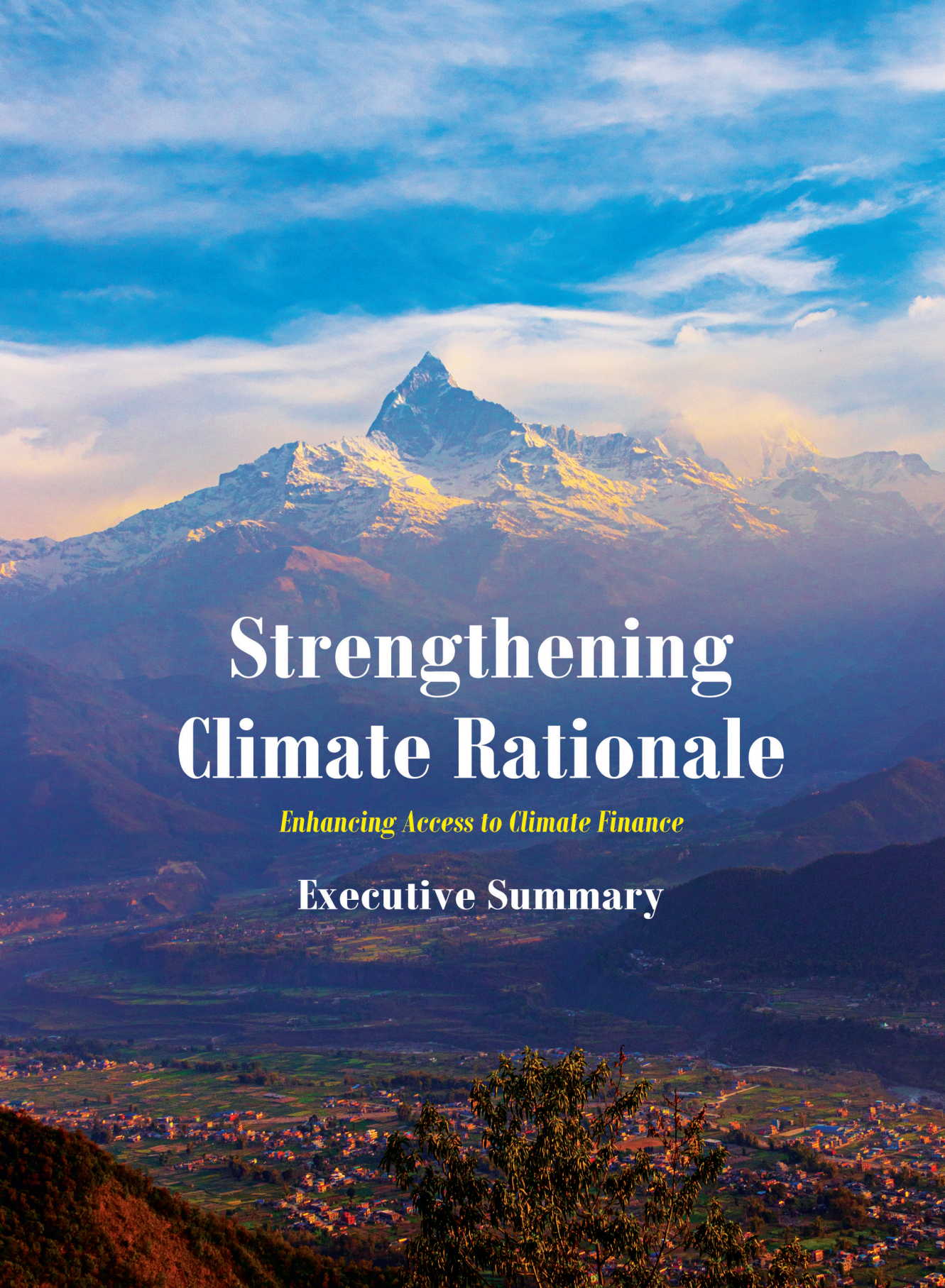

Strengthening Climate Rationale

Enhancing Access to Climate Finance

Executive Summary

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Executive Summary

1 Aligning Climate Projects with Nepal's Goals

Nepal faces significant climate vulnerabilities. Global rankings highlight the country's high exposure and limited adaptive capacity. Historically, Nepal's climate policies focused on adaptation, but there is now a shift toward integrating both adaptation and mitigation strategies. Aligning climate projects with Nepal's climate goals, as outlined in the Nationally Determined Contributions (NDCs) and the National Adaptation Plan (NAP), is essential for cohesive climate action, securing funding, and improving implementation.

Key strategies for aligning projects include incorporating national climate goals into project designs, linking objectives to NDC and NAP targets, and adhering to established national methodologies. Projects should also align with sector-specific strategies, such as the National REDD+ Strategy and National Energy Strategy. Using government-endorsed data and methodologies, engaging key institutions, and ensuring alignment with the Monitoring, Reporting, and Verification (MRV) system are essential to track progress and strengthen Nepal's climate action agenda.

It is critical to use scientific data to link proposed interventions with climate trends, assess vulnerabilities, and ensure stakeholder engagement. The NDC targets significant GHG emissions reductions and enhanced climate resilience through renewable energy expansion, electric vehicles, afforestation, and sustainable land management. While NDC projects have made considerable progress, there are opportunities for improvement, including strengthening evidence for GHG reduction attribution and ensuring consistency with national reporting frameworks.

Similarly, NAP projects must align with national development priorities, clearly define objectives, and demonstrate effective risk mitigation. Although NAP projects successfully identify climate risks and focus on vulnerable groups, challenges remain in ensuring project effectiveness, quantifying beneficiaries, and addressing implementation issues. Enhancing the climate rationale in both NDC and NAP projects is key to securing international climate finance and delivering tangible benefits for vulnerable communities. Investing in data systems and capacity building will help bridge existing gaps and align these projects with global best practices.

2 The Importance of Climate Rationale in Climate Finance Proposals

A strong climate rationale is a crucial element in the design and justification of climate change interventions. It establishes the scientific foundation for proposed actions by linking specific climate threats to the suggested solutions, ensuring that the interventions are data-driven, evidence-based, and address actual climate challenges. This rationale is essential for securing international climate finance, as it demonstrates the necessity of the intervention and its alignment with climate science, thereby increasing the likelihood of approval.

2.1 Strengthening Climate Rationale Process for Nepal

Nepal's vulnerability to climate change underscores the need for robust climate rationale processes. Strengthening these processes yields several benefits:

- ***Addressing vulnerabilities***: Integrating climate scenarios with agriculture, forestry, water management, and disaster risk systems supports building a climate-resilient society.
- ***Policy alignment***: ensures climate actions align with national policies like NAP and NDCs, embedding climate considerations into development strategies.
- ***Enhancing adaptation***: Strong climate rationale enables sound project proposals, improving resilience and securing funding for adaptation measures.
- ***Policy implementation:*** Evidence-based approaches address gaps in policies and enhance coordination among stakeholders.
- ***Access to climate finance:*** A clear climate rationale strengthens proposals for funds like GCF and AF, increasing approval likelihood.

Nepal's access to climate finance involves governance by the Ministry of Finance (MoF), supported by a three-tiered structure managing GCF engagements.

Additionally, evolving climate finance mechanisms – like green bonds, blended finance, and carbon pricing – offer diversified funding channels. Aligning with global goals such as the Paris Agreement and Sustainable Development Goals (SDGs) ensures Nepal's efforts support sustainable and climate-resilient development.

2.2 The IPCC: A cornerstone of Climate Science for Nepal

The IPCC provides reliable, evidence-based assessments of climate change, crucial for countries like Nepal to develop targeted adaptation strategies. The IPCC's Sixth Assessment Report (AR6) underscores the rising temperatures and extreme weather events projected for South Asia, highlighting significant risk for Nepal.

Key findings include:

- ***Human attribution***: robust evidence links global warming to human-induced GHG

emissions, with CO_2 as the primary driver.

- ***Future scenario***: Shared Socio-Economic Pathways (SSPs) model temperature changes under varying emissions scenarios, aiding strategic planning.

The IPCC's rigorous synthesis of research guides mitigation and adaptation efforts, leveraging data science to quantify impacts and inform interventions. For Nepal, aligning strategies with IPCC insights enhances climate resilience, supports resource mobilization, and reduces climate-related risks and costs.

2.3 Challenges in Developing a Climate Rationale for Climate Finance

Developing countries like Nepal face significant barriers in accessing climate finance due to the complexity of presenting a "climate rationale." This rationale must link proposed interventions to climate change impacts, mitigation, or adaptation goals. Key challenges include:

- ***Data and information gap:*** Limited access to localized historical, and high-resolution data complicates risk assessments and climate modeling.
- ***Technical complexity:*** Advanced expertise is required for downscaling climate models and interpreting results, which many developing countries lack.
- ***Capacity and resource variability:*** Disparities in institutional capabilities hinder effective use of climate information.
- ***Understanding local impacts:*** Limited knowledge of climate impacts on livelihoods impedes targeted strategies.
- ***Distinguishing climate from development:*** Proposals must merge scientific evidence with local and traditional knowledge for relevance and effectiveness.
- ***Policy alignment and capacity constraints:*** Ensuring coherence with policies and addressing limited financial tracking capabilities further complicates proposal development.

To address these barriers, integrating advanced climate science with localized knowledge, improving data systems, enhancing technical expertise, and investing in capacity building are critical. These steps can strengthen the ability of developing countries to craft robust proposals and access climate finance effectively.

2.4 Basics of a Climate Rationale

A climate rationale establishes the scientific foundation for evidence-based climate decision-making, linking climate impacts, actions, and societal benefits using robust data and analysis. It provides a clear justification for proposed interventions, aligning them with observed and projected climate risks, enhancing their relevance and effectiveness.

Key Elements of a Climate Rationale:

- ***Climate change risks and vulnerabilities:*** Identifies specific risks amplified by climate change and their impacts on systems, communities, and sectors.

- ***Current and projected impacts:*** Analyze observed and anticipated climate impacts, such as extreme weather events, to justify the need for targeted interventions.
- ***Distinction between climate response and development:*** Differentiates climate actions from general development efforts while recognizing potential co-benefits.
- ***Additionality of interventions:*** Demonstrates how proposed actions address climate impacts beyond business-as-usual scenarios.

Steps to develop a climate rationale:

Step 1: Establishing the Climate Case	Step 2: Develop Interventions
Climate Science Basis: Use baseline and future climate scenarios to evaluate climatic stressors using appropriate datasets and tools. Data Analysis Interpretation: Assess risks and vulnerabilities by analyzing how climate stressors affect various sectors.	***Select Adaptation/ Mitigation Options:*** Identify and prioritize effective strategies to address climate risks. ***Evaluate Effectiveness:*** Monitor and measure intervention outcomes to ensure alignment with goals. ***Define Problems and Vulnerabilities:*** Use frameworks like the Theory of Change to link climate vulnerabilities to broader challenges and solutions.

By combining scientific evidence with actionable strategies, a well-articulated climate rationale strengthens the case for climate finance and ensures interventions effectively address climate challenges.

2.5 Difference in Approaches and Methodologies to the Climate Rationale

Climate rationale development varies between Nepal's NDCs and NAP projects, reflecting their distinct goals:

NDC Projects	NAP projects
Focus on mitigation, emphasizing GHG emission reductions. Quantitative approaches, standardized calculations of emissions reductions and metrics such as tons of CO_2 equivalent reduced.	Centered on adaptation, prioritizing resilience-building through vulnerability assessments and scenario planning. Integrates traditional knowledge and local perceptions of climate risks alongside scientific data and often incorporate qualitative elements like adaptive capacity improvements and ecosystem service enhancements.

2.6 Lesson learned from successful projects

Key lessons from climate projects in Nepal include:

- **Robust Baseline Data:** Projects with clear, quantified, and disaggregated baselines for climate and socio-economic indicators demonstrate stronger rationales and impacts.
- **Top-Down and Bottom-Up Integration:** Combining national climate data with local vulnerability assessments ensures scientific credibility and local relevance.
- **Flexibility and Adaptive Management:** Building flexibility into project designs allows adjustments for evolving data and changing conditions.
- **Demonstration of Co-Benefits:** Link climate interventions with broader development goals .

2.7 Challenges and Gaps in Current Practices

Despite progress, challenges persist in developing robust climate rationales:

- **Data Gaps:** Limited availability of localized, high-resolution climate data hinders project precision, especially for smaller-scale interventions.
- **Attribution Challenges:** Differentiating climate change impacts from other environmental or socio-economic factors complicates justification for adaptation projects.
- **Timeframe Misalignment:** The long-term nature of climate impacts contrasts with short-term results often required by funding mechanisms.
- **Institutional Capacity:** Many institutions lack expertise to interpret complex climate data and align interventions with climate threats.
- **Disconnect Between Mitigation and Adaptation:** Narrow focus on either mitigation or adaptation often overlooks opportunities for integrated approaches and co-benefits.

Addressing these challenges requires investments in localized climate data systems, capacity-building, flexible funding mechanisms, and integrated mitigation-adaptation strategies. These steps will strengthen climate rationales, enhance intervention effectiveness, and support Nepal's resilience to climate change while contributing to global mitigation goals.

3 Climate Rationale in the Context of Adaptation Related Projects

3.1 Elements for the Climate Rationale for Adaptation

Adaptation proposals must be based on strong, evidence-driven analyses effectively addressing to climate change impacts. A clear and robust climate rationale is essential for demonstrating how the proposed actions will respond to specific climate hazards. Key elements of an adaptation-related climate rationale are:

- **Identification of Climate Risks and Vulnerabilities**: Clearly define the climate threats being addressed and their impacts on sectors, communities, and ecosystems.
- **Current and Projected Climate Impacts**: Highlight both observed and anticipated climate changes that necessitate the proposed adaptation interventions.
- **Coherence with Development Objectives**: Ensure that adaptation measures align with broader development goals while providing long-term climate resilience.
- **Effectiveness of Interventions**: Demonstrate the anticipated effectiveness of the proposed interventions in addressing identified risks and improving resilience.

3.2 Identifying Vulnerabilities and Risks of Climate Impact

The climate rationale must begin by identifying the specific climate risks and vulnerabilities affecting ecosystems, sectors, communities, and regions. Key components include:

- ***Identification of at-risk groups and areas:*** Specify ecosystems, economic sectors, and populations most vulnerable to climate impacts, especially poor communities with limited resources for adaptation.
- ***Integration of gender equity and social inclusion (GESI):*** Address the unique needs of marginalized groups such as women, indigenous communities, and lower-income populations disproportionately impacted by climate change ensuring that climate actions are inclusive, equitable, and tailored to the specific needs of these vulnerable groups.
- ***Specific climate threats:*** Describe the climate phenomena, such as GLOFs or extreme weather events, that pose direct threats to the region or population.
- ***Use of best available information:*** Ensure that the rationale relies on up-to-date, evidence-based data demonstrating how climate change is driving specific risks.
- ***Non-climatic factors***: Consider how non-climate factors, like deforestation, may exacerbate climate-related risks, and explain their interaction with climate impacts.
- ***Risk and vulnerability assessment***: Conduct assessments to vulnerable sectors, regions, and communities, guiding the selection of targeted adaptation measures.

3.3 Explaining the Proposed Response

Clearly explain how the proposed adaptation activities will reduce climate risks and vulnerabilities and justify their selection over alternatives. Key components include:

- **Risk and Vulnerability Reduction**: Describe how the activity will reduce exposure to climate change, such as through improved infrastructure or community preparedness (e.g., flood defenses or better drainage systems).
- **Consideration of Barriers**: Identify potential barriers (technical, social, institutional, or regulatory) and outline strategies to address them.
- **Quantification of Beneficiaries**: Estimate the number of beneficiaries using data-driven methods, clearly defining who qualifies as a beneficiary and calculating the projected impact (e.g., access to clean water).

3.4 Demonstrating Alignment with National Plans

Proposals need to align with national plans, policies, and targets to ensure coherence and prevent duplication. It should be consistent with long-term climate goals outlined in NAPs, NAPAs, and NDCs ensuring that it contributes to a unified national strategy. By aligning with national priorities, proposals can address the country's most critical climate vulnerabilities and needs, focusing interventions on areas where they will have the greatest impact.

3.5 Monitoring and Evaluation

Outline how the impact of proposed solutions will be assessed through monitoring and evaluation (M&E). Key elements include:

- **Ongoing Assessment**: The M&E system should facilitate continuous evaluation to determine if the activity achieves its climate impact, using methods like performance indicators and monitoring frameworks.
- **Impact Measurement**: Success should be measured with clear metrics, ensuring outcomes are tracked and reported accurately.
- **Enhancement of Accountability**: A robust M&E system fosters transparency, building trust and support among stakeholders.
- **Evidence-based Decision Making**: Data from the M&E system informs decision-making, enabling efficient resource allocation and demonstrating project effectiveness.

3.6 Distinguishing Adaptation from Development

It is crucial to emphasize the climate-specific aspects of the intervention distinguishing between adaptation actions and broader development initiatives:

- **Clear Definition of the Climate-Related Problem**: Specify the climate hazards and their direct impacts.
- **Robust Data and Evidence**: Use climate projections, historical data, and vulnerability assessments to demonstrate climate relevance.
- **Distinguishing Adaptation from Development**: Highlight how certain interventions, like strengthening healthcare infrastructure against extreme weather, are adaptation focused.
- **Maintaining Focus on Climate Impacts**: Ensure adaptation activities are explicitly linked to climate resilience, with clear outcomes and indicators.

3.7 Vulnerability and Risk Assessment (VRA)

VRA helps address the complexities of impact pathways and ensures that adaptation efforts are based on clear, explicit rationales. Grounding adaptation actions in robust VRAs allows for better understanding of the potential changes in climate events and their impacts on human and natural systems. Effective adaptation measures focus on reducing negative impacts and enhancing resilience. It is also important to recognize that vulnerability arises not only from exposure to hazards but also from social marginalization and limited access to resources.

The expected outcomes of Vulnerability and Risk Assessment (VRA) include:

- **Identification of At-Risk Populations and Systems**: Pinpoint vulnerable populations and systems by assessing their exposure to climate hazards like extreme weather events, GLOFs, and changing precipitation patterns.
- **Understanding Hazard Exposure**: Provide insights into the types and severity of climate hazards, helping prioritize areas and sectors of immediate attention.
- **Analysis of Vulnerability Dynamics**: Explore how vulnerability evolves over time, influenced by historical, cultural, social, environmental, political, and economic factors. This understanding aids in developing effective risk-reducing interventions.

Vulnerability and risk assessments (VRA) have evolved beyond physical infrastructure and the complexity of vulnerability now encompasses not only physical resistance but also social, cultural, and environmental influences. In the context of climate change, vulnerability refers to the susceptibility, sensitivity, and lack of adaptive capacity in exposed systems, while risks arise from the interaction of physical hazards and vulnerabilities.

3.7.1 Vulnerability to Climate Change

Vulnerability is defined as the degree to which systems (natural or social) are unable to cope

with climate impacts. It is determined by a system's sensitivity to climate change and its adaptive capacity. The vulnerability index is calculated as

Vulnerability index = Sensitivity index - Adaptive Capacity index.

3.7.2 Sensitivity Analysis

Sensitivity refers to how systems are affected by climate change, with both direct and indirect effects. Direct effects, like temperature changes affecting crop yields, are easier to measure, while indirect effects, such as ecosystem disruption, are more complex and involve cascading impacts.

3.7.3 Adaptive Capacity Evaluation

Adaptive capacity is the ability of a system or community to adjust to climate change. Enhancing this capacity is vital for reducing vulnerability and building resilience. It involves proactive adaptation measures to improve long-term sustainability. Examples include constructing flood-resistant housing or diversifying crops to handle changing rainfall patterns. Strengthening adaptive capacity enables communities to anticipate, prepare for, and recover from climate-related hazards, thus advancing sustainable development.

3.7.4 Climate Change Risks and Hazards

Climate risk is the potential for adverse effects on a system, influenced by the interaction of vulnerability, exposure, and hazard. The formula for climate risk is:

*Climate Risk = Hazard * Exposure * Vulnerability*.

3.7.5 Climate Change Induced Hazards/Extreme Events

Climate change leads to a variety of hazards, which are defined as potential physical events that may cause harm to human life, property, ecosystems, and resources. These hazards vary in character, magnitude, and rate of occurrence, and include extreme temperature events, heavy precipitation events, droughts, sea-level rise, tropical cyclones, wildfires, etc.

3.7.6 Assessment of Exposure

Exposure refers to the degree to which populations and systems are in contact with climate change hazards. It involves analyzing geographic areas and sectors that are vulnerable to climate impacts, like agriculture, water resources, and health. Exposure is determined by the presence of people, livelihoods, ecosystems, infrastructure, and resources in areas that could be adversely affected by climate hazards.

Areas with important and susceptible resources face higher exposure compared to those with fewer critical assets.

High exposure to climate hazards can lead to significant economic, social, and environmental impacts. Exposure is a key factor for decision-makers to prioritize adaptation measures and allocate resources effectively.

3.7.7 Steps to Design a Climate Rationale for Adaptation Projects

Designing a climate rationale for adaptation projects involves understanding the requirements and frameworks set by funding agencies, such as the GCF.

Step 1: Desk Research and Literature Review on Climate Impacts and Vulnerabilities for Adaptation Projects

It is to understand local climate impacts and vulnerabilities. This ensures that interventions are based on accurate, context-specific data. Key components include:

- **Gathering Data on Climate Impacts**: Compile existing data on climate risks and effects relevant to the project area.
- **Defining Project Goals**: Set objectives aligned with the identified climate vulnerabilities.
- **Identifying Data Gaps**: Highlight areas needing further data collection or research.
- **Analyzing Climate Data Trends**: Examine historical and projected climate data, including temperature, precipitation, and extreme events, to assess vulnerabilities and set realistic project goals.

Key Data to Consider are (a) **Historical Climate Data**: Temperature, precipitation, and extreme weather patterns, and (b) **Projected Climate Data**: Future climate scenarios based on emissions pathways (e.g., IPCC RCPs).

Step 2: Application of the VRA

The Vulnerability and Risk Assessment (VRA) systematically identifies priority vulnerabilities, guiding the development of targeted climate adaptation interventions. It links climate impacts, vulnerabilities, and adaptation strategies, addressing the specific needs of vulnerable groups, sectors, and regions.

Objectives of the VRA:

- **Identify Key Vulnerabilities**: Assess critical social, economic, or environmental vulnerabilities.
- **Prioritize Adaptation Needs**: Focus on urgent vulnerabilities while considering long-term solutions.
- **Integrate into Policy and Planning**: Ensure findings inform relevant policies and development plans.

Key Activities:

1. **Scoping and Designing the Assessment**: Define objectives, scope, and stakeholder involvement.

2. **Assessing Current Vulnerabilities**: Conduct surveys and data review to identify present vulnerabilities.
3. **Projecting Future Vulnerabilities**: Use climate models and socio-economic projections to forecast future risks.
4. **Identifying Adaptation Options**: Evaluate and prioritize feasible, effective, and cost-efficient strategies.
5. **Integrating Findings into Policy**: Develop recommendations for integrating findings into policies and plans.

Demonstrating Causal Linkages: Establish links between climate impacts, vulnerabilities, and adaptation strategies using climate models, socio-economic analysis, and impact assessments.

Step 3: Prioritization of Adaptation Actions

Prioritizing climate actions involves evaluating various factors such as cost-effectiveness, environmental and social impacts, and project scope. The goal is to explore different approaches and compare options based on specific needs and contexts. Key tools used in this process include:

- **Cost-Benefit Analysis (CBA)**: Evaluates the overall benefits and costs of an action to determine its net value.
- **Cost-Effectiveness Analysis (CEA)**: Focuses on the costs associated with achieving a specific outcome, useful for comparing actions with similar goals.
- **Multi-Criteria Analysis (MCA)**: Assesses actions based on multiple criteria for a more comprehensive evaluation.

3.7.8 Constraints and Challenges Associated with a Climate Rationale for Adaptation

- **Data Availability and Quality**: Many regions, especially in developing countries, face limited access to reliable climate and socio-economic data. Even when data is available, it may be outdated, inconsistent, or lack the required granularity for effective analysis.
- **Uncertainty in Climate Projections**: Different climate models can produce varying projections, creating uncertainty about future scenarios. Long-term predictions are inherently uncertain, complicating planning and decision-making for adaptation projects.
- **Integration of Multidisciplinary Data**: Combining climate data with socio-economic, environmental, and technological factors is complex. Effective integration requires interdisciplinary collaboration, which can be difficult to coordinate.
- **Financial Constraints**: Securing sufficient funding for large-scale or long-term adaptation projects is often challenging. Moreover, conducting robust cost-benefit analysis for adaptation actions can be difficult due to financial constraints.

- **Institutional and Governance Barriers**: Lack of supportive policies and frameworks can hinder the implementation of adaptation measures. Poor coordination between different government levels and stakeholders can lead to inefficiencies and conflicts.
- **Stakeholder Engagement**: Engaging diverse stakeholders, particularly vulnerable communities, in decision-making can be challenging. Conflicting interests among stakeholders can further complicate the process of consensus-building.
- **Technological Limitations**: Limited access to the necessary technology for effective adaptation in some regions, coupled with challenges in building local capacity to use such technologies, hinders adaptation efforts.
    - **Socio-Economic Factors**: Socio-economic inequalities can exacerbate vulnerability to climate impacts, complicating the implementation of equitable adaptation strategies. Behavioral changes among communities to adopt adaptation measures can also be difficult to achieve.
    - **Environmental Considerations**: Adaptation actions can unintentionally impact local ecosystems, requiring careful planning and mitigation. Ensuring the sustainability of adaptation measures in the long term is also a key challenge.
    - **Monitoring and Evaluation**: Developing appropriate metrics and indicators for monitoring adaptation actions can be complex. Establishing robust feedback mechanisms to learn from past experiences and adjust strategies is critical but often overlooked.

4 Developing a Climate Rationale in the Context of Mitigation

This chapter outlines a strategy for enhancing the climate rationale to improve climate mitigation projects, emphasizing the use of robust data and projections to highlight the urgency of mitigation actions. It stresses the need for a clear demonstration of the interconnections between climate, its impacts, mitigation measures, and societal benefits, grounded in the best available climate science. The chapter includes key elements, guiding questions, and steps for developing a comprehensive climate rationale aligned with scientific and policy frameworks. It also explores relevant project activities, both globally and in Nepal, addressing challenges and offering examples of integrating climate rationale into mitigation efforts, with a focus on Nepal's GHG inventory.

4.1 Climate Mitigation

Climate mitigation involves actions aimed at reducing or preventing greenhouse gas (GHG) emissions to combat climate change. Strategies include adopting new technologies, promoting renewable energy, improving energy efficiency, and modifying management practices. Efforts to enhance carbon sinks, which remove GHGs from the atmosphere, are also part of mitigation. The key strategies include upgrading buildings for energy efficiency, implementing net-zero energy codes, increasing renewable energy share, optimizing energy distribution, and reducing reliance on private cars by encouraging public transport and active transportation options.

Mitigation efforts are essential to reduce the impacts of climate change on ecosystems, economies, and vulnerable populations. These efforts help lower global temperatures, protect biodiversity, and align with Sustainable Development Goals (SDGs) like climate action, clean energy, and sustainable cities. In addition to environmental benefits, mitigation also offers significant health co-benefits by reducing air pollution and boosting public health. It stimulates economic opportunities through investments in clean energy technologies and job creation. Climate mitigation is crucial for long-term sustainability by reducing dependency on fossil fuels and fostering resilient communities.

The rationale for climate mitigation involves scientific assessments of emission trajectories, pathways for reducing emissions, and the evaluation of mitigation options based on priorities. This provides a clear framework for addressing climate change by focusing on the root causes of GHG emissions and enhancing carbon sinks.

4.2 Forming the Scientific Basis for a Climate Rationale

A robust scientific basis is essential for climate rationale, providing evidence to support decisions aimed at mitigating climate change. This foundation ensures that actions align with current climate science and the impacts of human activities, making climate mitigation efforts more informed and effective.

- ***Emission Trajectories and Pathways:*** Emission trajectories track the projected path of GHG emissions over time for specific sectors or countries. By assessing current emissions and setting future targets, sectors can monitor progress toward emission reductions. This data strengthens the climate rationale for mitigation projects and justifies the need for targeted actions.
- ***Prioritizing Mitigation Interventions:*** Addressing barriers to climate action requires a strategic approach, such as Multi-Criteria Analysis (MCA). This process evaluates various strategies to overcome obstacles, prioritizes effective interventions, and develops action plans to address the most significant challenges.
- ***Integration into Policy and Decision Making:*** Effective climate actions must be integrated into broader policy frameworks. This ensures alignment with existing plans, enhances coordination, and maximizes the impact of mitigation measures by leveraging collaborative opportunities across policies.

4.3 Guiding Questions for Building Climate Rationale - Mitigation

Developing a climate mitigation rationale for Nepal requires addressing unique challenges and opportunities specific to its environmental, socio-economic, and developmental contexts. Key guiding questions help formulate context-specific strategies that reduce GHG emissions, promote sustainable development, and enhance resilience.

- ***Climate Change Impacts in Nepal:*** Nepal faces significant climate impacts, including glacial retreat, altered precipitation patterns, and extreme weather events. These impacts vary across regions, with the Terai experiencing floods and mountain areas facing landslides and water shortages. Understanding regional variations is essential for targeted mitigation.
- ***Socio-Economic Implications of Climate Change:*** Climate change affects key sectors like agriculture, threatening food security and livelihoods, especially in rural areas. Vulnerable groups such as women and indigenous communities are disproportionately impacted, necessitating inclusive mitigation strategies.
- ***Opportunities for Sustainable Development:*** Mitigation presents opportunities to advance sustainable development through renewable energy (e.g., hydropower and solar) and improved resource management. Energy efficiency and sustainable transportation also offer significant benefits in reducing emissions and improving urban air quality.
- ***Enhancing Public Health and Social Equity:*** Mitigation efforts must focus on health co-benefits, such as reducing air pollution, and promote social equity, particularly for women and marginalized groups, ensuring they benefit equally from climate actions.
- ***Alignment with International Commitments:*** Nepal's alignment with global climate agreements, such as the Paris Agreement, can facilitate access to climate finance, technology transfer, and capacity-building. International cooperation enhances resilience and promotes effective mitigation.
- ***Synergies between Mitigation and Adaptation:*** Mitigation strategies should incorporate

resilience-building, such as ecosystem-based approaches (e.g., forest conservation), that simultaneously reduce carbon emissions and enhance adaptive capacity, fostering both mitigation and adaptation.

- ***Barriers and Challenges:*** Institutional, financial, and technical barriers hinder effective mitigation. Strengthening policy frameworks, enhancing institutional capacity, and securing financial resources are crucial for overcoming these challenges and accelerating a transition to a low-carbon, climate-resilient future.

4.4 Steps to Design Climate Rationale for Mitigation Projects

Designing a climate rationale for mitigation projects involves a series of steps to ensure relevance, effectiveness, and alignment with broader climate goals:

Step 1: Assessing Local Climate Change Impacts: Analyze current and projected climate impacts, including temperature, precipitation, and extreme weather events, using scientific data and models.

Step 2: Identifying Vulnerabilities and Risks: Identify vulnerable sectors, populations, or systems by assessing their exposure, sensitivity, and adaptive capacity to climate impacts.

Step 3: Setting Clear Objectives and Goals: Establish measurable objectives based on identified impacts and risks, aligning with national and international climate targets.

Step 4: Selecting Appropriate Mitigation Measures: Choose effective, feasible strategies like renewable energy, energy efficiency, or nature-based solutions, considering local needs and costs.

Step 5: Integration with Adaptation Strategies: Incorporate adaptation strategies alongside mitigation for co-benefits, such as urban greening that reduces carbon and urban heat.

Step 6: Engaging Stakeholders and Building Partnerships: Involve stakeholders, including local communities and agencies, throughout the design and implementation process, ensuring ownership and collaboration.

Step 7: Evaluating Costs and Benefits: Conduct a cost-benefit analysis, considering both direct and indirect impacts, as well as the cost of inaction.

Step 8: Monitoring, Reporting, and Verification (MRV): Set up a robust MRV system to track progress, ensuring transparency and alignment with international standards.

Step 9: Capacity Building and Knowledge Sharing: Enhance local stakeholder skills through training and workshops and establish platforms for sharing best practices and lessons learned.

Step 10: Adapting and Iterating: Regularly review and adapt the project based on feedback and changing circumstances to ensure long-term effectiveness.

4.5 Principles of Climate Rationale Development for GCF-Mitigation Projects

The GCF supports developing countries in mitigating climate change through funding projects that reduce GHG emissions and enhance climate resilience. The following principles guide the development of climate rationale for GCF-funded mitigation projects:

- **Demonstration of GHG Emissions Reductions**: Proposals must clearly show that GHG emissions reductions will occur and that these reductions would not happen without GCF funding.
- **Alignment with Host Country Priorities**: Activities must align with the host country's climate strategies, including its nationally determined contributions (NDCs), ensuring country ownership and addressing areas of high impact and need.
- **Methodological Approach for Quantification and Monitoring**: A clear methodology for quantifying and monitoring mitigation results must be implemented, utilizing established frameworks like the Clean Development Mechanism.
- **Relevance of Methodology to Specific Activities**: The chosen methodology must be appropriate for the proposed activities, including determining project impact boundaries and demonstrating additionality (i.e., emissions reductions dependent on GCF funding).
- **Consistency with National GHG Reporting**: Quantification methods should align with national GHG reporting to accurately measure contributions towards NDCs.
- **Establishment of Measurement, Reporting, and Verification (MRV) System**: Proposals should outline an MRV system to track GHG emission reductions, providing projections for reductions throughout the project's lifetime.

4.6 Methodologies for Emission Trajectories for Mitigation Projects and Pathways to Shift Emissions

The IPCC Guidelines for National Greenhouse Gas Inventories provide standardized methodologies for countries to estimate and report their GHG emissions and removals, ensuring consistency, transparency, and accuracy. These guidelines are essential for meeting reporting obligations under international agreements like the Paris Agreement.

The IPCC's 2022 Working Group III report on climate change mitigation emphasizes immediate action across sectors to limit global warming to 1.5°C. It highlights various mitigation pathways, technologies, and policy measures necessary to achieve long-term climate goals.

Key approaches for emission trajectories include:

- **Baseline and Credit Methodology (BCM)**: Establishing baseline emission levels to measure reductions, commonly used in carbon offset projects.
- **Sectoral Approach**: Targeting specific sectors (e.g., energy, transportation) for tailored

emission reduction strategies.

- **Technology Roadmaps**: Long-term plans guiding the development and deployment of emission-reducing technologies.
- **Integrated Assessment Models (IAMs)**: Quantitative models simulating the impact of different emission reduction pathways.
- **Lifecycle Assessment (LCA)**: Evaluating emissions across the entire lifecycle of products, processes, or services to identify reduction opportunities.
- **Policy and Regulatory Frameworks**: Establishing laws and regulations to incentivize emission reductions and enforce compliance.
- **Stakeholder Engagement and Partnerships**: Involving stakeholders in co-developing strategies and fostering collaboration to shift emissions.

4.7 Emission Calculation for Nepal

Nepal's GHG emissions, although small globally (0.06%), pose significant challenges due to the country's vulnerability to climate change, with its GDP heavily reliant on climate-sensitive sectors such as agriculture, water, energy, and tourism. Nepal's national GHG inventory, covering the energy, industrial processes, agriculture, forestry, and waste sectors, estimated total net emissions of 28,166.06 Gg CO2-equivalent in 2011, a significant rise from 13,447 Gg CO2-eq in 2000. The country has conducted multiple GHG inventories since 1997, using emission factors (EFs) based on IPCC guidelines. To reduce uncertainties in emissions reporting, especially in agricultural sectors, Nepal is developing country-specific EFs. These EFs have been studied for various activities such as livestock emissions, forest degradation, and transportation.

4.8 Emission Trajectory and Projection for Nepal

Emission projections for Nepal highlight the increasing emissions trend, especially in agriculture and energy sectors. Between 1990 and 2017, emissions grew by 81%, reaching 42 MtCO2. The AFOLU sector, contributing over 80% of emissions, is the largest source, followed by energy, transport, and industrial sectors. Projections for 2030 suggest emissions of 69-76 MtCO2 per year, largely driven by energy-related CO2 from the transport sector. The implementation of current policies could help align Nepal's emissions with a 1.5°C compatible pathway. To meet this goal, rapid and sustained emission reductions are required across sectors, supported by diverse mitigation measures such as renewable energy adoption, energy efficiency, and nature-based solutions. These efforts are critical for Nepal's climate goals and sustainable development.

Nepal's Pledged Emission Reductions and Enabling Environment

Nepal aims to achieve socio-economic prosperity through the creation of a climate-resilient society. This vision is supported by a comprehensive policy and institutional framework designed to guide its climate actions. In line with the Paris Agreement, Nepal is developing a long-term

strategy to achieve low greenhouse gas (GHG) emissions by 2021, with the ultimate goal of reaching net-zero emissions by 2050.

4.9 Key Commitments in Nepal's Second Nationally Determined Contributions (NDCs)

Nepal has made several important pledges aimed at reducing emissions and promoting sustainable development. These pledges are detailed in its sectoral emission reduction targets below:

Sector	Commitments
Energy sector	By 2030, Nepal aims to expand clean energy generation from approximately 1,400 MW to 15,000 MW. This will include a combination of hydropower, solar, wind, mini-hydro, and bio-energy sources. An unconditional target of 5,000 MW is set, while the remaining generation is contingent upon international funding. 15% of the total energy demand is expected to be met by clean energy sources by 2030.
Transport sector	By 2025, electric vehicles (e-vehicles) will account for 25% of private passenger vehicle sales (including two-wheelers), and 20% of public passenger vehicle sales (excluding electric rickshaws and tempos). By 2030, the share of e-vehicles will increase to 90% of all private passenger vehicle sales and 60% of public passenger vehicle sales. 200 km of electric rail network will be developed by 2030 to support public transportation and the mass movement of goods.
Residential cooking and biogas	By 2030, 25% of households will use electric stoves as their primary cooking method. By 2025, 500,000 improved cookstoves will be installed, mainly in rural areas. An additional 200,000 household biogas plants and 500 large-scale biogas plants will be installed by 2025.

Agriculture, forestry, and other land uses	By 2030, 45% of the country's land area will remain under forest cover, with a limit of 4% for other wooded land. 50% of forests in the Tarai and Inner Tarai regions and 25% in the middle hills and mountain areas will be managed sustainably, with the support of REDD+ funding.
Waste management	By 2025, 380 million liters of wastewater per day will be treated before discharge, and 60,000 cubic meters of fecal sludge will be managed annually, reducing 258 Gg CO2 equivalent compared to the business-as-usual scenario.

4.10 Relevant Policies for Achieving the Mitigation Targets

Nepal has established several policies to guide the implementation of its climate action commitments and achieve its mitigation targets. These policies are crucial for driving the transition to a low-emission, climate-resilient society. Effective implementation will require strong international cooperation, access to climate finance, and active participation from local communities. The following are key policies supporting Nepal's mitigation efforts:

Sector	Policies
Energy Sector	***Hydropower Development Policy***: Focus on the development of large-scale and small-scale hydropower projects to harness Nepal's significant hydropower potential. ***Renewable Energy Subsidy Policy***: Provide subsidies and incentives for the adoption of solar, wind, and biogas technologies, particularly in rural areas.
Transport Sector	***National Transport Policy***: Promote the use of electric and hybrid vehicles through subsidies, tax exemptions, and infrastructure development for charging stations. ***Mass Transit Development:*** Invest in the expansion of public transportation systems to reduce reliance on private vehicles.
Forest and Land Use Policies	***Community Forestry Program***: Engage local communities in the management and conservation of forests, which has been effective in increasing forest cover and biodiversity. ***REDD+ Strategy***: Implement the Reducing Emissions from Deforestation and Forest Degradation (REDD+) strategy to enhance carbon sequestration and support sustainable forest management.

Agricultural Policies	***Climate-Smart Agriculture***: Promote practices such as crop diversification, improved irrigation, and the use of resilient crop varieties to adapt to climate change and reduce emissions. ***Agricultural Extension Services***: Strengthen extension services to disseminate knowledge and technologies to farmers for sustainable agricultural practices.
Disaster Risk Reduction Policies	***National Disaster Risk Reduction Policy***: Develop and implement measures to enhance resilience to climate-induced disasters, including early warning systems, resilient infrastructure, and community-based disaster risk management.

4.11 Challenges and Constraints in Achieving Effective Climate Mitigation

Mitigating climate change faces various constraints and challenges stemming from economic, technological, political, and societal factors. The economic costs of transitioning to low-carbon technologies and practices, alongside potential job losses in fossil fuel-dependent industries, present significant barriers, especially for vulnerable communities. The readiness of clean technologies, such as carbon capture and storage, and the need for extensive infrastructure development further complicate implementation. Political will, regulatory frameworks, and aligning national policies with international commitments like the Paris Agreement add to the complexity. Societal factors, including the need for behavioral changes and public awareness, also pose challenges, while limited data and scientific uncertainty hinder effective planning. Additionally, balancing mitigation efforts with adaptation needs in vulnerable regions requires careful prioritization and integrated strategies involving policy, technology, and international collaboration. Overcoming these challenges is crucial for achieving meaningful climate action and sustainable development.

5 Guidance for Developing Climate Rationale and Securing Funding for Climate Projects

This section provides comprehensive guidance on developing a climate rationale for project proposals, focusing on aligning project outcomes with national and international climate targets, delivering measurable results within financial and operational constraints, and managing resources and risks effectively. It emphasizes the importance of demonstrating tangible environmental and social benefits, ensuring long-term impacts, and maintaining flexibility with timelines amid unforeseen delays. The section also addresses the challenges of balancing financial constraints, optimizing resources among diverse stakeholders, and managing complex climate risks. Additionally, it explores climate financing, particularly through the GCF, GEF, and other mechanisms, highlighting the complexities in securing funding and the importance of aligning project proposals with international funding priorities. Successful climate project proposals require a balance of technical rigor, stakeholder engagement, and strategic alignment with funding institutions' priorities.

5.1 Key Consideration for Developing a Strong GCF Project Proposal

A robust proposal should align climate action with broader social, environmental, and economic goals, demonstrating co-benefits like improved livelihoods, ecosystem health, and reduced inequalities. To secure funding, the proposal must build a strong evidence base, showcasing the scientific urgency of the climate challenge and the effectiveness of proposed interventions. This includes analyzing climate trends, conducting vulnerability assessments, providing evidence of historical climate impacts, and outlining clear emission reduction methodologies for mitigation projects. Proposals should be based on credible data sources, climate models, and internationally recognized standards to ensure scientific, social, and financial soundness, strengthening the case for financial support.

5.2 Process of Developing GCF proposal

The process of developing a GCF proposal involves a six-step approval procedure, overseen by the NDA, which ensures alignment with national strategies and climate priorities. The first three stages focus on developing the project concept at the national level, engaging stakeholders, including vulnerable groups, and ensuring alignment with GCF and national priorities. In stage four, the GCF Secretariat reviews the proposal for completeness and consistency with GCF's investment framework. Stage five involves technical evaluation by the ITAP, assessing feasibility, risks, and potential climate impacts. Finally, in stage six, the GCF Board makes the final decision based on the ITAP's review. AEs are encouraged to align proposals with GCF priorities, with the GCF ensuring geographical balance, especially for developing countries and vulnerable populations.

5.3 Key Steps for GCF Project Concept Preparation

In Nepal, developing a GCF project proposal requires close coordination with the NDA and adherence to the GCF Results Management Framework (RMF). The process begins by

- assembling a team of experts,
- engaging with the NDA for early approval, and
- collaborating with an AE to increase the project's chances of progressing.

The proposal should align with GCF requirements, supported by baseline climate data, vulnerability assessments, and stakeholder consultations. A successful proposal typically reflects country-specific relevance, early engagement with stakeholders, and robust scientific evidence, particularly linking climate impacts with mitigation and adaptation strategies.

5.3.1 Steps to Enhance the Climate Rationale of GCF-Supported Projects

A strong climate rationale is essential for securing GCF funding, demonstrating how a project addresses the drivers and impacts of climate change. Key steps to enhance the climate rationale include conducting baseline climate assessments, clearly linking project interventions to climate impacts, integrating both adaptation and mitigation benefits, aligning with national and international climate policies, and using evidence-based decision-making. Additionally, proposals should involve stakeholders, ensure co-financing and private sector involvement, and justify the transformational change the project aims to achieve.

5.3.2 Mitigation

Mitigation proposals should align with the host country's climate priorities and demonstrate how activities contribute to global goals, such as maintaining a global temperature rise well below 2°C. The proposal must include a clear methodology for quantifying and monitoring emission reductions, consistent with national GHG reporting systems. A robust Monitoring, Reporting, and Verification (MRV) system is essential for tracking emissions reductions and ensuring alignment with the Paris Agreement and Nationally Determined Contributions (NDCs).

5.3.3 Adaptation

Adaptation proposals must demonstrate how they address existing or anticipated climate risks, reduce vulnerability, and align with national climate strategies. The proposal should describe how the intervention will mitigate climate change impacts and provide a detailed monitoring and evaluation framework to track outcomes and quantify beneficiaries. The emphasis is on ensuring the adaptation activities are effective and integrated within the country's broader climate adaptation efforts.

5.3.4 Building Climate Rationale for Selected Themes (Water, Sanitation, Climate-Induced Disasters, Sustainable Transport, Health, etc.)

Developing a credible climate rationale for projects in specific themes requires robust scientific

assessment of climate risks, vulnerabilities, and emission trajectories. For sectors like water, sanitation, and health, the rationale must address the impact of climate change on vulnerable groups, including women and children. Each thematic area requires tailored interventions that contribute to both mitigation and adaptation goals, with an emphasis on integrating these into national and international policies.

5.3.5 GEF Project Cycle

The Global Environment Facility (GEF) supports projects that address global environmental challenges, such as biodiversity loss and climate change. The GEF project cycle consists of two main stages: Project Identification (PIF Approval) and Detailed Project Description (CEO Endorsement). After PIF approval, projects may access a Project Preparation Grant (PPG) for further development. During the Detailed Project Description stage, the project's technical and implementation details must be thoroughly developed. After approval, the project enters the implementation phase, monitored by the GEF Secretariat. Financial audits ensure compliance with the project's objectives, and upon completion, final reports are submitted to ensure transparency.

5.4 Steps for Proposal Development for the Adaptation Fund

The process of developing a proposal for the Adaptation Fund involves several structured steps aimed at ensuring the thorough evaluation and approval of projects or programs designed to support adaptation to climate change. Here's a summary of the key steps involved:

5.4.1 Proposal Submission

The **NIE** submits the proposal for adaptation projects to the Adaptation Fund. This proposal needs to be endorsed by the **designated authority** of the relevant country or region.

5.4.2 Initial Screening and Review

The proposal undergoes initial screening to assess its eligibility and compliance with the Adaptation Fund's criteria.

5.4.3 Approval Process

Proposals can follow one of two approval processes:

- **One-Step Process**: The project or program is fully developed, and a complete document is submitted for review and approval.
- **Two-Step Process**: The first step involves submitting a concept note for the project or program. After review and approval of the concept, a comprehensive project document is then submitted.

5.4.4 Project/Programme Formulation Grants (PFG)

NIE proponents may request a **Project/Programme Formulation Grant (PFG)** to support the development of a project or program concept. The grant request is reviewed by the Secretariat and the **Project and Programme Review Committee (PPRC)** before being forwarded to the Board for approval.

5.4.5 Transfer of Funds

Once approved, the **Trustee** transfers the funds based on instructions from the Board. The transfer is conducted in alignment with the agreed plan, and the Board is regularly informed of the fund disbursements.

5.4.6 Monitoring and Evaluation

The **Board** provides strategic oversight of the projects and programs funded by the Adaptation Fund. Monitoring and evaluation are carried out by the **Ethics and Finance Committee (EFC)** and the **PPRC**, ensuring that the projects are on track and meeting their intended outcomes.

5.4.7 Procurement Compliance

All procurement activities conducted by implementing entities or their affiliates must comply with internationally accepted standards and the procurement regulations of the relevant country.

5.4.8 Project/Programme Suspension or Cancellation

If any issues arise during the project implementation, the EFC has the authority to recommend suspension or cancellation of the project/program. This can occur due to non-compliance or adverse findings from evaluations.

5.4.9 Review of Operational Policies and Guidelines

The **Board** regularly reviews and updates operational policies and guidelines to ensure that they remain effective and relevant, in alignment with the evolving needs of adaptation projects and global standards.

This systematic process ensures transparency, accountability, and the successful implementation of adaptation projects under the Adaptation Fund.

6 Conclusion

A well-structured climate change project proposal is essential for securing funding from international climate funds like the GCF and the GEF. The key to crafting a successful proposal lies in clearly defined objectives, strong scientific evidence, extensive stakeholder involvement, and detailed implementation plans. This chapter provides guidance to project proponents in Nepal and other countries seeking financial support for climate adaptation and mitigation efforts. To ensure that proposals have a strong climate rationale, several essential elements must be prioritized:

- **Utilization of Climate Data**: Proposals should leverage the most accurate and up-to-date climate data available. This helps assess vulnerabilities and informs decision-making processes, ensuring that the proposed project addresses climate risks effectively.
- **Alignment with National Commitments**: It is crucial to ensure that the proposed project aligns with national climate strategies and commitments, such as the **Nationally Determined Contributions (NDCs)**. This alignment fosters national ownership of the project and increases its chances of success.
- **Demonstration of Measurable Impacts**: Proposals must outline how the project will achieve measurable climate impacts, such as reductions in greenhouse gas emissions or improved resilience to climate change. Establishing clear, quantifiable metrics will facilitate monitoring and evaluation, ensuring that progress can be tracked and assessed.
- **Quantification of Benefits**: A comprehensive assessment of the project's potential economic, social, and environmental benefits is essential. This should demonstrate how the project will not only address climate change but also contribute to broader sustainable development goals.
- **Community Engagement**: Engaging local communities in the planning and implementation phases ensures that the project is tailored to their specific needs and challenges. This approach ensures that interventions are socially inclusive, culturally appropriate, and responsive to the community's priorities.
- **Incorporation of Co-Benefits**: Proposals should highlight the broader co-benefits that the project can deliver beyond climate goals, such as improved public health, enhanced food security, or sustainable livelihoods. These co-benefits can make the project more compelling to funders.
- **Leveraging Existing Initiatives**: Identifying synergies with ongoing initiatives or programs can enhance project effectiveness and sustainability. Integrating efforts related to climate-induced disasters, water and sanitation, sustainable transport, and health can result in more comprehensive, impactful solutions.

By integrating these principles into project proposals, proponents can not only strengthen the climate rationale but also improve the likelihood of securing funding from GCF and GEF. This approach will help deliver more resilient, adaptive solutions for communities and ecosystems, contributing to long-term sustainable development.

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