

NEPAL'S NATIONAL ADAPTATION PLAN (NAP) PROCESS:

REFLECTING ON LESSONS LEARNED
AND THE WAY FORWARD



Government of Nepal
Ministry of Forests and Environment

This report is a joint initiative of the Ministry of Forests and Environment (MoFE) of the Government of Nepal, the NAP Global Network, Action on Climate Today (ACT) and Practical Action Nepal.

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ABOUT THE NAP GLOBAL NETWORK

The NAP Global Network is a group of individuals and institutions who are coming together to enhance bilateral support for the NAP process in developing countries. Initial financial support for the Network has been provided by Germany and the United States. The NAP Global Network secretariat is hosted by the International Institute for Sustainable Development (IISD). Any opinions stated herein are those of the author(s) and do not necessarily reflect the policies or opinions of the NAP Global Network, funders or Network participants.

ABOUT ACTION ON CLIMATE TODAY

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FOREWORD

Adaptation to the adverse effects of climate change is a priority for Nepal. Over the last decade, the Government of Nepal has taken a number of concrete steps to ensure that our development pathway is resilient to climate change and inclusive of the most vulnerable women and men. Most recently, we embarked on our National Adaptation Plan (NAP) process, with the goal of reducing vulnerability and building resilience to climate change by integrating adaptation across sectors and levels of government. We are grateful to the Action on Climate Today (ACT) program and to Practical Action for their support for the ongoing NAP formulation process in Nepal. Through this collaboration, we have worked with a multidisciplinary team of experts who have provided us with a strong foundation of knowledge and analysis to take our adaptation planning process forward.

Recently, we were one of the first countries to receive approval for NAP Readiness funding from the Green Climate Fund. This is an exciting opportunity for us to consolidate the work that has already been done, moving us towards a fully developed NAP and laying the foundation for implementation. At this time, we felt it would be useful to reflect on the process to date to ensure that the learning and knowledge gained would guide us in this new phase. By partnering with the NAP Global Network in this initiative, we have been able to benefit from the experiences of countries around the world who are engaged in NAP processes.

Collaboration and learning are key to adaptation, requiring ongoing reflection, dialogue and exchange of knowledge. This report is the result of such a process. In sharing Nepal's experience with the global network of individuals and institutions working on adaptation planning, we also aim to contribute to the growing body of knowledge on NAP processes. We hope that Nepal's learning will help other countries in advancing their NAP processes in ways that are both informed and inclusive.

I would like to thank all the participants in the February 2018 workshop, who provided invaluable insights that have shaped the content and recommendations in this report. I am also grateful to my colleagues in the ministry, and all the members of the nine working groups for their past work which has made this initiative possible.

A handwritten signature in black ink that reads "Dr. Ram Prasad Lamsal".

*Dr. Ram Prasad Lamsal
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EXECUTIVE SUMMARY

Nepal is in the formulation phase of its National Adaptation Plan (NAP) process, which aims to reduce the country's vulnerability to climate change and to facilitate the integration of climate change adaptation in policies, programs and activities across sectors and levels (MoPE, 2016b). This report reflects on Nepal's NAP process so far, at a time when the process is shifting to a new phase, with readiness support from the Green Climate Fund (GCF). In addition to informing the coming steps of Nepal's NAP process, the report aims to share learning from Nepal's experience with other countries.

Nepal has adopted an approach to its NAP process that fits its specific context, taking into account the particular climatic and geographic characteristics of the country, opportunities and challenges associated with governance and the overarching development vision. This has yielded a number of unique features, notably:

- **A process that will “leave no one behind”:** Nepal has committed to an inclusive NAP process, bringing in marginalized and disadvantaged communities, Indigenous and traditional groups, with special consideration for youth, women and people with disabilities (MoPE, 2016b). Gender equality and social inclusion have been treated as both a cross-cutting issue and a standalone theme for the NAP process, providing a solid basis for addressing these issues in an informed and practical way, from the beginning of the process.
- **Integrated approach:** In contrast with the sector- or ministry-based planning approach adopted by many countries, Nepal adopted an integrated approach, focusing on seven thematic areas, as well as two cross-cutting issues, with working groups focused on each. This has allowed for multidisciplinary dialogue and analysis throughout the process to date.
- **Emphasis on stakeholder engagement:** While the NAP process is led by the government, it has involved active participation of stakeholders from the very beginning, through the thematic and cross-cutting working groups. These groups bring together civil society organizations, academics and research organizations and private sector actors, among other representatives, enabling effective multistakeholder dialogue on the opportunities and gaps associated with adaptation within the different themes.
- **An informed process:** Recognizing the importance of technical and scientific rigour for adaptation planning, Nepal has made a considerable investment in research, analysis and technical capacity to inform the NAP process. This includes stocktaking reports and capacity gap assessments for the themes and cross-cutting issues, analysis of climate trends and future scenarios and the development of a comprehensive framework for vulnerability and risk assessment. Collectively, these efforts provide a solid base of information and analysis upon which informed decisions can be made regarding adaptation planning and implementation.

There are a number of important issues that must be addressed in the near term as Nepal's NAP process advances. Not least among these is the ongoing restructuring of the government, which presents both a challenge and an opportunity for the NAP process. The role of sub-national actors and the creation of strategic linkages between national and sub-national adaptation planning must be clarified as the new governance systems and structures are established.

Related to this is the challenge of ensuring that the process is gender-balanced and inclusive, in line with the commitment to leave no one behind. Addressing inclusion and meaningful participation will require a concerted effort on the part of the working groups and all institutions involved in the NAP process. Finally, to ensure a smooth transition to implementation, this upcoming stage of the process must also lay the foundation by putting in place the systems and capacities needed.

To address these issues, a few key priorities have been identified by the government and key stakeholders in the NAP process. These are focused on the near term and completion of the formulation phase with GCF support:

- **Evolving the working groups with the changing context:** The thematic and cross-cutting working groups established in the first phase of the NAP process will need to evolve. The reconfigured working groups must be aligned with the changes to the government structures, with updated mandates for this new phase.
- **Engaging provincial and local governments in the NAP process:** With the new sub-national governance structures becoming a reality, engaging the provinces and local governments in the NAP process is a key priority. Exactly how this occurs will largely depend on the final structure of government at the sub-national levels. In the near term there is a clear need for coordination mechanisms at provincial level to facilitate adaptation planning and to create a functional link between the national level and the local governments.
- **Developing a NAP framework:** Having a NAP framework describing the overarching elements and strategic priorities of the process could help to maintain the momentum gained in the initial stages of formulation. This would be an interim document that can be used as a basis for detailed planning and stakeholder engagement, as well as communication about the NAP process with national and international audiences.
- **Compiling and sharing existing information on vulnerability and adaptation options:** A considerable amount of effort has been invested in assessing vulnerability to climate change at the local level. What is needed now is a process to compile it, synthesize it and make it available to decision makers, to ensure that the NAP process is informed by the perspectives of local stakeholders and that any additional consultation and analysis to be conducted is complementary, targeted and strategic.
- **Expanding stakeholder engagement mechanisms:** With an increasing range of stakeholders wishing to engage in the NAP process, additional mechanisms will be needed to ensure broad and inclusive participation, including mechanisms targeting sub-national actors. Ideally these will be established in a way that they can be used for longer-term coordination and learning on adaptation, rather than just as a consultation platform for NAP formulation.
- **Completing vulnerability and risk analysis:** The vulnerability and risk assessment framework, comprising indicators for the themes and cross-cutting issues, provides a practical approach

for assessing vulnerability based on existing data from a range of sources. Conducting these analyses will be a useful input to further elaborating Nepal's adaptation pathways, enabling prioritization of adaptation options for different parts of the country and establishing a baseline for monitoring NAP implementation.

- **Developing a financing strategy:** A financing strategy will enable Nepal to begin putting in place the resources needed to sustain the NAP process beyond the formulation phase. This strategy will support dialogue with different government ministries, development partners and private sector actors on options for resourcing NAP implementation.
- **Creating an enabling environment for sub-national integration of adaptation:** While moving NAP formulation forward, it will be necessary to consider how adaptation will be integrated in planning at the provincial and local levels, to ensure that climate change is strategically incorporated in the systems and mechanisms that are being set up for sub-national governments.

Nepal is at a pivotal point in its NAP process. Much progress has been made, and there are clear next steps to be taken to move the process forward with support from the GCF. There is significant scope for exchange of knowledge between Nepal and other countries engaged in NAP processes.

ACRONYMS

ACT	Action on Climate Today
CbA	Community-based Adaptation
DDC	District Development Committee
DHM	Department of Hydrology and Meteorology
EbA	Ecosystem-based Adaptation
FNCCI	Federation of Nepalese Chamber of Commerce and Industry
GCF	Green Climate Fund
GDP	Gross Domestic Product
GLOF	Glacial Lake Outburst Flood
LAPA	Local Adaptation Plan for Action
LDCF	Least Developed Countries Fund
Masl	Metres above sea level
MoFE	Ministry of Forests and Environment
MoFSC	Ministry of Forests and Soil Conservation
MoPE	Ministry of Population and Environment
MoSTE	Ministry of Science, Technology and the Environment
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NCCSP	Nepal Climate Change Support Program
NPC	National Planning Commission
PPP	Purchasing Power Parity
SDGs	Sustainable Development Goals
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VDC	Village Development Committee
WASH	Water, Sanitation & Hygiene

1 INTRODUCTION

Nepal, with its rich cultural and environmental resources, is highly vulnerable to climate change (ND-GAIN, 2016). Adaptation to climate change is a key priority for the Government of Nepal, evidenced by key policies including the country's Climate Change Policy developed in 2011 and the recently submitted Nationally Determined Contribution (NDC) to the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC). Most recently, Nepal launched its National Adaptation Plan (NAP) process, which aims to reduce the country's vulnerability to climate change and to facilitate the integration of climate change adaptation in policies, programs and activities across sectors and levels (Ministry of Population and Environment [MoPE], 2016b). Currently, Nepal is in the formulation phase of its NAP process, undertaking stakeholder engagement, background research and analysis toward the development of a national plan for climate change adaptation.

Nepal's NAP process builds on past experience with adaptation planning, including through the National Adaptation Programme of Action (NAPA), developed in 2010, and the Framework on Local Adaptation Plans for Action (LAPA), developed in 2011, which has facilitated development of adaptation plans by Village Development Committees¹ across the country. The government, led by the Ministry of Population and Environment² has integrated the lessons learned from these past efforts in the NAP process, taking a deliberate and thoughtful approach that aims to be participatory and inclusive, while integrating the best available scientific information about current and future climate risks.

This report is a joint effort by the Government of Nepal, the NAP Global Network and the Action on Climate Today (ACT) program, which, through Practical Action, has provided technical support in initiating the NAP process in Nepal. It builds on a considerable body of work conducted by the government in partnership with ACT and Practical Action. The report reflects on Nepal's NAP process so far, placing it in context, highlighting its unique features and synthesizing the knowledge gained. It comes at a time when the process is shifting to a new phase, with readiness support from the Green Climate Fund (GCF). It identifies priorities for Nepal's NAP process, taking into account the evolving governance context in the country. The priorities are focused on the near term and completion of the formulation phase with GCF support, recognizing that the formulation phase must also lay the foundation for implementation. In addition to informing the coming steps of Nepal's NAP process, the report aims to share learning from Nepal's experience with other countries.

¹ Village Development Committees were the community-level administrative units in the previous governance system. They do not exist in the new system.

² Responsibility for the NAP process has transitioned to the Ministry of Forests and Environment as a result of the government restructuring in early 2018.

2 BACKGROUND

Nepal is located in the mid-Himalayan region of the Hindu Kush-Himalayan range, situated between China and India, with a population of almost 30 million (CIA, 2017). It is a landlocked country with some of the world's largest mountains, including Mount Everest. Altitudes range from a minimum of 70 metres above sea level (masl) to a maximum of 8848 masl (Department of Forest Research and Survey [DFRS], 2015), creating considerable diversity in the landscape, climate and livelihoods across the country. There is considerable social diversity as well, including approximately 125 caste and ethnic groups with as many as 123 languages spoken as mother tongues (Central Bureau of Statistics [CBS], 2011). Nepal is a least-developed country, with almost 29 per cent of the population living in multidimensional poverty (National Planning Commission [NPC], 2018). The Human Development Index (HDI) for 2016 shows Nepal in the 144th position among 188 countries, an improvement from its earlier rank of 145th (HDI, 2016).

Agriculture remains an important livelihood sector in Nepal, contributing almost 30 per cent of GDP and employing almost 70 per cent of the labour force in 2014 (CIA, 2017). Agricultural livelihoods include subsistence farming, cash crop production and livestock rearing as well as agricultural labour and forest-based activities (MoPE, 2017a). These activities are highly dependent on climate-sensitive resources such as water and land and are vulnerable to climate-related hazards such as floods, droughts and landslides. Consequently, climate change will have an impact on people practicing these livelihood strategies, affecting income and food security, with implications for well-being and economic development.

Outside the agricultural sector, the major livelihoods strategies include tourism, foreign employment and remittances. The latter are growing in importance in terms of their contribution to Nepal's GDP. In 2011, one quarter of Nepali households had one family member who had migrated for work, and by 2016 remittances represented 31 per cent of GDP (World Bank, 2018). Industry is a growing sector, with the vast majority of registered businesses being micro-industries, such as handicrafts, traditional music, costumes, art and jewellery, and ceramic products. Civil service and non-governmental organizations represent important employers; however, there is limited employment in the private sector. With the exception of tourism, these employment-based livelihood strategies tend to be less sensitive to climate impacts than those based in agriculture.

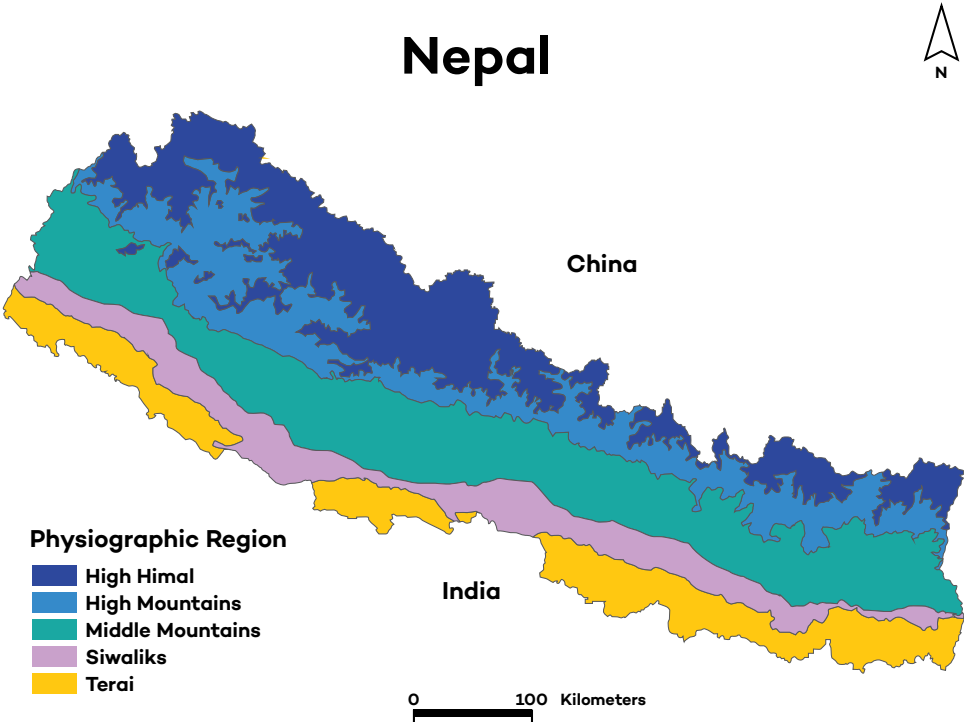
There are significant regional disparities in income, with average per capita income in USD (PPP) ranging from approximately USD 500 in some of the far western districts to over USD 2700 in Kathmandu and some mountain districts (NPC & United Nations Development Programme [UNDP], 2014). Average income also varies considerably among Nepal's different ethnic and caste groups, with people from the Brahmin/Chhetri group earning up to twice as much per year than those from the Dalit group (NPC & UNDP, 2014). Over the last 20 years, social, political and economic activities have influenced demographics and led to

shifts in population distribution. For instance, population in the hills and mountain regions is decreasing, while urban migration is increasing (MoPE, 2017b).

Recent years have seen a period of transition for Nepal. Between 1996 and 2006, the country was affected by an armed conflict. The Comprehensive Peace Accord of 2006 has been instrumental in establishing the way forward for governance in the country, including the restoration of a multi-party political system. In 2008, the monarchy in Nepal ended and the country's first Constituent Assembly was elected (Carter Center, 2014). The new constitution was adopted in September 2015, creating a new governance framework comprising seven federal provinces, 77 districts and 753 municipalities and village councils (MoPE, 2017a).

In spite of the challenges presented by the transition, Nepal has made progress in critical development areas. In 2013, the country was on track to meet its Millennium Development Goals (MDGs) in the areas of poverty and hunger eradication, primary education, maternal health and reduction in biodiversity loss (NPC & United Nations Country Team Nepal, 2013). However, the 2015 earthquake negatively affected achievements related to economic growth and development progress (Campbell, 2015). Nepal is now making a renewed effort to achieve the targets under the 17 proposed Sustainable Development Goals (SDGs) and has recognized climate change adaptation as a key factor in these efforts (see Section 4 for more details).

FIGURE 1. MAP OF NEPAL



Source: MoSTE, 2014

3 CLIMATE CHANGE IN NEPAL

Nepal's geography makes the country's climate particularly complex. Because of the extreme variations in elevation within short distances, Nepal's climate varies significantly across the country, ranging from alpine and arctic in the north to tropical in the south. The country experiences tropical, meso-thermal, micro-thermal, taiga and tundra types of climate (MoFSC, 2014). As illustrated in Table 1, the temperature and precipitation vary strongly with altitude.

TABLE 1. NEPAL'S CLIMATIC ZONES

REGION	ELEVATION	CLIMATIC ZONE	AVERAGE ANNUAL PRECIPITATION	AVERAGE ANNUAL TEMPERATURE
High Himal	Above 5,000 m	Tundra and arctic climate	150–200 mm	< 3–10°C
High Mountains	3,000–5,000 m	Alpine and subalpine		
Middle Mountains	1,000–3,000 m	Cool to warm temperatures	275–2,300 mm	10–20°C
Siwalik	500–1,000 m	Sub-tropical	1,100–3,000 mm	20–25°C
Terai (low-laying plains)	Below 500 m	Tropical		

Source: Adapted from MoE, 2010b & MoSTE, 2014

The relatively short length of the meteorological record in Nepal limits analyses of observed climate trends, including for temperatures and precipitation (Patra & Terton, 2017). However, recent analysis of trends from 1971 to 2014 by the Department of Hydrology and Meteorology (DHM) shows that the average annual maximum temperature has been increasing by 0.056°C per year (DHM, 2017). Another study found that a small, but statistically significant, increase in the frequency of hot nights has been observed. In contrast, the annual frequency of “cold” days and nights has decreased significantly since 1960 (McSweeney, New, & Lizcano, 2012). The mountain regions are warming more than the plains (ICIMOD, 2018). The mean annual temperature is expected to continue to increase in Nepal over the remainder of the century. Recent projections indicate that mean annual temperatures could increase by 1.3–1.8°C by

the 2050s, with the highest increases in the mountain regions. Along with this, an increase in warm days and nights is predicted (ICIMOD, 2018).

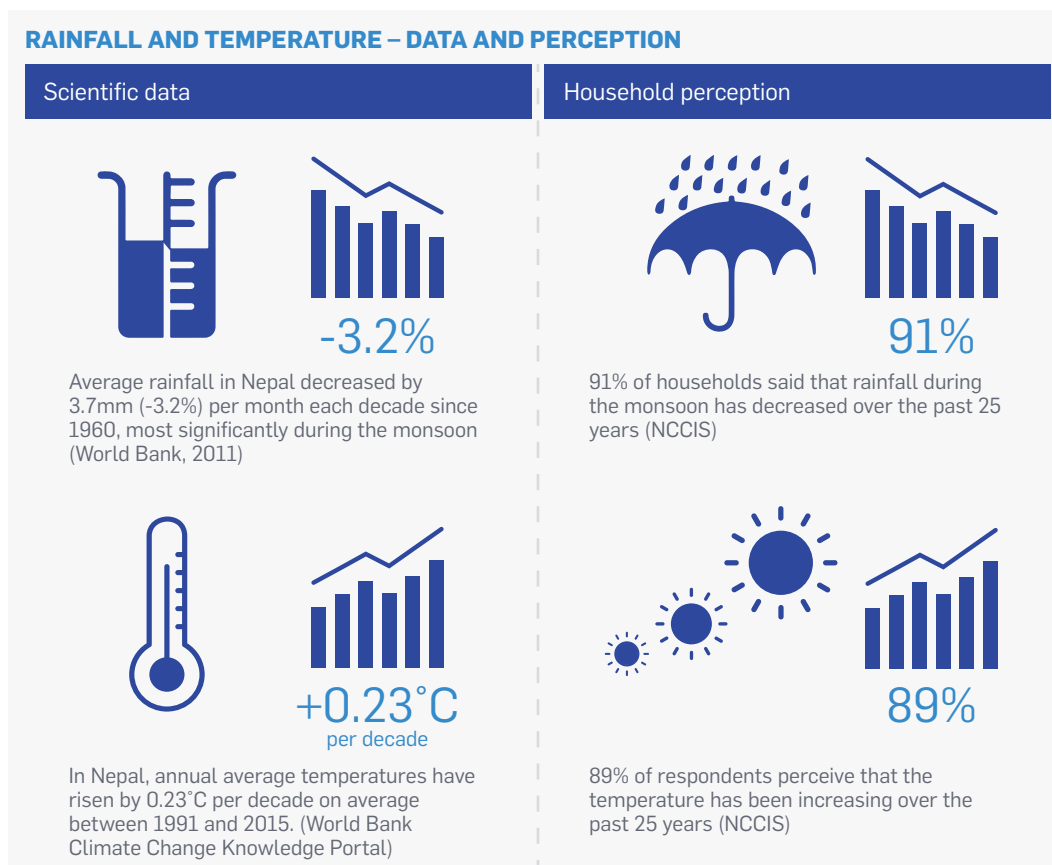
With respect to precipitation, the situation is a lot more uncertain. The DHM analysis found that there is no significant trend in precipitation for the country overall; however, district-level data shows a significant decreasing trend in eight districts and an increasing trend in three (as districts were previously defined). Other trends, such as a tendency for decreasing precipitation in all seasons in the high mountains, were not found to be significant (DHM, 2017). Precipitation extremes are found to be increasing (Karki, et al., 2017). Recently-developed scenarios suggest that precipitation will increase by 2–6 per cent by 2030 and by up to 12 per cent by 2050. From a seasonal perspective, precipitation is likely to increase in all seasons except the pre-monsoon, when decreases are projected. Extremes are also expected to occur more frequently, with an increase in very wet and extremely wet days. Overall, however, the range of uncertainty in the projections is large, so adaptation planning must build in flexibility to address this (ICIMOD, 2018).

Nepal already experiences a range of climate hazards. Data reveals that more than 80 per cent of property loss due to disasters is attributable to climate hazards, particularly water-related events such as floods, landslides and glacial lake outburst floods (GLOFs). Water-related disasters claim more than 300 lives a year, displace people and destroy homes, farmland and other essential infrastructure (Bishokarma, 2017a). In August 2017, 18 districts in Nepal's Terai region were severely affected by floods (NPC, 2017b), which affected almost 1.7 million people (MOHA, 2017, cited in NPC, 2017b). Recovery costs from this flooding are estimated to be more than USD 700 million (NPC, 2017b). Droughts and forest fires are an increasing concern, as are GLOFs, which pose significant threats to livelihoods and key infrastructure (Nepal Climate Vulnerability Study Team [NCVST], 2009; MSTE, 2014). Climate change projections suggest that Nepal will be more exposed to these risks in the future. Of particular concern is the potential for changes to the flow and quality of water derived from glaciers, snowmelt and rainfall, leading to excess water at certain times of the year and prolonged dry periods and extreme drought in others (Bartlett et al., 2010). Box 1 provides an overview of people's perceptions of climate change, based on a country-wide survey.

BOX 1. PERCEPTIONS OF CLIMATE CHANGE IN NEPAL

In 2016, Nepal's Central Bureau of Statistics conducted a survey to better understand how people across the country are experiencing the impacts of climate change. The process collected both qualitative and quantitative information from over 5,060 households in both rural and urban areas. Over 90 per cent of surveyed households indicated that the monsoon rainfall has decreased over the last 25 years. A similar proportion reported that they felt that temperatures are increasing. Respondents also reported shifts in the timing of the seasons. The climate hazards of most concern are drought, hailstorms and floods; however, there are regional variations in this. Almost all respondents feel that the occurrence of drought has increased (CBS, 2017). When the survey results were compared with available data on rainfall and temperature trends, it was found that there is a high degree of convergence between the perceptions of the respondents and the scientific information. The study highlighted the value of incorporating local perspectives in climate change vulnerability and impact assessments, to complement scientific data, fill information gaps and inform assessment of vulnerability to climate change (Tanner, Acharya, & Bahadur, 2018).

Figure B1. Perceptions of Climate Change in Nepal



Source: Tanner, Acharya and Bahadur (2018).

4 INSTITUTIONAL AND POLICY CONTEXT FOR THE NAP PROCESS

Nepal's NAP process fits within the overarching institutional and policy framework for climate change and development in the country. This section describes this broader framework to place the NAP in context.

DEVELOPMENT PLANNING CONTEXT

At present, Nepal's longer-term development vision is guided by the SDGs. A roadmap has been developed for achieving these global goals, laying out concrete and specific targets for Nepal's development progress by 2030. It notes that the goals that "have the potential to trigger inclusive economic growth" (NPC, 2017c, p. 12) are the highest priority. This includes those focusing on job creation, social protection systems and reducing disaster risks. The roadmap highlights the importance of the goals around gender equality, peace and justice and inclusive institutions, yet also acknowledges that these are long-term aspirations that may be challenging to achieve on the planned timeline. The need to integrate the SDGs in the period development plans (see below) is also noted. In relation to climate change, the roadmap commits to the development of adaptation plans for local governments, as well as developing climate-smart agriculture and integrating climate change into the school curriculum (NPC, 2017c).

For the medium term, Nepal's development planning is guided by periodic plans (five-year and three-year) that provide a road map for the achievement of specific sectoral, social and environmental targets. The plans aim to promote inclusive development by ensuring participation, access to opportunities and sharing of benefits across all individuals, groups, castes, ethnicities and development regions. The current plan is the 14th Plan for 2016–2019 and envisions achieving the SDGs and graduating to middle-income country status by 2030. It emphasizes public governance that is people-centred, service-oriented, responsible and development-friendly, including in the management of public finance. Specifically, the 14th plan includes five key strategies, focusing on transformation of the agricultural sector and expansion of tourism, infrastructure development, human development and good governance, as well as cross-cutting themes of gender equality, social inclusion, environmental protection and utilization of science and technology (NPC, 2017a).

Climate change is treated as a cross-cutting development issue. The plan acknowledges the challenge of adapting to climate change and highlights the need to access climate finance for result-oriented programs, to implement adaptation actions in climate-vulnerable areas and communities and to integrate and localize climate change activities. It also addresses the need for the voices of vulnerable countries and communities to be heard at international levels. The plan notes the opportunities created by the commitments made for the Sustainable Development Goals (internationally and nationally) and the provision of climate finance (NPC, 2017a). It aims to mobilize national and international sources of climate finance in the national budget to increase investment (Bishokarma, 2017c). At a more practical level, the

plan envisions integration of adaptation across the thematic areas, as well as increased collaboration among different stakeholders (including donors, INGOs, NGOs and local institutions) for implementation of adaptation actions. It commits to finalization of the NAP and development of a framework for climate finance within the lifetime of the plan (NPC, 2017a).

CLIMATE CHANGE POLICY CONTEXT

Nepal's Climate Change Policy, developed in 2011, provides the overarching policy direction on climate change for the country. The policy envisions “a country spared from the adverse impacts of climate change” (p. 5) with a focus on climate justice and the linkages between environmental conservation, human development and sustainability. It addresses both mitigation and adaptation, with the adaptation component focusing on adaptation and resilience for local communities, in line with the priorities identified in the National Adaptation Programme of Action (NAPA). The specific strategies for adaptation include monitoring glaciers and glacial lakes, forecasting and providing early warning information for water-induced disasters and addressing vector-borne, infectious and communicable diseases that are exacerbated by climate change, among others. The policy commits to establishing a climate change fund and allocating at least 80 per cent of the total budget from this fund directly to implementation at community level (Government of Nepal, 2011a).

Alongside the Climate Change Policy, the National Planning Commission (NPC) developed its framework for **Climate-Resilient Planning**. The document envisions a society and economy that is resilient to a changing climate. It defines a climate-resilient development plan as one that “takes stock of felt as well as anticipated risks, creates synergy between mitigation and adaptation, improves climate knowledge and helps improve the governance of development” (NPC, 2011, p. 10). It includes a useful format for screening plans, looking at core, support and institutional systems (NPC, 2011).

Also in 2011, the **National Framework on Local Adaptation Plans for Action (LAPAs)** was developed, presenting an approach for “delivery of adaptation services to the most climate-vulnerable areas and people” (p. 2). The LAPA framework aims to ensure that approaches to integrating climate change adaptation and resilience building in development efforts are bottom-up, inclusive, responsive and flexible. It outlines a process for local adaptation planning that involves sensitization, vulnerability and adaptation assessment and prioritization of adaptation options, leading to the formulation of a LAPA, which is then integrated into local planning, implemented and monitored (Government of Nepal, 2011c). A manual was also developed to guide development of LAPAs (Government of Nepal, 2011c).

Nepal submitted its first **Nationally Determined Contribution (NDC)** to the UNFCCC in October 2016. This document outlines Nepal's planned contribution to achievement of the goals outlined in the Paris Agreement (UNFCCC, 2015). It emphasizes the importance of adaptation and resilience building in protecting lives, livelihoods and ecosystem services from the impacts of climate change and reiterates Nepal's commitment to a localized approach to climate change adaptation, referencing both the LAPA framework and the commitment to channel climate finance to the local level. The NDC highlights the NAP as a key mechanism for articulating the country's adaptation needs, taking into account regional diversity and needs in different sectors (MoPE, 2016a). Nepal submitted its first and second National Communications to the UNFCCC in 2004 and 2014, respectively (MoPE, 2004; MoSTE, 2014).

INSTITUTIONAL ARRANGEMENTS FOR CLIMATE CHANGE

Before the restructuring of government ministries in February 2018, the Ministry of Population and Environment (MoPE) was designated as the primary agency to coordinate climate change planning in the country as well as the focal point for the UNFCCC process (Patra & Terton, 2017). The Climate Change Management Division (CCMD) was given responsibility to advance policies and actions on climate change (ACT & Practical Action, 2017).

With leadership from the MoPE, three key mechanisms were established to facilitate cross-ministry coordination on climate change:

- **The Climate Change Council:** Established in 2009, the council is chaired by the Prime Minister. It is comprised of 25 members, including ministers of relevant ministries, the vice-chair of the NPC and nominated experts (MoPE, 2018). It is responsible for high-level coordination, guidance and direction on climate change policies, ensuring climate change is present in the national development agenda and accessing additional financial and technical support for implementation of climate change actions, among other responsibilities (Climate Investment Funds, 2011).
- **The Multi-Stakeholder Climate Change Initiatives Coordination Committee (MCCICC):** This body was established in 2010 through the NAPA process, to serve as the key national platform for ensuring regular dialogue and consultation on climate change-related policies, plans, finance, projects and activities. Its membership includes government actors, as well as local bodies, academia, non-governmental and civil society organizations, federations and networks, and private sector and development partners. (ACT & Practical Action, 2017).
- **The Climate Change Coordination Committee:** While initially established in 2011 to coordinate the Pilot Program on Climate Resilience (PPCR), the role of the committee was expanded in 2013 to focus on overall coordination, facilitation and information sharing between climate change programs and activities at the ministerial level. Before the restructuring, the committee was chaired by the Minister for Population and Environment, and members included officials from the MoPE.

In addition, during the NAPA process, the MoPE and the National Academy of Science and Technology established the Nepal Climate Change Knowledge Management Centre (NCKMC). The centre aims to enhance public access to climate change and related information, while also strengthening collaborative and interdisciplinary climate change research and facilitate the interface between scientific research and policy-making (NCKMC, 2012).

The government was restructured in February 2018, resulting in some changes to the ministries. Responsibility for climate change has shifted to the Ministry of Forests and Environment (MoFE) (Government of Nepal, 2018), where the CCMD now sits. The institutional arrangements for climate change, and the NAP process specifically, will inevitably evolve as a result of this change; however, there is no clarity at present as to what the new structure will look like.

CLIMATE FINANCE

Nepal introduced a climate change budget code in the 2012–13 fiscal year. By 2016, government estimates showed that almost 20 per cent of the budget allocation was directly or indirectly addressing climate change, including both adaptation and mitigation (MoF, 2016, cited in Bishokarma, 2017a). These funds were allocated primarily to the ministries responsible for urban development, agriculture, irrigation and finance. However, the criteria for applying the climate change code are not clear, and it has been suggested that a more realistic estimate is less than 1 per cent (Bishokarma, 2017a). The government's analysis found that approximately 11 per cent of the total climate change budget was allocated to the local level through programs led by line ministries; however, this doesn't include funds received directly by local governments that may have been spent on climate change-related activities (Bishokarma, 2017a).

A technical committee on climate finance has been established, with leadership from the Ministry of Finance. Although capacity to mobilize funds from international sources is considered to be low (Bishokarma, 2017a), Nepal has been successful in accessing climate finance from mechanisms under the UNFCCC, including the Least Developed Countries Fund (LDCF) and the Adaptation Fund. As previously noted, the government received approval for NAP readiness funding from the GCF in 2016. Outside the UNFCCC, a number of bilateral and multilateral development partners have supported implementation of adaptation projects and programs. Notable among these are the multi-donor Pilot Program on Climate Resilience (PPCR) and the Nepal Climate Change Support Program (NCCSP), funded by the U.K. Department for International Development (DFID), the European Union and UNDP. International and local non-governmental organizations have also been active in implementing adaptation actions (Bishokarma, 2017a).

5 NEPAL'S NAP PROCESS

Nepal launched its National Adaptation Plan (NAP) process in September 2015. The two main objectives of the NAP are (i) to reduce vulnerability to climate change impacts by improving resilience and adaptive capacity, and (ii) to integrate climate change adaptation into new and current policies, programs, activities, and development strategies across all sectors and levels of government (MoPE, 2016). In the first stage of the formulation phase, MoPE led the national process to identify and prioritize medium- and long-term adaptation actions, while the MCCICC ensured overall coordination and guidance for the NAP process. This first stage was also supported by a technical team of embedded consultants, who worked closely with the MoPE-designated coordinator and the 11 ministries engaged in the process (Bahadur, 2018; ACT & Practical Action, 2017). The MoPE also made a provision to form a technical committee chaired by the UNFCCC focal point for Nepal to oversee and provide guidance on the technical aspects of the NAP process and ensure reporting at national and international levels (MoPE, 2016b); however, this objective has not yet been operationalized. Working groups were established for the NAP process, focusing on seven themes and two cross-cutting issues, shown in Figure 2.

These units evolved from the working groups formed through the NAPA process. Each of the working groups is coordinated by a respective ministry which has been designated to take responsibility for the theme. The Terms of Reference for working groups established expectations that they would (ACT & Practical Action, 2017):

- Review and provide analytical inputs to key documents produced through the NAP process
- Actively engage in identifying, selecting and prioritizing adaptation options within the different themes for inclusion in the NAP
- Contribute to communications about the NAP process at appropriate fora
- Integrate climate change adaptation into existing and new policies, programs and activities
- Actively engage in formulating NAP implementation strategy, and reporting, monitoring and reviewing framework
- Coordinate all steps of the NAP process for the respective theme or cross-cutting area, taking into account the national development context and international commitments such as the 2030 SDGs

To date, the working groups have primarily focused on the first three roles. Each of the working groups has produced a stocktaking report that reviews available information on climate change and linkages to the theme and identifies major stakeholders and key gaps and needs. They also include recommendations for the way forward. In addition, capacity gap assessments were produced for each theme and cross-cutting issue. These are summarized in Annex A.

FIGURE 2. THE NAP THEMATIC AREAS AND CROSS-CUTTING ISSUES



A considerable amount of work has already been done to advance the NAP process, as shown in Figure 3. One of the key outputs of the NAP process to date is identification of adaptation pathways for each of the themes. For some themes, these pathways provide a set of concrete objectives for adaptation, but these need to be prioritized and further elaborated for particular contexts and different groups across the country. For others, they identify the way forward to identify concrete adaptation options within the theme. The gender and social inclusion pathways are linked to the themes, while for livelihoods they identify options for increasing different types of livelihood assets. The governance pathways address structures, processes and finance. A summary of the identified adaptation pathways is presented in Table 2.

FIGURE 3. NEPAL'S NAP PROCESS: PROGRESS TO DATE



TABLE 2. NEPAL'S ADAPTATION PATHWAYS

THEME	ADAPTATION PATHWAYS
<p>Agriculture and Food Security (Thakur, 2017b)</p>	<ul style="list-style-type: none"> • Development of adaptive technologies, varieties and breeds • Development of efficient irrigation and water management systems • Promotion of climate-resilient agricultural practices • Climate information services, including early warning systems and sectoral information systems • Improvement of grain and food storage and distribution systems • Promotion of financial services and insurance • Development and strengthening of farmers' networks and institutions
<p>Forests and Biodiversity (Karki, 2017a)</p>	<ul style="list-style-type: none"> • Establish objectives for the future forest under climate change • Increase awareness and education within the forestry community about adaptation to climate change • Determine the vulnerability of forest ecosystems, forest communities and society • Develop present and future cost-effective adaptive actions • Manage the forest to reduce vulnerability and enhance recovery • Monitor to determine the state of the forest and identify when critical thresholds are reached • Manage to reduce the impact when it occurs, speed recovery and reduce vulnerability to further climate change
<p>Water Resources and Energy (Adhikari, 2017c)</p>	<ul style="list-style-type: none"> • Analyze climate change trends and future scenarios for water resources and energy • Conduct vulnerability assessment for the sector • Identify and appraise adaptation options • Develop strategies for implementing adaptation options • Integrate adaptation options into policies and plans
<p>Climate-Induced Disasters (Chhetri, 2017a)</p>	<ul style="list-style-type: none"> • Strengthening the hydrological and meteorological infrastructure and scientific information systems • Enhancing the Early Warning Systems for climatic hazards throughout the country • Addressing the risk of GLOFs in the Himalayan regions • Building infrastructure to protect major assets such as roads, hydropower installations and water and irrigation systems • Building and enhancing flood and landslide management systems, including watershed and catchment management to address flash floods • Promotion of water management and water saving technologies for domestic use, recreation, irrigation and energy production • Strengthening national disaster management systems and institutions, including by building human resources • Setting up and allocating funds to prepare for and respond to climate-induced disasters

THEME	ADAPTATION PATHWAYS
Public Health and WASH (Pandit, 2017b)	<ul style="list-style-type: none"> • Capacity building for professionals, government institutions and other stakeholders to support adaptation-related activities • Improvement of physical systems and infrastructure to withstand climate risks • Strengthening of services and institutions to manage climate-related health risks • Promoting research and development on climate change and health • Establishment, management and application of databases to track climate change impacts and adaptation in the health sector • Reaching the unreached and most vulnerable populations and settlements with health services • Fostering collaboration among and across sectors to promote adaptation for health
Tourism, Natural and Cultural Heritage (Devkota, 2017a)	<ul style="list-style-type: none"> • Analyze current and future impacts of climate change on tourism, including the economic impact • Conserve and build upon indigenous knowledge systems for adaptation • Development of guidelines and enforcement of standards for climate resilience of tourism and cultural infrastructure • Develop insurance mechanisms for tourism activities and infrastructure • Integration of climate change adaptation into tourism and cultural policies and plans, and vice versa • Strengthen early warning systems, safety provisions and rescue and recovery plans for the tourism sector • Allocate funds and implement climate change adaptation projects and programs in the tourism sector • Establish coordination mechanisms for adaptation in the tourism sector, bringing in stakeholders from government and the private sector
Urban Settlements and Infrastructure (Joshi, 2017a)	<ul style="list-style-type: none"> • Develop early warning systems and raise awareness of risks from landslides, floods, GLOFs and other climate risks • Enforce land-use planning and bylaws to reduce construction in highly exposed areas such as floodplains and landslide-prone areas • Develop climate-resilient design guidelines for critical infrastructure such as roads, bridges, dams and public buildings such as schools and hospitals • Emergency planning for urban areas • Establish insurance mechanisms • Physical protection measures such as retaining walls, drainage systems, trapping dams, etc. • Relocation of at-risk communities and infrastructure

THEME	ADAPTATION PATHWAYS
Gender and Social Inclusion (marginalized groups) (Mainaly, 2017b)	<ul style="list-style-type: none"> • Introducing agricultural technologies that are socially and gender-inclusive • Addressing resource access issues related to forests, water and energy for women and marginalized groups • Structural changes in social norms and values • Inclusive early warning systems • Awareness programs and insurance mechanisms for women and marginalized groups engaged in tourism-related businesses • Identification of options for diversification of livelihoods for women and marginalized groups
Livelihoods (Bishokarma, 2017b)	<ul style="list-style-type: none"> • Support diversification of livelihoods, including non-farm-based strategies • Enhance adaptive capacity of marginalized groups • Land reform • Climate change education • Increase access to financial services • Create financial incentives for adaptation (such as subsidies and payments for ecosystem services) • Promote alternative industries
Governance (Bishokarma, 2017b)	<p>Establish climate change sections in all development ministries</p> <p>Establish functional local disaster management committees</p> <p>Climate change financing framework</p> <p>Integration of climate change in local-level planning processes</p> <p>Increase private sector investments in adaptation</p> <p>Enable asset building and access to insurance for vulnerable groups</p>

6 UNIQUE FEATURES OF NEPAL'S NAP APPROACH

While following the guidance developed by the Least Developed Countries Expert Group (LEG), Nepal has adopted an approach to its NAP process that fits its specific context, taking into account the particular climatic and geographic characteristics of the country, opportunities and challenges associated with governance and the overarching development vision. Rather than rushing to produce a NAP document, the team coordinating the process has taken a thoughtful, deliberate approach, involving a range of stakeholders in a consultative process supported by dialogue and analysis.

As a result, Nepal's NAP process has a number of features that make it unique, notably:

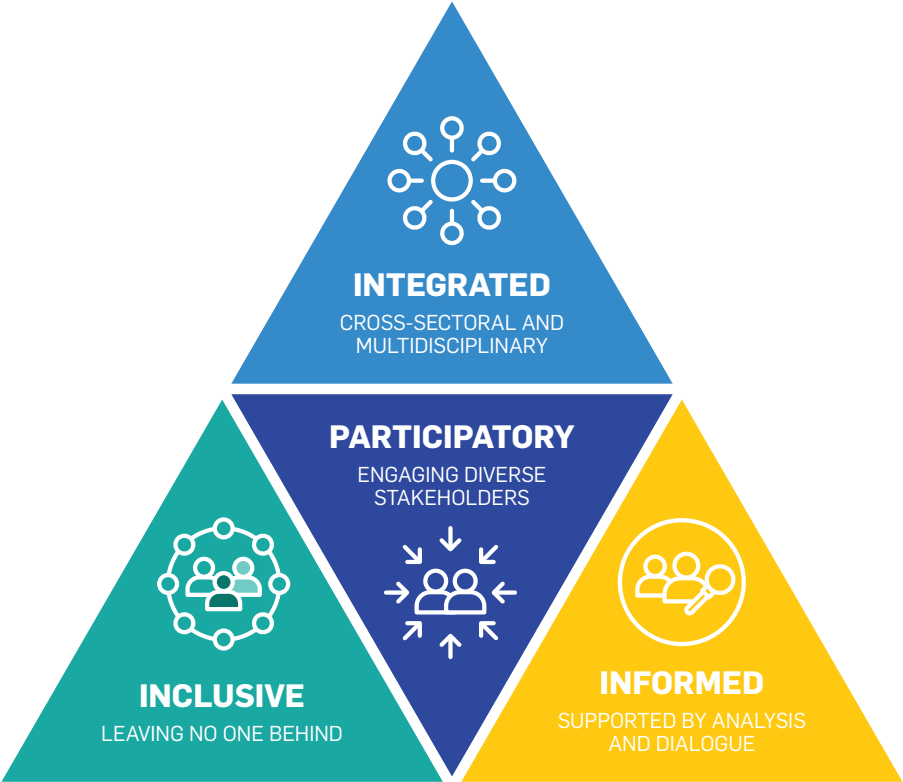
A process that will “leave no one behind”: Nepal has committed to an inclusive NAP process, bringing in marginalized and disadvantaged communities, indigenous and traditional groups, with special consideration for youth, women and people with disabilities (MoPE, 2016b). This approach responds to the call to consider vulnerable groups, communities and ecosystems that was established in the NAP decision under the UNFCCC (UNFCCC, 2010). Treating gender equality and social inclusion as both a cross-cutting issue and a standalone theme for the NAP process has provided a solid basis for addressing these issues in an informed and practical way from the beginning of the process. As the process advances, the aim is to enable women and men of all regions and social groups to improve and sustain their livelihoods in ways that are resilient to climate change. This requires engagement of vulnerable groups in adaptation planning, and ultimately, integration of climate change adaptation in investments aimed at supporting inclusive economic development and livelihood opportunities.

Integrated approach: In contrast with the sector- or ministry-based planning approach adopted by many countries, Nepal adopted an integrated approach, focusing on seven thematic areas, as well as two cross-cutting issues (see Figure 2 for details). The thematic areas bring together actors from different sectors that have a role to play in relation to the theme. For example, the working group on urban settlements and infrastructure brings together representatives of ministries focused on urban development, land reform and management and water supply and sanitation. Further, having gender and social inclusion, livelihoods and governance as cross-cutting themes has brought together representatives of a range of ministries to examine the intersections between climate change, key development objectives and these critical underlying issues. This has allowed for multidisciplinary dialogue and analysis, leading to identification of adaptation pathways that are oriented toward reducing poverty, improving people's livelihoods and building resilience. The government has also recognized the importance of blending community-based and ecosystem-based approaches to adaptation for resilient livelihoods and environmental sustainability over the longer term (MoPE, 2016b).

Emphasis on stakeholder engagement: While the NAP process is led by the government, it has involved active participation of stakeholders from the very beginning, through the thematic and cross-cutting working groups. These groups bring together civil society organizations, academics and research organizations and private sector actors, among other representatives. Efforts were made to ensure that each group included a mix of actors that could be characterized as service providers, beneficiaries, enablers and advocates. This has enabled effective multistakeholder dialogue on the opportunities and gaps associated with adaptation within the different themes, with different types of actors bringing diverse perspectives to the process. The working group approach has facilitated learning and knowledge exchange and has built ownership of the NAP process (ACT & Practical Action, 2017). Treating stakeholders as core members in the institutional arrangements for the NAP process is true to the principles of participation and transparency established under the UNFCCC (UNFCCC, 2010).

An informed process: Recognizing the importance of technical and scientific rigour for adaptation planning, Nepal has made a considerable investment in research, analysis and technical capacity to inform the NAP process. This includes the previously mentioned stocktaking and capacity gap assessment reports, which were led by a team of experts in the field. Analysis of climate trends from 1971 to 2014 and scenarios for 2030 and 2050 will ensure that the NAP is based on the best available climate information, downscaled to the level of districts as they were previously defined, as well as physiographic regions. In addition, a comprehensive framework for vulnerability and risk assessment has been developed to guide future assessment and monitoring of vulnerability within the NAP themes and cross-cutting issues. Collectively, these efforts provide a solid base of information and analysis upon which informed decisions can be made regarding adaptation planning and implementation.

FIGURE 4. UNIQUE FEATURES OF NEPAL'S NAP PROCESS



7 KEY ISSUES FOR THE NAP PROCESS

In this section, we present the key opportunities and challenges that must be considered as Nepal's NAP process advances.

MAINTAINING MOMENTUM IN A DYNAMIC CONTEXT

The ongoing restructuring of the government presents both a challenge and an opportunity for the NAP process. Changes at both the federal level and sub-national levels will require shifts in the institutional arrangements for the NAP process, to ensure that the right actors are engaged to take the process forward. A lack of clarity around the ultimate configuration of the governance systems for climate change and related issues may act as a barrier to progress; however, the GCF funding should enable action even in a context of uncertainty. At the same time, the fact that new structures and systems are being established presents an important entry point for integrating climate change considerations to ensure that adaptation is viewed as core business for the newly formed ministries and sub-national authorities. An iterative approach will be needed to keep the process moving forward, incorporating flexibility to adjust to the changes and capitalize on opportunities that arise through the restructuring process.

FACILITATING INCLUSIVE PARTICIPATION

Nepal's climate change policies recognize that adaptation implementation occurs primarily at the local level, in line with the commitment to channel climate change funding to communities. This implies a strong role for local government authorities, as well as community-based organizations and other local institutions, in implementing, monitoring and evaluating the NAP. The commitment to an inclusive NAP process takes this even further, recognizing that adaptation efforts must benefit those who are most vulnerable to climate change, including women, marginalized groups and people with disabilities. For this to occur, these stakeholders must have the opportunity to participate in and meaningfully influence adaptation planning. This was the intent of the LAPA process—the challenge going forward is to find efficient and effective ways for these voices to be heard in the NAP process.

Inclusion issues are important across all levels of planning. In the first stage of NAP formulation, representation of women and vulnerable groups in the working groups remained limited, with the exception of the one focused on gender equality and social inclusion (ACT & Practical Action, 2017). As the NAP process moves forward, it will be critically important to ensure gender balance in participation and influence over decision making. Further, targeted efforts may be needed to bring representatives of marginalized groups into the process. This is in line with the constitution and the gender and climate

change strategy, which is currently under development. However, the capacity gap assessment on climate change, gender equality and social inclusion found that while government representatives have a high interest level in these issues, their current level of engagement is low (Mainaly, 2017a). Consequently, addressing inclusion and meaningful participation will require a concerted effort on the part of the working groups and all institutions involved in the NAP process.

LINKING NATIONAL AND SUB-NATIONAL ADAPTATION PLANNING

Given the Government of Nepal's focus on localized approaches to adaptation, the creation of strategic linkages between national and sub-national adaptation planning is a key issue for consideration as the NAP process moves forward. Within the formalized NAP process, there has been limited consultation at the local level to date, and the working groups have not had strong representation from local actors (B. Paudel, Personal communication, December 19, 2017). However, there has been a significant investment in the development of LAPAs, which have been a key mechanism for identifying local adaptation priorities and integrating them into development planning (see Box 2 for an example). As demonstrated by the Khumbu example, these local plans can provide rich information on people's experiences of climate change and their priorities for adaptation. What is less clear is how the NAP process can realistically incorporate the knowledge gained through the LAPA process.

Vertical integration in the NAP process aims to ensure that adaptation planning at national and sub-national levels is mutually supportive (Dazé, Price-Kelly & Rass, 2016). The newly created sub-national governance structures consist of provinces, municipalities and rural municipalities (*Gaunpalikas*). The 2017 Local Government Operation Act provides the local governments (municipalities and *Gaunpalikas*) with a provision to develop and implement development plans that take climate change adaptation and disaster risk management into consideration (LGOA, 2017). In line with this, it will be important to clarify the roles and responsibilities of provincial and local governments, particularly in relation to integration of adaptation in planning and implementation of priorities identified through the NAP process. The government commitment³ to channel resources to the local level implies a strong role for these actors, and strategic investments will be required to ensure that they have the capacity and resources to implement, monitor and evaluate adaptation actions. To realize its objectives, the NAP process must create an enabling environment for local action; consequently, creating functional linkages between sub-national and national levels will be critical.

³ As previously noted, the Climate Change Policy commits to channeling 80 per cent of funding allocated for climate change-related programs to the community level (Government of Nepal, 2011a).

BOX 2. LOCAL ADAPTATION PLANNING: EXPERIENCE FROM THE KHUMBU

The Khumbu region of Nepal is well-known as the way to Mount Everest on the Nepali side of the mountain. The region includes the Sagarmatha National Park and its buffer zone, as well as the trekking and mountaineering centres of Namche Bazaar and Lukla. The number of visitors to the area has increased rapidly in recent years, reaching more than 35,000 in 2012 (Sagarmatha National Park, 2014, cited in Nepal, 2016). Tourism represents the main source of income for communities in the region.

As it is difficult to separate the interests of the park, the buffer zone and the neighbouring communities, a decision was made to develop an adaptation plan that groups three Village Development Committees (VDCs) together. The LAPA was developed through a series of consultation workshops that brought together community representatives with different roles (farmers, porters, herders, teachers, etc.), representatives of women's and youth groups, business owners and religious leaders. Also present were representatives of local governance structures such as management committees for the park and buffer zones. A concerted effort was made to ensure that the process was inclusive of women, poorer community members and people from the Dalit group. The facilitated process included a series of participatory exercises that guided analysis of climate issues and identification of adaptation options. The workshop process was complemented by interviews with key informants (Byers & Thakali, n.d.).

The key climate-related concerns for the stakeholders include landslides caused by heavy rain, GLOFs, heavy or prolonged snowfall, drought and forest fires. The participants conducted detailed analysis of the impacts of these events, including assessing the potential impact on different sectors and livelihood strategies. Porters were highlighted as a particularly vulnerable group, because they are poor, work seasonally and are strongly affected by GLOFs, heavy snowfall and floods, which affect their security and disrupt their work. Hydropower, agriculture and livestock are also considered to be highly vulnerable, along with the park, forests and biodiversity.

Based on this analysis, participants identified and prioritized adaptation options for each of the climate hazards, building on existing practices. For example, for heavy snowfall, priority adaptation options included (Byers & Thakali, n.d.):

- Improving weather forecasting systems and communicating weather reports to trekking groups, expeditions and local people
- Constructing porter shelters and equipping them with emergency supplies
- Raising awareness of local people, particularly trekking guides and porters, on reducing risks associated with heavy snow and ice
- Designing and demonstrating improved greenhouses

The LAPA also includes a five-year implementation plan, which quantifies the needs and identifies potential sources of funding for implementation.

BUILDING THE FOUNDATION FOR IMPLEMENTATION

The formulation phase of the NAP process is more than just development of a plan. To ensure a smooth transition to implementation, this upcoming stage of the process must also lay the foundation by putting in place the systems and capacities needed. These enabling systems include mechanisms for longer-term coordination across sectors and levels of government and for ongoing sharing of information for adaptation decision making. To ensure that the M&E system can be established efficiently, it will be helpful to consider during the planning phase how both progress and outcomes of NAP implementation will be monitored. Finally, how to resource the implementation of the NAP, in terms of financial and human resources, should be at the centre of planning discussions. The financing strategy should cover access to finance from domestic and international sources, both public and private (IISD, 2017). It will also need to address the practical issues associated with channeling adaptation funds to the local level, in alignment with the ongoing restructuring at sub-national levels.

8 THE WAY FORWARD: PRIORITIES FOR ADVANCING NEPAL'S NAP PROCESS

This section discusses the priorities for advancing the NAP process during the GCF-funded stage of the formulation phase. It is based on discussions with key national-level stakeholders, including members of the core technical team involved in the NAP process to date. Where possible, practice examples from other countries are provided to inspire reflection on how these actions could be implemented.

EVOLVING THE WORKING GROUPS WITH THE CHANGING CONTEXT

The thematic and cross-cutting working groups established in the first stage of the NAP process will need to evolve with the changes to the government structures, as well as to reflect what the process aims to achieve in this new phase. With changes to the ministries, representation in the different working groups will need to be updated to reflect the new structures. This also presents an opportunity to reflect on the lessons learned to date (see Box 3) and to make adjustments for the new phase.

The reconfigured working groups should be as representative and inclusive as possible, while remaining manageable in terms of group size. For effectiveness, it may be useful to identify a smaller core group, with clear responsibilities for advancing the NAP process, with the broader working group providing input at strategic points. As governance issues will be increasingly important in this new phase, de-linking livelihoods and governance into two separate cross-cutting themes and working groups may facilitate more targeted attention to each. As well, a cross-cutting group on climate information could help to ensure that the work of the other groups is robust in relation to future climate scenarios and that the process creates an enabling environment for ongoing sharing of climate information.

NEXT STEPS

- Revisiting the themes and cross-cutting issues and making adjustments to reflect changes in the context.
- Identifying gaps in working groups that may need to be filled by recruiting new members or establishing additional groups or sub-groups.
- Establishing core groups within the broader working groups.
- Developing Terms of Reference for the core groups with clear deliverables and timelines.
- Reviewing and updating the Terms of Reference for the broader working groups to reflect an advisory role, identifying key points where inputs are needed (linked to the core group deliverables).

BOX 3. LESSONS LEARNED FROM THE WORKING GROUP MODEL

The thematic and cross-cutting working groups are seen as an effective mechanism for stakeholder engagement in the initial stages of the NAP process; however, the model has had its challenges. Key among these is the difficulty in addressing the concerns and priorities of diverse stakeholders in order to achieve consensus. This becomes increasingly challenging as more and more organizations want to be part of the process. Related to this is the fact that the actors involved do not have a common understanding of climate change adaptation, and in some cases lack the capacity to constructively engage with the process. The working group process has been intensive to facilitate, requiring a significant investment of human and financial resources. Expectations of members are high, and it can be difficult for the working group coordinators to realize the potential with the time and resources available (ACT & Practical Action, 2017).



ENGAGING PROVINCIAL AND LOCAL GOVERNMENTS IN THE NAP PROCESS

With the new sub-national governance structures becoming a reality, engaging the provinces and local governments in the NAP process is a key priority. Exactly how this occurs will depend on the final structure of government at the sub-national levels; however, in the near term there is a clear need for coordination mechanisms at provincial level to facilitate adaptation planning and to create a functional link between the national level and the local governments. Provincial representatives should also have a voice in the planning process at the national level, perhaps through a cross-province committee that feeds into the discussions in the working groups. This entity could also take responsibility for sharing information on the national process with colleagues and sub-national governments in their respective jurisdictions. This will help to build ownership and ensure that the NAP reflects sub-national realities. An investment in capacity development is required for provincial and local governments to meaningfully engage with the NAP process (see Box 4 for an example of how Ethiopia is initiating engagement of sub-national actors).

NEXT STEPS

- Clarifying the roles and responsibilities of the provincial and local governments in the NAP formulation phase.
- Establishing a mechanism for provincial representatives to feed into the national NAP discussions and share information at sub-national levels.
- Establishing mechanisms for cross-sectoral coordination at provincial level.
- Identifying urgent adaptation capacity development needs for provincial and local governments to engage in the NAP process.

BOX 4. PRACTICE EXAMPLE: ETHIOPIA'S REGIONAL NAP WORKSHOPS

Ethiopia's NAP process has identified 18 adaptation options that address different sectors and aspects of vulnerability. As an initial step toward rolling out the NAP at sub-national levels, the Ministry of Environment, Forest and Climate Change is in the process of conducting a series of sub-national workshops. These workshops will be held in each region of the country, involving regional government and Woreda (district) representatives, as well as actors from civil society and the private sector. The workshops include an element of capacity building on adaptation and the NAP process, but the main objective is a participatory process to prioritize the adaptation options that are most important for the region. The prioritization process takes into account the current and future vulnerability of the region to climate change and assesses how robust different options are in relation to future climate scenarios for the region. This helps to contextualize the NAP process and will inform development of implementation strategies prioritized adaptation actions.



DEVELOPING A NAP FRAMEWORK

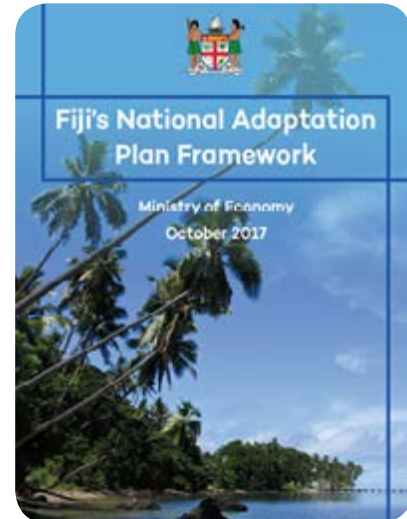
Development of a NAP framework describing the overarching elements and strategic priorities of the process could help to maintain the momentum gained in the initial stages of formulation. This would be an interim document that can be used as a basis for detailed planning and stakeholder engagement, as well as communication about the NAP process with national and international audiences, including development partners (see Box 5 for an example). The adaptation pathways that have already been identified for the NAP themes and cross-cutting issues provide a strong foundation for a NAP framework. This could be further developed to describe the enabling elements, including institutional arrangements, roles and responsibilities of different actors and strategies for capacity development.

NEXT STEPS

- Developing a Terms of Reference for the Framework.
- Assigning responsibility for its development.
- Consulting with key stakeholders once a draft is produced.
- Finalizing, publishing and disseminating the framework document.

BOX 5. PRACTICE EXAMPLE: FIJI'S NAP FRAMEWORK

Fiji launched its NAP framework at COP23. The framework articulates the country's goals for its NAP process, namely to facilitate institutional coordination around adaptation, accelerate resource mobilization and deliver effective and sustainable adaptation outcomes for Fiji's people. It outlines the key approaches that underpin the process, including horizontal and vertical integration, promotion of ecosystem-based adaptation where appropriate and integration of gender and human rights-based approaches. Fiji has identified key areas of action to advance their NAP process, including the creation of a knowledge management platform for adaptation stakeholders, engaging provincial-level actors in the process and development of a resource mobilization strategy. Fiji is currently using the NAP framework as a basis for consultation with stakeholders, while putting the systems in place to take the process forward (Government of Fiji, Ministry of Economy, 2017).



COMPILING AND SHARING EXISTING INFORMATION ON VULNERABILITY AND ADAPTATION OPTIONS

A considerable amount of effort has been invested in assessing vulnerability to climate change at the local level, by both governmental and non-governmental actors. This includes: the country-wide climate change impact survey completed in 2016; the consultations on disaster risk conducted as part of the disaster risk reduction and management policy formulation process; and assessments completed by NGOs working on adaptation projects and programs (see, for example, WWF Nepal, 2016). In addition, the LAPAs that have been developed contain a large body of analysis of local climate change concerns, as well as proposed adaptation options that have been identified through a participatory process. All of this represents invaluable information to inform the NAP process. What is needed is a process to compile it, synthesize it and make it available to decision makers. This is a critical step in ensuring that the NAP process is informed by the perspectives of local stakeholders and will help to ensure that any additional consultation and analysis to be conducted is complementary, targeted and strategic, without duplicating previous efforts (a principle of Nepal's NAP approach).

NEXT STEPS

- Mapping the key sources of information, including those mentioned above, determining where they are available and in what format.
- Collecting and compiling the information in a central place (see Box 6 for an example).
- Synthesizing the key elements needed to inform the NAP process.
- Creating a database and open access platform to make the information available to adaptation stakeholders.
- Identifying key questions to be answered through complementary analysis and stakeholder consultation.

BOX 6. PRACTICE EXAMPLE: SOUTH AFRICA'S LET'S RESPOND TOOLKIT

South Africa's Let's Respond Toolkit is an excellent example of an information platform to support adaptation planning by local governments. The platform provides users with access to practical tools for adaptation planning; technical information on climate change, including vulnerability assessments and long-term scenarios; and planning supports such as training materials and templates. It also provides stakeholders with access to draft documents that are open for public comment and information on meetings and consultations. By making the information available on an open access platform, the toolkit also facilitates learning across different municipalities (Dazé, 2017).



Image: [Let's Respond Toolkit](#)

EXPANDING STAKEHOLDER ENGAGEMENT MECHANISMS

The working groups have been a useful mechanism for stakeholder engagement in the NAP process so far. However, with an increasing range of stakeholders wishing to engage in the process, additional mechanisms will be needed to ensure broad and inclusive participation. This may include stakeholder engagement platforms at the national level, as well as mechanisms targeting sub-national actors. These new mechanisms should aim to bring in actors who represent diverse interests, such as representatives of women's and Indigenous groups, producer associations and the private sector. It will be important to create linkages between these new mechanisms and the working groups, to ensure a two-way flow of information (see Box 7 for an example of how this is working in Colombia). Ideally these will be established in a way that they can be used for longer-term coordination and learning on adaptation, rather than just as a consultation platform for NAP formulation.

NEXT STEPS

- Identify groups that are not currently represented in the working groups that have a stake in the NAP process.
- Holding consultation workshops to address identified information gaps, ensuring that these events are gender-balanced and inclusive of particularly vulnerable groups.
- Undertake additional specific outreach and consultation for identified vulnerable groups.
- Reach out to the private sector, potentially through the Federation of Nepalese Chamber of Commerce and Industry (FNCCI), to explore the best ways to engage their members in the NAP process.

BOX 7. PRACTICE EXAMPLE: COLOMBIA'S CLIMATE CHANGE REGIONAL NODES

As part of its institutional arrangements for climate change, Colombia has established nine regional nodes that involve government representatives, along with private sector actors, research institutions, universities and civil society organizations. These platforms group together departments (the level below the national government) that are in the same area and share similar characteristics. Initially these were informal bodies, but they have recently been formalized as part of the climate change governance system, with defined roles and responsibilities. The regional nodes are not decision-making bodies; rather, their objective is to provide a multistakeholder platform for information sharing on climate change, providing a link between the national and sub-national levels. The Ministry of Environment and Sustainable Development (MESD) ensures the flow of information between the nodes and the intersectoral climate change commission, which is the highest decision-making body on climate change in Colombia. Within the NAP process, these nodes provide an overarching framework for adaptation planning at the sub-national level, supporting integration of climate change in development and land-use plans (M. Rojas Laserna, personal communication, 2016).



COMPLETING VULNERABILITY AND RISK ANALYSIS

The vulnerability and risk assessment framework, comprising indicators for the themes and cross-cutting issues, provides a practical approach for assessing vulnerability based on existing data from a range of sources. Conducting these analyses will be a useful input to further elaborating the pathways, enabling prioritization of adaptation options for different parts of the country (see Box 8 for an example of how vulnerability assessment has been done in Kiribati). In addition, the stocktaking reports highlight the need for qualitative, context-specific analysis of, for example, the vulnerability and adaptive capacity of particular livelihood and social groups. Compilation of existing information as described above will address this to some extent, but there may be a need for additional analysis to inform both planning and implementation. For efficiency, this should be undertaken in close coordination with the vulnerability assessment being conducted for the next National Communication to the UNFCCC. This analysis will also provide a baseline for monitoring NAP implementation. The methodology should take into account other reporting requirements, such as for the SDGs and Nepal's NDC.

NEXT STEPS

- Securing funding to conduct the planned vulnerability and risk analyses.
- Expanding the database and information platform mentioned above to incorporate this additional information.
- Gathering the data and conducting the analyses.
- Bringing key stakeholders together to reflect on the analyses and make recommendations for the NAP process.

BOX 8. PRACTICE EXAMPLE: KIRIBATI'S INTEGRATED VULNERABILITY ASSESSMENT DATABASE

Kiribati has conducted Integrated Vulnerability Assessments in five islands. The country is now in the process of establishing a database that presents both quantitative and qualitative data on vulnerability, based on these assessments as well as secondary sources. A simple scale has been developed to provide a quick view of vulnerability to climate change in different parts of the country. This database will make this information available to members of the Kiribati National Expert Group who are the key stakeholders in adaptation planning and implementation. The database can also provide a basis for monitoring and evaluation as Kiribati moves into implementation of its NAP.

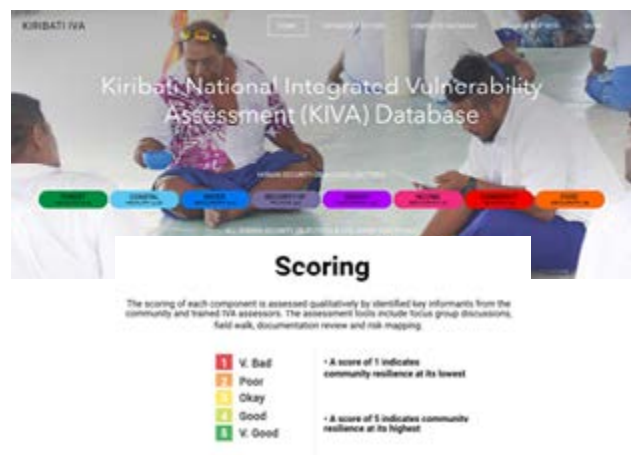


Image: [Kiribati Integrated Vulnerability Assessment Database](#)

DEVELOPING A FINANCING STRATEGY

A financing strategy will enable Nepal to begin putting in place the resources needed to sustain the NAP process beyond the formulation phase. The first step in this process is to identify the financing gap, by estimating the cost of NAP implementation and determining the additional financing required, beyond existing sources. With this, the potential sources and mechanisms for filling the financing gap can be identified, including domestic budgets, international public finance from multilateral institutions and bilateral development partners and private sector investment, from both domestic and international sources. It will be important to work closely with the Ministry of Finance and the NPC in this, to ensure alignment with broader planning and budgeting processes (Parry, et al., 2017). A financing strategy will enable dialogue with different government ministries, development partners and private sector actors on options for resourcing NAP implementation (see Box 9 for an example from Cambodia).

NEXT STEPS

- Engaging the technical committee on climate finance in discussions on financing NAP implementation.
- Developing an initial cost estimate for NAP implementation (to be refined once the NAP is finalized).
- Identifying existing sources of funding for implementing adaptation actions, and potential gaps.
- Mapping sources of funding to fill the gap.

BOX 9. PRACTICE EXAMPLE: CAMBODIA'S NAP FINANCING FRAMEWORK

As part of its NAP process, Cambodia has developed a comprehensive financing framework and implementation strategy. The process focused on priority actions identified in sectoral Climate Change Action Plans that were developed by climate-sensitive line ministries. Priority actions were identified based on their potential for impact and transformation, contribution to sustainable development, alignment with needs of recipients, efficiency and effectiveness. The prioritized actions were assessed for alignment with other priorities, notably Cambodia's NDC, as well as for their potential to be funded. The priorities were costed and the financing gap was determined, based on the difference between the estimated cost and the resources already allocated through government budgets and international sources. The strategy then analyzes the options for filling this gap, through domestic and international public sources as well as private sector engagement. Finally, the priority actions are grouped based on how close they are to the implementation stage. For each priority action, lead agencies for implementation are identified, along with potential sources of funding and concrete next steps to secure funding (Cambodia National Council for Sustainable Development, 2017). This provides a solid basis for Cambodia as it shifts to the implementation phase of the NAP process.



CREATING AN ENABLING ENVIRONMENT FOR SUB-NATIONAL INTEGRATION OF ADAPTATION

While moving NAP formulation forward, it will be necessary to consider how adaptation will be integrated in planning at the provincial and local levels. Decisions about sub-national planning processes and allocation of resources will be made in the relatively near term, and it will be important to engage with these processes to ensure that climate change is strategically incorporated in the systems and mechanisms set up for sub-national governments. This will involve working closely with the relevant authorities to ensure that sub-national structures incorporate clear roles and responsibilities in relation to climate change and are empowered to integrate adaptation in development planning, in line with the Local Government Operation Act.

NEXT STEPS

- Working with the Ministry of Finance and the NPC to clarify roles and responsibilities for climate change at sub-national levels.
- Developing guidance, building on the LAPA manual and lessons learned, for integrating climate change adaptation in sub-national planning.
- Providing training on integrating adaptation to relevant people in sub-national governments.
- Refining the climate change budget code with clearer criteria separating adaptation from mitigation and rolling it out at sub-national levels.

BOX 10. PRACTICE EXAMPLE: INTEGRATING ADAPTATION IN COUNTY PLANNING IN KENYA

Kenya's Climate Change Act, established in 2016, calls for integration of climate change considerations in planning, budgeting and implementation across sectors and levels of government. This includes County Integrated Development Plans (CIDPs), which represent the key sub-national development planning process (Republic of Kenya, 2016a). As counties have jurisdiction over key climate-sensitive sectors such as water and sanitation, agriculture and health, they are key actors in implementing adaptation priorities. Kenya's NAP reinforces this commitment, identifying mainstreaming of adaptation into CIDPs as one of the key adaptation actions to be implemented under the plan, as well as highlighting the role of county governments in implementing the other actions (Republic of Kenya, 2016b). The latest guidance for development of CIDPs, developed in 2017, requires counties to provide analysis of rainfall variability and of climate-related disasters such as drought, floods and landslides. It also highlights the need to mainstream climate change in programs and strategies developed to address county development priorities (Republic of Kenya, 2017b). To further operationalize these commitments, a draft indicator framework has been developed to guide integration of climate change in monitoring & evaluation systems at sector and county level (Republic of Kenya, 2017a).



9 CONCLUSIONS

This section presents a few concluding thoughts based on Nepal's NAP experience so far.

First, it is evident that NAP formulation is a process. In Nepal, the approach of consolidating technical working groups, engaging multiple ministries and adhering to the principle of "leave no one behind" has ensured that the NAP will benefit from strong buy-in from key stakeholders, even before the formulation phase is completed.

Nepal's experience also highlights that the NAP process is political as well as technical. The creation of an enabling environment has proven to be key for technical inputs to be used effectively in decision making. This has been achieved by selecting champions with political power and organizational capabilities, determining the incentives for participation of different institutions and paying special attention to voices that are traditionally marginalized. To take this forward, it will be critical to establish sustainable institutional arrangements across scales that provide opportunities for dialogue and support the generation of consensus.

Throughout the NAP process, decision makers face trade-offs between participation and inclusion on the one hand, and timely progress on the other. Facilitating stakeholder engagement processes can be time- and resource-intensive, but should be seen as an investment in ownership and an effective transition to implementation. Adaptation to climate change is inherently a process of learning by doing, requiring adjustment and innovation over time in response to new information and experiences. The UNFCCC NAP guidance recognizes this, suggesting that an iterative approach is required. This provides countries with an opportunity to increase the extent of participation as the process advances. In Nepal, the formation of working groups has provided a strong foundation for increasing stakeholder involvement in the coming steps of the process.

The case of Nepal also highlights the importance of informed decision making throughout the NAP process. In most countries, some key data on climate risk, vulnerability and adaptive capacity exists and can be used to initiate NAP formulation. This in turn can build demand for filling data gaps and for developing new tools, frameworks and approaches for determining adaptation priorities and informing implementation. Nepal has placed equal emphasis on compiling and analyzing existing data generated by both governmental and non-governmental actors, and on generating new information and frameworks. This has provided a solid basis for decision making so far, while also highlighting gaps in information and analysis to be filled in the future.

From the numerous examples explored through the preceding section, it is apparent that there is a large global community of practice engaged in NAP formulation (at different stages) and that there is significant potential for learning among countries. Knowledge sharing, peer-to-peer learning and collaboration can help make NAP processes more efficient, effective and innovative. Yet many countries, including Nepal, have not yet done enough to engage, learn from each other and share lessons. This report represents an initial effort to link Nepal's experience with that of other countries. As the country moves into this next stage of the NAP process, it will be important to further develop these connections to ensure that lessons and good practices are disseminated and applied.

At this point in Nepal's NAP process, it has been useful to reflect on what has been achieved, as well as the way forward. Much progress has been made, and there are clear next steps to be taken to move the process forward with support from the GCF. The changing governance context presents a challenge, but also an opportunity to systematically integrate climate change adaptation in decision making across sectors and scales, in line with the objectives of the NAP process. This will place Nepal on a development pathway that is inclusive, sustainable and resilient to the impacts of climate change.

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ANNEX A: SUMMARY OF THE THEMATIC REPORTS

Drawing on the analysis done by each of the thematic working groups, this section provides an overview of the theme, focusing on needs and gaps that will be important as the NAP process moves into detailed planning and implementation.

VULNERABILITY CONTEXT	GAPS	WHAT IS NEEDED
Agriculture and Food Security (Nutrition)		
<p>Predominantly small-scale, rain-fed and dependent on the monsoon</p> <p>High degree of sensitivity and exposure to climate risks: increasing temperature, rainfall variability and intensity, floods, dry spells, GLOFs</p> <p>Impacts include reduced agriculture and livestock productivity, increased incidences of pest and disease, loss of biodiversity and food insecurity</p>	<p>Lack of access to climate information, knowledge and services to guide and support smallholder farmers' planning and decision-making processes</p> <p>Poor governance mechanisms, including poor linkages between institutional levels</p> <p>Capacity gaps</p> <p>Ineffective extension systems and inadequate human resources</p> <p>Inappropriate and/or costly technologies</p> <p>Lack of private sector investment</p>	<p>Integration of climate change into agricultural policies and programs at all levels</p> <p>Improved access to climate information, technical assistance and financial services (including insurance, savings and loans) for farmers</p> <p>Technology, including early warning systems, protective structures, crop breeding, improved irrigation techniques, relocation and flood control measures</p>
(Thakur, 2016, 2017a, 2017b)		

VULNERABILITY CONTEXT	GAPS	WHAT IS NEEDED
Forests and Biodiversity		
<p>Degradation of natural resources increases risk of disasters such as floods, landslides and soil erosion</p> <p>Adverse effects on agriculture, forest-based enterprises, livestock, hydropower and infrastructure</p> <p>Wildlife habitat, wetlands and rangelands are highly vulnerable to water scarcity and climate hazards</p> <p>Migration of species, potential for longer-term extinction of some species</p> <p>Alteration of forest species composition and invasion of alien species</p> <p>Impacts on local and Indigenous people who depend on forests and biodiversity for their livelihoods</p>	<p>Lack of reliable data on climate change impacts on forests and biodiversity and dependent communities</p> <p>Lack of coherence in conservation policies creating barriers to coordination, collaborative decision making and effective implementation</p> <p>Inadequate resources (human and financial) and technologies for sustainable ecosystem management</p> <p>Ineffective monitoring mechanisms and poor compliance with environmental and social safeguards</p>	<p>Improved capacity to monitor changes in the status of forests and ecosystem health</p> <p>Additional resources for ecosystem management and enforcement of safeguards</p> <p>Intersectoral and inter-agency coordination</p> <p>Inclusion of forest user groups and poor and marginalized groups in decision making and equitable benefit sharing</p> <p>Integration of adaptation in the long-term vision for forests and biodiversity</p>
(Karki, 2017a, 2017b, 2017c)		
Water Resources and Energy		
<p>Impacts on quantity, quality and timing of water availability</p> <p>Shrinking glaciers, changes in the hydrological regime, water storage capacity, depleting water sources and groundwater levels</p> <p>Impacts on agriculture, electricity generation, commercial and recreational use</p> <p>Impacts of climate hazards, notably floods and sedimentation to water and hydropower infrastructure</p>	<p>Lack of coordination among organizations and departments responsible for water resources and energy</p> <p>Lack of reliable data for long-term, climate-resilient water resource management planning</p> <p>Low capacity to respond to climate change in the sector</p>	<p>Integration of climate change into relevant policies and plans for water resource management and hydropower</p> <p>Filling data gaps</p> <p>Enhanced local watershed management</p> <p>Increased water storage capacity, particularly for rural communities</p>
(Adhikari, 2017a, 2017b, 2017c)		

VULNERABILITY CONTEXT	GAPS	WHAT IS NEEDED
Climate-Induced Disasters		
<p>Increased intensity and severity of climate-related hazards: floods, landslides, GLOFs, droughts, forest fires</p> <p>Death and displacement of people and livestock</p> <p>Destruction of homes, farmland and essential infrastructure</p> <p>Impacts on water, agriculture, forestry, health and tourism</p>	<p>Low capacity for disaster risk management (DRM)</p> <p>Limited coordination of different agencies</p> <p>Lack of coverage of hydro-meteorological stations to inform planning and early warning systems</p> <p>Lack of sufficient infrastructure, including early warning systems, forecasting technology, roads and rescue shelters</p>	<p>Shift from reactive to proactive and preventive approach</p> <p>Integration of climate change into DRM policy and planning</p> <p>Increased access to climate and weather information, including early warnings</p> <p>Targeted human and financial resources</p> <p>Capacity development for all actors involved in DRM</p>
(Chhetri, 2017a, 2017b, 2017c)		
Public Health and Water, Sanitation & Hygiene (WASH)		
<p>Major health risks include increased injury, disease and death from more intense heat waves, cold waves and fire and increased risk of under-nutrition, as well as water-borne and vector-borne diseases</p> <p>Declining health leading to decreased labour availability and absences from work</p> <p>Increased cases of dengue fever and other infectious diseases</p> <p>Damage to WASH infrastructure from climate-related hazards</p> <p>Interruptions in WASH and health services when people are displaced by climate-related hazards</p>	<p>Weaknesses in water quality monitoring system (technical human resources, laboratory facilities, logistics)</p> <p>Limited coordination among stakeholders, including health sector officials, NGOs working in the WASH sector and water supply operators</p> <p>Lack of understanding of climate-induced diseases to inform health policies and strategies and explore potential best practices and measures for adaptation</p>	<p>Improved water quality and disease monitoring,</p> <p>Data on water supply sources and climate-induced health impacts to inform planning and analysis</p> <p>Collaboration and coordination among stakeholders</p> <p>Integration of climate change into health development plans</p> <p>Technological improvements such as wastewater treatment, water harvesting techniques and improved sanitation</p>
(Pandit, 2017a, 2017b, 2017c)		

VULNERABILITY CONTEXT	GAPS	WHAT IS NEEDED
Tourism, Natural and Cultural Heritage		
<p>Seasonal nature of tourism</p> <p>Threats from climate-related hazards to tourism infrastructure such as hotels, trekking routes, roads, basic amenities and cultural places</p> <p>Effects on tourism from disease outbreaks and changes in water quality and availability</p> <p>Vulnerability of high mountain regions, exposing trekking and climbing routes to landslides, floods and GLOFs</p> <p>Impacts on tourism-based livelihoods</p>	<p>Lack of integration of adaptation in tourism strategy</p> <p>Lack of basic information on sectoral vulnerabilities and opportunities for effective adaptation planning</p> <p>Insufficient information about climatic conditions in popular tourist destinations to inform operation of tourism activities</p> <p>Lack of technical and financial capacity and knowledge to build adaptive capacity and safer conditions for workers</p> <p>Lack of gender-differentiated analysis of vulnerabilities and opportunities related to climate change and tourism</p>	<p>Better understanding of current and future climate risks and changes and the impacts on tourism</p> <p>Strong coordination mechanisms and intersectoral linkages with other strategies, such as those for conservation and biodiversity</p> <p>Strengthened institutional capacities and partnerships between tourism-related institutions and research institutions for information, data and knowledge generation</p> <p>Enforcement of guidelines to support the development of climate-resilient infrastructure</p> <p>Public income such as tourist fees and taxes could be invested into programs that enhance adaptive capacity for those dependent on tourism for livelihoods</p>
(Devkota, 2017a, 2017b, 2017c)		

VULNERABILITY CONTEXT	GAPS	WHAT IS NEEDED
Urban Settlements and Infrastructure		
<p>Poor urban planning</p> <p>Inadequate and substandard urban infrastructure and services</p> <p>High population density, built assets and economic activities located in cities</p> <p>Many cities and informal settlements located in risk-prone areas such as steep slopes and riverbanks</p> <p>Damage to roads and drainage structures pose economic losses and disruption to daily lives</p> <p>Increased temperatures in built-up areas cause health concerns and put pressure on energy for cooling</p>	<p>Lack of clarity in terms of responsibilities, inefficient coordination and duplication of roles in managing urban development</p> <p>Lack of integration of climate change in urban policies and strategies</p> <p>Lack of guidelines or mandatory provisions for making urban plans and programs climate-responsive or to prepare adaptation plans</p> <p>Limitations in human and financial resources</p> <p>Lack of access to climate change data and technologies such as early warning systems</p> <p>Engineering designs and guidelines rely on historic occurrences of extreme events and do not adequately address new extremes imposed by climate change</p>	<p>Review of guidelines on climate-responsive urban planning, infrastructure designs and existing engineering design practices</p> <p>Integration of climate change in decision making for infrastructure, services and land-use policies</p> <p>Strengthened institutional coordination among ministries</p> <p>Consultations with local-level actors to better understand their climate change adaptation needs</p> <p>Analysis of anticipated climate change impacts on urban settlements</p>
(Joshi, 2017a, 2017b, 2017c)		



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