

**University-Government Collaboration on
Climate Adaptation Finance**

BHUTAN COUNTRY PROFILE

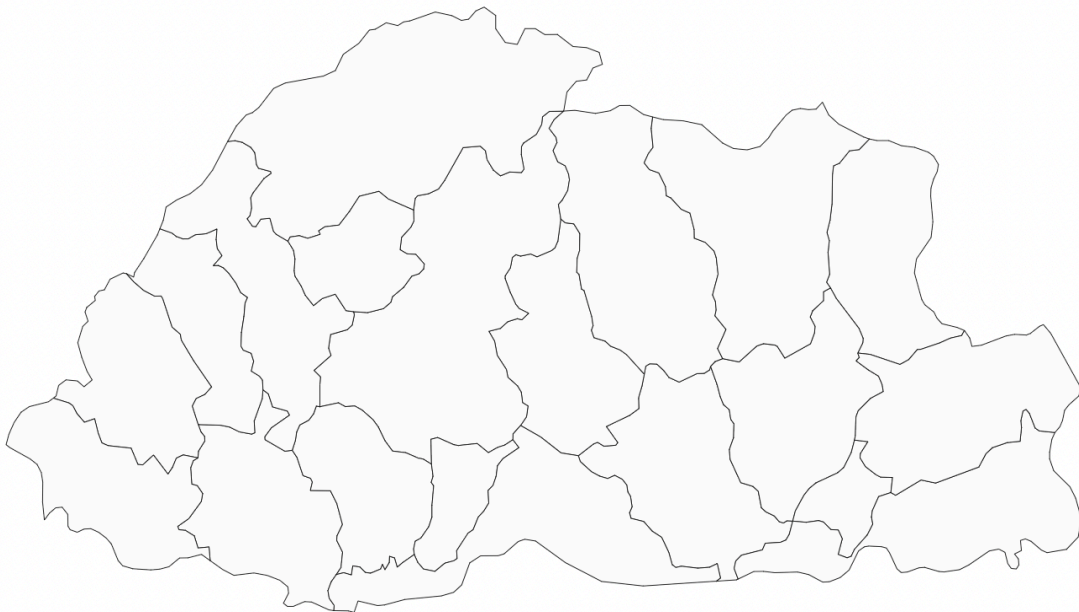


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ABBREVIATIONS

| Acronyms | Definitions |
|----------|---|
| BSF | Bhutan Science Foundation |
| C4 | Climate Change Coordination Committee |
| CC | Climate Change |
| CNR | College of Natural Resources |
| GEF | Global Environment Facility |
| GESI | Gender Equality and Social Inclusion |
| LDC | Least Developed Countries |
| LEDS | Long Term Low Emissions and Climate-resilient Development Strategy |
| LUCCC | Least Developed Countries Universities Consortium on Climate Change |
| MoF | Ministry of Finance |
| NAP | National Adaptation Plan |
| NAPA | National Adaptation Program of Action |
| NCCC | National Climate Change Committee |
| NCHM | National Center for Hydrology and Meteorology |
| NDC | National Determined Contribution |
| NECS | National Environment Commission Secretariat |
| NFP | National Focal Point |
| P&I | Policy and Institutions |
| PoC | Point-of-Contact |
| RUB | Royal University of Bhutan |
| TNC | Third National Communication |
| TT | Think Tank |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNI-LEAD | LDC University Leadership for Catalyzing Climate-Adaptation Finance |

Executive Summary

The objective of this country profile is to provide an overview on the status and the opportunities for university-government collaborations to access finance for climate change adaptation.

The key existing policies to inform strengthening of university-government collaborations for climate adaptation in Bhutan include:

- Climate Change Policy of Bhutan, 2020
- National Adaptation Plan (NAP)
- National Adaptation Programme of Action (NAPA)
- Nationally Determined Contributions (NDC)
- Third National Communication (TNC)
- Roadmap and strategy for strengthening Climate Change Research in Bhutan 2021-2025
- National Environmental Strategy, 2020

The key existing institutions to be involved in strengthening university-government collaborations for climate adaptation in Bhutan are the following:

- National Climate Change Committee
- Climate Change Coordination Committee
- Gross National Happiness Commission:
- Ministry of Finance:
- National Center for Hydrology and Meteorology:
- Royal University of Bhutan & Research institutions:
- Ministry of Agriculture and Forests
- Ministry of Economic Affairs
- Ministry of Works and Human Settlement
- Ministry of Information and Communications
- Ministry of Labor and Human Resources

The constraints/difficulties in accessing climate adaptation finance

The constraints/difficulties in accessing adaptation financing identified by the stakeholders include among others :

- lack of the institutional capacity to effectively identify, prioritize, and implement climate adaptation projects.
- limited technical capacity to develop and implement climate adaptation measures.
- complex bureaucratic procedures, which can be time-consuming and frustrating.
- lack of coordination among different government agencies and stakeholders, leading to delays and inefficiencies.
- resource-intensive process for preparing project proposals that meet the requirements of funding agencies.
- limited awareness of the available climate finance options and how to access them.

Entry points and action plan for strengthening university-government collaboration in Bhutan:

The adaptation policies and institutional mapping, and the country dialogue revealed the existing of entry points for university-government collaboration on climate adaptation finance

in Bhutan, through:

- Development of MoU between the CNR-RUB university and government focal point agencies to enhance collaboration for climate adaptation research, project preparation and resources mobilization.
- Engagement of CNR-RUB as collaborator to implement research oriented activities such as need reassessment, knowledge sharing, jointly identify the need for climate change adaptation and mitigation measure and identifying clear role and responsibility of the organizations.
- CNR-RUB and NRDCL could access climate funding jointly by forming collaborative partnerships and developing projects that align with the objectives and priorities of climate funding organizations or mechanisms can collaborate.
- Provide relevant action research topics to the students, guide and facilitate students in the process of conducting research in the field, provide fund supports if available.
- The Department of Forests and Park Services and CNR-RUB should collaborate on a project and training could be offered to the project staff and interested individuals in both the agencies.

1. INTRODUCTION

This country profile is a product of the UNI-LEAD project funded by the Global Environment Facility (GEF) for the benefit of 13 Least Developed Countries (LDC), members of the LUCCC¹ network. The country profile has been prepared for general guidance on the status of university-government collaborations to access finance for climate change adaptation.

The document is part of a series of 7 country profiles produced as part of the UNI-LEAD project. The objective of this exercise is to present the overall situation in terms of collaboration between government institutions (policy makers) in charge of climate actions at country-level and national universities and think thank with the aim of mobilizing domestic and international funding for climate change adaptation.

The country profile has been prepared taking into account four key elements including (i) the literature review and expert judgement on existing collaborations in the climate adaptation processes, (ii) the best practices guidelines on university-government collaborations in the field of climate change (iii) the country policies and institutional mapping report, and (iv) the reports of various consultations and dialogues organized at regional and national levels.

2. COUNTRY OVERVIEW: BHUTAN

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| 1 | Observed and projected climate change risks in Bhutan | <p><i>Glacier retreat</i> The country's glaciers have been receding at an alarming rate, leading to the formation of glacial lakes and increasing the risk of glacial lake outburst floods (GLOFs).</p> <p><i>Changes in precipitation patterns</i> Bhutan has experienced more frequent and intense rainfall events, leading to increased landslides, flooding, and erosion.</p> <p><i>Temperature rise</i> Average temperatures have been rising, affecting agriculture, ecosystems, and human health.</p> <p><i>Increased frequency and intensity of extreme weather events</i> Climate models predict more frequent and severe droughts, heatwaves, and floods.</p> |
| 2 | Observed and projected climate change impacts in Bhutan | <p><i>Water resource scarcity</i> As glaciers continue to melt and precipitation patterns change, water resources may become scarce in certain regions.</p> <p><i>Agricultural challenges</i> Crop yields may decline due to changes in temperature, precipitation, and pests.</p> <p><i>Biodiversity loss</i> Climate change is threatening Bhutan's rich biodiversity, including its unique flora and fauna.</p> |

¹ Least Developed Countries Universities Consortium on Climate Change

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| | | <p><i>Hydropower generation impacts</i> Climate change could affect hydropower generation, a crucial sector for Bhutan's economy.</p> <p><i>Health risks</i> Rising temperatures and changes in precipitation patterns could increase the prevalence of vector-borne diseases and heat-related illnesses.</p> |
| 3 | Most vulnerable sectors | <ul style="list-style-type: none"> ▪ Agriculture ▪ Hydropower ▪ Tourism ▪ Forestry ▪ Biodiversity |
| 4 | Opportunities for climate adaptation and resilience-building in Bhutan | <ul style="list-style-type: none"> ▪ Promoting the cultivation of climate-resilient crops. ▪ Enhancing water management efficiency. ▪ Investing in early warning systems and emergency response capabilities. ▪ Exploring alternative energy sources to reduce reliance on hydropower. ▪ Climate-proofing infrastructure development. ▪ Empowering local communities to develop and implement adaptation measures. |
| 5 | Adaptation financing needs | <ul style="list-style-type: none"> ▪ No specific figures. Several studies have estimated Bhutan's adaptation financing needs to be in the range of hundreds of millions of dollars per year. |
| 6 | Climate change adaptation challenges in Bhutan | <ul style="list-style-type: none"> ▪ The country's steep topography makes it vulnerable to landslides, erosion, and flooding, particularly during extreme weather events. ▪ Bhutan's high altitude limits the range of crops that can be grown and makes it susceptible to cold spells and frost. ▪ Many communities in Bhutan are remote and difficult to reach, making it challenging to provide them with essential services and support. ▪ Bhutan's economy is heavily reliant on hydropower, which is vulnerable to changes in precipitation patterns. ▪ Agriculture is a vital source of livelihoods for many Bhutanese, but it is highly susceptible to climate change impacts such as droughts, floods, and pests. ▪ Tourism is a growing sector in Bhutan, but it is also vulnerable to climate change impacts, such as changes in weather patterns. ▪ Bhutan has limited financial resources to invest in climate change adaptation measures. ▪ The country lacks the technical capacity to develop and implement effective adaptation strategies. ▪ Challenges in coordinating efforts among different government agencies and stakeholders. |
| 7 | LUCCC University name and address | College of Natural Resources (CNR), Royal University of Bhutan (RUB) |

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| 8 | UNI-LEAD Point of Contact (PoC) and TT Coordination | Om Katel, PhD Lecturer & Program Leader for PhD in Climate Studies College of Natural Resources Royal University of Bhutan Email: katelom76@gmail.com |
| 9 | UNFCCC National Focal Point (NFP) | Mr. Tenzin Wangchuk Chief Environment Officer Ministry of Energy and Natural Resources +975 2 323384 twangchuk@moenr.gov.bt |
| 10 | GCF National Designated Authority | Mr. Tshering Dorji PRIMARY Director Department of Macro-fiscal and Development Finance (DMDF), Ministry of Finance PHONE +975 17600755 TSHERINGDORJI@MOF.GOV.BT Mr. Namgyel Dorjee OPERATIONAL FOCAL POINT Chief, Development Coordination and Debt Management Division (DCDMD), DMDF, Ministry of Finance NAMGAYD@MOF.GOV.BT Ms. Tshering Choden OPERATIONAL FOCAL POINT GCF Focal Officer, DCDMD, DMDF, Ministry of Finance PHONE +97517579755 TSHERINGCHODEN@MOF.GOV.BT |
| 11 | Adaptation Fund Designated Authority | Mr. Tshering Dorji Director Dep. of Macro-fiscal and Development Finance Ministry of Finance Tel: + (975) 176 00755 Email: tsheringdorji@mof.gov.bt ; Alternate emails: namgayd@mof.gov.bt ; tsheringchoden@mof.gov.bt ; |
| 12 | GEF Focal Point | Mr. Ugyen Dorji Political Focal Point since 2020-11-04 Officiating Director Department of Multilateral Affairs, Ministry of Foreign Affairs Tel: +975 2 323297 Email: ugyendorji@mfa.gov.bt Mr. Tshering Dorji Operational Focal Point since 2024-02-02 Director - Department of Macro-Fiscal and Development Finance, Ministry of Finance Email: tsheringdorji@mof.gov.bt ; namgayd@mof.gov.bt ; tsheringchoden@mof.gov.bt |

3. POLICIES AND INSTITUTIONAL MAPPING

3.1. Policies mapping

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| Climate Change Policy of Bhutan 2020 | <p>The Climate Change Policy of Bhutan 2020 serves as the main policy document that provides the mandate and guidance for climate change action in Bhutan. It includes a statement for adaptation, mitigation, means of implementation, the roles of institutions and stakeholders and lays out procedures for implementation, and monitoring & evaluation. The vision and objectives are:</p> <p><i>Vision:</i> A prosperous, resilient and carbon neutral Bhutan where the pursuit of gross national happiness for the present and future generations is secure under a changing climate. Specifically, the Climate Change Policy was adopted with a vision of: “a prosperous, resilient and carbon neutral Bhutan where the pursuit of gross national happiness for the present and future generations is secure under a changing climate.”</p> <p><i>Objectives:</i> The policy aims to provide strategic guidance to ensure that Bhutan remains carbon neutral and protect the wellbeing of the people of Bhutan by adapting to climate change in an efficient and effective manner ensure meaningful participation of all relevant stakeholders in climate change action in a coordinated and coherent manner with clear roles and responsibilities and ensure that the challenges and opportunities of climate change are addressed at all appropriate levels, through adequate means of implementation (finance, technology, capacity building and awareness) and integration into relevant plans and policies.</p> <p><i>Policy Statements:</i> There are four policy statements in the policy. Several measures are also elaborated for each statement that are assigned to different agencies and other stakeholder bodies to support implementation.</p> <p>Policy Statement 1: <i>Pursue Carbon neutral development:</i> The RGOB shall take appropriate measures to maintain the carbon neutral status of Bhutan towards ensuring ‘ecologically balanced sustainable development while promoting justifiable economic and social development’ by pursuing a low GHG emissions development pathway.</p> <p>Policy Statement 2: <i>Building resilience to climate change:</i> RGOB shall take measures to protect the health, lives, livelihoods and happiness of the people of Bhutan from the adverse impacts of climate change by building adaptive capacity and resilience to reduce vulnerability and by integrating adaptation actions into the development planning process at all levels.</p> <p>Policy Statement 3: <i>Ensure means of implementation:</i> RGOB shall strive to ensure adequate means of implementation (through finance, technology, capacity building, research and awareness,</p> |
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| | <p>integration) to support both mitigation and adaptation actions.</p> <p>Policy Statement 4: <i>Effective and coordinated actions</i>: RGOB shall ensure an effective, efficient, and coordinated national approach for implementing climate change action by avoiding duplication of efforts and promoting synergies through active collaboration and guidance.</p> <p><i>Implementation Procedure</i>: The CC policy further defines the implementation procedures by defining, (a) General roles and responsibilities (b) Institutional arrangements (c) Specific Responsibilities and (d) Process for implementation</p> <p><i>Monitoring and Evaluation</i>: The CCP also specifies steps and procedures for monitoring and evaluation progress in achieving the policy objectives at different levels by different actors from the local level to national and international reporting obligations. The main categories for M&E include: (a) Monitoring the implementation of the CC Policy and action plan (b) Assessing progress in climate change action (c) evaluation of progress in implementing the policy.</p> |
| <p>National Adaptation Plans (NAP)</p> | <p>The process to prepare the first NAP from Bhutan has been initiated under a NAP readiness project with NEC and funded by the GCF and with support from UNDP. The expected outcomes of the project are:</p> <p>Enhanced coordination, learning and knowledge management for an iterative National Adaptation Plan process</p> <p>Enhanced technical capacity for the generation of climate scenarios and impact assessment</p> <p>Prioritized adaptation options prioritized through vulnerability assessments</p> <p>National Adaptation Plan formulated and capacity for implementation and monitoring established</p> |
| <p>National Adaptation Programme of Action (NAPA)</p> | <p>The National Adaptation Program of Action (NAPA) was established in 2001 as “a process for the LDCs to identify priority activities that respond to their urgent and immediate needs with regard to adaptation to climate change”. This meant that the actions were meant to address current vulnerabilities, which if further delayed could increase vulnerability or lead to increased costs at a later stage. Since the NAPAs were to be developed in LDCs with low capacities, data and scientific information the adaptation priorities were to be drawn up rapidly and encourage no-regret projects (provides other sustainable development benefits even if the expected impact does not arise). The NAPA guidelines were a step-by-step process and tailored to suit the special circumstances of LDCs. The process involved a rapid assessment of available information and largely relied on bottom-up participatory process to identify and prioritize urgent adaptation needs. Due to the need</p> |

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| | <p>to prioritize and rank projects under the NAPA, the multicriteria analysis (MCA) was used to rank the adaptation priorities.</p> <p>Bhutan was one of the first countries to prepare and submit its NAPA document in 2006. The NAPA contained nine priority activities which were all location specific. Following the submission of the NAPA, Bhutan submitted the first NAPA implementation projects to the LDCF to address the potential risk of glacial lake outburst flood (GLOF) from Thorthormi Tsho. This project three priority components with a budget of \$3.445million from the LDCF:</p> <p>Artificially lowering the water level in Thorthormi Lake;</p> <p>Increasing the capacity for disaster risk management in affected valleys;</p> <p>Installing a technical early warning system for GLOFs.</p> <p>The NAPA document was then updated in 2012 as it was initially felt that during the first NAPA preparation some stakeholders felt they were not very aware of the process and could not participate adequately. Another factor was that in the six years since the completion of the NAPA document, new information about different vulnerabilities was also becoming more prevalent such as increasing windstorms.</p> <p>Following the update of the NAPA the 2nd NAPA project (\$11.9million) was implemented to safeguard essential economic and livelihood infrastructure in hazard-prone communities and key industrial areas from increasing climate hazards such as floods, landslides, windstorms and forest fire through reducing vulnerability at high-risk areas and increasing adaptive capacity of community-level disaster risk management institutions.</p> |
| <p>Nationally Determined Contributions (NDC)</p> | <p>Bhutan submitted its Intended Nationally Determined Contribution (INDC) to the Paris Agreement on 30 September 2015. On ratification of the Paris Agreement on 19 September 2017 the INDC became Bhutan’s first NDC. The NDC reaffirmed Bhutan’s pledge to remain carbon neutral first made in 2009 and laid out the priorities for low GHG emission development across nine areas. The NDC also contained ten areas of priority needs for adaptation and called on the international community to support Bhutan’s efforts to mitigate and adapt to climate change and that “the successful implementation of our intended actions to mitigate will depend on the level of financial and technical support received”¹ . The Third National GHG Inventory² shows that Bhutan’s greenhouse gas emissions (including forest emissions) in 2015 amounts to just 3.8 million tons of CO₂e, which is negligible on a global scale. In the same year, Bhutan’s forests sequestered 9.4 million tons of CO₂ resulting in net negative emissions of 5.6 million tons of CO₂. In this regard, Bhutan continues to remain carbon neutral. In presenting the 2nd NDC, Bhutan maintains the</p> |

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| | <p>commitment to remain carbon-neutral and the 2nd NDC is an enhancement from the first NDC in several ways³ : i) The data and information that demonstrates Bhutan’s position as a net carbon sequestering country has been greatly improved. Since the first NDC, the national GHG inventory system has been improved with the completion of the 3rd GHG Inventory where significant improvements have been made with the utilization of the 2006 IPCC Guidelines. ii) Bhutan’s forests serve as the cornerstone of our carbon commitment and there has been tremendous improvements in estimation of forest emissions and removals. The data and information for forest emissions and removals have been estimated at a higher tier with the completion of a comprehensive National Forest Inventory in 2016 and the submission of Bhutan’s National Forest Reference Emission Level and National Forest Reference Level prepared as part of Bhutan’s REDD+ Readiness preparedness. iii) The broad plans and actions for low emission development identified in the 1st NDC to support Bhutan’s efforts to remain carbon neutral have been further elaborated and refined through low emission development strategies (LEDS), and roadmaps. Therefore, sectoral actions with GHG and non-GHG targets along with strategies and priority plans are now presented in the 2nd NDC.</p> |
| <p>Third National Communication (TNC)</p> | <p>The Third National Communication from Bhutan (TNC) is the latest comprehensive report from Bhutan to the UNFCCC and was submitted in 2020. It contains a description of the national circumstances presenting a general overview of the country, including biophysical, socio-economic and policy scenario. The TNC also contains a comprehensive inventory of GHG emissions and removals with 2015 as the reporting year followed by a chapter describing different scenarios and options for mitigation. The information about emissions scenario and mitigation options have been captured in the sections discussing the INDC and 2nd NDC above. The TNC also contains a chapter on vulnerability and adaptation assessments and presents adaptation priorities as discussed below. Other chapters discuss capacity issues arising from constraints in data, information and resources required for climate action in Bhutan.</p> |
| <p>Roadmap and strategy for strengthening Climate Change Research in Bhutan 2021-2025</p> | <p>The capacity of national and local institutions to address climate related challenges is impeded by lack of information and credible research. Bhutan’s ability to remain carbon neutral and meaningfully address the challenges posed by a rapidly changing climate needs to be guided by sound science and reliable data. This climate change research, the Climate Change Policy of Bhutan, 2020, which stipulates overarching guidelines to strengthen research and bring about coherence in approach and strategies. This roadmap charts a way forward to strengthen climate change research in Bhutan by seeking delivery on five strategic imperatives:</p> |

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| | <p>Strategic Imperative I: Emphasis should be placed on understanding the full ramifications of climate change to enable design of effective mitigation and adaptation strategies. To focus research efforts, and to ensure value, research institutions, CSOs and constituent Colleges of RUB should prioritize research areas and frame execution plans. RUB and research institutions should enter into mutually beneficial and actionable MoUs with relevant Government agencies, and institutions of worth within the region and abroad.</p> <p>Strategic Imperative II: Institutions currently invested in research must be supported and strengthened at multiple levels, in terms of staff capacity, research financing, institutional facilities and credibility. Centers at constituent Colleges should take center stage and act as hubs for climate research, action, and engagement. High level workshops and leadership seminars aimed at coaxing leaders to bring about the required organizational and cultural change should be initiated and convened on an annual basis.</p> <p>Strategic Imperative III : A web-based <i>Climate Research, Information and Service Portal</i> (CRISP), to hold and provide climate related data and relevant analysis should be set up. CRISP should also serve as a repository for all publications on climate change in Bhutan and provide information to guide researchers on administrative clearances required from multiple sectors.</p> <p>Strategic Imperative IV: Over the next three years, execute a string of priority capacity building programs to bring researchers and leaders up to speed on climate change science, mitigation and adaptation strategies and technologies, and financing frameworks. Annual forums for climate change research dissemination should be organized.</p> <p>Strategic Imperative V: To sustain funding for research, the Bhutan Science Foundation (BSF) should be established. BSF will be a vital and important addition to Bhutan’s growing public benefit apparatus established to support basic and applied research to advance Bhutan’s economic prosperity, social wellbeing, and ecological resilience.</p> |
| <p>National Environmental Strategy 2020</p> | <p>The National Environment Strategy 2020 is based on the vision of a healthy and sustainable environment for the present and future generations. The strategy includes different chapters like land, air, water, life, the way forward and the monitoring process.</p> |

3.2. Institutional mapping

The overall overarching national institutions mandated with ensuring climate action are defined in the CC Policy 2020 and are presented below:

| Institution | Mandates | Roles and responsibilities |
|--|---|---|
| <i>National Climate Change Committee</i> | <p>The National Environment Commission (NEC) functions as the high-level National Climate Change Committee (NCCC).</p> <p>The NEC chaired by the Hon'ble Prime Minister, or his nominee is the highest cross-sectoral environmental policy and regulatory body responsible for coordinating all the matters relating to the protection, conservation and improvement of the environment.</p> <p>The NEC derives its mandate from the National Environment Protection Act 2007, Water Act, Waste Prevention and Management Act, Environmental Assessment Act and other directives of the government.</p> <p>The NCCC is supported in implementing its mandates and functions through the National Environment Commission Secretariat (NECS).</p> | <p><i>The NEC, in its functions as National Climate Change Committee (NCCC), will consider all policy and regulatory matters on climate change and provide overall guidance on the Climate Change Policy and ensure that the policy is implemented by all sectors.</i></p> <p><i>NECS in supporting the NEC/NCCC shall also lead the preparation of national strategies and plans on climate change such as NDCs, NAPs, LEDS.</i></p> |
| <i>Climate Change Coordination Committee</i> | <p>The Climate Change Coordination Committee (C4) is the technical body to serve as a forum for discussion and coordination of matters related to climate change in Bhutan and makes recommendations for consideration by the NCCC/NEC. The C4 is comprised of high-level executive representation from stakeholder agencies and organizations and is chaired by the Secretary of NECS. The committee derives its mandate from the Executive Order of the Prime Minister of October 16, 2016.</p> <p>The C4 is supported in implementing its mandates and functions through the Climate Change Division of NECS.</p> | <p><i>The C4 will monitor and provide guidance on the overall implementation policy. The C4 will in particular ensure an effective and coordinated implementation of actions on climate change as articulated in policy objective #4.</i></p> |
| <i>Gross National Happiness</i> | <p>Besides coordinating preparation of policy and five-year plan, programming and prioritization of national priorities, the</p> | <p><i>The GNHC will where possible support the integration of climate</i></p> |

| Institution | Mandates | Roles and responsibilities |
|--|---|---|
| <i>Commission:</i> | GNHC is also mandated to coordinate and facilitate mobilization of all external grants and ensure that grants are allocated to agencies and Local Governments based on government priority and guidelines in consultation with Ministry of Finance. | <i>change into policies, programs and plans and mobilize external resources for the implementation of climate change programs and projects.</i> |
| <i>Ministry of Finance:</i> | The Ministry of Finance (MoF) is mandated to formulate and implement dynamic fiscal policies and sound financial management through maximization of resource generation, efficient allocation, prudent expenditure and debt management and proper accountability of public resources. The mandates and functions of the MOF is governed by the Public Finance Act, Public Debt Policy, Income Tax Act, Revised Taxes and Levies Act, Fiscal Incentives 2017 and PPP Policy. | <i>In line with provisions of the various legislations, MOF has mandate for resource mobilization and budget allocation and also providing fiscal incentives and other instruments to support private sector lending to support implementation of the policy.</i> |
| <i>National Center for Hydrology and Meteorology:</i> | National Center for Hydrology and Meteorology (NCHM) is mandated to provide national source of hydro-meteorological data, service and advice to meet the needs of the general public, emergency services and other specialized users. | <i>NCHM will provide hydro-meteorological data and information, climate modelling and scenarios and other early warning services.</i> |
| <i>Royal University of Bhutan & Research institutions:</i> | The Royal University of Bhutan (RUB) has several key mandates that align with its mission of providing a quality education that contributes to the development of the country. These mandates include (i) providing higher education, (ii) conducting research, (iii) providing training and professional services and (iv) contributing to community development. | The Royal University of Bhutan (RUB) and other research institutions, in line with their respective mandates, shall conduct needs-based research to support informed decision-making and the planning and implementation of climate change action. |
| <i>Ministry of Agriculture and Forests</i> | The Ministry of Agriculture and Forests (MoAF) has the mandate to enhance rural livelihoods and is also the custodian of the forest resources of the country. They derive their mandate through several Acts, Policies and government directives (Seed | Management of forest and soils as carbon sinks and also as areas for ecosystem-based adaptation Management of emissions |

| Institution | Mandates | Roles and responsibilities |
|---|---|---|
| | Act, Biodiversity Act, Food and Nutritional Policy, National Forest Policy etc.). | from agriculture and livestock sector Resilience of food, livestock sector and biodiversity. |
| <i>Ministry of Economic Affairs</i> | The Ministry of Economic Affairs (MoEA) sets the agenda for the economic development of the country through the development of the manufacturing, trading, and mining and energy sectors. The various departments under the Ministry are governed by several different policies. | Integration of low emission development strategies in energy and industry and provision of incentives for environmental performance as per EDP Building resilience in energy and industry sectors. |
| <i>Ministry of Works and Human Settlement</i> | The Ministry of Works and Human Settlement (MoWHS) has the mandate to formulate and implement policies, regulations and plans related to physical infrastructure and human settlement. | Managing resilience of human settlements, infrastructure. Managing emission of GHG from settlements, waste management. |
| <i>Ministry of Information and Communications</i> | The Ministry of Information and Communications (MoIC) promotes the development of reliable and sustainable information, communications and transport services network and systems facilitating the provision of affordable and easier access to associated services. It is governed by the Road safety and Transport Act and National Transport Policy. | Managing emissions from transport sector. |
| <i>Ministry of Labor and Human Resources</i> | The Ministry of Labor and Human Resources (MoLHR) has the mandate to develop skill sets for economic development to ensure gainful employment for all Bhutanese workforces. | Capacity building support and integration into training institutions. |

4. Gender considerations in adaptation process in Bhutan

The principles of the National Adaptation plan (NAP) process call for including gender equality considerations and disaster risk management. While assessments of gender issues in climate change in Bhutan has not been assessed or studied, a limited number of reports have been produced in recent times. The ‘Gender and Climate Change in Bhutan, with a focus on selected Nationally Determined Contribution (NDC) Priority Areas: Agriculture, Energy and Waste’ prepared by the NCWC and NEC in 2020, covers a few limited sectors. A few other scoping reports for project proposals were also prepared in previous years. Nevertheless, the preparation of the NAP process used a concerted effort to integrate gender issues wherever possible based on the information available and the consultation process. Gender considerations have been included in the preparation of Bhutan’s NAP as follows:

Differentiated impacts of climate change: all Climate change risk assessments done for the four key sectors of health, agriculture, forests & biodiversity, and water analysed differentiated impacts of Climate change on gender and provides recommendations for addressing differentiated impacts of Climate change on gender.

Stakeholder engagement: the stakeholder engagement plan developed for the NAP process identifies gender as an integral part of the National adaptation planning and clearly specifies the role of gender and agencies like NCWC while at the same time ensuring gender consideration in national policies, plans and strategies.

NAP Formulation: while developing the adaptation priorities and needs, the opportunities for integrating gender considerations and the engagement of the private sector were also reviewed and included.

NAP Document: gender considerations, traditional and local knowledge are integrated into the priorities and plans and throughout chapters of the NAP, including as specific activities in the adaptation priorities and needs.

M&E for NAP: to ensure adaptation activities when implemented considers the differences in knowledge level, capacity, needs of women and benefits from adaptation implementation are reaped by all section of the communities. Gender disaggregated data for monitoring and reporting is to be collected.

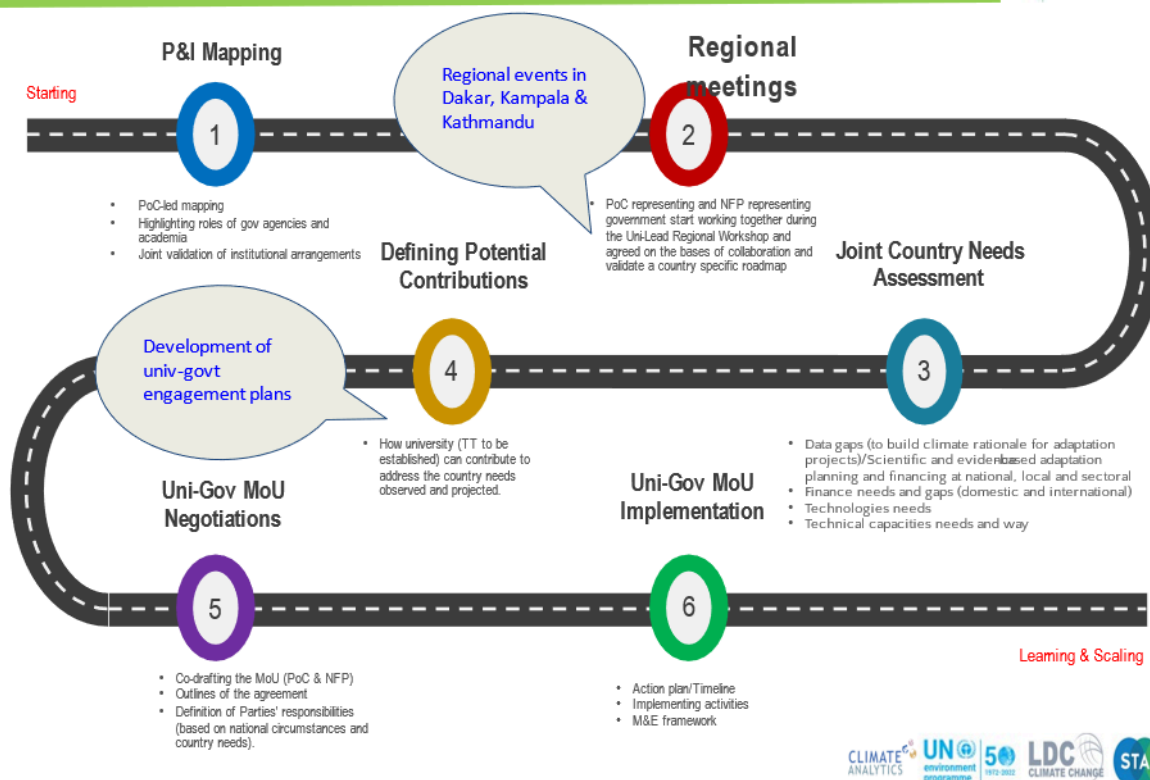
Capacity enhancements: educating for identifying gender differences in adaptation needs and capacities, participation and influence in decisions making, and benefits resulting from investments in adaptation is equitably accessible.

Source: Bhutan NAP, 2023

5. ROADMAP

To improve the collaboration university-government in Bhutan to address the identified challenges in access to finance for climate change adaptation, the following roadmap has been drafted by the parties.

UNI-GOV COLLABORATION ROADMAP



Part of the above roadmap is been supported by the UNI-LEAD programme to achieve a Joint assessment of CNR-RUB and stakeholders conducted (output 1) and in conducting capacity assessment of relevant agencies involved in climate change adaptation in Bhutan (output 2).

| Outputs | Activities | Target/deliverables | Timeline |
|--|---|--|-------------------|
| Joint assessment of CNR-RUB and stakeholders conducted | Stakeholder workshop to co-identify and co-assess the gaps and needs for Capacity for climate adaptation/mitigation initiatives | 1. One gap and needs analysis report 2. ToRs for collaboration 3. RCs Strengthened | September 30 2023 |
| Capacity assessment of relevant agencies conducted | stakeholders workshop with MoF and relevant CSOs and CSOs | 1. Training modules focussing on development of GCF/adaptation fund proposals | February 2024 |

6. Country dialogue and engagement

Bhutan faces several challenges in accessing and utilizing climate adaptation finance, such as limited institutional capacity, data availability, coordination, and alignment with national priorities and plans. To address these challenges, the College of Natural Resources (CNR), Royal University of Bhutan (RUB), in collaboration with the Bhutan government agencies such as Ministry of Energy and Natural Resources, and the Ministry of Finance (MoF), gearing up on university-government dialogue to access climate adaptation finance in Bhutan.

The main objectives of the dialogue held on 15-16 September, 2023 were to: (i) enhance the understanding of the current status, opportunities, and challenges of accessing and utilizing climate adaptation finance in Bhutan, (ii) identify the gaps and needs in terms of knowledge, skills, and tools for accessing and utilizing climate adaptation finance in Bhutan, (iii) explore the potential roles and contributions of the university sector in supporting the government in accessing and utilizing climate adaptation finance in Bhutan, and (iv) strengthen the collaboration and partnership between the university and government sectors in addressing climate change adaptation issues in Bhutan.

The outcomes of this in-country university-government dialogue between universities representatives and government agencies focal points are presented as follow:

6.1. Accessing climate funding jointly

- Engagement of CNR RUB as collaborators to implement research oriented activities such as need reassessment, knowledge sharing, jointly identify the need for climate change adaptation and mitigation measure and identifying clear role and responsibility of the organizations.
- Submit joint proposals to GCF and other climate funding opportunities.
- Prepare fund proposals jointly with the department of forest and park services, water sector is one of the main priority sector identified in the NAP.
- NAP has prioritized adaptation options including research needs in water climate sector. The department of water and CNR can collaborate on secure climate funding to implement prioritized activities identified in NAP, including research needs.
- Collaborate on scientific, economic, sustainable harvesting of the natural resources.
- Propose for plantation of the barren areas and process for carbon credit, utilize the existing forest for construction activities (carbon sequestration) and replant the harvested areas and process for carbon credit.
- CNR RUB and NRDCL could access climate funding jointly by forming collaborative partnerships and developing projects that align with the objectives and priorities of climate funding organizations or mechanisms can collaborate.
- Carry out research on climate change adaptation issues climate associated inventions require policy formulation which the academic institutions can collaborate with government agencies.
- Research and development in climate change for the livestock sector especially efficient sustainable production to reduce greenhouse gases data, climate change research, e-waste system through modelling, disease, pest and projections.
- CNR can train expert of Bhutan Food and Drug Authority on proposal writing to be submitted to GCF and also make the agencies aware on climate data, climate change research system through modelling projections.

6.2. Assistance that the respective organization would provide to CNR RUB to access climate funding

- Provide information and data on biodiversity for accessing and implementation of climate related projects in the protected areas and other important landscape are currently under the purview of the department of Forest and Park Services.
- Provide relevant action research topics to the students, guide and facilitate students in the process of conducting research in the field, provide fund supports if available.
- Review of your project proposal related to water resources.
- The department of water and CNR can collaborate on securing climate adaptation funding.
- Department of water is the body for water sector and key stakeholder for NAP.
- Assist in funding research student, especially carrying out research related to forest and plantation.
- In identifying real world issues in livestock related activities impacted by climate change policy guidance, technical collaborations for capacity development, prioritize the interventions.

6.3. Perceived and recommended knowledge and skills useful for employee of the agencies, concerning climate change adaptation

- Climate change and its impact on species distribution, economic impact of climate change, impact of climate on biodiversity: how climate change impact species, their distribution and ecology.
- Develop skills through training in risk and vulnerability analysis to identify potential climate change impacts, learn on climate change mitigation and adaptation planning, specific actions timeliness and resources required to address climate related risks, understand how ecosystem can help mitigate and adapt to climate change.
- Train employee of the agencies on nature based solutions and climate resilience ways and methods to manage water resources sustainability, ground water extraction where such knowledge is limited.
- Climate vulnerability and risk assessment on water sector.
- Development of climate change adaptation plan (focused on water sector), NBS and climate resilient water infrastructure, interpretation of climate change adaptation and disaster risk reduction.
- Forest management and harvesting forest resources, especially timbers in more climate friendly manner.
- Climate change and mitigation, adaptation through involvement of communities, environment friendly road construction, scientific thinning afforestation, and reforestation.
- Knowledge and skills on infrastructure resilience for highland districts or highlanders, natural ecosystem (rangeland) management, livestock farming adaptation, disaster preparedness, renewable energy transition, community engagement, policy and regulation.
- How to create awareness on climate change adaptation issues globally, issues related to climate change in livestock farming & increase in vector population, how these issues are addressed globally/adaptation strategies, climate change impact assessment tools, climate smart technologies for adoption on the field.
- Sustainable production to reduce greenhouse gas, climate adaptation and mitigation in livestock sector and improved livelihoods for ordinary people.

6.4. Recommended trainings for CNR RUB to develop

Following concepts and thematic areas are recommended to design and develop a training content:

- The Department of Forests and Park Services and CNR should collaborate on a project and training could be offered to the project staff and interested individuals in both the agencies.
- It is vital to develop a human resources capacity especially climate change and water engineering course.
- Climate change adaptation is a priority for most sector like water, environment, forest, agriculture, human health etc. Therefore, it would be very relevant if CNR could develop training package and update periodically to make it relevant to all the priority sector.
- It's a good idea to develop training materials on climate change relevant to each agency and deliver to develop human resource capacity and courses may be on concepts such as Ecosystem valuation, livestock farming adaptation, renewable energy transition.

6.5. Recommended thematic areas for strengthening collaboration between CNR RUB and agencies

- Developing capacity development programme, awareness and education, and research.
- Establish long-term monitoring plots and carry out periodic assessments of environmental change.
- Generate long term data through quality research and adoption of best climate smart reforestation models in the country, climate risk management and food security, human dimensions and health.
- Develop policy and communication skills, technology innovations and transfer of technology know-how, understanding water , environment and ecosystem in the context of climate change.
- Research related to water resources management such as spring shed management and their revival, climate change impact on water resources, climate resilient water supply and infrastructure, forecasting of climate impacts on water.
- Development of climate smart forest management, logging, afforestation and reforestation activities, scientific thinning.
- Climate change mitigation and communities' involvement.
- Livestock farming research, rangeland studies, highland ecosystem studies, renewable energy studies.
- Human resource capacity development, inclusive program on climate.
- Developing strategies for biosecurity, plants and animals, food safety, climate change, pest and disease, pathogens, food and short life of food in relation to climate change, GMO act does allow, contradicts with food security of a count in climate change.

6.6. The main actions or strategies that agencies could implement to strengthen collaboration on climate change adaptation

- Develop MoU, Conduct annual coordination meeting to identify needs and priorities

and area of collaboration.

- Sign a MoU between the institutions on a long term monitoring of species and ecosystem within the Bhutan landscapes or relevant areas of mutual interests.
- Implement climate smart reforestation, alternative land use planning to diversify sustainable income generation.
- Guest lecture on impact of climate change to water resources. Knowledge sharing on the concept of hydrogeology and spring shed management.
- Engage with CNR/RUB in undertaking Climate Smart Agriculture and nature research, capacity development on water and climate.
- Avail relevant trainings when needed, research about timber harvests, uses of different species, collaborate on taking up activities that promote climate change adaptation.
- Capacity building, joint fund sourcing, human resource support, lab and infrastructure sharing, documentation and technology.
- Sharing researchable topics or collaborative projects, hosting students to do their research trials in the farms, annual coordination meeting in person or virtually to review the collaboration to further strengthen it.
- Explore funding opportunities, strengthen collaborations with agencies like BES, NEC, MoENR with existing policies concerning areas of mutual interest.
- Animal health, rangeland management, research and development collaboration, strengthen the collaboration, joint projects and MoU.
- Energy master being developed, no expertise in climate change, need technical experts to develop master plan, there is a room for collaboration, EIA and SIA is being outsourced to consultancy, collaboration with CNR, global climate change modelling, transmitting, limited research at organization, institution can take up research plus organization can collaborate, energy auditing, energy efficiency, need to know how impacts of this in green projects, green hydrogen project plant in existence.
- Some other topics could be: carbon, credit, accreditation, hub of data on climate Change.
- Collaboration on elimination of carbon sink and DoE and CNR could come up with innovative technology development and sharing.
- Joint research, internship, guest lecturer on specific topic.

6.7. Perceived gaps or needs of CNR RUB in terms of knowledge, skills, resources, or tools on climate change adaptation

- Lack of collaboration, and information dissemination concerning research by CNR.
- Need for well-trained climate experts, currently climate studies are undertaken by professionals of interdisciplinary background.
- Lack of adequate fund support, scientific knowledge and technical skills in the conduct of climate change actions, strong policy supports, lack of multidisciplinary advocacy for climate adaptation and develop climate resilient society.
- Knowledge and skills development required especially on sound water uses and management.
- Practical activities and theories must go hand in hand.
- Communication and linkages with relevant organization
- Working in silo, a good working relationship or collaboration is required to open up avenues to work together.
- Financial resources, outreach or collaborations with government or non-government agencies.
- Limited funds and lack of technical capacity.

- Visibility of CNR's strength, capacity of CNR, where by CNR RUB's own capacity is unknown even by the parent organization.
- Lack of good infrastructure especially in terms computational resources, and laboratory facilities.

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Reviewer:
Om Katel, PhD

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