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Policy Provisions and Local Response on Climate Change Adaptation in Nepal

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The *Partner Report Series* highlights the insights and outcomes of studies, assessments and other field activities that our national implementing partners have undertaken in their countries to mainstream adaptation into plans, policies and programmes. The intention of the series is to disseminate their findings to partners and relevant professionals in Asia.

We welcome suggestions or comments.

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Preface

During the last three years, the Regional Climate Change Adaptation Knowledge Platform (AKP) has worked towards building bridges between existing knowledge on adaptation to climate change and the governments, agencies and communities that need this knowledge to inform their adaptation to the impacts of climate change, while working toward poverty reduction and environmental sustainability. AKP's work has been carried out following three key objectives:

1. Promoting dialogue and improving the exchange of knowledge, information and methods within and between countries on climate change adaptation, and linking existing and emerging networks and initiatives.
2. Generating new climate change adaptation knowledge, promoting understanding and providing guidance relevant to the development and implementation of national and regional climate change adaptation policy, plans and processes focused on reducing vulnerability and strengthening the resilience of the poor and women: the most vulnerable segments of society in most Asian countries.
3. Synthesizing existing and new climate change adaptation knowledge and facilitating its application in sustainable development and poverty reduction practices at the local, national and regional levels.

This publication is a result of these objectives. AKP supported thirteen countries in the Asian region to strengthen their capabilities to mainstream adaptation, introduce effective adaptation measures and assess their needs and priorities for adaptation. Nepal is one of the thirteen countries supported by AKP.

AKP is implemented by the Stockholm Environment Institute (SEI), AIT's Regional Resource Centre for Asia and the Pacific (AIT RRCAP), and the United Nations Environment Program Regional Office for Asia and the Pacific (UNEP ROAP) with funding provided by the Swedish Government through the Royal Swedish Embassy in Bangkok and the Swedish International Development Agency (Sida). The former Swedish Environmental Secretariat for Asia (SENSA) was also instrumental in setting up and supporting AKP.

AKP's publications provide insights on adaptation in the region. A consolidated initiative, known as the Asia Pacific Adaptation Network (APAN), has been established and will be fully implemented starting 2013. Its ultimate objective is to assist the region to build the climate resilience of human systems, ecosystems and economies through the mobilization of knowledge and best practices, enhanced institutional capacity, informed decision making processes, and facilitated access to finance and technologies.

The outcomes of AKP have been made possible by the active participation of partners and various stakeholders. SEI acknowledges the editorial assistance provided by Marion Davis, Skye Turner-Walker and Pin Pravalprukskul. SEI also expresses heartfelt thanks to John Soussan, Lailai Li, Kai Kim Chiang, Lisa Schipper, Sabita Thapa, Tatirose Vijitpan, Muanpong Juntopas, Nantiya Tangwisutijit, Chanthay Sam, and Dusita Krawanchid for their contributions to AKP.

Executive Summary

Nepal is widely viewed as highly vulnerable to the impacts of climate change because of its geography and socio-economic makeup. Climate change is already measurable, with annual mean temperatures rising by an average of 0.06°C per year. Although there is great uncertainty about future impacts, it is widely agreed that warming will continue, with consequences for water supplies, increased flood risks, and potentially significant livelihood impacts.

Stakeholders at various levels – government, donors, local and international non-governmental organizations (NGOs) – are actively working on adaptation policies, programmes and plans. However, the success of their endeavours will depend on how well they meet local communities' needs, and how well they fit with local-level responses. This report aims to shed light on this issue, by exploring how local responses to climate risks and stresses are shaped by externally driven policies, institutions and other conditions (the 'enabling environment').

The review covers climate-specific policies – Nepal's National Adaptation Programme of Action (NAPA), completed in 2010, and the Climate Change Policy of 2011 – as well as major policies on forestry and on water resources management, which are relevant not only because these are highly climate-sensitive sectors, but also because they illustrate Nepal's efforts to implement participatory decision-making processes at the local level. Given the importance of community-based processes to identify adaptation needs, find appropriate solutions, and implement them, those local-level experiences offer valuable lessons for adaptation.

Nepal has also embraced participatory processes in the water sector, making Integrated Water Resource Management (IWRM) a centrepiece of its water policies, planning and governance structures. To some extent, this has translated into real-life successes, such as with irrigation user groups, but for a variety of reasons, implementation of the National Water Plan has stalled. Thus there are fewer mechanisms in place in the water sector that can support adaptation – though irrigation groups, like community forest user groups, are envisioned in the NAPA as local-level implementers of adaptation measures.

The NAPA itself, produced through an exhaustive process with significant participation from experts and stakeholders, offers a detailed and concrete vision for adaptation in Nepal, with priorities that reflect Nepal's diverse needs – agricultural adaptation, forest and ecosystem management, public-health improvements, glacial lake outburst flood monitoring, community-based disaster risk management – and a governance structure to support it, led by the Ministry of Environment. Most notably, the NAPA emphasizes the need for local-level decision-making and local control of adaptation funds, setting a target of 80% of funds to be spent at the grassroots level. The local emphasis is further reinforced by a provision for Local Adaptation Plans of Action (LAPAs), which will provide an opportunity for stakeholders to identify their communities' specific needs and tailor adaptation measures accordingly, all while following a unified, coordinated approach laid out by the NAPA. The Climate Change Policy of 2011, a very brief and practical document, sets specific dates for accomplishing key goals, and also complements the NAPA with some international policy context and proposed mitigation actions.

The report concludes with insights from field work in the Indrawati watershed on the eastern part of Kathmandu Valley, which shows that although local communities and institutions are increasingly aware of climate change impacts, they do not always attribute them to climate change, and they tend to be unaware of government programmes and resources that could help. Clearly, much work remains to be done in terms of communication, information sharing and coordination across levels of government, and between government and stakeholders.

Photo Credit: Albert Salamanca

1. Introduction

Nepal is widely viewed as highly vulnerable to the impacts of climate change, both because of its geography – landlocked and mountainous, with rivers fed by the Himalayan glaciers – and because of its socio-economic makeup, with widespread poverty and a mostly rural population. Nepal is one of the world’s poorest countries, with 82.5% of its 23.6 million people living on less than \$2 per day. It has a very climate-sensitive economy: agriculture is the main livelihood for 80% of the population, and tourism is a major source of foreign income (Shrestha and Aryal 2011).

Climate change is already measurable, with annual mean temperatures rising by an average of 0.06°C per year, and faster in the highlands, where the glaciers are rapidly melting. Although there is great uncertainty about future impacts, significant additional warming is predicted, along with changes in precipitation and, as the glaciers melt, uncertainty about water supplies and flood risks (Shrestha and Aryal 2011). It is thus crucial to gauge vulnerabilities and prepare adaptation plans to address them.

Stakeholders at various levels – government, donors, local and international non-governmental organizations (NGOs) – are actively working on adaptation policies, programmes and plans. However, the success of their endeavours will depend on how well they meet local communities’ needs, and how well they fit with local-level responses. This report aims to shed light on this issue, by exploring how local responses to climate risks and stresses are shaped by externally driven policies, institutions and other conditions (the ‘enabling environment’). The study also explores the relationship between local responses and national and sub-national conditions, which can affect the sustainability of local responses. The goal is to understand whether local responses depend on that enabling environment or could work without it. This would help determine whether there are adaptation ‘best practices’ that can be replicated in different places with similar conditions, or whether responses must be reinvented each time for each set of local circumstances (and external conditions).

Specifically, the study addresses the following questions:

1. What are the responses to climate variability, stresses and hazards in selected rural communities?
2. What are the external conditions – i.e. policies, institutions and other circumstances – that influence local responses?
3. To what extent are local responses dependent on external conditions?



Photo Credit: Rabi Shrestha

This study, conducted between March and July 2011, combined a review of adaptation-relevant policies, strategies and legal frameworks with extensive field research, including a key informant survey, focus group discussion, and structured interviews using a questionnaire/checklist with government officials, local and international non-governmental organizations (NGOs), local-level stakeholders, and resource user groups (water, forests, etc.). The policy review covered the following items:

- Laws and policies on community forestry: The Master Plan for the Forestry Sector (1989) and the Forest Act (1993) laid the groundwork for community forestry, the centrepiece of Nepal’s strategy for sustainable forest utilization and conservation.

- Water Resources Strategy and National Water Plan: The Water Resources Strategy (2002) and National Water Plan (2005) aim to optimize water resource utilization for development, taking an integrated rather than sectoral approach.
- National Adaptation Programme of Action (NAPA): This is the government's main policy document on climate change adaptation, approved in 2010.
- Constitutional provisions: Nepal is in the process of drafting a new constitution with a federal structure, including a legal framework for natural resource management in the country.

The policy review focused on implications for adaptation mechanisms, such as whether the provisions are adequate to address local-level needs and whether existing and proposed institutional mechanisms are sufficient for the effective implementation of adaptation strategies.

The field study, which focused on the Indrawati watershed on the eastern part of Kathmandu Valley, aimed to gauge the effectiveness of the implementation of policy provisions, local attitudes and knowledge of those policies, and local-level adaptive mechanisms. The site was chosen because there is ongoing development there, as well as various water and other natural resource management activities. The field study examined the following issues:

- Water availability and adaptation;
- Institutions (community-based organizations, NGOs, local government agencies), their work in adaptation planning, and linkages between them; and
- The role of local and external stakeholders (I/NGOs and donors) and their activities on climate change and livelihoods adaptation, if any.

2. Community Forestry Policies

The Master Plan for the Forestry Sector (MPFS), prepared in 1989, was a milestone in promoting a participatory approach to natural resource management and guaranteeing the rights of users. The 25-year policy and planning framework's objectives were to:

- Meet the people's basic needs for forest products on a sustained basis;
- Conserve ecosystems and genetic resources;
- Protect the land from degradation and other effects of ecological imbalance; and
- Contribute to local and national economic growth.



The MPFS made user involvement a priority in the protection and utilization of forest resources. Although the forests are all state-owned, the MPFS gave management rights to the forest users, giving them responsibility for what previously was a government function. By giving forest users a sense of ownership, the MPFS aimed to check the rapid degradation of forests, which was also threatening fragile watersheds. Community forestry was part of a broader plan that also included private forestry, national and leasehold forestry, wood-based industries, the use of medicinal and aromatic plants, soil conservation and watershed management, and conservation of ecosystems and genetic resources.

Photo Credit: Rabi Shrestha

Implementing the MPFS

The existing policy, legal and institutional frameworks could not adequately support the implementation of the MPFS reforms, so new measures were proposed, along with capacity-building, research and extension services, forest resources information systems and management planning, and monitoring and evaluation.

Policy reforms

The MPFS made radical changes to forest management, and it had to be supported by extensive policy guidelines. Previously, the government had seen itself as the protector of the forests, and users as the ones who destroyed state resources. Meanwhile, the people who depended on forest resources for their daily needs and livelihoods wanted access to the forests and saw the government's protective measures as impediments. It is important to note that this conflict did not extend to commercial forest users, who in fact had easy access to forest products due to connections between timber traders and government officials. Yet it was arguably their activities that were leading to the rapid destruction of forest resources, and the accompanying environmental problems. The MPFS recognized that sustainability required engaging the full range of users in forest management. The new guidelines gave authority to District Forest Officers and forest user groups, with clearly delineated roles and responsibilities.

In 2000, the forest policy derived from the MPFS was revised to cover forest management in the Terai, the lowlands at the foot of the Himalayas. The new policy focused on the conservation of biodiversity, ecosystems, and genetic resources. Along with land-use planning and biodiversity conservation, it proposed extending community forestry and leasehold forestry programmes into the hilly areas of the region. The intent was to provide livelihoods for people living in poverty. It proposed collaborative forest management for the forests in the Churia (Siwalik) hills, the Terai and the Inner Terai region, per the recommendation of the Nepal Environmental Policy and Action Plan and Agricultural Perspective Plan. These are environmentally sensitive areas: the Churia (Siwaliks) area is fragile and also serves as a recharge zone for groundwater resources used for agriculture in the Terai. The policy also recommended establishing a ministry to implement environmental programmes to safeguard people's lives and property.

The MPFS and related policies also emphasized participatory integrated natural resource management in degraded and degrading watersheds, through soil conservation and watershed management programmes in 'micro-watersheds'. The focus was on a holistic approach to forestry management, biodiversity conservation and community development. The activities are implemented through the Department of Soil Conservation and Watershed Management with users' involvement; the programme has limited geographic coverage, but it has proved effective in some micro-watersheds.

What makes the MPFS noteworthy is that it identified a problem in the forestry sector and proposed practical solutions, with clear objectives and a specific set of activities, backed by policy, legal and institutional reforms. Taking this approach facilitated the plan's implementation, whereas many other government policy documents have not led to tangible results.

Photo Credit: John Soussan



Legal reforms

The legal framework for implementation of the MPFS was established by the Forest Act of 1993, which revoked all previous forest legislation, and the Forest Regulation of 1995. The main focus of the law was the establishment of community-based participatory forest management by delegating authority to district-level offices and communities. The law recognized two categories of forests: national and private. National forests included all forests that are not privately owned, whether marked or unmarked, as well as uncultivated lands or unregistered lands surrounded by forests or situated near forests, and paths, ponds, lakes, rivers or streams and riverine lands within forests. The national forests were further classified into government-managed (national) forests, community forests, leasehold forests, religious forests, and protected forests.

According to the act, the government holds the title to all of the above lands and can acquire any private property that lies within national forests by paying compensation according to prevailing laws of the country. For example, the government resettled an entire village from Chitwan National Park. The government not only manages these forests, but also controls natural resources such as soil, water, stone and sand in designated forest areas. Others cannot use these non-forest products without the permission of forest authorities. This means there are overlaps in government agencies' authority. For example, the Water Resources Act 1992 and the Local-Self Governance Act 1999 authorize the Ministry of Water Resources and Ministry of Local Development to formulate policies and enact necessary laws for the management of water resources and activities related to local development, respectively. The locally elected District Development Committee (DDC) and Village Development Committee (VDC) are authorized to use and manage natural resources within the jurisdiction of their administrative and geographical boundaries. These inconsistencies in existing policies, law and institutional provisions hamper local-level natural resource management, so it is important to overcome them.

Institutional reforms

Forest management occurs at three levels: central, district and community. This is important considering the country's existing institutional provisions, which are organized at either the politico-administrative boundary or the geographical boundary. The Forest Act 1993 aimed to improve and strengthen the organizational framework to improve the forestry sector's performance. The existing institutional provisions for forest management have implications in the delineation of authority among government agencies, local elected institutions and communities; these are presented below.

Government management

The Department of Forests (DOF) manages national forests through its regional and district offices, with the goal of meeting the country's needs for forest products and services. It develops a working or operational plan for district/forest blocks, which is approved by the Ministry of Forest Resources and Soil Conservation (MFSC). The collection and disposition of the forest products from these forests is done by government permission only, and people are not allowed to collect forest products on their own. Permission to use forest products is provided for limited purposes such as domestic and agricultural needs, community development activities, and to people affected by natural calamities through the District Forest Product Supply Board. However, the government is introducing participatory management in government-managed forests through collaborative forest management (CFM) in the Terai. The CFM directives (2003) provided for the involvement of District Development Committees, Village Development Committees, and forest users' groups (FUGs) to manage the distribution of timber, fuelwood and other forest products, through a formal system involving the preparation of a constitution and forest management plan, and formation of an executive committee.



Photo Credit: Meilanie Gritzka del Villar

Per the District Forest Coordination Committee, 75% of the revenue collected from the sale of forest products goes to the government and 25% to the local stakeholders. District Forest Offices need to follow the existing regulations when auctioning the surplus products. Except for collaborative forest management, the users' involvement in the government-managed forests is limited to grazing permits from the District Forest Office in areas not prohibited by working plan. Although these are protected lands, some have been used for resettlement, for universities, and for distribution to the landless and people affected by natural disasters. In recent years illegal loggers have encroached on the forests, and the parliament's natural resources committee in 2011 ordered a halt to the collection and sale of forest products from government managed forests. Along with illegal logging, the ban was attributed to the country's fluid political situation, and politicians' use of forest resources as 'easy money'.

Community forests

The Forest Act of 1993's most noted accomplishment was the institutionalization of community forestry, which had been introduced in Nepal in the 1970s in recognition that local people's help was crucial to forest protection (for an in-depth review of the historical context, see Ojha et al. 2009). The law created community forests and a framework for them to be managed by local communities through Community Forest User Groups (CFUGs). Basically, the approach is to implement decentralized management of forests by making local users and the District Forest Office responsible for the management of forests in the district. The formal structure for this involves a CFUG constitution, a forest management plan, and a CFUG executive committee.

The Forest Act of 1993 delineated the roles and responsibilities of government agencies and local users: the District Forest Offices have the authority to hand over part of the national forest to user groups, provide technical support, and serve as a liaison to government officials. The CFUGs delineate the community forest area, prepare an operational plan, determine how the benefits – forest products and the revenue they produce – are to be allocated, and are responsible for forest management, including maintenance activities. In return, they get the benefit of access to forest products to meet their needs and support their livelihoods.



Photo Credit: Meilanie Gritzka del Villar

Effectiveness and limitations of community forestry in Nepal

Effectiveness

The organization of the CFUGs started in 1995, focusing primarily on the mid-hill regions of the country. As of January 2011, 15,256 CFUGs had been formed – comprising 40% of the total population – which manage 22% of the country's total forest area of more than 1.3 million hectares (Poudyal 2011). This is a tremendous impact in terms of forest protection. Community forestry coverage has also helped watershed management and biodiversity protection in the fragile mid-hill areas.

In addition, community forestry has brought significant benefits in terms of livelihoods. It has ensured easy, low-cost access to forest resources for household and agricultural purposes. CFUG members get fuel wood, timber for construction, grass and forest litter for their livestock, and agricultural implements annually. For women, community forestry has reduced the labour involved in collecting fuelwood and grass, which had taken a substantial amount of time. Extrapolating from a rapid appraisal of 1,788 CFUGs by the community Forest Division in 2004, Kanel and Dahal (2008) estimated the market value of products harvested from community forests at about 2 billion NRs (roughly \$24 million USD).

Ojha et al. (2009) warn that rigorous studies gauging household income impacts from community forests are sparse, but find enough evidence to say community forestry 'appears to have had a net positive effect on livelihoods and a range of other development concerns in Nepal', ranging from an enhanced supply of edible forest products, to higher household incomes and rising socio-economic status (e.g. from 'very poor' to 'poor'). Community forestry has also provided a significant source of funds for community-level development activities such as building, operating and maintaining infrastructure: roads, schools, health clinics, etc. Kanel and Dahal (2008), again extrapolating from the 2004 appraisal, estimated that CFUGs produce about 913 million NRs (\$11 million USD) in annual revenue, from the sale of forest products and from fines, fees and grants. They also found that CFUGs spent about half their income and retained the other half in their accounts – and of what they spent, about 36% went to community development. Ojha et al. (2009) cite research showing that CFUGs vary considerably in how they spend their money, with notable success stories involving not just infrastructure, but also activities to enhance livelihoods and support micro-enterprises, among other investments.

From an institutional perspective, community forestry is arguably a major success. As Ojha et al. (2009) note, the Forest Act of 1993 was passed by a democratically elected parliament, and community forestry persisted through major political shifts in the country. The sheer scope of community forestry also means that a large share of the population has engaged in participatory decision-making, laying the groundwork for broader self-governance. Community forestry has also been important in terms of building and empowering local-level institutions, which have come together through a national network of their own, the Federation of Community Forestry Users, Nepal (FECOFUN), a 'key player in forest-sector policy debates' (ibid.). Even in the absence of fully functional District Development Committees and Village Development Committees at the time of this report (there have not been local-level elections since 1997), the CFUGs continue to fulfil their legal mandate well.

The latter has obvious implications for community-based adaptation – there are local institutions that can be leveraged, and people are familiar with participatory processes. In addition, community forestry has clearly contributed to protecting ecosystems, another important benefit in the context of climate change. It may also be possible to use community forestry to leverage carbon finance; a major national pilot project, Design and Setting up of a Governance and Payment System for Nepal's CFM under REDD+, is working to pilot a payment mechanism under the Reducing Emissions from Deforestation and Forest Degradation Plus (REDD+) system in community-managed forests. The project involves 105 CFUGs in three watersheds, covering about 10,266 ha of forests (MFSC 2011).

Limitations of community forestry

Although community forestry is clearly a success story for Nepal, it has not always worked as well as it could, and could be improved, in practice, to yield greater benefits.

In terms of poverty alleviation – a major priority for Nepal – community forestry has been effective in some areas, as described above, but generally not in the Terai. Few CFUGs in the Terai have embarked on income-generating activities through forest-based enterprises, even though this is a significant benefit from community forestry in other regions.¹ More activities to enhance livelihoods should be explored, including activities that do not require cash resources – as some CFUGs generate far less cash than others.

Another problem is that development programmes, policies, acts, rules and regulations in Nepal tend to be sector-specific, without coordination among government agencies. This leads to contradictory policies; for example, the Local Self-Governance Act of 1997 says the natural resources within the territory of a District Development Committee or Village Development Committee are considered the committees' property, which they can manage and use to generate revenue; this contradicts the Forest Act of 1993's community forestry provisions. Thus, there is a need to review these laws and resolve the contradictions.



Photo Credit: Albert Salamanca

¹ It should be noted that community forestry has faced more difficulties in general in the Terai, which has valuable hardwood forests with great potential commercial value, leading to significant conflicts over access to forest resources (Ojha et al. 2009).

An additional concern is that community forestry cannot be separated from the country's political and economic context. Forests are easily accessible and can serve as quick profit sources. In 2010, for example, at a time of political instability and weak government, there were several reported cases of massive illegal logging involving collusion between local loggers, forest-based industries, government officials and, unexpectedly, even some CFUG officials. The scale of destruction was so alarming that the Natural Resources Management Committee banned the cutting, collection, transportation, selling and buying of trees from the forest. This type of activities needs to be kept in check through appropriate legal and institutional measures.

Proposed Amendment to the Forest Act 1993

- Fixing the prices of forest products and selling at those prices;
- Preparing and amending operational plans for forest product use;
- Spending the majority of forest-product income on infrastructure development rather than forest protection;
- Prioritizing commercial use of forest products rather than distribution to members;
- Entitlement to produce forest products on a commercial scale; and
- Not listening to complaints from outsiders, but only from CFUG members.



Photo Credit: John Soussan

The proposed amendments would also expand the definition of forests to include bushes; redefine the kinds of herbs and medicinal plants that are considered non-timber forest products; and include environmental services within the definition of forest products. And they would take away some of CFUGs' revenue, requiring that 50% of the proceeds of forest product sales to non-members go to the government and creating a two-year waiting period between when forest management is transferred to a CFUG and when its members can use the products. CFUGs would also have to make special allocations for poor and marginalized groups within their membership.

In addition, the amendment would create two new kinds of forests: 'partnership forests' (in partnership with local stakeholders and private parties) and 'block forests' (managed by the government or in partnership with others), to be managed according to the operation plan prepared by the District Forest Office and approved by the Department of Forests. A Forest Management Fund would also be created, financed by 10% of the income from community, block and partnership forests, among other sources, to support forest protection, management and development. Separately, the concept of 'protected forests' would be introduced, applying to forests managed by the District Forest Office.

The CFUGs' much-valued autonomy would also be curtailed: any amendment to the community forests operational plan would need to be approved by the District Forest Office, and the officials would be liable to legal punishment if the operational plan is not followed. CFUGs oppose the proposed amendment, which it is feared could erode interest in community forestry. There are compelling arguments on both sides, involving a desire to prevent corruption and abuse. An appropriate solution will require finding a middle ground that addresses these concerns.

Conclusion

The MPFS 1989 and the Forest Act of 1993 have dramatically changed forest management practices in Nepal by engaging forest users and guaranteeing their legal rights. The extent of community forestry activities is an indication of this strategy's success. Community forestry has encouraged local people to design and implement forest management strategies that are suitable to local conditions, the same approach employed in successful community-based adaptation. CFUGs have also emerged as strong and successful institutions, though contradictory policies must still be addressed. In terms of strengthening livelihoods – and thus reducing vulnerability – CFUGs have shown promise but should further diversify and expand their activities.

3. Nepal's Water Resources Strategy and National Water Plan

The goal of Nepal's water resource policies is to produce economic and social benefits by ensuring the participation of all stakeholders, including the private sector. Developing the country's huge water resources potential will not only help meet energy demand but also greatly help to develop agriculture and industry, facilitate socioeconomic development, and alleviate poverty. Nepal's 1992 Water Resources Act sought to properly develop, manage and utilize the available water resources at the national level to gradually make safe drinking water available to all citizens; increase agricultural production and productivity through efficient use of irrigation water; and generate hydroelectricity to reduce the need for imported petroleum in a matter compatible with environmental conservation and protection. Locally, the act's objectives are to encourage consumer and private-sector complementary participation in developing, managing and utilizing water resources.

Without an overall policy for the development of water resources, however, the implementation of the various activities followed the sectoral approach, with no coordination between the national and district levels. Consequently, integrated water use planning at the basin and sub-basin level was lacking, so the government's ninth five-year plan (1997-2002) emphasized the development of overall water resource policy in lieu of sectoral and sub-sectoral policies. The Water Resources Strategy (2002) and National Water Plan (2005) lay the groundwork for a coordinated, unified approach to water resources in the context of sustainable development.

The National Water Resources Strategy (WRS 2002) laid out the government's vision and priorities, with a focus on leveraging water resources to significantly improve the living conditions of Nepali people. The strategy identified issues in different subsectors and set objectively verifiable targets for the short term (up to 2007), medium term (up to 2017) and long term (up to 2027). The short-term goals focus on meeting basic needs, the 15-year goals focus on consolidating sub-sector programmes to maximize the benefits, and the long-term goals involve optimization. One notable aspect of the WRS is that it envisions the adoption of Integrated Water Resources Management (IWRM) as the basis for developing the water sector. The main goals of the strategy are to provide easily accessible and safe drinking water, increase agricultural productivity, develop hydropower to provide electricity for households and industry, reduce water-induced disasters, and protect biodiversity.

Photo Credit: Albert Salamanca

The National Water Plan (NWP 2005), a roadmap for implementing the National Water Resources Strategy spanning the period 2002-2027, was finalized in 2005. It identifies specific activities (programmes and projects), built on a core set of principles: integration, coordination, decentralization, popular participation, and a foundation of good governance, equity and sustainable development.

A top priority in both documents is improving agricultural irrigation, which is linked to long-term food security and a desire to reduce food imports. One key strategy is to improve irrigation efficiency; there is also a focus on providing year-round irrigation for intensification and diversification of agriculture. Because fragmented land-holding has been identified as a major constraint in optimizing irrigation, land consolidation is encouraged. Another key strategy is to build partnerships between the Department of Agriculture, the Department of Irrigation and water user associations.

Over the next 10 years, the activities will focus on expanding irrigation in a reliable and sustainable way to bolster agricultural production. Proposed projects will be assessed and ranked on the basis of whether they are sustainable, cost effective and have equitable benefits. Where feasible, irrigation development is to be integrated with multipurpose water storage projects and inter-basin transfers. After 25 years, appropriate and efficient irrigation should be available for the optimal use of irrigable land in a sustainable manner. The irrigation sub-sector plan is a rolling plan to be reviewed and updated every five years.

Water storage projects are also envisioned, through inter-basin transfers, to provide regulated water for irrigation, hydropower and recreation. The storage projects are important for mitigating adverse effects from climate change and will provide natural adaptation mechanisms. However, the complexity of the storage projects in terms of the technical capacity and financial resources required indicates that their implementation may take a long time. With regards to hydropower, meanwhile, the priorities are to prepare an inventory of potential hydropower projects and to develop small- and medium-scale projects, using local resources. Both run-of-river and storage-type hydropower projects are envisioned. Because such projects would require reliable data and technical knowledge, the strategy calls for establishing a water information system in the Water Energy Commission Secretariat and strengthening institutional capacity.

Key water sector issues

The Water Resources Strategy identified key issues in four categories – drinking water, irrigation, hydropower, and others – as well as legal and institutional issues. Lack of adequate and reliable data was identified as a major constraint in water resource planning and management. On the policy front, the lack of comprehensive water-resource policy and integrated river basin planning and management were noted as critical barriers to overcome. In terms of institutional challenges, key issues identified were the lack of central-level planning coordination, blurred responsibilities – both vertically and horizontally – between the institutions, and the lack of a coordinated and integrated approach for water resources development.

In addition, lack of clarity about water rights and ownership and lack of harmony between different laws were identified as major bottlenecks. The Water Resources Act of 1992 had vested ownership of water resources in the state and given only use rights to the public. It also set priorities for the allocation of water, assigning first priority to drinking water and second priority to irrigation. However, at the local level, these priorities were not binding, due to the existence of customary user rights, wherein prior-use rights prevail over all others.

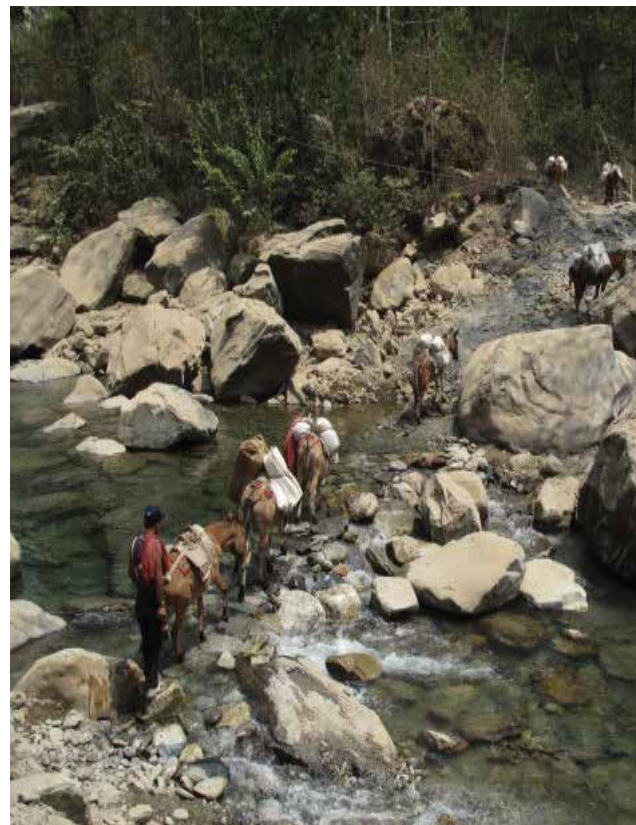


Photo Credit: Meilanie Gritzka del Villar

Key reform measures

Policy and legal reforms

In view of the growing competition for water among different users and sectors, a key priority for the WRS 2002 and NWP 2005 was to clarify water rights and end customary-law practices. This has also become important to attract private-sector and foreign investments, as water resources development can require significant financing, so guaranteeing returns on investment is vital. Therefore, design and enactment of a comprehensive legal framework was identified as a goal for the first five years. Within 10 years, regulatory bodies are to have improved capacity and defined clearer roles and responsibilities, with periodic reviews. Within 25 years, a full array of legal and institutional mechanisms are to be in place to address water-related issues.



Photo Credit: John Soussan

Thus, the WRS acknowledges that the existing policy and legal frameworks are not adequate to facilitate integrated water resources development. Key reform activities proposed are:

- Preparation of National Water Policy and amendment of the Water Resources Act 1992;
- Harmonization and amendment of conflicting rules and regulations;
- Regulation of groundwater use and management through legal provisions;
- Improvement in enforcement of legal instruments;
- Establishment of equitable and functional water use rights; and
- Formulation of policy and legal mechanisms on rehabilitation and resettlement of people affected by projects.

Institutional reforms

Initially, the Nepali government centralized water resource development. Since the early 1990s, when a multi-party governance structure was introduced, participation by users, private sector and NGOs became a major focus. The Water Resources Act of 1992 recognized the roles of local, private sector and government stakeholders, and the Local Self-Governance Act of 1999 strengthened those roles. Nevertheless, desired results have been inhibited by the sectoral focus of government planning, contradictory provisions in the laws, and lack of coordination in planning and implementation of development programmes. Therefore, the WRS 2002 focused on restructuring, reactivating and strengthening certain institutions with these goals:

- Coordinated planning at the central level;
- Effective implementation;
- Integrated river basin development; and
- Improved monitoring and regulation of water management.

The lead government agency for these activities is the Water and Energy Commission Secretariat (WECS). Government agencies, academic institutions, NGOs, communities and the private sector are also to be engaged in these activities. The strategy did not elucidate the role of local elected institutions, but they play an important role at the local level, especially in mobilizing community participation and resources. The goals are the establishment of appropriate institutions at all levels to assess capabilities of organizations involved in water resource development and to assist them within five years; the implementation of integrated water resources management both at the central and local level within 10 years; and enabling these institutions to effectively function for water resources development within 25 years.

Effectiveness and limitations of the WRS and NWP

Effectiveness

Work to implement the reforms began in 2005, when the International Water Management Institute, in collaboration with the WECS and the Department of Irrigation, launched a three-year research project in the Begnas catchment of Gandaki Zone in the western part of the country. The main objective was to develop a methodology to form a sub-basin committee as envisaged in the National Water Plan, to act as the lower level unit for integrated river basin planning. The sub-basin committee was to provide a platform for the representation of stakeholders in the catchment (Pant and Sharma, in press). However, the process was discontinued due to lack of initiative from WECS. Separately, in 2009, the WECS implemented a project to facilitate IWRM adoption in the Okhaldunga district of Nepal's eastern region, in collaboration with WWF. That project focused on income-generating activities, mainly at the village and ward levels. The project was expanded in 2010 to the Indrawati River Basin in the central development region (see Field Case Study in section 7 of this report).

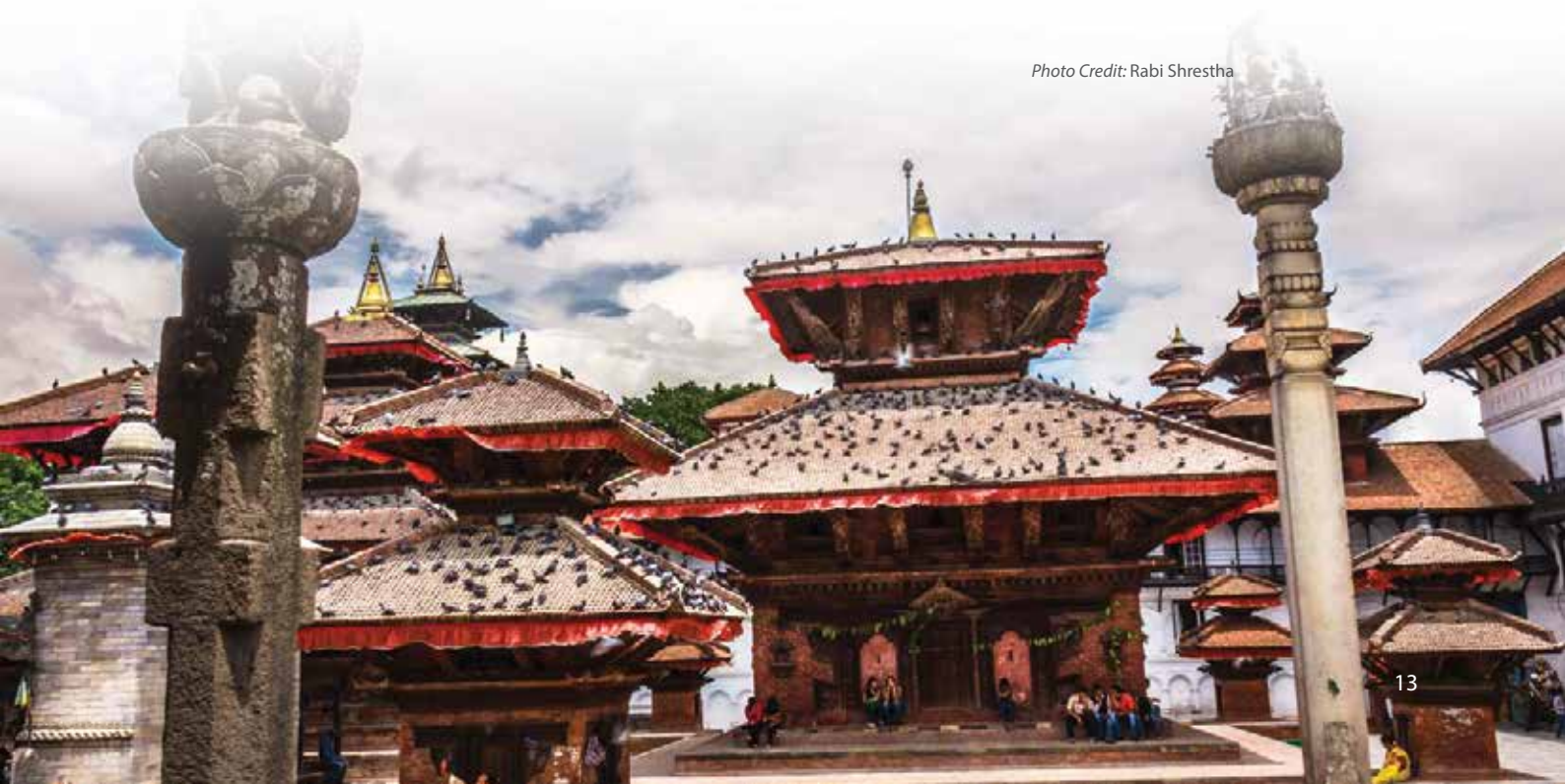
The WECS, with assistance from the World Bank, has also been working to establish the proposed Water Resource Information Centre. The first phase of activities, focused on collecting information on data availability and developing a framework for the centre, has been completed. The second phase, according to WECS officials, will focus on detailing the activities of the centre. Its priority is in water assessment at the basin level through modelling and optimization of water use available in the basin.

In addition, WECS has initiated the establishment of River Basin Offices (RBOs) to facilitate river basin planning activities. The establishment of RBOs in Bharatpur in the mid region, Nepalgunj in the mid-western region and Biratnagar in the eastern region was initiated in 2011, according to WECS officials. Initially, the following functions have been identified for each RBO:

- Act as the technical wing to facilitate river basin planning with technical and sub-basin committees;
- Facilitate formation of the sub-basin committee with representation of local-level stakeholders;
- Provide technical input to basin level sub-committees and sectoral agencies; and
- Collect necessary data on water use and allocation for river basin planning.

These functions may expand in the future as river basin planning activities progress.

Photo Credit: Rabi Shrestha



The RBOs will have representation from the sectoral line agencies at the regional and district levels, which are formed on administrative and geographical boundaries. However, the details of the representation are yet to be worked out, per information obtained from the WECS in May 2012.

Implementation constraints

As agriculture is the main user of water, the expansion of irrigation systems and productive use of irrigation water has become important for integrated planning. Nevertheless, Nepal's existing irrigation systems are deteriorating due to inadequate maintenance, and new irrigation systems are very costly. As a result, the intended production, productivity and economic benefits anticipated from the investments in irrigation sector improvement programmes have not been realized. The huge investments required under the NWP are not likely to be feasible, and the targets set are hard to achieve.

Institutional gaps in programme implementation are another area of concern. The WRS, for example, calls for supporting the District Water Resources Committees (DWRCs) for their active role in planning and regulating the water resources in the districts, and provisions for adequate human resources and necessary budgets. However, the irrigation regulations do not grant any authority to the DWRCs. District boundaries form the main basis for decentralized administration and governance, and the hydrological boundary of the river basin may pass over two or more administrative districts. This indicates a need for institutional arrangements for managing river basin water. Traditionally, sectoral development, rather than integrated management of water, has been given greater emphasis. This is mainly because of the absence of an appropriate institutional framework. That has not changed, and water resources development remains far below its potential, especially in areas such as irrigation, hydropower generation, drinking water supply and sanitation.

The popularity of micro-hydro development, especially in the remote hilly areas, has grown over the past decade. Communities are mobilizing their own resources along with technical and financial support from the government and donors for the installation of micro-hydro for lighting, milling and other cottage industries.

Conclusion

Following a trend since the late 1990s led by the World Bank, Nepal's government has embraced Integrated Water Resources Management to guide water sector development. With this, it embarked on the preparation of a Water Resources Strategy (2002) and National Water Plan (2005). These documents were prepared by external and local experts in consultation with stakeholders at various levels. The documents were successful in identifying key issues in water resources management in the country and also provided a framework for future water resources development. However, the WRS and NWP failed to account properly for resource availability, and did not recognize the existing bureaucratic culture of sectoral orientation and political commitment required to enable the necessary policy and institutional reforms. As a result, the provisions in the documents have not been implemented, except for a few isolated activities. In fact, the integrated approach was undermined by the splitting of the Water Resources Ministry in two, with the creation of the Ministry of Irrigation in 2010. Nepal's ongoing political instability will not help its full implementation. These documents have to be reviewed and revised due to the time lag between preparation and implementation as well as the changing context of a new constitution and federal structure.

Photo Credit: Albert Salamanca



4. The National Adaptation Programme of Action (NAPA)

Nepal signed the United Nations Framework Convention on Climate Change (UNFCCC) shortly after its approval in June 1992, and ratified it in 1994. As noted in Section 1, Nepal is very vulnerable to climate change and is keenly aware of this fact. The government has prioritized environmental issues, first by establishing Environment and Science councils within its National Planning Commission, and then by establishing its Ministry of Population and Environment in 1995 (now Ministry of Environment). The latter is also Nepal's UNFCCC focal point.

Nepal's activities as a Party to the UNFCCC have included:

- Preparing and submitting its Initial National Communication in 2004;²
- Preparing an action plan for capacity building to implement the Rio Conventions (Climate Change, Desertification and Biological Diversity);³
- Issuing approval processes and procedures for Clean Development Mechanism (CDM) projects to benefit from the provisions of the Kyoto Protocol;
- Preparing a National Adaptation Programme of Action (NAPA), completed in 2010;⁴
- Starting the preparation of the Second National Communication (SNC); and
- Implementing a project on strengthening capacity for managing climate change and the environment.



Photo Credit: John Soussan

² The Initial National Communication is available online at <http://unfccc.int/resource/docs/natc/nepnc1.pdf>.

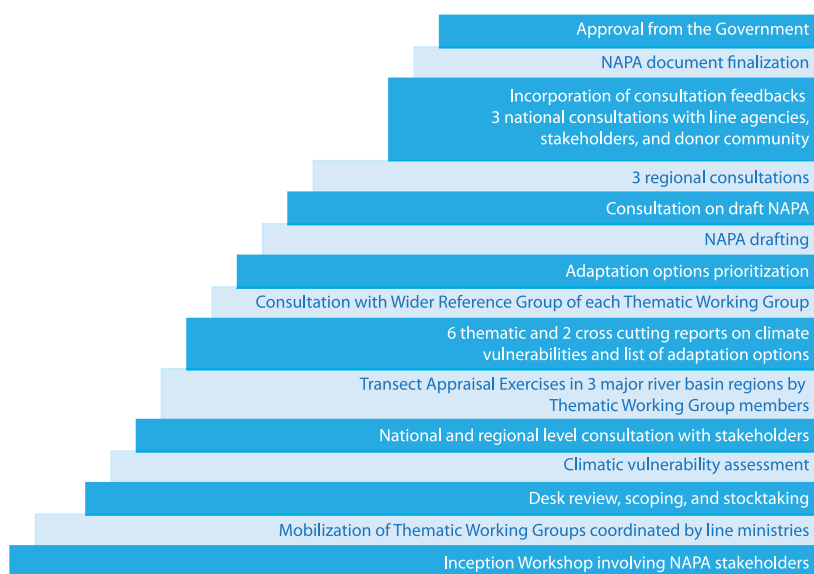
³ Done with the United Nations Development Programme (UNDP); for more information, see <http://www.undp.org.np/environment--energy/program/nca-39.html>.

⁴ Nepal developed a website with extensive materials on the NAPA, but it is no longer updated: <http://www.napanepal.gov.np/>. For more recent information, see <http://www.climatenepal.org.np>.

Nepal also addressed climate change, along with other environmental issues, in its Interim Constitution (2007) and Three-Year Interim Plan (2008-2010).

In the lead-up to the 15th Session of the Conference of the Parties (COP15) in 2009, Nepal assigned a 25-member Climate Change Council to prepare a 'status paper', and it also hosted a two-day conference, 'From Kathmandu to Copenhagen: A Vision for Addressing Climate Change Risks and Opportunities in the Himalaya Region', where 14 donors and development partners signed a memorandum of understanding to support Nepal on climate change activities.⁵ Immediately before COP15, the government further stressed the urgency of climate action by holding a cabinet meeting at Kala Patthar, near the base camp of Mount Everest, which resulted in the 'Kala Patthar Declaration'.⁶ The country's NAPA, approved by the government in 2010, is the main policy document designed to address climate change adaptation, setting priorities, and procedures and providing guidance for the design and implementation of adaptation measures. Figure 1 below shows the NAPA development process, as presented in the final NAPA report.

Figure 1: The NAPA process



Source: Ministry of Environment (2010b), Figure 3.1.



Photo Credit: Leilani Gallardo

Activities for climate change adaptation

In the NAPA preface, Environment Minister Thakur Prasad Sharma notes that the NAPA process has been 'instrumental in mainstreaming climate change into Nepal's development planning'. The plan identifies priority adaptation actions for agriculture and food security, the water sector, and the energy sector; actions to address climate-induced disasters; and actions for forests and biodiversity, public health, and urban settlements and infrastructure. It then grouped those actions into nine clusters:

⁵ For a brief description of the conference, see: <http://reliefweb.int/report/nepal/final-statement-kathmandu-copenhagen>.

⁶ The declaration text and a video of a related statement at COP15 are available at http://www.nepalmonitor.com/2009/12/a_call_from_the_top.html.

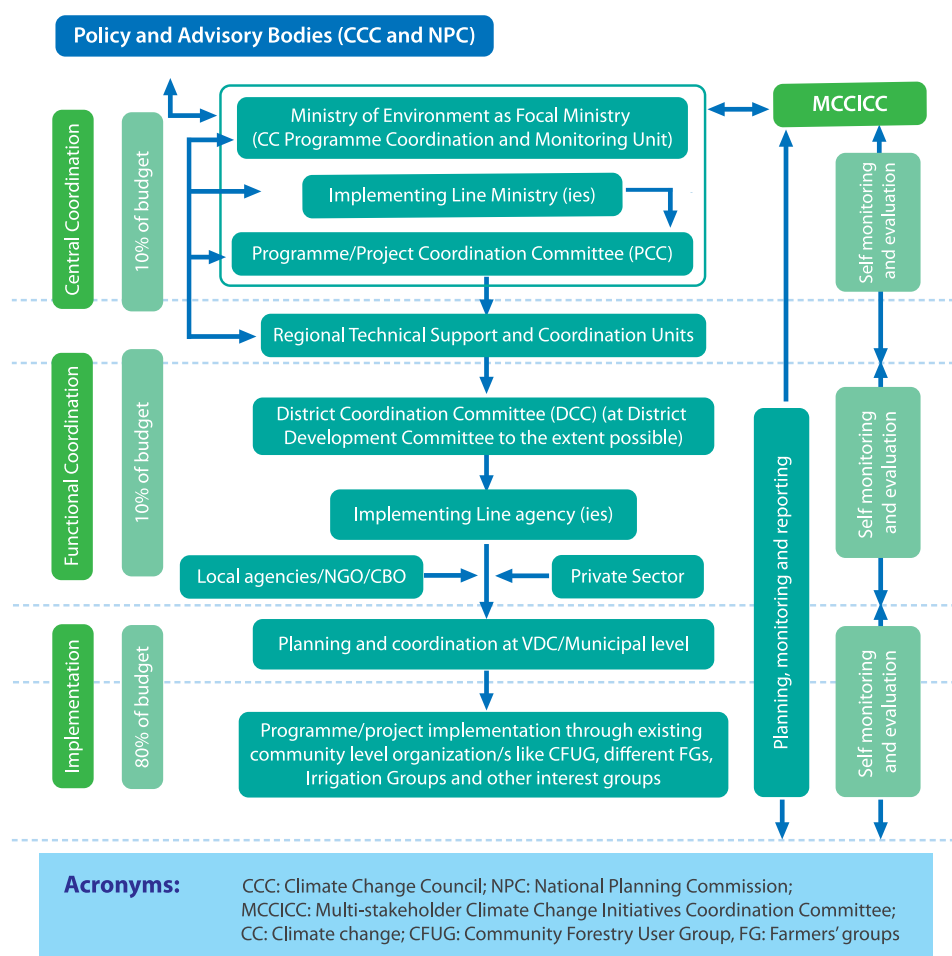
1. Promoting community-based adaptation through integrated management of agriculture, water, forests and biodiversity (estimated cost: \$50 million USD);
2. Building and enhancing the adaptive capacity of vulnerable communities through improved systems and access to services related to agricultural development (estimated cost: \$44 million USD);
3. Community-based disaster risk management to facilitate climate change adaptation (estimated cost: \$60 million USD);
4. Glacial lake outburst flood monitoring and disaster risk reduction (estimated cost: \$55 million USD);
5. Forest and ecosystem management to support adaptation innovations (estimated cost: \$25 million USD);
6. Adapting to climate change in public health (estimated cost: \$15 million USD);
7. Ecosystem management for climate adaptation (estimated cost: \$31 million USD);
8. Empowering vulnerable communities through sustainable management of water resources and a clean energy supply (estimated cost: \$40 million USD); and
9. Promoting climate-smart urban settlements (estimated cost: \$30 million USD).

Implementation of NAPA activities is to roughly follow a model set up under Nepal's Tenth Plan (2002-2007), which relies on local governments, the private sector, NGOs and community-based organizations to submit proposals that fit within the NAPA priorities. The government's role is to review the proposals, award contracts, and serve as a facilitator, identifying stakeholders, resolving policy issues, and streamlining and scaling out. A central steering committee within the Ministry of Environment, drawing on thematic working groups that already exist within the ministry, will oversee the process. This setup is meant to ensure that at least 80% of the funds for climate activities flow to the grassroots level (as also mentioned in the 2011 Climate Change Policy). Figure 2, below, shows the NAPA implementation process, as illustrated in the NAPA report. In the broader context of this policy review, note that community forest user groups (CFUGs) and irrigation groups are among the local-level implementing entities envisioned by the plan.

Photo Credit: Meilanie Gritzka del Villar



Figure 2: The NAPA implementation process



Source: Ministry of Environment (2010b), Figure 3.3.

The central ideas are to use the NAPA to mainstream adaptation into Nepal's national development agenda, and to ensure a coherent programmatic approach towards adaptation nationwide. While technical responsibilities will be delegated to the appropriate ministries and line agencies at various levels, all adaptation projects are covered by a common coordination, management, and monitoring mechanism. The framework envisages facilitating the channelling of financial resources and technical expertise for adaptation to the local level as efficiently as possible. Depending on the nature of the project and on the size of the budget, it is envisaged that the operating costs will be kept to a minimum. All projects contribute to a common pool of funds to support policy and coordination at the central level and cross-cutting activities that provide services to all projects, such as research and knowledge management, monitoring and evaluation and communication through the regional units.

Challenges and barriers to implementation

Research and development programmes in Nepal are implemented through three distinct mechanisms: public-sector actions, public-private partnerships, and donor-NGO partnerships. All these mechanisms have merit, but they are uncoordinated, which can make them less effective. Donor-NGO partnerships are comparatively effective in terms of services and outputs delivery, but issues of ownership and stakes often arise in the context of scaling up and scaling out the project outcomes.

Political instability has also been an issue in recent years. Some government services have still managed to function well – for example, health and postal services were successfully delivered even during 10 years of armed struggle, but most development sectors were dysfunctional during that period. Likewise, during the conflict some donor-NGO partnership programmes were effective in reaching the poor at a grassroots level.

The NAPA itself identifies several challenges in implementing the measures it proposes. A major issue is weak governance – due mainly to an extended political transition and lack of elected local bodies. Other concerns are a continued need to harmonize climate change activities with national policy and operational frameworks; lack of infrastructure in much of the country; and the huge extra costs associated with climate change activities, which were not factored into development aid to support work on the Millennium Development Goals (MDGs). In addition to these macro-level barriers, inadequate financial, technological and human resources are also critical problems.

Specific to the thematic areas, the NAPA identified such barriers as the inadequate implementation of sectoral plans, policies and strategies, mainly in the agricultural, forestry, water, health and sanitation sectors. These are the key sectors relating to the livelihood of the poor, and ineffective implementation of the plans and programmes increases their vulnerability. The ineffective implementation is mainly due to reduced budget allocation (agriculture), poor service delivery from the existing infrastructure (irrigation), lack of clear guidelines and mandates to the local offices (health sectors), lack of public awareness about climate-related disasters, and inadequate infrastructure to cope with climate-induced disasters.

Measures proposed for the implementation of the NAPA

As noted above, Nepal is not optimally positioned to implement its NAPA. In order to support effective implementation, various policy, legal and institutional reforms were proposed, along with support programmes covering human resource development, research and extension services, management planning, and monitoring and evaluation.

Institutional reforms are very important and are outlined in detail in the NAPA, as summarized below.

Project level

The major responsibility for implementing a project lies with the appropriate line ministry, which is responsible for setting up a project coordination committee with the support of the Ministry of Environment. The specific structure and function of this committee is flexible, to adapt to the nature of each project. The general idea is to have a body that will be able to provide strategic guidance for project implementation and with whom the project could consult on a regular basis, consisting of representatives from all participating agencies, participating line ministries (in case of multi-disciplinary projects), development partners, experts, and beneficiary groups.

Local level

One of the innovations of Nepal's NAPA process was the development of the concept of Local Adaptation Plans of Action (LAPAs) as a way to identify needs and set priorities at the local level for more effective implementation of the NAPA agenda. This was seen as particularly important due to Nepal's wide diversity of ecosystems, micro-climates, cultures and socio-economic circumstances (Regmi and Karki 2010). It is expected that lessons learned from LAPA formulation will not only support NAPA implementation, but also contribute greatly to refining Nepal's climate policies.

In terms of governance, at the district level, project planning and delivery will be the primary responsibility of the District Development Committees (DDCs). The concerned DDC will set up a District Coordination Committee for the implementation of NAPA. Membership and functions of the committee will be contingent upon the nature and requirement of the individual project, but the general idea is to involve the district-level offices of participating line ministries (e.g. Agricultural Development, Forests, Public Health, etc.), NGOs, community-based organizations, private enterprises and local service delivery agents. The district office of the primary implementation ministry (if any) will serve as the Secretariat of the District Coordination Committee. The Secretariat will facilitate the selection of local service delivery agents according to the general guidelines set out in the project document and develop the corresponding terms of reference. It will be responsible for reporting to the District Coordination Committee, coordinating with the Regional Technical Support and Coordination Unit, and mainstreaming local adaptation plans into development plans.



Photo Credit: Leilani Gallardo

A diverse set of local service delivery agents – CFUGs, farmers’ groups, water-users’ groups, women’s groups and private enterprises that operate in the project area – will implement the projects. They will be accountable to the DDC. This implementation framework recognizes the current leading role of village development committees and municipalities in local development planning. To reinforce this role, they will be supported to incorporate adaptation perspectives into their local development plans, to align fully with the NAPA.

Monitoring and evaluation

A central-level monitoring and evaluation system will be developed at the Ministry of Environment to track performance on adaptation. The system will also endeavour to identify successes and failures of implementation and key lessons learnt from it. The matrices will be developed based on the stocktaking and vulnerability assessment conducted under the NAPA. Individual projects will track the progress and impacts of their work vis-à-vis the broader goals of reducing vulnerabilities and increasing adaptive capacities. The monitoring and evaluation system will be administered by the Climate Change Programme Coordination and Monitoring Unit. It will be responsible for integrating each project’s monitoring and evaluation system with the central system. The unit will transfer the lessons learned from project implementation into the current projects in order to guide adjustments, as well as into the design of new projects.



Photo Credit: Meilanie Gritzka del Villar

5. The Climate Change Policy 2011

When it approved the NAPA in September 2010, the Government of Nepal also endorsed the Climate Change Policy 2011. This short document (only 11 pages in the English version, versus 80 for the NAPA) provides an overview of climate change concerns in Nepal and efforts to address it, and pulls together key aspects of the NAPA and various other policies. It lays out six priorities:

- a) To provide updated information to the UNFCCC about Nepal’s work on climate issues, including institutional development, capacity-building, technology, finance and emissions measurement;
- b) To promote climate adaptation, mitigation and carbon sequestration, mobilizing financial resources for technology development and transfer and for capacity-building for the formulation, implementation, monitoring and evaluation of programmes;
- c) To implement adaptation programmes according to the national development agenda, ensuring that at least 80% of total funds go to the grassroots level;
- d) To make natural resources management climate-friendly for socio-economic development and climate-resilient infrastructure development;
- e) To increase public awareness, enhance capacity and promote negotiation skills through multi-stakeholder participation; and
- f) To manage and mobilize additional technical and financial resources from clean and renewable energy development, carbon trade and other mechanisms related to reducing climate impacts.

The stated vision of the climate policy is ‘a country spared from the adverse impacts of climate change, by considering climate justice, through the pursuit of environmental conservation, human development, and sustainable development – all contributing toward a prosperous society’. To that effect, the policy provides a detailed list of objectives as well as seven specific targets:

- Establishment of a Climate Change Centre within one year to conduct climate change research and monitoring, and to advise the government;
- Initiation of community-based local adaptation actions under the NAPA, by mobilizing financial resources by 2011;
- Preparation of a national strategy for carbon trade, in order to benefit from the Clean Development Mechanism, by 2012;
- Formulation and implementation of a low-carbon economic development strategy that supports climate-resilient socio-economic development by 2014;
- Assessment of losses and benefits from climate change in various geographical areas and development sectors by 2013;
- Promotion of climate adaptation and adoption of effective measures to address adverse impacts of climate change through technology development and transfer, public awareness-raising, capacity-building and access to financial resources; and
- Development of a reliable impact forecasting system to reduce the adverse impacts of climate change in vulnerable areas of the mountains, hills, Churiya, and Terai and on natural resources and livelihoods.

The document also outlines specific policies that are already in place, and actions that have been completed, that will support the pursuit of the listed targets and objectives. And it calls for further institutional reforms, including having a Climate Change Council coordinate all climate programmes at the policy level and the Ministry of Environment at the functional level; establishing the Climate Change Centre as a ‘semi-autonomous technical institution’; and strengthening other relevant institutions. New laws and amendments are also envisioned.

In terms of financing, the policy provides for a new, centrally administered Climate Change Fund to support adaptation and resilience programmes, low-carbon development, risk identification, research, and development and utilization of technologies. The budget is to be submitted for approval each year to the Climate Change Council, and is to be made public. And as in the NAPA, the Ministry of Environment has responsibility for monitoring and evaluation, with support from local institutions which are to monitor, evaluate and report on local-level initiatives.

Photo Credit: Albert Salamanca



Various challenges for the implementation of adaptation have been identified: lack of scientific information on geographical and socio-economic development sectors, lack of appropriate and sufficient technical know-how, and the lack of knowledge regarding vulnerable sectors and measures to enhance their adaptive capacity. Reducing GHG emissions is the most important reason in designing climate-resilient programmes. Availability of resources is another factor which may hinder the smooth implementation of the adaptation plan. In light of the slow implementation of the NAPA, it seems that the government is keen on policy formulation and preparation of an adaptation strategy but lacks serious commitment in its implementation. Thus, the climate change policy may also face the same problems as the NAPA due to inadequate legislative and institutional reforms.

6. Adaptation provisions proposed for the new constitution



Photo Credit: Meilanie Gritzka del Villar

Since 2007, Nepal has been governed under an Interim Constitution, while a new constitution to support the transition from a monarchy to a federal republic is developed. At the time of this writing, negotiations on the new constitution remain at an impasse. This summary is thus based not on a final text, but on the recommendations made by the Natural Resources Committee of the Parliament in 2010.

The committee called for prioritizing natural resources management in the context of climate change. It suggested including a directive that legislation, policy-making and planning must ensure environmental protection and intergenerational equity. It also proposed explicitly adopting a policy of minimizing the negative effects of climate change through adaptation and mitigation measures. The proposal calls for adhering to international treaties and agreements and also taking advantage of the rights and opportunities created by them. This is an indication that the new constitutional provisions will also have external dimensions, and suggests that Nepal intends to continue to abide by international commitments and to seek external resources for adaptation to climate change.

The stated objective of natural resources management, meanwhile, is to maintain biodiversity and ensure sustainable management and use of resources for economic development by ensuring equitable and balanced development. To achieve this, it has been envisioned that legal provisions be enacted for sustainable development by ensuring the people's environmental rights and equitable distribution of benefits to the state and among users. The proposal emphasizes ensuring the use rights of local ethnic groups and communities and their participation in benefit-sharing. And it recognizes citizens' right to food and holds the state responsible for ensuring, through appropriate policy, that enough food is produced. Policy measures will have to address the issue of climate change to ensure food security.

Conversely, every citizen has a duty to protect and work for the improvement of natural resources. Local communities are also encouraged to invest in natural resources development.

There is a provision for the formation of a National Natural Resource Commission to resolve the likely disputes among the states. The commission's mandate would include identifying issues, carrying out research, and recommending to the government measures for resolving disputes. There is also a proposal to delineate economic rights and duties among the federal, state and local political units. The federal parliament is to prepare the framework legislation, under which the regional and local units will prepare legal provisions for their respective areas. The regulation and management of watersheds is proposed to be the responsibility of the federal government and, depending upon the size of the watershed and the need, management responsibility is delegated to the state and the local government.

It has been stipulated that a minimum of 40% of the total land area is to be covered with forests, and community participation is identified as the primary mechanism for forest management. Thus the proposal would maintain the current policy. At the same time, the proposal recognizes the potential income from carbon markets and provides for its distribution among the federal state, local government, communities and individuals.

7. Field research: Policy provisions and local responses to climate change

Even as Nepal works to implement its climate policies and strategies, communities face real-life adaptation needs. This section describes field research in the Indrawati River basin of Sindhupalchowk District, east of Kathmandu Valley, designed to explore local-level policy implementation, public awareness and adaptive measures. The site was selected because it involves competing water uses and other natural resource management issues, as well as active development. The focus was on issues related to water availability for irrigation and micro-hydro, and institutions (community-based organizations, NGOs, Village and District Development Committees, and government line agencies), their work on adaptation, and linkages among them. Information was also sought on the roles of local and external stakeholders (international NGOs and donors, etc.), their specific activities on climate change and livelihood adaptation, and special programmes, if any, on climate change. See Annex 1 for a list of institutions and persons visited. The information was collected through key informant surveys, focus group discussions, participatory rural appraisals, and structured interviews with local stakeholders.



Photo Credit: Dhruva Pant

Case study of Sera irrigation and Gauri Ganesh water mill

This irrigation system, in Mahankhal VDC-9, Sera, covers 7 ha and is connected to a water mill. The field canal constructed for bringing water up to the mill's turbine is also used for irrigation. The mill owner usually constructs the temporary headwork with an earthen canal, and also handles operation and maintenance of the main canal. Irrigation systems are usually located upstream, whereas water mills (with turbines) are operated at the tail end of the canal. Traditionally, irrigation users have unhindered, no-cost access to the water for irrigation, and the mill owner holds the rights to the land on which the canal is constructed. In that respect, the mill owner shares the water rights with the irrigation users. Before the construction of the canal by the mill owner, local farmers used to divert water from small rivulets with temporary structures. A previous visit to this site, in 2000, had found that the allocation of water to these two uses was not a problem, because there was plenty of water in the river basin.

According to the mill owner, the situation is different now: the water volume has declined by about 10%, reducing water availability for the mill. He attributed the decline to a reduction of forest area due to encroachment for road construction. In order to compensate for flow reduction, he has lined the canal through financial assistance from the Melamchi Water Supply Project, one of the major projects to transfer water to Kathmandu Valley. The cropping pattern has remained unchanged, but in 2011, the winter potato area increased, which means there is increased water demand for irrigation in a lean season. This certainly has effects on water availability for the mill. However, demand for the mill's services has also declined, the owner said, because there are now seven rice mills in the area, five of them powered by electricity. He mentioned that he was thinking of converting his mill to micro-hydro generation, if the electricity authority is willing to purchase the power. The mill owner was not aware of any programmes related to climate change adaptation.

Case study on irrigation and Handi Khola Pratham Jalbiddut (electricity) Cooperative

The Rural Energy Development Programme (REDP) of the United Nations Development Programme (UNDP) constructed a 21 KW micro-hydro plant in Thangpaldhap VDC. The plant uses water from the irrigation canal. According to the chairperson, the water flow has declined from 500 litres per second during the design of the micro-hydro to 400 litres per second at present. Since irrigation (150 ha) receives first priority, in time of need water is provided even in the night. There has been an expansion of the irrigation area to 225 ha for winter crops, leaving even less water for electricity. Last year the area experienced drought, and power production declined so that households were only allowed to use 40 Watt bulbs and had no electricity after 11 p.m. However, the plant team aspires to sell electricity to the national grid through a cooperative, especially electricity produced in the daytime. However, the electricity authority has commissioned 1 MW more of hydropower upstream, which may negatively affect this plant.

Because of the increase in area for spring paddy (February-March), water demand is increasing, straining supplies. There has been a change in cropping patterns in recent times, as farmers have begun to plant chili, legume crops and soybeans, but their yields are decreasing – for lack of water, they say. There is one Agriculture Service Center that provides training, but its services are not considered satisfactory. The villagers also report that they have observed a reduction in snow during the winter on nearby hilltops for the last six to seven years, which may be due to climate change. However, they are not aware of any activities related to climate change in the village, either by local or external agencies.

Photo Credit: John Soussan



Opinion of district-level stakeholders

Except for district-level government officials, awareness about climate change among various actors appears to be minimal at the local level. This is because environmental issues – and adaptation in particular – have not been prioritized at the district level so far. The district-level officials are also not aware of national-level work on adaptation, even though they say they are interested in addressing climate issues. The major constraint they have raised is identification of appropriate activities and budget, but they are not aware of the opportunities to apply for support under the NAPA. There is also a lack of coordination between concerned agencies. The District Forest Office provides training related to nursery establishment and selection of species for planting, and it is promoting broadleaf plantations at the local level, which is arguably an adaptation-related activity. The District Forest Office has also included climate change issues in training activities. The major challenge is the destruction of forests due to road construction prioritized by local people. This has resulted in landslides due to poor engineering and is contributing to environmental degradation.

At the farmers' level, awareness is focused on decreasing water flow in rivers and in other water sources, temperature changes, and untimely flowering and fruiting of crops and horticultural products. Rise in insects and yield problems in agriculture production have been noticed but not necessarily attributed to climate change. The farmers are also not aware of government programmes or activities to address these issues.

In Sindhupalchowk district, there are nearly 1,200 NGOs registered, although only 50 are active, and 20 very active. Only six work in the environment sector. One, the Community Development and Environment Conservation Forum (CDECF), is working in the area of rights and agriculture, focusing mainly on sustainable land management. Farmers are encouraged to reduce the use of chemical fertilizers and farm organically. Its activities include landslide prevention, afforestation, distribution of improved cookstoves and promotion of a biogas programme in partnership with the district chapter of the Federation of Community Forest Users, Nepal (FECOFUN). That chapter, in turn, is promoting several activities related to adaptation, such as wildfire control, distribution of improved cookstoves, promotion of biogas, and improvement of blacksmith hearths to reduce consumption of firewood.

The WWF-Nepal, meanwhile, in partnership with the Water Energy Commission Secretariat (WECS), is implementing activities at the sub-basin level with an objective of reducing vulnerability through investment in biodiversity and economic activities for socio-economic development and environmental conservation. Its activities range from protection of red pandas to flood risk reduction. However, at the micro level, the formation of group and income-generating activities are the major focus at this stage. The formation of sub-basin committees as envisaged in the National Water Plan (2005) for river basin planning is also one of its activities; it is approaching the formation of sub-basin committee through these groups in contrast to the resource management stakeholder group. The District Development Committee, which is the coordinating office for the development programme at the district level, was found to be unaware of WECS/WWF activities.



8. From policy to action

The Government of Nepal has realized the need to address climate change and has formulated policies to do so, but much work remains to be done. Conversations with knowledgeable persons and stakeholders at various levels indicate that adaptation is still a new issue, and the processes and mechanisms to address it are still being developed. Therefore, there is a gap in understanding even at the policy level, very little understanding within local-level government agencies, and almost no understanding among ordinary people. This reflects a major communication gap, and a lack of information-sharing and coordination across levels of government. Nevertheless, there is a certain level of awareness within local institutions, thanks to the work of NGOs. The LAPA formulation process, for which the Ministry of Environment is setting up a support system with UK development aid, should also help raise awareness and lead to more successful adaptation efforts.

The policies and processes adopted in the forest, water and environment sectors reflect the situations that existed when they were formulated. However, a great deal of time has elapsed, at least in some cases, and in that time, conditions have changed. Public awareness may have increased; the government has changed repeatedly, and local-level government has become weaker. Nepal's dependence on support from bilateral and multilateral agencies has increased. And some policies have proven to be flawed and open to abuse, as shown by the accelerated deforestation under government ownership of the forests. Policy-makers in recent years have identified natural resource management, environmental protection and climate change adaptation and mitigation as priorities in the overall development of the country, but this is a relatively new phenomenon.



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Although some of the key policies reviewed here are not explicitly about climate change, it is clear that there are significant linkages: healthy forests, for example, can support better livelihoods and reduce vulnerability, and they can also support climate change mitigation – and attract climate finance. The National Adaptation Programme of Action explicitly envisions a role for community forest user groups in the design and implementation of adaptation actions. Yet the linkages are not always clear and direct; they depend on policies' priorities, focus, resource allocation and institutional mechanisms.

The approaches used to formulate these policies also offer lessons for adaptation. They combine top-down and bottom-up approaches. The Master Plan for the Forestry Sector, for example, was formulated with few consultations at the community level and was initiated on a pilot basis. This indicates that the planners had some reservations about community approaches. Therefore, the expansion took place after the success of the pilot programmes. The formulation of the Water Resources Strategy and National Water Plan was based on wider stakeholder consultation at various levels, as a participatory approach was seen as crucial. Therefore, water users, policy-makers, donors and implementers all have participated in the formulation of these documents.

Finally, the impacts of these policies vary – both because they are at different stages of implementation, and because of the characteristics of the policies themselves. Community forestry has been a particularly big success story in terms of participatory approaches to natural resource management. The WRS and NWP, meanwhile, have not yet made the expected impact, because their implementation has been delayed or incomplete. The NAPA is crucial for adaptation in Nepal, and includes many promising elements, including the focus on local-level planning and implementation and the engagement of a wide range of stakeholders. Climate change activities have received priority both in the international and national context; the next few years will show how well Nepal can translate these plans and ideas into action.



Photo Credit: John Soussan

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Annex 1: Institution and persons visited for the case studies

Institution visited	Location	Person	Remarks
Mahankal Village Development Committee office	Galthum, Patichour	Kumar Koirala	Village Development Committee Staff
		Tara Bahadur Karki	Local farmer
Gauri Ganesh rice mill	Mahankal Village Development Committee-9, Sera	Raj Kumar Lamichhane	Owner of the mill
		Samir Lamichhane	
Previously: Pratham Handikhola Laghu Jalbiddhut project Now: Handikhola Pratham Laghu Jalbiddhut Cooperative	Thanpalchhap	Dhan Bhadur Basnet Hut Raj Khadka	Chairman Member
Phaltung Khola Jal biddhut Yojana	Makani	Bikash Lamichhane	Staff
District Development Committee	Sindhupalchowk Chautara	Mr. Upreti Prem prakash	LDO
District Agriculture Development Office	Sindhupalchowk Chautara	Mr. Tiwari Dinesh	DADO
District Forest Office	Sindhupalchowk Chautara	Mr. Pathak Pramod	Forest officer
WECS	Sindhupalchowk Chautara		
CDECF Local NGO	Sindhupalchowk Chautara	Mr. Sapkota Madhu	Chairman
Ministry of Environment	Sing Durbar	Mr. Ghimire Purushottam	National project director
		Mr. Sharma Naresh	Senior Agri economist
		Mr. Rijal Deepak	National Facilitator CADP-N
WECS	Kathmandu	Dr. Ravi Sharma Aryal, Mr. Gautam Rajkarnikar, Mr. Sanjay Dhrungel	Senior Officials of WECS





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