Government of Nepal
Ministry of Science, Technology and Environment

Economic Impact Assessment of Climate Change in Key Sectors in Nepal

Background

Current climate variability already has significant economic costs in Nepal due to high climate sensitivity of agricultural sector and frequency of major weather-related disasters such as floods and landslides. These events reduce long-term growth and development and, so far, Nepal is not adequately adapted to deal with existing climate risks. Future climate change has the potential to exacerbate these impacts, through increased average temperatures, changes in annual and seasonal rainfall, and changes in variability and climate extremes. These will potentially affect the key sectors in Nepal, including agriculture, health, water availability, energy use, infrastructure, biodiversity and ecosystem services with the potential to lead to huge economic costs for individual sectors and at the aggregate level (GDP). Climate change therefore has the potential to negatively affect planned development and sector investment plans, threatening country's sustainable development goals.

A key focus of the study is to move beyond medium-long term assessments of climate risks, and ground the study in terms of current issues and national policies and programmes. It has a strong focus on understanding economic costs from the perspective of subsequent (real) adaptation, focused on providing information that will be useful for the analysis of emerging adaptation strategies and for accessing international climate finance.

Objectives

Against the above backdrop, the Government of Nepal is in the process of implementing a study "Economic Impact Assessment of Climate Change in Key Sectors in Nepal" with the technical support from CDKN. The study aims to better understand the economic impacts of present and future climate change in Nepal in two key sectors: water and agriculture. The primary objectives of the study are:

- To provide headline and sectoral estimates of the impacts and economic costs of climate change for the agricultural and water sectors, as an input to the Government's assessment of losses and benefits from climate change.
- To provide a ranking of climate compatible development options to address risks identified in these areas.
- To build the capacity of government officials and key stakeholders for economic assessment of climate change impacts and economic costs/losses and damages, and the use of this information for adaptation planning and practice.

Approach

Climate change involves evolving risks over future time periods. Recognising this, the study, by using the following three building blocks to provide the evidence base, tries to assess the effects of climate change over three main time periods.

Now and next 10 years	2020 - 2030	2050s
Current-near term	**Short-medium term**	**Longer-term (>2030)**
1. Analysis of current effects	2. Analysis of climate resilience/proofing	3. Long-term climate projections and modelling
- Economic costs of current climate variability	- Economic risks to development and sector plans	- Headline economic costs of climate changes (2050s)
		- Costs to key sectors
- Addresssing adaptation deficit	- Making plans climate resilient	- Early action for long-term changes

The approach therefore assesses:

- The impacts and costs of short-term climate variability (now and the next 5 – 10 years) – focused on current and emerging trends - and the adaptation response of building adaptive capacity and "no and low regrets" actions.
- The impacts and costs of climate change on development plans and objectives in the medium term (for next 20 years) – including emerging climate signals – and the adaptation response of building climate resilience into growth and sector development plans.
- The impacts and costs of medium to long-term climate resilience (2030 to 2060) – looking at the impacts of major climate change – and the adaptation response of identifying areas for early action to address long-term changes.

Methods

The study is divided into three work streams. The first work stream focuses on the costs of current climate variability and extremes in Nepal, including emerging trends. For this, it is using a combination of approaches (econometric analysis, analogue assessment) to understand the current economic costs of climate variability in the agriculture and water sectors, and analyse the meteorological data to trace out emerging trends and how these might affect the development costs over the next few years. In response, it will identify immediate short-term actions, focusing on capacity building and 'no regrets' options.

The second work stream focuses on the risks to current development plans in regard to agriculture and water sectors over the short-medium term in Nepal. It will provide an initial risk screening of the potential impacts of climate change on current major development plans and policies (national and sectoral) and undertake an Investment and Financial Flow analysis to examine baseline investment and climate risks. In response, it will assess the potential costs of making development plans climate resilient.

The third work stream focuses on the longer term impacts and economic costs of climate change in the said sectors using scenario based impact assessment, using regional climate model output and sectoral impact models (to mid-century), to assess changes in agricultural productivity, hydro-power generation and water-induced disasters. In response, it will identify the key long-term risks, and outline the early actions needed today to start preparing for these risks.

Outputs

The study will provide headline impacts and economic costs of current climate variability and emerging trends through to the longer-term. It will also identify and assess the potential adaptation options across the three time periods, linking these together to provide information on climate compatible growth.

National Oversight and Study Team

The project emphasises on national ownership and long-term sustainability through the constitution of a Project Steering Committee (PSC) at the apex. PSC has representation from National Planning Commission, Climate Change Council, Ministry of Finance, Ministry of Energy, Ministry of Agriculture, Department of Water Induced Disaster Prevention, and independent experts and is coordinated by the Chief of the Climate Change Management Division, Ministry of Science, Technology and Environment. The project has also benefitted from the technical advisory groups, and a collaborative partnership approach. The study is being led by Integrated Development Society (IDS) Nepal in collaboration with Practical Action Consulting (PAC) Nepal and the Global Climate Adaptation Partnership (GCAP), UK. The study project leader is Prof. Dr. Govind Nepal (IDS-Nepal).

For further information about the study, please contact:

Mr. Prakash Mathema

Joint Secretary, Chief CCMD Division & Chair PSC

Ministry of Science, Technology and Environment (MoSTE)

Government of Nepal

Email: mathema7@yahoo.com

Project focal point:
Prabha Pokhrel
Chairperson
IDS-Nepal
Email: prabha_pokhrel@hotmail.com

Technical leader:
Paul Watkiss
GCAP
Email: paul_watkiss@btinternet.com

PAC Project Manager:
Moushumi Shrestha
PAC Nepal
Email: moushumi.shrestha@practicalaction.org.np

Supported by:

Climate & Development Knowledge Network

Integrated Development Society Nepal
IDS-Nepal

PRACTICAL ACTION Consulting

Global Climate Adaptation Partnership

This document is an output from a project funded by the UK Department of International Development (DFID) for the benefit of developing countries. However, the views expressed and information contained in it are not necessarily those of endorsed by DFID or the members of the Climate and Development Network(CDKN), which can accept no responsibility or liability for such views, completeness or accuracy of the information or any reliance placed on them.