-term capacity for monitoring and reporting under the ETF and use of information and knowledge in policy processes.

70. Without the CBIT project, collection, compilation and development of GHG inventory reports will continue to be mostly project-based and rely on external consultants. Bhutan will not be able to develop the required national capacity to fulfil its reporting requirements under the Paris Agreement by 2024

without outside support. Also, the quality assurance and quality control (QA/QC) will continue to be implemented through ad hoc technical working groups and validation workshops and without a solid procedure. Without the project also, Bhutan will not be able to develop country specific emission factors and uncertainty data and use higher tier approaches in sectors that are of particular importance for its GHG inventory. Information management systems will remain insufficiently integrated; and there will be limited use of transparency-related information and knowledge in policy processes. Finally, while the NTWG, the Sectoral Leads and the National Inventory Coordinator constituted under the TNC and BUR will remain in place, they will not be fully institutionalized and will lack a clear definition of procedures, roles and responsibilities and a broader representation.

71. With the CBIT project, Bhutan will put in place the required national capacity and institutional frameworks to lead the development of national GHG inventories and reports under the ETF through a solid reporting and data collection and management process. Clear roles and responsibilities and procedures will be defined, including for QA/QC. Country specific emission factors will be developed and additional activity data collected to enhance data availability. Information management systems and protocols will be in place to enable national institutions to collect and manage data required for ETF reporting. Knowledge and capacity for the use of transparency information in policy processes will be developed among national institutions and stakeholders, thereby enhancing capacity to use data in national and sub-national planning, policy and decision-making. NDC Sector-specific adaptation indicators to track progress against the NDC targets will be developed, in line with the NAP. Finally, Bhutan will be able to track support needed and received for the implementation of its NDC.

6) Global environmental benefits (GEFTF), and adaptation benefits (LDCF/SCCF)

72. As explained above, the project will build institutional and technical capacity to meet the enhanced transparency requirements of the Paris Agreement. This will enable Bhutan to prepare more up-to-date inventories of emission sources and sinks and information necessary to track progress against priority actions identified in its NDC. It will also enable the country to improve the quality of data and information on climate change, in particular in the agriculture and land use sectors. It is expected that this will lead to more effective planning, management and monitoring of climate change adaptation and mitigation related activities and investment decisions in Bhutan. Increased transparency will also improve governance and accountability over time.

73. Indirectly, it is anticipated that this will generate global environmental benefits (GEBs) in the areas of climate change, land degradation, and biodiversity. Socio-economic benefits will also be generated, including through improved management of ecosystems and natural resources upon which local livelihoods depend, as well as by building capacity of stakeholders and national and local institutions, including government, academia, civil society, and the private sector.

7) Innovation, sustainability and potential for scaling up

Innovation

74. The project is innovative as it aims to establish a comprehensive coordination mechanism and capacity development with regard to ETF reporting in Bhutan. The project will facilitate investment in dedicated knowledge management and information system and IT hardware and software for more effective management and reporting of ETF-related data and information on mitigation and adaptation related activities in Bhutan.

75. Furthermore, the project will introduce best practices, tools and lessons learned from other countries for ETF reporting. This will result in technology transfer to relevant government institutions, universities, and research institutions in Bhutan. Innovative tools for estimating GHG emissions will be introduced and capacity built for their use in ETF reporting. These tools may include, among others, FAO?s Global Livestock Environment Assessment Model (GLEAM), which enables countries to establish baselines and assess the impacts of different mitigation and adaptation scenarios in the livestock sector at local and national levels. Based on IPCC Tier 2 methodology and GIS-based modelling of livestock distributions, GLEAM enables assessments of all major GHG emissions from livestock and the impacts of related activities to reduce emissions from the sector. Similar tools have been developed via FAO?s Mitigation of Climate Change in Agriculture (MICCA) program.[31][28]

Sustainability and potential for scaling up

76. The project will build on identified country needs and will be embedded in the key institutions responsible for ETF reporting in Bhutan. It will build on existing capacity in these institutions and aims to further enhance capacity, systems, and coordination mechanisms required to meet the obligations under the Paris Agreement while also addressing national priorities. The project will build individual, institutional, technological, and operational capacity for MRV in the relevant sector institutions and universities by introducing relevant tools, data management systems, and protocols. It will also strengthen collaboration among institutions and sectors as well as international exchange. Through these mechanisms, it is anticipated that the built capacity will be sustained after the project ends.

77. Moreover, the developed tools and training programs can be used to scale up the capacity and adoption of tools and approaches within relevant institutions at national and sub-national levels. The training programs will aim to reach a broader audience to expand the network of professionals involved in ETF reporting in Bhutan. The project will also engage in exchange and sharing of best practices and

lessons learned under the CBIT Global Coordination Platform, contributing to the adoption and scaling of relevant tools, methodologies and approaches in other countries.

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[1] Kingdom of Bhutan (2011). *Second National Communication to the UNFCCC*. National Environment Commission, Royal Government of Bhutan.

[2] 2017 Population and Housing Census of Bhutan. http://www.nsb.gov.bt/publication/files/PHCB2017_national.pdf

[3] Second National Communication (2011).

[4] Bhutan at a Glance 2019 www.nsb.gov.bt

[5] Bhutan National Biodiversity Strategies and Action Plan (NBSAP). 2014.

[6] UNDP, National Adaptation Plan (NAP) Country Briefing.

[7] Ministry of Agriculture and Forests, Government of Bhutan (2014). National Action Program (NAP) to Combat Land Degradation for UNCCD.

[8] UNDP GCF Funding Proposal, Supporting Climate Resilience and Transformational Change in the Agriculture Sector in Bhutan.

[9] UNDP GCF Funding Proposal, Supporting Climate Resilience and Transformational Change in the Agriculture Sector in Bhutan.

[10] Bhutan National Biodiversity Strategies and Action Plan (NBSAP). 2014.

[11] Kingdom of Bhutan?s Draft Third National Communication to UNFCCC, June 2020.

[12] Nationally Determined Contribution (2015).

[13] https://www.greengrowthknowledge.org

[14] Royal Government of Bhutan (2017). Forest Carbon Partnership Facility Grant, Mid-Term Review and Request for Additional Funding.

[15] Royal Government of Bhutan (2008). National Capacity Self Assessment (NCSA) for Global Environmental Management.

[16] Royal Government of Bhutan (2013). *Technology Needs Assessment and Technology Action Plans for Climate Change Adaptation*. and *Technology Needs Assessment and Technology Action Plans for Climate Change Mitigation*. In the TNA, for each prioritized sub-sector, one technology was prioritized and key barriers identified. The selected priority sectors and technologies in mitigation include: (i) Solid waste: Composting, (ii) Transport: Intelligent transport system, and (iii) Industries:

Waste heat recovery. The selected priority sectors and technologies in adaptation include: (i) Agriculture: Development of drought and pest resistant varieties of crops, (ii) Water resources: Efficient irrigation systems, and (iii) Natural disaster and infrastructure: Climate resilient roads.

[17] http://climate.org/bhutan-improves-economic-development-as-a-net-carbon-sink/

[18] UNDP GCF NAP Readiness Proposal.

[19] UNDP GCF NAP Readiness Proposal.

[20] Royal Government of Bhutan (2017). Forest Carbon Partnership Facility Grant, Mid-Term Review and Request for Additional Funding.

[21] UNDP GCF NAP Readiness Proposal.

[22] Second National Communication (2011).

[23] Royal Government of Bhutan (2017). Forest Carbon Partnership Facility Grant, Mid-Term Review and Request for Additional Funding.

[24] Royal Government of Bhutan (2019). Bhutan?s Proposed National Forest Reference Emission Level and National Forest Reference Level Submission for technical assessment to UNFCCC.

[25] Climate Model Intercomparison Project ? Global Circulation Models

[26] https://www.gcca.eu/programmes/climate-change-adaptation-bhutans-renewable-natural-resources-sector and

www.moaf.gov.bt/download/Publications/The-RNR-Sector-Adaptation-Plan-Action-2016_FINAL.pdf

[27] NECS: www.nec.gov.bt MoAF: www.moaf.gov.bt NSB: www.nsb.gov.bt NCHM: http://www.nchm.gov.bt/

[28] UNDP, Bhutan Country Profile. NDC Support Programme. https://www.undp.org/content/dam/LECB/docs/factsheets/Bhutan.pdf

[29] http://www.fao.org/3/a-i4260e.pdf and http://www.fao.org/in-action/micca/resources/tools/en/.

[30] http://www.fao.org/3/a-i8145e.pdf.

[31] http://www.fao.org/in-action/micca/resources/tools/en

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

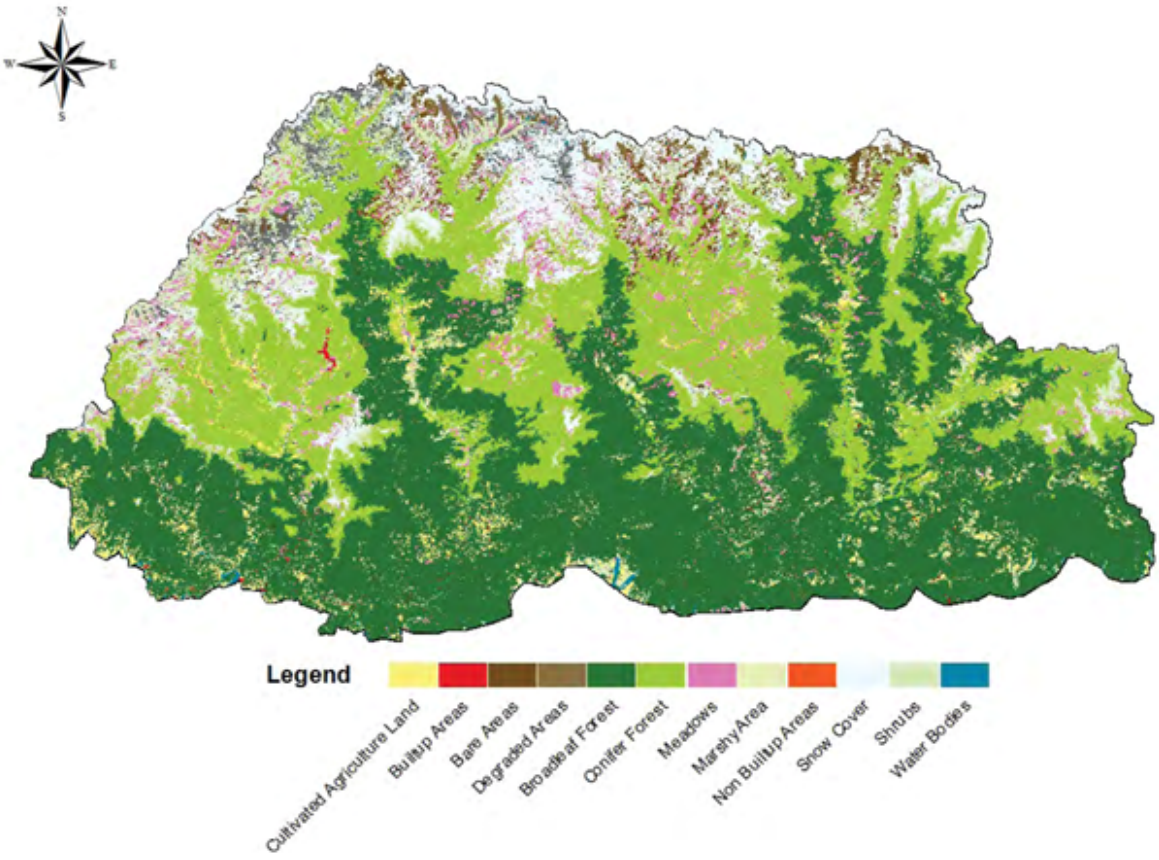

Figure 3: Map of Land use and Forest types and sub-classes in Bhutan (Source: LCMP-2010, Second National Communication to the UNFCCC)

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities

Civil Society Organizations

Private Sector Entities

If none of the above, please explain why: Yes

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

Initial consultations were held during project identification with key agencies and stakeholders at national level (Ministry of Agriculture and Forests, Department of Forests and Park Services, Ministry of Information and Communications, Ministry of Economic Affairs, Department of Renewable Energy, Department of Hydropower and Power Systems, Department of Livestock, Department of Industries, Waste Management Division and Environment Assessment and Compliance Division of NECS, FAO Country Office Bhutan). Due to the COVID-19 pandemic and related restrictions, more detailed consultations including with civil society, private sector and academia could not be held during PIF development. However, experiences from the ongoing GCF readiness projects in working with these stakeholders have been taken into account in the PIF design. More detailed consultations, including with government, civil society, academia, private sector, UN agencies and sub-national stakeholders of various sectors, will be organized during the project preparation phase. If COVID-19 restrictions continue during project preparation, the project would use alternative means for consultations with national and sub-national stakeholders, such as virtual meetings, smaller size gatherings and phone calls. The project will be implemented in close collaboration with relevant stakeholders at national and sub-national levels. National research institutions and universities will be engaged to enhance data and information collection.

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement

An initial list of key stakeholders is provided in the table below.

Name of Institution	Proposed role in the project
1. Gross National Happiness Commission (GNHC)	GNHC is the GEF Operational Focal Point and will oversee the implementation of the CBIT project.
2. National Environment Commission (NEC) and NEC Secretariat (NECS)	Will be Project Lead Executing Agency and overall coordinator of the project.
3. Ministry of Agriculture and Forests o Department of Forests and Park Services o Department of Agriculture o Department of Livestock o Department of Agricultural Marketing and Cooperatives	Will be the project?s Implementing Partner and will coordinate project activities in the AFOLU sector.

4. Ministry of Economic Affairs o Department of Renewable Energy o Department of Hydropower and Power Systems o Department of Industries	Will be the project?s Implementing Partner and will coordinate project activities in the Energy and IPPU sector.
5. Ministry of Information and Communications o Road Safety and Transport Authority	Will be engaged for coordination of the GHG inventory activities in the transport sector.
6. National Statistical Bureau (NSB)	Will be engaged for coordination and data management and sharing under Component 1 of the project.
7. National Commission for Women and Children	Will be engaged with regard to gender equality and mainstreaming in the project.
8. National Center for Hydrology and Meteorology	Will support climate science including systemic observation and information management.
9. Local Government (dzongkhag, gewog)	Will be engaged in capacity building, data collection and monitoring at the sub-national level.
10. Research institutions and universities o Royal University of Bhutan o Renewable Natural Resources Research and Development Centres o Ugyen Wangchuck Institute for Conservation and Environmental Research o Khesar Gyalpo University of Medical Sciences of Bhutan	Will be engaged for capacity building, integrating climate change into curriculum and training modules, supporting systemic observation and research, monitoring, data collection activities etc.
11. Civil society organizations, national and international NGOs	Will be consulted during project design and implementation.
12. Local communities, community-based organizations (CBOs)	Inputs from community-based adaptation and mitigation activities will be taken into account during project preparation and implementation.

13. Private companies, professional institutes and associations o Association of Bhutanese Industries (ABI) o Bhutan Chamber for Commerce and Industries (BCCI)	ABI and BCCI will be engaged through the Ministry of Economic Affairs to support the Energy and IPPU sectors. Other sectors will be consulted during project design and implementation.
14. Other UN agencies and development partners	Will be engaged to coordinate and build on lessons learned from previous and ongoing projects related to NDC implementation and reporting in Bhutan.
15. Bhutan Trust Fund for Environmental Conservation	Will be engaged in activities to coordinate information on climate change adaptation and mitigation related actions.

3. Gender Equality and Women's Empowerment

Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).

1. Over the past 30 years from 1990-2019, female labour force participation rate in Bhutan has been at an average of 60.8%.[1] This reflects a percentage of women in the population, starting at the age of 15 years and older, that are economically active. In 2009, the participation rate was at its highest with 67.1%, and is currently at 58.4%, compared to a male participation rate of 74.6%. Significant progress has been made to empower women especially in the public sector to achieve gender equality and wellbeing of women in Bhutan. The United Nations through UN Women has conducted regional capacity building to strengthen women in political participation and budgeting.[2] The initiative is in line with the development of the Government of Bhutan?s 11th Five Year Plan to accommodate women needs in the process of planning and budgeting in the public sector. Nevertheless, country-wide, challenges remain in the areas of education, employment opportunities, literacy among adult women, domestic violence, lack of incentives, constraints in legal institutions, and participation of women in decision-making.[3],[4] In rural areas, women outnumber men among the employed, particularly in agriculture, where productivity and earnings remain low. Men have a larger share than women of rural employment in private business and government, while more women are employed in farming enterprises.[5]

2. Women are poorly represented in the civil service and among elected officials. In 2013 elections, women gained 3 of the 47 seats in the national assembly, and none of the 20 elected seats in the national council. Women are not well-represented in the civil service, particularly at the executive level. The percentage of woman in civil service is noted rising from 32.4% in 2012 to 35.43% in 2017.[6]

3. To address these challenges, the proposed CBIT project will ensure that the project addresses gender-specific needs, that women have equal access to the project?s governance and activities, and that women benefit equitably from the project?s capacity development activities. MoAF has been an active participant of previous UN initiatives related to women empowerment in the public sector. The CBIT initiative in Bhutan has the potential to contribute to filling the current gender gap, in line with the current five year plan of Bhutan. The project will ensure gender-disaggregated reporting for relevant outputs and activities, including training. The project will also seek inputs from the REDD+ MRV and GCF NAP readiness project with regard to gender, environmental and social safeguards, and will engage the National Commission for Women and Children during project design and implementation. Furthermore, the project will result in gender-disaggregated indicators and the collection of gender-disaggregated data, which will enable the country to address gender gaps or promote gender equality and women empowerment in future policy and planning. Current TNC and BUR processes have not yet incorporated gender considerations or gender-disaggregated data/indicators (such as gender-specific needs and priorities with regard to mitigation). Under its Output 1.2.1, the project will undertake an analysis of gender gaps in ETF reporting, and will develop a framework to mainstream gender into ETF reporting and future NDC updates. This will further enhance ongoing efforts to incorporate gender aspects into Bhutan?s second NDC under UNDP?s NDC Support Programme.

[1] Female Labor Force Participation Rate, 2020. https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS?locations=BT

[2] Bhutan Continues Efforts on Taking Gender Forward, 2013. https://asiapacific.unwomen.org/en/news-and-events/stories/2013/2/bhutan-continues-efforts-on-taking-gender-forward

[3] Bhutan Gender Equality, 2020. https://tradingeconomics.com/bhutan/gender-equality-wb-data.html

[4] Household Duties and Low Self Esteem Prevent Women in Bhutan from Participating in Politics, 2012. https://asiapacific.unwomen.org/en/news-and-events/stories/2012/10/household-duties-and-low-self-esteem-prevent-women-in-bhutan-from-participating-in-politics

[5] ADB Country Partnership Strategy Bhutan, 2014-2018.

https://www.adb.org/sites/default/files/linked-documents/cps-bhu-2014-2018-ga.pdf

[6] 12th Five Year Plan of Bhutan 2018-2023.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? TBD

closing gender gaps in access to and control over natural resources;

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women.

Will the project?s results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Will there be private sector engagement in the project?

Please briefly explain the rationale behind your answer.

1. Private sector has been engaged in previous processes, including the NDC and TNC development. This was done, in particular, through involvement of the Association of Bhutanese Industries (ABI) and Bhutan Chamber for Commerce and Industries (BCCI), but also through questionnaires sent to private entities through the various sector agencies such as to collect activity data. Additionally, the UNDP NDC Support Programme and GCF Readiness projects incorporate components on private sector engagement that the CBIT project can build upon. Private stakeholders from the agriculture (including farming, forestry, livestock) sector have been mostly involved indirectly through the BCCI and civil society organizations such as the Royal Society for the Protection of Nature and Tarayana Foundation that work with communities in the field on private/community forestry, farming, etc. Perspectives of women entrepreneurs have been incorporated through engagement of the National Commission for Women and Children. More direct engagement of stakeholders from the agriculture sector will be sought during preparation and implementation of the CBIT project, including for the capacity development and data collection activities.

2. Private companies, professional institutes and associations will be involved in stakeholder consultations during project design and implementation. They will be involved in capacity development and data collection activities of the GHG inventory, as well as for developing data management systems. It is envisioned that a data sharing protocol and confidentiality pact will be established through the project for private companies providing activity data and NECS. The project will also collaborate and coordinate with the GCF readiness projects with regard to private sector engagement and NDC investment opportunities. ABI and BCCI will be engaged through the Ministry of Economic Affairs to support the Energy and IPPU sectors.

5. Risks to Achieving Project Objectives

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

1. An initial analysis of risks was conducted during project identification. The main risks identified and proposed mitigation actions are listed in the table below. No significant social and environmental risks were identified. A more detailed risk analysis and mitigation plan will be developed during project preparation.

Description of risk	Impact	Probability of occurrence	Proposed mitigation actions
1) Insufficient collaboration among government agencies and departments results in low coordination.	Moderate	Low	? The project will build on existing climate change coordination mechanisms and, in particular, the leading role of the National Environment Commission (NEC). The project also aims to support the different sector agencies in fulfilling their mandates. With the incremental support of the project, it is, thus, anticipated that there will be sufficient collaboration in the implementation of the ETF requirements.
2) Limited capacity in government and research institutions results in insufficient number of participants in capacity development activities and programs.	Moderate	Low	? There have been significant previous efforts to build the capacity of relevant institutions in Bhutan. The project will aim to further develop capacity among a larger group of stakeholders and professional staff within these agencies and institutions.
3) High staff turnover results in undermining the built capacity and sustainability of the project.	High	Moderate	? As explained above, the project will aim to build capacity of a broad group of stakeholders within the relevant agencies and institutions. This will help mitigate the risk of staff turnover. Moreover, a training program, coordination mechanism and data management system and protocols will be developed and institutionalized, so that new staff can be trained even after the project ends.

4) Information systems and data produced under the project are not used and sustained by the relevant departments after the project ends.	High	Moderate	? During the project preparation, more detailed consultations and an analysis of the needs of different sectors and institutions will be conducted, to ensure that the project responds to specific needs in these institutions. Also, the project will be embedded in and led by NEC and will be closely linked to ongoing programs and mandates of all the executing/implementing partners? annual performance agreement and individual work plans. ? The project will aim to strengthen existing mechanisms, platforms and data management systems, instead of establishing new ones, and will build the capacity among institutions to maintain and sustain these after the project ends.
5) Climate risks: The project is a capacity building project aiming to strengthen institutional and technical capacities at the national level for enhanced transparency in implementation and monitoring of Bhutan?s NDC. Therefore, the project does not trigger the filter questions required for a climate risk screening, meaning that climate does not pose a risk to the project interventions or implementation. Nonetheless, a summary of the main climate risks in the country has been prepared and is attached as a separate document in the Portal.	Low	Moderate	The project could consider the following recommendations that should further contribute to achieving its objective. This will be assessed further during PPG. ? Integrate climate change mitigation, adaptation and disaster risk reduction, into national, regional, and local policy strategies and plans. Current FAO activities in Bhutan include the application of FAO tools for Climate Risk and Impact Assessment, using regional and national datasets, to inform adaptation and mitigation measures. ? Promote climate information and projections as a fundamental element to ensure the implementation of action plans. ? Ensure direct involvement of climate and agrometeorological experts, researchers, and institutions, in the decision-making process. ? Scale up activities on the capacity for national institutions to provide early warnings and climate services to farmers and agricultural end users most impacted by climate change

6) COVID-19 related risks: (i) Restrictions due to the COVID-19 pandemic may lead to reduced ability of the project to organize trainings and meetings. (ii) COVID-19 may affect the availability of co-financing, in particular the resource allocations from Government.	Low	Moderate	? (i) The project may not be able to organize face-to-face meetings and trainings, which may impact the participation. If restrictions continue during implementation, the project would use alternative means for consultations, meetings and trainings, such as virtual meetings. Project implementation may be slightly delayed, but overall project delivery is not expected to be affected by the COVID-19 pandemic. Webinars and online sessions would be used in lieu of face-to-face trainings. ? (ii) It is not anticipated that the availability of co-financing will be significantly affected by COVID-19. Bhutan is currently the chair of the Least Developed Countries (LDC) negotiating group on climate change under the UNFCCC, and climate change will remain a priority for the Government.

6. Coordination

Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

1. FAO will be the GEF Implementing Agency for this project. The National Environment Commission (NEC) will be the Lead Executing Agency and will be responsible for the overall coordination and execution of the project, including monitoring and evaluation. Other stakeholders will be involved in the project implementation as described in Section 2. Stakeholders.

2. A Project Steering Committee (PSC) will be established to provide strategic guidance and take decisions related to the project implementation including approval of project plan, budget and revisions. The PSC will meet twice a year, or more frequently, if deemed appropriate at the start-up phase, to build common understanding and to ensure that the project is initiated and implemented properly. The PSC members will be represented from project implementing partners and will be detailed in PPG.

3. A Project Management Unit (PMU) will be housed within the Climate Change Division of the NECS and will be supported by thematic coordinators and a project accountant. The PMU will be tasked with the day-to-day management of the project activities, as well as with financial and administrative reporting. A National Project Director (NPD) will be designated within NEC, who will oversee the CBIT project implementation. The same NPD also oversees the GCF NAP Readiness project and will ensure synergies with the NAP process. The same divisions and personnel haven been involved in previous TNC and BUR processes, and are involved in the GCF projects as well as in the UNDP NDC Support Programme. Thus, the project implementation plans will be closely coordinated.

4. The coordination with other relevant GEF-financed projects and other initiatives, as well as lessons learned from previous GEF projects and other initiatives, are described below.

Project or initiative	Complementarity with CBIT project
FAO global CBIT projects	
1. FAO is currently implementing two global CBIT projects, (i) Global capacity-building products towards enhanced transparency in the AFOLU sector (CBIT-AFOLU); and (ii) Building global capacity to increase transparency in the forest sector (CBIT-Forest). The first is expected to be completed in 2021; the second in 2022.	The Bhutan CBIT project will build closely on the outcomes and lessons learned of the global CBIT projects, in particular with regard to knowledge products and training materials/ webinars produced under these projects.

UNDP/GEF	
2. NAPA III project: Enhancing Sustainability and Climate Resilience of Forest and Agricultural Landscape and Community Livelihoods (ongoing) This multi-focal UNDP GEF-6 LDCF/BD/SFM project started in 2017. Its objective is to operationalize an integrated landscape approach through strengthening of biological corridors, sustainable forest and agricultural systems, and building climate resilience of community livelihoods.	In particular, the CBIT project will aim to build on the following expected outputs of this project: ? Strengthened monitoring systems for forest condition, biodiversity status and carbon stocks in DoFPS, including strengthened National Forest Inventory (NFI) and National Forest Monitoring System (NFMS) to measure status and condition of forest and carbon stocks, integration of the HCVF concept, protocols and capacity for monitoring habitats and biodiversity. ? Planning and monitoring capacity for sustainable forest management in FMUs and LFMPs. ? Institutional mechanisms and tools strengthened for integration of CCA and environmental sustainability needs in local development planning system, through strengthened central and local Mainstreaming Reference Group system (to integrate environment, climate change, gender and other cross-cutting issues into Local Government plans). ? Strengthened climate resilience and productivity of agricultural and livestock management. ? Institutionalized knowledge for Integrated Landscape Management (ILM) and Climate Change Resilience.

3. UNDP?s **Low Emission Capacity Building (LECB) Programme**, implemented from 2013 to 2017, laid important foundations for the development of capacity for GHG emission inventory and low-carbon development in the country. One objective under the LECB project was to develop a functional GHG inventory data management system to ensure timely and quality data to reduce the uncertainty in the inventory process. Relevant outcomes of the LECB Programme, upon which the CBIT project can build, include:[1] ? National forest inventory and GHG inventory data improved and systematically archived through improvement of Environment Information Management Systems (EIMS). ? Nationally Appropriate Mitigation Actions (NAMAs) for solid waste and transport developed and submitted for financing. ? INDC prepared through highly consultative process and Parliamentarians sensitized on the Paris Agreement and the INDC prior to its ratification in 2017. ? Low Emission Development Strategies (LEDS) prepared for industry, human settlements, energy efficiency, and transport to support Bhutan?s NDC priorities and help to address the impacts of rapid urbanization. ? Intelligent transport system designed for Thimphu, and various measures piloted such as e-tickets and smart cards for buses and a passenger-friendly bus stop. ? Update of the National Transport Policy (draft 2017). ? Capacity building on GHG Inventory, NAMA and LEDSs, climate change mitigation, sustainable transport systems, for the project?s Technical Working Groups of 35 experts and parliamentarians.	The CBIT project will build on the capacity and systems developed under the LECB Programme. Whereas previous capacity building efforts were, primarily, focused on sectors other than agriculture, the proposed CBIT project will aim to build capacity for all sectors.

4. UNDP, under the global Biodiversity Finance Initiative (BIOFIN), implemented several activities using the BIOFIN methodology in Bhutan, delivering results not only related to biodiversity but also to tackle climate change and eradicate poverty. The project used the methodologies of the Climate Public Expenditure and Institutional Review (CPEIR) as well as the Poverty Environment Initiative (PEI) to identify poverty initiatives and green investment.	The CBIT project will build on the capacity and awareness developed under the BIOFIN project, in particular with regard to climate mainstreaming and investment planning.

GCF	
5. **NDA Strengthening and Country Programming support for Bhutan** GCF approved readiness proposal, through Gross National Happiness Commission (Phase 2). This 2-year, USD 400,000 GCF readiness project (implemented from 2019 to 2020) was approved by GCF in 2019 and builds on the Phase 1 Readiness project. The project aimed to strengthen the capacity of the GNHC as the GCF National Designated Authority (NDA), including strengthening institutional capacity, supporting engagement with stakeholders at local and national level through development and strengthening of country coordination mechanism, and supporting oversight capacity. Among others, the following activities were implemented under this project: ? Develop an effective, informative and transparent public web-based platform (website) for NDA on the GCF-related projects, programs and activities and M&E system in Bhutan. NDA will regularly maintain and update the system. A comprehensive M&E framework will be established in conjunction with existing government tracking tools. ? Conduct sensitization and awareness workshops/trainings on GCF mechanism in Bhutan, accreditation, and proposal writing and development skills in climate change areas. ? Conduct workshops for private sector participants with the aim to sensitize and build capacity of private sector stakeholders on climate change, climate finance and GCF.	The CBIT project will build on and complement the activities of this readiness project, in particular with regard to the online information and M&E system to be established under the project, as well as awareness and training activities and stakeholder workshops.

6. **Enhancing Climate Resilience of Water Sources in Bhutan** GCF concept note, through FAO (currently under preparation) Across the Himalaya, spring and other local water sources are drying up, seasonally or completely, often attributable to rising temperatures, reduced spring and winter precipitation and declining snow cover area. This GCF project, for which the proposal is currently under development, will aim to revive and protect Bhutan?s water sources under the impacts of climate change. In particular, it will (i) identify and assess declining spring-sheds, sources and catchments; and (ii) implement recharge measures to ensure climate-proofed water supply. The project addresses one of eight major priority objectives specified for Bhutan?s 12th Five Year Plan, in the form of the Water Flagship, which is focusing on the provision of climate resilient water and sanitation infrastructure to rural and urban populations.	The CBIT project will involve this GCF project for lessons learned, data and information on water-related adaptation measures.

7. **Bhutan Green Transport Program** GCF approved project preparation funding application, through World Bank (currently under preparation) Emissions of air pollutants and greenhouse gases are among the most pressing environmental challenges faced by Bhutan. Increasing rates of motor vehicle ownership and use have had impacts on the Bhutanese environment (e.g. changes to land use, emissions, congestion, noise, etc.). The objective of the Green Transport Program for Thimphu city is to maintain a pristine environment with clean air and with minimum emissions from the transport sector by promoting greener transport modes including zero emissions vehicles, public transport, and non-motorized transport. The program will comprise three broadly interlinked interventions: (i) investments in green transport infrastructure; (ii) investments in zero emissions performance buses and other operating assets for bus services; and (iii) technical assistance and institutional development.	The CBIT project will aim to coordinate with this project with regard to low emission strategies and related data monitoring and management systems.
UN Environment/GEF	
8. Umbrella Programme for Biennial Update Report to the United National Framework Convention on Climate Change (UNFCCC) (ongoing) Under this Global GEF-6 project, UN Environment is supporting Least Developed Countries (LDCs) and Small Islands Developing States (SIDS), including Bhutan, to prepare and submit good quality initial biennial update reports to the UNFCCC that comply with the convention?s reporting obligation.	The CBIT project will coordinate closely with this BUR project, and will aim to complement it by developing additional capacity for MRV and information management, in particular in the agriculture and livestock sectors.

9. Building climate resilience of urban systems through Ecosystem-based Adaptation (EbA) in the Asia-Pacific region. This regional UN Environment GEF-5 LDCF project was approved in 2017 and is implemented in Bhutan, Cambodia, Lao PDR and Myanmar. In Bhutan, the project will be executed by UN-Habitat and Thimphu Thromde local government. The objective of the project is to reduce the vulnerability of poor urban communities in Asia-Pacific LDCs to climate change impacts using Ecosystem-based Adaptation (EbA).	The CBIT project will aim to exchange knowledge and lessons learned with this project, in particular with regard to climate risk data and assessment, and climate change adaptation.

Others	
10. Bhutan Climate Fund Since January 2018, the Ministry of Finance (MOF), the NEC Secretariat, the Ministry of Economic Affairs (MEA), and the GNHC have been discussing the possibility of developing and piloting a Bhutan Climate Fund (BCF) with the World Bank, to help monetize mitigation outcomes from hydropower exports. The proposed activities include:[2] ? Design and capitalization of a USD 50 million BCF to develop and pilot a framework for monetizing emission reductions generated by hydropower projects. ? Support the creation of a policy and regulatory framework to support generation, monitoring, reporting, and verification of the emission reductions from mitigation projects included in the BCF. ? Define objectives and procedures for the use of BCF funds for the benefit of the hydropower projects and for adaptation, resilience, conservation activities, and other investments that contribute to Bhutan?s green growth. ? Facilitate the achievement of Bhutan?s NDC commitments while meeting its overall development goals.	The CBIT project will exchange and coordinate closely with this project, in particular with regard to the proposed MRV framework to be developed for the hydropower and other relevant sectors.

8. Bhutan for Life (BFL) GCF approved funding proposal, through WWF. The BFL project will employ an innovative sustainable financing model to support improved management of the country?s protected areas while providing the time and resources to allow the Government to identify and secure long-term revenues sufficient to maintain these management improvements. BFL is an innovative funding initiative by the Royal Government of Bhutan and WWF. It aims to provide a sustained flow of finance to maintain and manage the country?s protected areas and biodiversity, foster healthy ecosystems, maintain Bhutan?s forest cover, support communities living in protected areas, and strengthen enforcement and management of protected areas.	The CBIT project will involve this GCF project for lessons learned, data and information on mitigation and adaptation.
9. In 2014, the Climate Technology Centre & Network (CTCN) supported Bhutan to build capacity on low-carbon mobility planning and intelligent transport system to reduce GHG emissions from the transport sector. CTCN facilitated South-South collaboration between National Designated Entities (NDEs) of Thailand and Bhutan.[3]	The CBIT will build on the capacity developed under this technical assistance program.

[1] UNDP, Bhutan Country Profile. NDC Support Programme. https://www.undp.org/content/dam/LECB/docs/factsheets/Bhutan.pdf

[2] http://documents.worldbank.org/curated/en/971531538568130794/pdf/Bhutan-Climate-Fund-Concept-Note.pdf

[3] https://www.ctc-n.org/technical-assistance/projects/reducing-ghg-emissions-transport-improving-public-transport-systems

[1] UNDP Terminal Evaluation report (2014).

[2] UNDP Terminal Evaluation report (2019).

[3] http://documents.worldbank.org/curated/en/971531538568130794/pdf/Bhutan-Climate-Fund-Concept-Note.pdf

[4] https://www.ctc-n.org/technical-assistance/projects/reducing-ghg-emissions-transport-improving-public-transport-systems

[1] UNDP Terminal Evaluation report (2014).

[2] UNDP Terminal Evaluation report (2019).

[3] http://documents.worldbank.org/curated/en/971531538568130794/pdf/Bhutan-Climate-Fund-Concept-Note.pdf

[4] https://www.ctc-n.org/technical-assistance/projects/reducing-ghg-emissions-transport-improving-public-transport-systems

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assesments under relevant conventions?

Yes

If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc

National document	Main relevant strategies
1. Nationally Determined Contribution (NDC) under UNFCCC (2015)	The CBIT project directly supports the implementation of Bhutan?s NDC by building capacity for monitoring and reporting on its adaptation and mitigation commitments.

2. Technology Needs Assessment under UNFCCC (2013)	A Technology Needs Assessment (TNA) for mitigation and adaptation was conducted in 2013. The CBIT project helps to address some of the gaps and challenges identified in the TNA, including: ? Lack of appropriate technologies ? Limited funding for technology development and technology transfer ? Adaptation technologies are scarce and difficult. In the TNA, for each prioritized sub-sector, one technology was prioritized and key barriers identified. The selected priority sectors and technologies in mitigation include: (i) Solid waste: Composting, (ii) Transport: Intelligent transport system, and (iii) Industries: Waste heat recovery. The selected priority sectors and technologies in adaptation include: (i) Agriculture: Development of drought and pest resistant varieties of crops, (ii) Water resources: Efficient irrigation systems, and (iii) Natural disaster and infrastructure: Climate resilient roads.
3. Second National Communication under UNFCCC (2011)	The CBIT project directly responds to some of the recommendations made in the SCN, including: ? Addressing climate change requires additional efforts on top of ongoing development activities, so financial support required should be emphasized as support needed for the additional burden of climate change. ? There needs to be better coordination among stakeholders led by NEC in cooperation with GNHC. ? Increased support is needed to promote research and capacity development for climate change to better inform preparation of adaptation and mitigation measures.

4. National Biodiversity Strategy and Action Plan (NBSAP) under Convention on Biological Diversity (CBD)	The CBIT project indirectly addresses the following target of Bhutan?s NBSAP: ? Target 10: By 2020, potential impacts of climate change on vulnerable ecosystems identified and adaptation measures strengthened (through integrating climate change adaptation into systemic planning and site management plans for biodiversity corridors (BCs), forest management units (FMUs), local forest management plans (LFMPs) and community forests (CFs); into local government planning through mainstreaming reference group (MRG) system; and into climate-smart agricultural practices in project landscapes).
5. National Action Program (NAP) to Combat Land Degradation for UNCCD (2014)	The main goal of the NAP is to prevent and mitigate land degradation and its impacts through systems and practices of SLM that protects and maintains the economic, ecological and aesthetic values of our landscapes. The CBIT project is in line with the objectives of the NAP: 1. Conservation, rehabilitation and sustainable use of forest resources to maintain well-functioning forest landscapes and watersheds. 2. Development and promotion of sustainable agricultural practices that enhances local livelihoods whilst maintaining the productivity and stability of agricultural lands. 3. Integration of environmental management measures in development activities that pose significant risks of land degradation. 4. Strengthening of systemic and institutional capacity to combat land degradation and its impacts. 5. Information, advocacy and education to create increased policy and public support for sustainable land management.

6. Bhutan Land Degradation Neutrality (LDN) National Report (2015)[1]	The project is also in line with Bhutan?s LDN targets: ? By 2035, reforestation with native species in open areas will be realized on 25.00 km2. In addition, further productivity decline will be avoided through various means and soil organic carbon (SOC) will be maintained at 50 ton/ha by 2030. ? By 2030, wood substitute products will be promoted with subsidies and further declines in productivity will be avoided. ? By 2025, improved pasture will be promoted on 0.50 km2. In the meantime and beyond, by 2030, improved breeds will be promoted. ? By 2025, SLM measures will be implemented as identified in the NAP on 35.07 km2. In addition, further productivity decline will be avoided through various means and SOC will be maintained at 50 ton/ha. ? By 2040, the RAMSAR framework will be set up on 1.83 km2. ? By 2035, plantations in open areas will be realized on 0.10 km2. ? By 2035, restoration/reclamation of degraded areas will be realized on 0.50 km2.

7. National Capacity Self Assessment (NCSA) for Global Environmental Management	The NCSA Action Plan included seven expected outputs, which the CBIT project will partially address: 1. Policy and legal framework for environmentally sustainable development improved. 2. Implementation of environment management mandates at central, dzongkhag, and geographic levels improved. 3. Information and monitoring systems in the four thematic areas strengthened. 4. Implementation capacity of NEC and MoAF enhanced to effectively function as national focal agencies. 5. Institutional mechanisms for environmental management strengthened. 6. Environmental financing mechanisms strengthened. 7. Environmental education and awareness programmes strengthened.
8. Contribution to the UN Sustainable Development Goals (SDGs)	The CBIT project will contribute to the following SDGs: ? SDB 13 Climate Action: Take urgent action to combat climate change and its impacts. ? SDG 15 Life on Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. ? SDG 1 No Poverty: End poverty in all its forms everywhere. ? SDG 2 No Hunger: End hunger, achieve food security and improved nutrition and promote sustainable agriculture. ? SDG 3 Good Health and Well-Being

9. Bhutan 2020: A Vision for Peace, Prosperity and Happiness	Bhutan 2020 is a vision statement that outlines the country?s development goals, objectives and targets with a twenty-year perspective to maximize Gross National Happiness (GNH). As one of the four main GNH objectives, it enunciates that development pursuits are to be carried out within the limits of environmental sustainability and without impairing the ecological productivity and natural diversity, thus providing the overarching policy context for sustainable development that is resilient to, and mitigates, climate change. The CBIT project is in line with and supports this vision.

[1] https://knowledge.unccd.int/home/country-information/countries-having-set-voluntary-ldn-targets/bhutan

8. Knowledge Management

Outline the knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

1. The project aims to enhance knowledge and information management for improved transparency in climate change-related data and UNFCCC reporting processes. It will promote information and knowledge sharing among national stakeholders and institutions, by setting up relevant systems, coordination mechanisms and protocols. This will include coordination among sector institutions, local governments, research institutions, donor-funded projects, civil society organizations, and private actors. Knowledge products will be developed (in particular under Output 1.2.4 on ETF reporting best practices) and targeted specifically at these various institutions and stakeholders. In addition, the project will support the creation and sharing of knowledge in the region and globally through the CBIT Global Coordination Platform and through the coordinating role of FAO.

2. Under the various outputs, the project will develop guidelines, procedures and protocols, as well as training programs and materials, that will be made available through the National Environment Information Management System (EIMS) and will be disseminated to project stakeholders through trainings, knowledge products and other means (in English and local language). The exact knowledge management activities will be defined during the project preparation phase. The enhanced institutional frameworks and information sharing arrangements put in place under Outcome 1.1 will also help to improve knowledge sharing among sectors. The CBIT Global Coordination Platform, as well as other international fora such as the LDC Consortium in Asia, the regional CBIT network, and the global AFOLU ETF network established under FAO?s global CBIT project, will be used to disseminate knowledge and experiences from the Bhutan CBIT project to other countries. Synergies will also be sought with knowledge management efforts under the GCF readiness projects as well as UNDP?s NDC Support Programme. The use of alternative media and means of communication (including social media, webinars, etc.) will be explore in particular in view of the COVID-19 pandemic.

9. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
Low			

Measures to address identified risks and impacts

Provide preliminary information on the types and levels of risk classifications/ratings of any identified environmental and social risks and potential impacts associated with the project (considering the GEF ESS Minimum Standards) and describe measures to address these risks during the project design.

In line with FAO's Environmental and Social Safeguards, the project has been screened against Environmental and Social risks and rated as **low risk** (see certification in annex) . None of the FAO safeguards was triggered. The risk level will be further re-confirmed during PPG following FAO?s stakeholder engagement processes. The Agency will make sure that all mitigation measures vis-a-vis any potential adverse impact are duly considered in the CEO-endorsement package

Supporting Documents

Upload available ESS supporting documents.

Title	Submitted
Risk certification at PIF stage	

Part III: Approval/Endorsement By GEF Operational Focal Point(S) And GEF Agency(ies)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Mr. Rinchen Wangdi	Director	Gross National Happiness Commission	5/25/2020

ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place

Please see uploaded document