Safeguarding the future, securing Shangri-La

Integrating environment and development in Nepal, achievements, challenges and next steps

Ram B. Khadka, Barry Dalal-Clayton, Ajay Mathema and Pujan Shrestha

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April 2012

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It was hosted by the Nepal Environmental Mainstreaming Initiative Steering Group: Ministry of Local Development (Chair), National Planning Commission, Ministry of Environment, UNDP/ UNEP Poverty-Environment Initiative – Nepal, AEMS, Pokhara University and IIED.

Disclaimer: Views in this paper constitute a broad (but not always complete) consensus amongst the authors in their independent capacities and are not necessarily the views of their organisations, or of AEMS or IIED.

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Environmental mainstreaming retreat workshop, Pokhara, 20-22 October 2011

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Acronyms

ACA	Annapurna Conservation Area
ACAP	Annapurna Conservation Area Project
ADB	Asian Development Bank
AEMS	Asian Centre for Environmental Management and Sustainable Development
CAMC	Conservation Area Management Committee
CEAPRED	Centre for Environmental and Agricultural Policy Research, Extension & Development
CFUG	Community Forestry User Group
CITES	UN Convention on the International Trade in Endangered Species of Wild Fauna and Flora
CPEIR	Climate Public Expenditure and Institutional Review
DANIDA	Danish International Development Agency
DDC	District Development Committee
DFID	UK Department for International Development
ECCA	Environmental camps for conservation awareness
EIA	Environmental Impact Assessment
EISP	Environmental Impact Study Project
EM	Environmental mainstreaming
ELLG	Environmental mainstreaming learning and leadership group
ENP	European Neighbourhood Policy
ENPHO	Environment and Public Health Organisation
EPA	Environmental Protection Act
EPC	Environmental Protection Council
EPR	Environmental Protection Regulations
ESPS	Environmental Sector Programme Support
FECOFUN	Federation of Community Forestry Users
FNCCI	Federation of Nepali Chambers of Commerce and Industry
FYP	Five Year Plan
GDP	Gross Domestic Product
GIS	Geographical Information System
GoN	Government of Nepal
ha	Hectare
ICIMOD	International Centre for Integrated Mountain Development
IEE	Initial Environmental Examination
IIED	International Institute for Environment and Development
IUCN	International Union for Conservation of Nature
KMTNC	King Mahendra Trust for Nature Conservation (now NTNC)
KWh	Kilowatt hours
L	Litre
LAPA	Local Adaptation Plans for Action (for climate change)
LIBIRD	Local Initiatives for Biodiversity, Research and Development
MDG	Millennium Development Goals
MFSC	Ministry of Forest and Soil Conservation
Mkcal	Million kilocalories
MoLD	Ministry of Local Development
MoEnv	Ministry of Environment
MoICS	Ministry of Industry, Commerce and Supplies
MoPE	Ministry of Population and Environment (dismantled in 2004)
MT	Metric ton

MPPW	Ministry of Physical Planning and Works
NAPA	National Adaptation Programme of Action (for climate change)
NARC	Nepal Agricultural Research Centre
NAST	Nepal Academy of Science and Technology
NBSM	National Bureau of Standards and Metrology
NCDC	Namsaling Community Development Centre
NCS	National Conservation Strategy
NCS/IP	National Conservation Strategy Implementation Programme
NEFEJ	Nepal Forum of Environmental Journalists
NEPAP	Nepal Environmental Policy and Action Plan
NGO	Non-governmental Organisation
NPC	National Planning Commission
NTNC	National Trust for Nature Conservation
OECD	Organisation for Economic Cooperation and Development
PEER	Public environmental expenditure review
PEI	Poverty-Environment Initiative (of UNDP/UNEP)
PRSP	Poverty Reduction Strategy Paper
RAMSAR	UN Convention on Wetlands of International Importance
RCNP	Royal Chitwan National Park
SchEMS	School of Environmental Science and Management
SEA	Strategic Environmental Assessment
SDAN	Sustainable Development Agenda for Nepal
STI	Science, Technology and Innovation
ToR	Terms of reference
UNCED	UN Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNIDO	United Nations Industrial Development Organisation
VDC	Village Development Committee
WCED	World Commission on Environment and Development
WCS	World Conservation Strategy
WWF	World Wide Fund for Nature

Foreword

Nepal is a country with abundant natural assets – beautiful scenery, especially the spectacular Himalayan mountains, extensive forests, Terai plains, rich biodiversity, fertile soils in the lowlands and water, and it has a very diverse ethnic and cultural heritage. Together these attributes provide a strong platform for sustainable development. They offer potential for income, livelihoods, health and security. Our rich resources underpin our economy. They have made Nepal a well-known tourism destination with a distinct image of its own and provide the platform for "Welcome Nepal – Tourism Year 2011" – a three year programme to promote the tourism sector of Nepal internationally.

But is our nation benefitting fully from its environmental assets? And have the development paths we have been pursuing helped to generate and release the financial resources, human skills, infrastructure and technologies that we need to ensure that such environmental benefits can be sustained in the future? Nepal suffers from the pervasive degradation of its environment and there is widespread poverty. The underlying causes are complex and inter-related. They need to be tackled together, but to what extent have we addressed this challenge?

As we begin to emerge from a period of conflict and political stalemate, we have a real opportunity to start building Nepal on a sustainable footing. But we must stop the widespread abuse, erosion, degradation and pollution of our environment and, instead, safeguard and manage it wisely so that, together, all Nepalese can benefit from our natural resources and build a better future. In this way, we can steer Nepal away from its current unsustainable path and build towards a Nepali Shangri-La.

To achieve this aim, we must stop paying lip service to the environment and commit to ensuring that it is at the centre of our development planning and decision-making, and all our actions.

This report is built on evidence and perspectives shared at a recent workshop on environmental mainstreaming. The workshop brought together a group of very experienced Nepali professionals who are engaged in environment and development work in a range of contexts (government, business, civil society and academia). The evidence they present in this extremely valuable report makes a compelling case for change and underpin a number of recommendations which will help us all to change the way we perceive the environment, decide on how we manage it, and plan for the future.

His Excellency Parmanand Jha
Vice President
Federal Democratic Republic of Nepal

Preface

Nepal is now preparing for Rio+20, the 2012 United Nations summit to assess progress towards sustainable development, where a key theme will be green economy and what this means for all countries. For Nepal to transition to a green economy we will have to think beyond just investing in green (low carbon) technology. We must start investing in managing more effectively the natural resources which underpin our economy and the livelihoods of our people. To do this means that we must put the environment at the centre of our planning and decision-making processes at all levels.

This report is therefore very timely. It reviews our experiences in mainstreaming the environment over the past 20 years and provides case examples of approaches that have worked and have potential for scaling up. It looks at what has driven these approaches and what are the main constraints to progress, and provides a set of important recommendations that we should all consider seriously.

The analysis provided by the Environmental Mainstreaming Learning and Leadership Group is wide-ranging, illustrating clearly the challenges we face and ways to overcome them. This report will help to sensitise government, private sector and civil society stakeholders about the importance of the environment. It provides a solid platform of ideas for reorganising the way we address the environment, and an agenda for research and action. It should be key reading for all officials and developers who want to know why the environment matters and why we need to take it seriously in our development decisions.

Prof Khagendra P. Bhattarai
Vice-Chancellor, Pokhara University

How this report was prepared

In the Foreword, questions are asked about how environment has been addressed in Nepal's development and how the inter-relationships between environment and poverty have been dealt with. Such questions are the essence of 'environmental mainstreaming' – putting environment at the heart of development decision-making. But answering them is not easy, especially when data is limited.

In response to this challenge, Pokhara University, the Asian Centre for Environmental Management and Sustainable Development (AEMS) and the International Institute for Environment and Development (IIED) launched an Environmental Mainstreaming Initiative in May 2011. As a first step, a high-level Steering Committee was formed. Its members include the Ministry of Local Development (Chair), National Planning Commission, Ministry of Environment and UNDP/UNEP Poverty-Environment Initiative (PEI-Nepal) together with Pokhara University, AEMS and IIED.

The Steering Committee felt that a good starting point to answering the difficult questions posed in the Foreword was to bring together a diverse group of environmental experts and champions to share their wide range of experience and perspectives on environmental mainstreaming. This group would act as a national Environmental Mainstreaming Learning and Leadership Group (ELLG). This model has worked well in a range of other countries where IIED has partnered with local organisations to address the challenges of environmental mainstreaming (see www.environmental-mainstreaming.org).

Accordingly, the Steering Committee invited 15 highly experienced Nepali professionals who work on environment and development in a range of contexts (government, business, civil society and academia) to form an ELLG; and to participate, with a number of observers, in a first national environmental mainstreaming workshop in Pokhara on 20-22 October 2011.

To help focus attention, participants received in advance a short background report prepared by AEMS, reviewing the main elements of Nepal's experience of environmental mainstreaming over the past two decades.

The retreat workshop aimed to review how environment and development have been linked over the years in Nepal. It was facilitated by IIED, an independent policy research organisation based in London.

The opening session involved background presentations on international experience of environmental mainstreaming and a summary of the main experiences in Nepal, which had been set out in the background report. Following this, participants engaged in an initial discussion of links and disconnects between environment and development amongst development actors and their agendas. This was followed by group mapping of the institutions, individuals and other factors that drive environmental mainstreaming in Nepal. A number of case studies were then presented and discussed, covering a variety of different initiatives that have aimed to mainstream the environment in Nepal (discussed in section 3):

- Environmental impact assessment (EIA)
- Conservation area management in the Annapurna area
- National Conservation Strategy
- Industry and energy efficiency
- National and Local Adaptation Programmes of Action (for Climate Change) (NAPA/LAPA)

- Education
- Community forest management
- Environmental management system (EMS)
- Public environmental expenditure review (PEER)
- Indigenous and religious practices
- Science, Technology and Innovation Initiative (STI)

Participants went on to a roundtable discussion of a range of other experiences of mainstreaming and the factors that helped or inhibited their success. The next step was to consider the constraints or blockages to progress in environmental mainstreaming. Finally, the workshop reached broad consensus on a number of recommendations and follow-up actions (section 6). The material from the above exercises has been organised into this small volume.

The result of the above process is a positive, lessons-learned approach – a reflection which the group believes is very timely, and can help the country plan and manage its development sustainably as new opportunities emerge following the constitutional agreement recently reached.

A key outcome was the consensus reached on what environmental mainstreaming means in Nepal (see Box 1).

[Box 1] Defining environmental mainstreaming

Organisations and individuals interpret the concept of environmental mainstreaming in different ways. In part, this reflects the fact that environment is a crosscutting issue and views differ about how best to address environmental concerns. The UNDP-UNEP Poverty and Environment Initiative (PEI) interprets environmental mainstreaming specifically in terms of "integrating poverty-environment linkages into national development planning processes and their outputs, such as poverty reduction strategy paper (PRSPs) and Millennium Development Goal (MDG) strategies.[1] The workshop felt it important to define environmental mainstreaming in terms relevant to Nepal. Building on a definition used by IIED (based on international experience), by adding a cultural dimension, participants agreed the following interpretation:

'Environmental mainstreaming is the informed inclusion of relevant environmental concerns into the decisions of institutions that drive national, local and sectoral development policy, rules, plans, investment and action.

It should aim to promote a positive attitude to the environment and defend traditional values and cultural norms that work to conserve and sustain environmental assets'.

We suggest that an urgent next step will be to set priorities for environmental mainstreaming in Nepal. In doing this, we stress the need to garner the views of the main groups of government and non-government stakeholders, ensuring that the poor and the marginalised are included. The recommendations we suggest aim to plug some existing gaps that clearly constrain progress. They will provide a platform of initial actions that will help to engage a wide range of actors in debate on the issues; start building environmental awareness, skills and capacity; continue sharing experience; harness knowledge and information for environmental mainstreaming; and take steps to enable institutions to work in an integrated way to tackle environmental problems.

We acknowledge with thanks the guidance of the Steering Committee in planning the workshop, the support of AEMS and IIED in organising the event, and the financial support of IIED and UNDP/UNEP PEI.

[1] Dalal-Clayton & Bass, 2009

Views in this paper constitute a broad consensus amongst the authors in our independent capacities and are not necessarily the views of our organisations. The author's backgrounds are summarised below.

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Other participants and observers

In alphabetic order by surname:

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Executive summary

Nepal is a country with abundant natural assets – beautiful mountain scenery, abundant forests, water, biodiversity and fertile soils. The country is renowned for its diverse ethnic and cultural heritage. All of these attributes provide the basis for the economy and people's livelihoods, and securing the sustainable development of the country. Yet this potential is being seriously undermined by the rapid degradation of Nepal's natural resource base. There is extensive deforestation, soil erosion, and loss of the country's rich biological diversity, with valuable plant and animal species under constant threat. Pollution of land, rivers and water bodies is widespread.

In response to this serious challenge, a detailed analysis has been undertaken of Nepal's practices to date in addressing environmental concerns and incorporating them in decision-making. In addition, a workshop on environmental mainstreaming was held in Pokhara in October 2011. This brought together a group of highly experienced Nepali professionals and opinion-formers who work on environment and development in a range of contexts (government, business, civil society and academia) and a number of observers. It was organised by the Asian Centre for Environmental Management and Sustainable Development (AEMS) and facilitated by the International Institute for Environment and Development (IIED). Participants defined environmental mainstreaming in Nepal as:

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Iconic Mount Everest

'The informed inclusion of relevant environmental concerns into the decisions of institutions that drive national, local and sectoral development policy, rules, plans, investment and action. It should aim to promote a positive attitude to the environment and defend traditional values and cultural norms that work to conserve and sustain environmental assets.'

The report first reviews environment-development links, initiatives and institutional arrangements in Nepal. It then presents a set of brief case studies reflecting Nepal's efforts to date to mainstream the environment in development planning and decision-making. These range, for example, from the development of the country's Conservation Strategy (in 1988) – which led to the introduction of environmental impact assessment (EIA) – to the establishment of the Annapurna Conservation Area Project (ACAP), to efforts to address environment and energy efficiency in the industrial

Fertile lowland terraces

sector, to introducing environment in educational course, to the uptake of community forest management, and, more recently, the development of National and Local Adaptation Plans of Action (for Climate Change) (NAPA/LAPA).

The main drivers and constraints to environmental mainstreaming in Nepal are examined, to provide an explanation of the progress made to date and the issues that need to be addressed. Lessons are derived on successful environmental integration in Nepal's development.

The workshop reached broad consensus on a number of recommendations and suggested follow-up actions, which are summarised below.

Main recommendations

- We urge that a concerted effort is made to agree priorities for environmental mainstreaming in Nepal, taking into account the views of the main groups of stakeholders, particularly the poor and the marginalised (who often lack a voice).
- Support the Committee on Natural Resources, Economic Rights and Revue Allocation Committee of the Constituent Assembly to ensure that the 'environmental rights' of people are enshrined in the preamble, and in an article, in the new constitution of Nepal.
- Develop an organised knowledge base on environment-development linkages, initiatives and lessons.
- Establish a Sustainable Development Council as a multi-stakeholder forum.
- Formulate an holistic environmental policy by updating and integrating existing/new policies.
- Start to apply strategic environmental assessments (SEA) to policies, plans and programmes.
- Promote sustainable public procurement.
- Regularise public environmental expenditure reviews.
- Organise a regional conference on environmental mainstreaming for a green economy.
- Maintain the current Environmental Mainstreaming and Learning Group (ELLG) and inter-ministerial Steering Committee (for Environmental Mainstreaming).
- Enhance the capabilities of individuals and institutions in Nepal to mainstream the environment. Environmental mainstreaming and innovation will only take root when local institutions and communities recognise it as both a need and a benefit and accept it as a regular part of community activities and institutional programmes.
- Enhance environmental education and training.
- Create an 'environment service group' within the public service commission system for environmental graduates to further their careers in government agencies.
- Encourage the media and artists to be more proactive in championing environmental issues.

It is hoped that these recommendations will help Nepal to plan and manage its development sustainably.

[1] Brief review of environment-development links, initiatives and institutional arrangements in Nepal

Over the last few decades, most nations have made a string of commitments to address environmental concerns in development decision-making, through commitments made in international forums. But in practice, their efforts to integrate the environment policy into development planning and development initiatives have achieved limited success. It is evident across the world that environmental problems are getting worse, not better. Most, if not all, major international indicators continue to track negatively.

Nepal has also expressed its commitment to address environmental concerns and has already implemented a range of initiatives. These are evident in the country's policies, laws and institutional arrangements, as well as in projects and plans. They have been mainly focused on:

- restoration or prevention of land degradation, for example through afforestation programmes to prevent forest degradation and minimise erosion and land slide hazards, or pollution control to prevent health hazards amongst the population;
- management of environmental impacts of development works through institutionalisation of the Environmental Impact Assessment (EIA) system; and
- rational utilisation of environmental assets for economic development.

Despite these efforts, however, Nepal's environmental indicators are yet to improve.

The natural resource base is degrading rapidly. There is extensive deforestation, soil erosion and loss of the country's rich biological diversity, with valuable plant and animal species under constant threat. Pollution of land, rivers and water bodies is widespread. The wilful and careless disposal of waste in public areas is evident everywhere. A rising problem is the discarding of plastic water bottles and jars – even in remote rural areas. There are also cross-border problems, such as air pollution emanating from India. All this suggests that it is time to review the country's environmental mainstreaming initiatives and to make a committed effort to influence the behaviour of organisations and individuals.

Land degradation – disturbed slope due to road construction (Bajang District)

Hill slope eroding after being denuded of vegetation (Bajhang district)

Poverty is widespread among the Nepalese. Nepal is one of the least developed countries in the world and the poorest in South Asia. Estimated per capita income is US$562 with a gross domestic product (GDP) at 3.53 per cent.[2] The majority of the country's population (almost 28 million) is poor, with 30 per cent of Nepalese living below the poverty line of US$ 12 per person per month. Rural impoverishment and internal conflict resulted in massive migration to Kathmandu during the 1970s, 1980s and especially the 1990s, resulting in uncontrolled growth of the city and rising pollution problems. Many settled near rivers, extracting construction materials and affecting river ecosystems.

Tent slum in Kathmandu

Nepal's rugged terrain limits utilisation of much of its land. Only 27 per cent of the country is potentially arable and only 20 per cent is under cultivation.[3] On the one hand, widespread poverty implies continued pressure on the existing natural resource base, leading to its further degradation. On the other hand, the deteriorating environmental and natural resource base will contribute to further poverty, as people find it more and more difficult to meet their basic resource needs in a sustainable manner.

'Harvesting' rocks from the Rapti river for construction

Given this intertwining of environmental degradation and poverty, there is an urgent need to strengthen initiatives to mainstream environmental concerns into the country's development process to achieve sustainable use of existing environmental and natural resources.

[1.1] International influences

Since the 1960s, the international community has recognised that population growth, resource consumption and technological advances are leading to the degradation of environmental resources. In response, a series of treaties, conventions and agreements have been enacted, seeking to establish an international moral and legal framework, and standards and norms for sustainable development. To date, Nepal is a signatory or party to 21 such environment-related conventions. Some of the more important ones are listed in Table 1.

In 1972, the UN Conference on the Human Environment called upon all member countries and peoples to exert common efforts to preserve and improve the human environment for the benefit of all the people and for their prosperity. In response, Nepal included environment aspects in the 6th Five Year Plan (1980-85) for the first time in the country's planning history.

[2] CBS, 2011
[3] LRMP, 1986

In 1980, IUCN published the '*World Conservation Strategy*' (WCS), calling on all countries to develop a National Conservation Strategy (NCS). In Nepal, this initiative stimulated the integration of a national policy on environmental management in the 7th Five Year Plan (1985-90). The plan incorporated a number of policy statements relating to environment and land use. Emphasis was also put on the importance of public participation in decision-making and on the role of women and non-governmental organisations in environmental management. It also prioritised fulfilling the basic needs of the Nepalese and maintaining natural resources for balanced development. In 1988, the government translated the concept of WCS for Nepal by adopting and endorsing the NCS and the '*Master Plan for the Forestry Sector*', which emphasise the wise use, protection, preservation and restoration of natural resources.

In 1987, the World Commission on Environment and Development (WCED) submitted a report entitled, '*Our Common Future*' to the UN. This discussed the importance of ecosystems as a resource for development and defined the concept of sustainable development. Subsequently, in 1991, a revision of the World Conservation Strategy was published by IUCN, WWF and UNEP entitled, '*Caring of Earth, A Strategy for Sustainable Living*'. This report combined analysis with a plan of action, defining the principles of a sustainable society and recommended actions required for its achievement, including the need for national frameworks to integrate development and conservation and strategies for sustainability.

These international initiatives instigated a new vision for the formulation of the national environmental policy in Nepal. The 8th Five Year Plan (1992-97) reinforced environmental management policies with specific reference to sustainable economic growth and poverty alleviation. It emphasised the need to internalise the environmental impact assessment (EIA) system, improve legislative measures, conserve natural resources and promote environmental education. The plan introduced the concept of 'environmental governance' in Nepal.[4]

The UN Conference on Environment and Development (UNCED), held in 1992 in Rio de Janeiro, discussed both existing and emerging environmental issues, including the issues of sustainability and international responsibility/cooperation. Its principle accord, *Agenda 21*, provided an operational guide for moving towards sustainable development. Nations also signed two legally binding conventions on climate change and biodiversity.

Nepal has adopted its international commitments in the form of various national policies and strategies, for example:

- The Nepal Environment Policy and Action Plan (NEPAP) (1993) facilitated integration of environment considerations in the development process, adding a sustainability dimension.[5]
- The 9th Five Year Plan (1997-2002) emphasised sustainable resource management and institutional strengthening of line ministries to facilitate their environmental functions.[6]
- The Nepal Biodiversity Strategy.[7]
- The Sustainable Development Agenda for Nepal (SDAN) (2003) has been translated as policy guidelines in the Three Year Plan (2007/08-2009/11).
- A National Policy on Climate Change has been prepared to minimise its negative impacts. The government launched the National Adaptation Programme of Action (NAPA) in September 2010.[8] Efforts to benefit from the carbon trade through securing a return from clean energy development have already been initiated under the Kyoto Protocol.

[4] NPC, 2008
[5] EPC, 1993
[6] NPC, 1996
[7] MOFSC, 2002
[8] MOEnV. 2010

[Table 1] Nepal's international environmental commitments and their status

International commitment	Purpose	Major obligation	Status in Nepal
Ramsar Convention, 1971	To prevent the loss of wetlands.	Parties should designate at least one national wetland and ensure conservation and sustainable use of migratory stocks of wildfowl.	■ Nepal ratified it on 17 April 1988, and National Wetland Policy 2003 was formulated as a part of 10th FYP. ■ 9 Wetland sites are included as Ramsar sites in Nepal.
UNESCO Convention for the Protection of the World Cultural and Natural Heritage – World Heritage Convention, 1972	To protect cultural and natural heritage of universal value.	To ensure implementation of effective measures for the protection, conservation and preservation of national cultural and natural heritage.	■ Nepal acceded it on 1978. ■ Two cultural sites (Kathmandu Valley 1979 and Lumbini 1997) and two natural sites (Chitwan National Park 1984 and Sagarmatha National Park 1979) declared as the UNESCO world heritage sites. ■ The concept has been adopted by NEPAP 1993 and 10th FYP.
Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973	To protect and regulate the trade of wild fauna and flora and their products.	All species threatened with extinction should be legally protected with appropriate measures and trade regulated.	■ Acceded on 18 June 1975, entered into force since 16 Sept 1975. ■ CITES is adopted by different legislation to prevent trade of endangered species – National Parks and Wildlife Conservation Act, Forest Act, Environmental Protection Act 1996, Custom Act, Export Import (Control) Act, police Act, Postal Act, Plant Protection Act, and Aquatic Life Protection Act.
UN Convention on Biological Diversity, 1992	To ensure conservation, sustainable use, and equitable sharing of benefits of biological diversity.	To prepare and implement national strategies, plans, and programmes, including a national biodiversity action plan, for the conservation of biodiversity under both in situ and ex situ conditions.	■ Signed on 12 June 1992, ratified on 23 Nov 1993, and entered into force on 21 Feb 1994. ■ Nepal Biodiversity Strategy approved by GoN in August 2002.
UN Framework Convention on Climate Change 1992	To stabilise greenhouse gas concentration in the atmosphere within a timeframe.	Adopt precautionary measures to minimise or prevent the release of greenhouse gases and mitigate the effects of climate change.	■ Signed on 12 June 1992, ratified on 2 May 1994, and entered into force on 31 July 1994. ■ Nepal prepared a National Adaptation Programme of Action (NAPA) (2010) identifying priority activities that respond to their urgent and immediate needs to adapt to climate change. ■ The government formulated a Climate Change Policy (2011).

[1.2] Nepal's National Periodic Plans and climate change

Planned development in Nepal began with the first Five Year Plan (FYP) in 1956. Since then, ten periodic national development plans have been implemented – one for three years (1962-1965), the others for five years each. These plans are formulated by the National Planning Commission (NPC), the agency responsible for all socio-economic development planning in Nepal. The concept of 'environment' and its protection has slowly evolved in the context of national planning and with the endorsement and ratification of various international treaties and conventions (described in the previous section). Several initiatives aimed at mainstreaming the environment have been undertaken through successive National Periodic Plans (Table 2).

[Table 2] Major environmental mainstreaming initiatives in Nepal's Periodic Plans

Periodic Plan	Duration	Major environmental mainstreaming initiatives
1st FYP	1956-1961	■ Forest Nationalization Act 1957.
2nd FYP	1962-1965[9]	■ Preparation of forest management plan for selected districts, forestation, forest demarcation, and promotion of forest-based industries.
3rd FYP	1965-1970	■ Sedimentation and water flow measurements in Terai. ■ Master Plan for Drinking Water and Sewerage in Kathmandu Valley, and emphasis on water quality.
4th FYP	1970-1975	■ National and sectoral policies related to environment. ■ Agricultural land delineation. ■ Soil and land use surveys. ■ Watershed conservation in some areas.
5th FYP	1975-1980	■ Emphasis on ecological balance. ■ Conservation of national forests and wildlife. ■ Reduction of urban pollution. ■ Promotion of ecotourism. ■ Encouragement of women's participation in environmental activities.
6th FYP	1980-1985	■ Initiation of environmental impact studies of development projects. ■ Watershed management activities. ■ Regulations on urban environment. ■ Environmental aspects included in land use policy.
7th FYP	1985-1990	■ Introduction of environmental-friendly policies and integrated environmental management. ■ Emphasis of participation of private sector, NGOs, women and civil society in environmental management. ■ National Conservation Strategy (NCS), 1988. ■ Master Plan for Forestry Sector, 1988.
8th FYP	1992-1997[10]	■ Environment management policies integrated with sustainable economic development and poverty reduction. ■ Establishment of Ministry of Population and Environment (MOPE). ■ Preparation of EIA Guidelines, improvement of legislative measures. ■ National Environmental Policies and Action Plan (NEPAP). ■ Inclusion of environmental aspects in hydropower, irrigation and industrial development policies. ■ Environmental Protection Act (EPA).

[9] Due to the political change in the country, the second plan was introduced only in 1962, and covered only three years between 1962 and 1965.
[10] The political change occurred in 1990, which caused delay in the introduction of the 8th FYP for two years.

9th FYP	1997-2002	■ Environmental Protection Regulations (EPR). ■ Sustainable resource management principles (Agenda 21). ■ Community-based forestry programmes initiated. ■ Institutional strengthening of line ministries. ■ Environmental standards on air, water pollution and industrial effluents enforced. ■ Legal provisions for national resource conservation and management. ■ Programmes for water pollution control, environmental conservation, forest management and supply of forest products. ■ Involvement of civil society in municipal waste management. ■ Participatory environmental education initiated. ■ Emphasis on training and research programme on environment. ■ Development of environmental management information system. ■ Introduction of market-based instruments for forestry management.
10th FYP	2002-2007	■ Long-term goals of environmental management with better governance, pollution control and sustainable use of national resources introduced. ■ Emphasis on links between environment and economic development, and internalisation of environmental concerns into development plans and programmes. ■ Implementation of national environmental standards. ■ Implementation of provisions of international environmental conventions, policies for capacity development of local institutions in environmental management. ■ Promotion of women's participation in environmental management at all levels. ■ Research on environmentally friendly technologies. ■ Legal and fiscal mechanisms for controlling industrial pollution introduced. ■ Adoption of appropriate strategies and working policies. ■ Introduction of natural disaster management policy.
Interim Plan I	2007-2010	■ Maintain a healthy environment by making environmental management effective and attain sustainable development through wise use of natural resources. ■ Emphasis on conservation of natural environment, rehabilitation and sustainable use; and implementation of water, air and noise pollution reduction methods. ■ Implementation of the country's international commitments and conventions, treaties and agreements to which Nepal is a party; and promotion of Clean Development Mechanism projects. ■ Strengthening environmental good governance and local bodies, and implementation of environmental management works. ■ Clarification of the role and responsibility of various agencies involved in institutional development for environmental management; and making infrastructure related development works environment-friendly.
Interim Plan II	2010-2013	■ Institutionalisation of EIA, and initiation of NAPA action programmes. ■ Strengthening of mechanism for environmental policy and rules, and capacity-building. ■ Integrating environmental management with development activities. ■ Implementation of international conventions related to environmental management. ■ Public awareness and precautionary programmes (related to environment).

Though environmental resources such as forests, water and soil were addressed from the beginning, the term "environment" (covering natural resources and life support systems) was first introduced only in the 6th FYP (1980-85).

The 7th FYP (1985-90) provided for the preparation of two fundamental documents, which provided a strong foundation for environmental management works in Nepal:

- The National Conservation Strategy (1988) was a significant attempt to formulate a national environmental policy framework for the country. It paved the way for a series of policy pronouncements and programmes: establishment of the EIA system; initiation of environmental education at all levels; preservation and restoration of heritage sites; and provision of a solid foundation for environmental planning.

- The Master Plan for the Forestry Sector (1989) presented a 25-year policy and plan. It provided a framework for forestry management, introducing community forestry practices, mainly in the hilly regions and degraded forest areas of Nepal.

The 8th FYP (1992-97) saw the introduction of concrete actions for environmental protection, through the development of clear environmental policies; implementation of national environmental legislation; development of environmental action plans; and introduction of mandatory environmental assessment for infrastructure projects. In 1993, the Nepal Environmental Policy and Action Plan (NEPAP) was formulated – the first programme to comprehensively articulate environmental policies. NEPAP analysed the country's environmental issues in a multi-sectoral framework. It set forth a strategy for maintaining Nepal's natural environment, the health and safety of its population and its cultural heritage as economic development progresses.[11]

The Industrial Policy 1992 was also formulated under the 8th FYP. It emphasised measures to minimise adverse impacts on the environment during the establishment, expansion and diversification of industries. The policy opened avenues to formulate guidelines and standards to check and minimise adverse effects of pollution associated with industrial growth.[12] [13] Nepal's period plans also paved the way to set up institutions for undertaking environmental protection activities. The Ministry of Environment (then the Ministry of Population and Environment, MOPE) was established in September 1995.[14] following which a substantial number of environmental laws and regulations were developed.

During the 9th FYP (1997-2002), various environmental standards on air, water pollution and industrial effluents were enforced. The Environmental Protection Act 1997 and Environmental Protection Regulation 1998 are the two major pieces of legislation for protecting the environment and controlling pollution. These instruments made environmental assessment in the form of Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE) mandatory for major development works. With the enforcement of environmental legislation, the line agencies adapted policies incorporating the EIA system:

- National Solid Water Management Policy 1996[15] [16]
- Hydropower Development Policy 2001[17] [18]

[11] EPC, 1993
[12] MOI, 1992.
[13] ADB, 2006
[14] MoEnv, 2010
[15] MOLD, 1996
[16] ADB, 2006
[17] MOWR, 2001
[18] ADB, 2006

- Nepal Biodiversity Strategy 2001[19 20]
- The Irrigation Policy 1993 (revision 1997)[21]
- Water Resources Strategy 2002[22 23]
- National Agricultural Policy 2004[24]

The 10th FYP (2002-07) gave high priority to integrating environmental concerns into programme implementation and included actions to introduce more effective environmental management and monitoring systems. The 10th Plan also introduced the concept of Strategic Environmental Assessment (SEA). The process still needs to be properly institutionalised, however. Despite the absence of a legal requirement for SEA in Nepal, the Water Energy Commission of Nepal decided voluntarily to apply SEA to the draft National Water Plan in order to ensure it was environmentally sound and sustainable, and to satisfy the donor's requirements. The SEA was based on secondary sources of information and an extensive public consultation with some field verification.[25]

The Sustainable Development Agenda for Nepal, 2003, prepared by the National Planning Commission, defines sustainable development for Nepal and opportunities and broad goals covering the period to up 2017. The document begins by describing the pathways forward, detailed objectives and sets out the necessary government policies. The agenda draws upon and conforms to the long-term goals envisaged in the 9th FYP (1997-2002), 10th FYP (2002-07), the Millennium Development Goals and the Poverty Reduction Strategy Paper (PRSP), and commitments made by the country in various international forums.

Nepal is particularly vulnerable to the impacts of climate change and efforts are being made to mainstream climate mitigation and adaptation into development planning. In 2010, Nepal adopted a National Adaptation Programme of Action (NAPA) for climate change, which identifies priority activities that respond to their urgent and immediate needs to adapt to climate change. In 2011, the government endorsed the Climate Change Policy. This aims to improve livelihoods by mitigating and adapting to the adverse impacts of climate change, and adopting a low-carbon emissions socio-economic development path.

The Interim Plan I (2007-10) and Interim Plan II (2010-13) were prepared to address issues specific to the transitional period following the end of conflict in the country, whilst also providing continuity to previous achievements. These plans particularly emphasised increasing public expenditure to assist relief and generate employment, as well as peace-building, reconstruction, rehabilitation, reintegration, inclusion, and revitalisation of the economy. The plans also included components concerning environmental management and climate change, however. During the period covered by these two plans, the aim is to internalise environmental impact assessment work, as specified by environment law, in order to embed environmental management with development works. In its 'approach paper' to the preparation of these plans, the Ministry of Environment (MoEnv) highlighted the lack of inter-agency coordination.[26]

[19] MOFSC, 2002
[20] ADB, 2006
[21] MOWR 1193 (revised 2007)
[22] WECS, 2002
[23] ADB, 2006
[24] MOAC, 2004
[25] Shrestha & Mall, 2004
[26] The Ministry was created in 1995 but still has limited capacity to handle the large range of functions it is responsible for: pollution, renewable energy, meteorology and hydrology, environmental impact assessment and climate change (a Division on Climate Change Management was established recently). The MoEnv therefore seeks to work in collaboration with various other agencies, such as the Ministry of Agriculture, the Ministry of Health, the Ministry of Local Development, and with various academic institutions. In new projects such as PPCR (Pilot Programme on Climate Resilience), special emphasis has been put on capacity-building, including that of the MoEnv.

[1.3] Institutional set up for environment undertakings

Over the years, several national, local, non-governmental and private sector institutions, operating at various levels, have played important roles in designing and influencing environmental performance in Nepal.

[1.3.1] Governmental institutions (national and local)

The first body with responsibility for environment issues in Nepal was the Environmental Division, established within the National Planning Commission (NPC) in 1987. It was given responsibility for overseeing and coordinating inter-sectoral activities related to planning, programme budgeting and the monitoring of environment-related actions.

A Parliamentary Committee on Environment was formed in 1990 to advise the House of Representatives in the areas of environment, forests, soil conservation, industry, housing and physical planning. As a legislative body, the Committee had authority to issue directives for actions on environmental protection. Subsequently, an Environmental Protection Council (EPC) was established in 1992, as a high-level national body under the chairmanship of the Prime Minister, and with representatives from various sectors. It role was to provide guidance on the formulation of environmental policies and on the management of natural resources.

An important step towards prioritisation and integration of environment across other sectors was the establishment in 1995 of the Ministry of Population and Environment (MOPE). It was the focal point for actions related to environmental conservation, pollution prevention and control and conservation of national heritage. It was also the focal point for the preparation of legislation, regulations and guidelines and for the effective implementation of commitments expressed in regional and international levels. MOPE was dismantled in 2004 and its Division of Environment relocated within the Ministry of Science and Technology – renamed as the Ministry for Environment, Science and Technology. A stand-alone Ministry of Environment was finally formed in 2009 under the Regulation of Government of Nepal (Work Division, Second amendment). Currently the ministry's overall aim is to promote the sustainable development of the country through environmental protection.

Apart from the Ministry of Environment, various other line agencies and local bodies also have responsibility for environmental management, for example:

- The National Planning Commission (NPC) is the advisory body for formulating development plans and policies and is responsible for allocating resources for development plans, polices and programmes related to the environment.
- The Ministry of Forest and Soil Conservation (MFSC) is involved in planning, policy formulation and monitoring of forest and soil conservation related programmes including wildlife and biodiversity conservation.
- The Ministry of Irrigation and the Ministry of Energy are responsible for the conservation, regulation and utilisation of water resources for various purposes such as irrigation and energy development.
- The Ministry of Industry, Commerce and Supplies (MOICS) is responsible for the promotion and implementation of industrial and commercial policies, including those pertaining to industrial pollution and mineral exploration.
- The Ministry of Physical Planning and Works (MPPW) is responsible for the development of the national strategic transport network, particularly the road network, improvement of housing and urban environmental developments and the provision of water supply and better sanitation facilities.
- The Ministry of Local Development (MLD) has the role of coordination, cooperation, facilitation, and monitoring and evaluation of activities undertaken by local bodies for ensuring sustainable, balanced and broad-based development efforts.

- The Ministry of Agriculture and Cooperatives is responsible for minimising environmental problems due to the use of agricultural chemicals, and for conserving, promoting and properly utilising biodiversity.

Under the Local Self-Governance Act 1999, responsibility for environmental management and pollution control was devolved to locally elected bodies such as District Development Committees (DDC), Village Development Committees (VDC) and Municipalities. They are responsible for environmental management at the district, village and municipality level, respectively. Although the Act requires the devolvement of these responsibilities, the national government still exercises significant control over the administrative management of local governments, and the line ministries have not developed plans for the orderly transfer of responsibilities to local bodies, nor dedicated appropriate resources for local capacity-building.[27]

[1.3.2] Judiciary

The judicial bodies in Nepal include the Supreme Court, Appellate Court and the District courts. The Constitution (Article 88(2)) has conferred powers to the judiciary that are important for the enforcement of legal norms related to sustainable development (ADB, 2006). Although the judiciary in Nepal does not have a 'green bench' to deal with environmental issues, the court has played a key role in establishing environmental policies. The Supreme Court has issued several important decisions directing executive branch agencies to adopt appropriate environmental standards and measures for air, water and noise pollution.[28]

[1.3.3] Educational institutions

Educational institutions in Nepal have played an important role in incorporating the concepts of environment in the formal education system – in schools, colleges and universities. Environmental education has been promoted with the teaching of environmental subjects and concepts at various levels in schools and in specialisation and degree courses at universities. At the school level, environmental education is included in a separate course entitled, 'Health, Population and Environment', and the Kathmandu, Tribhuwan and Pokhara universities have expressed their commitment to promote environmental awareness through education in their undergraduate (BSc) and graduate (MSc) degrees.

[1.3.4] Private sector and NGOs

Various other organisations such as private sector entities, civil society and non-governmental organisations (NGOs) have demonstrated their commitment to promoting environmental awareness and to improving environmental conditions, and have complemented the government's effort to manage and improve environmental conditions. For example, private industries under the Environmental Sector Programme Support (ESPS) have started introducing cleaner production, energy efficiency, occupational health and safety measures to save resources and reduce pollution load. Similarly, several local and international NGOs are working to improve environmental management, awareness and conservation efforts. 1,035 local and three international NGOs are engaged in environment-related work in Nepal, and 14,337 community forest user groups are managing community forests – one of the most successful examples in the world for community-based resource management.[29]

[27] World Bank, 2007
[28] World Bank, 2007
[29] World Bank, 2007

[2] Signposting the way to integration – brief case studies

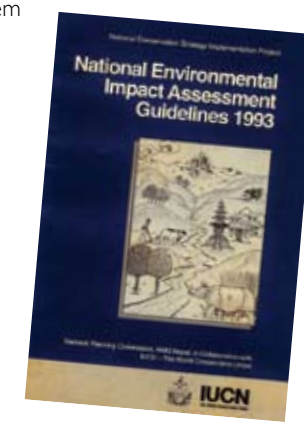
This section presents eleven short case studies that illustrate the varied ways in which different initiatives have attempted to link environment with development in Nepal. These cases are based on presentations made during the environmental mainstreaming workshop and material presented in the workshop background report.[30] They cover government and private sector initiatives; national initiatives to develop plans and strategies; conservation projects at more local and community levels; the promotion of environmental assessment and management systems; environmental education; and addressing challenging issues such as climate change, energy efficiency and cleaner production.

[2.1] Environmental Impact Assessment (EIA)[31]

Environmental Impact Assessment (EIA) has been one of the main policy instruments in Nepal to combine the aims of conservation and development. The 6th Five Year Plan (1980-85) first mentioned the need for EIA for major infrastructure projects, whilst the 7th Five Year Plan (1985-90) stressed the need to apply EIA to all major development projects in key sectors, such as tourism, water resources, infrastructure, forestry and industry.

An Environmental Impact Study Project (EISP) undertaken between 1982 and 1998 under the Ministry of Forest and Soil Conservation prepared a draft environmental policy, draft environmental Act and guidelines, and conducted EIAs of several current infrastructure projects. There was no real interest in EIA at this time amongst decision-makers and politicians, however, and the EIA policy was not implemented to the extent expected. Some EIAs were carried out for hydro-power development (for example for the Arun III and Kaligandaki hydropower projects), irrigation and drinking water and road construction projects, nevertheless, to meet stipulations set by donors and in loan agreements.

The 8th Five Year Plan (1991-95) and the Nepal Environmental Policy and Action Plan (1993) re-emphasised the need for an EIA system to integrate environmental concerns into the development process. The 8th Plan anticipated the establishment of a national system for EIA and stipulated that EIA should be conducted at the feasibility study stage of development projects. Following a mandate for EIA set out in the National Conservation Strategy, adopted in 1988, the first National EIA Guidelines were endorsed in September 1992 and gazetted in July 1993.



The EIA system was introduced successfully under the Environmental Protection Act 2053 (1997 AD) through the Environment Protection Rules (EPR). These made Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) mandatory for both government and private sector projects. Prior to this, since the introduction of the National EIA Guidelines in 1993.[32] IEE/EIA was mandatory only for the governmental sector. EIA and IEE are the only

[30] Khadka et al., 2011
[31] Sources: Bhatt & Khanal (2009) and World Bank (2007)
[32] The National EIA Guidelines 1993 were prepared as a part of National Conservation Strategy Implementation Project by the National Planning Commission in collaboration with IUCN-The World Conservation Union.

tools used in Nepal to ensure that environmental issues are addressed in the construction and implementation of infrastructure and other development projects. A number of guidelines and manuals have been prepared for sector line agencies to improve and customise the environmental assessment process to their sector.

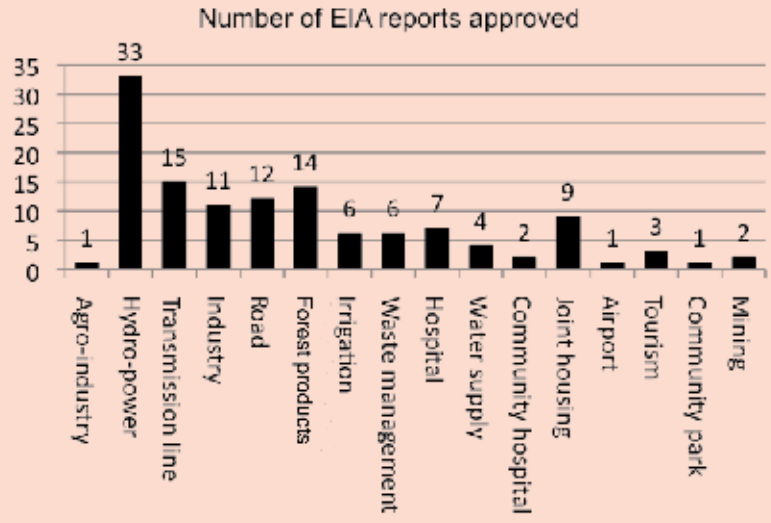
The 9th Five Year Plan (1997-2002) acknowledged the adverse impacts of environmental degradation on public health and tourism development and re-emphasised the importance of carrying out EIAs before implementing projects. It promoted a more participatory process for EIA economic plans and developmental activities, starting at the local level; and encouraged governmental, non-governmental and private sector organisations, as well as local bodies and communities, to engage voluntarily in raising public environmental awareness.

The 10th Five Year Plan (2002-07) stressed the need for effective monitoring and evaluation of projects subjected to an EIA in order to secure compliance with EIA recommendations. However, achieving this aim is challenged by the weak capacity of the Ministry of Environment and other line ministries.

Over the past 15 years, EIAs have been conducted for a range of development projects, most being for hydropower, transmission lines, forestry, roads and industry initiatives, with 127 EIA reports formally approved during the period 1997-2012 (Figure 1).

These efforts have made a significant contribution to ensuring that the negative environmental impacts from development projects are minimised and mitigated. Box 2 provides an example of how an EIA of a planned irrigation project identified serious potential environmental impacts, leading to a complete reformulation of the project concept and delaying implementation.

[Figure 1] Number of EIA studies approved by sector: 1997-2012



Source: Ministry of Environment, Government of Nepal, 2012

[Box 2] EIA of East Rapti Irrigation Project (ERIP)

An irrigation scheme was proposed in the Chitwan Valley, in mid-western Nepal, to irrigate 5,303 ha of land by utilising perennial water from the Rapti River. The proposed project was to provide a 400 m long diversion weir across the Rapti River, designed to divert a maximum flow of 14.3 m^3/sec. It was also planned to construct 21.9 km of canal networks and 24.6 km of drainage networks.

The East Rapti River plays a critical role in maintaining the habitat of the Royal Chitwan National Park (RCNP) and provides breeding grounds for 44 fish species and crocodiles. The park is home to 13 endangered mammal species and 489 species of migratory and breeding birds, and it maintains an excellent wetland habitat, oxbow lakes and marshy areas.

No consideration was given to environmental issues during the project feasibility stage of ERIP. After the project design was completed, however, the RCNP authorities raised questions about the impact of the project and it was then decided to conduct an EIA. The project feasibility study had assumed that the amount of water diverted from the Rapti River for irrigation would be replenished downstream by inflow from tributaries. But the lack of regular records of river flow made this assumption unjustifiable. The EIA found that diversion of water from the river during the dry season would likely affect:

- flora and fauna of RCNP, including rare and endangered animals;
- current income generation from eco-tourism in RCNP;
- irrigation return flow – this is expected to contain residual fertilisers and pesticides applied to crops that might affect water bodies;
- the intensity of water and vector-borne diseases due to seepage and water logging; and
- beneficial impacts – expected as a result of increased crop production from 22,810 MT/y to 74,979 MT/y – and increased employment opportunities.

Following the EIA, it was concluded that the project as envisaged should not be implemented. The overall project concept was reformulated to incorporate the recommendations of the EIA that farmer-managed irrigation schemes should be strengthened and that the recharge of the river due to the opening of tributaries downstream should be monitored for at least two years.

Source: Khadka *et al.*, 1992

Lessons learned

The introduction of the EIA system was a major achievement of the National Conservation Strategy (see case 2.3). It is now well known in the country, although not as effective as it could be and facing a number of continuing challenges. Observers comment that it is unclear how the implementing agencies should enforce the provisions of the Environmental Protection Act and Environmental Protection Rules; and there has been criticism of the lack of prescription for how much time should be spent on preparing an EIA and IEE. Furthermore, the format required for EIA and IEE reports is neither clear nor systematic. The validity period of approved ToR and EIA/IEE reports remains unspecified; there is no clear technical rationale behind threshold values set for screening proposals for IEE or EIA; and fine/penalties are insignificant. There is a clear need to increase government's capacities for effective implementation and monitoring of EIA recommendations.

As a result, the relevance of EIA studies and the EIA system are being undermined. EIA reports are being prepared only to secure environmental clearance from the environmental authorities. EIA recommendations are seldom integrated into project design and thus are not implemented. Consequently, the quality of EIA reports is deteriorating, as insufficient investments for preparation

of the EIA reports are made in the majority of cases. More EIA professionals in Nepal are realising that the need and scope of many individual project EIAs can be streamlined and EIAs made much more cost-effective by introducing strategic environmental assessment (SEA) – environmental assessment at the level of policies, plans and programmes.

[2.2] Annapurna Conservation Area Project (ACAP)

The Annapurna Conservation Area (ACA) is the largest conservation area in Nepal covering 7,629 km^2 and spreading over five districts (Figure 2). ACA is managed as the Annapurna Conservation Area Project (ACAP) – a project of the National Trust for Nature Conservation (NTNC), in close collaboration with the local Conservation Area Management Committees (CAMCs), which are formed under Village Development Committees, VDCs. The ACA has pioneered integrating natural and social systems into protected area management in Nepal.

[Figure 2] Annapurna Conservation Area

Source: ACAP

ACAP was implemented with a backdrop of deteriorating conditions in the region. The government had assumed ownership of forests under the Forest Nationalization Act 1957. Yet it was unable to manage and protect them, being unable to enforce the rules at the local level. Forests became, de facto, an open access resource. As a consequence, there was rapid depletion of the limited forest resources of the Annapurna region.

The country also witnessed an influx of tourists after it opened its borders in the 1960s. The growth in tourist numbers led to negative environmental impacts. Notably, forests were cleared

to build hotels and meet new energy demands. It is estimated that an average trekking group of 15 people generates about 15 kgs of non-biodegradable and non-burnable garbage in ten days' trek, producing tons of garbage in mountain regions annually. Communities and scholars began to argue for the protection of the fragile ecosystems of the Annapurna region. The then King issued a directive to protect the area by striking a balance between development and conservation, and by providing maximum benefits from tourism to local people. The King Mahendra Trust for Nature Conservation (KMTNC) – now National Trust for Nature Conservation (NTNC), a national NGO – took charge of designing and implementing the Annapurna Conservation Area Project (ACAP).

In 1986, the government approved the launch of ACAP, covering 290 km^2 around Ghandruk village. Following its success, the ACA was expanded in 1990 to 1,748 km^2 covering 16 villages, and again in 1992 to 7,629 km^2 covering 55 villages, when the government gave KMTNC/ACAP the legal authority for the ACA's management for ten years – subsequently extended to 2012.

The primary goal of the ACA is to conserve biodiversity through the concept of sustainable development. ACAP activities are contributing to biodiversity conservation and natural resource management, and supporting cultural values by generating revenue from tourism activities. ACAP has developed an inclusive participatory management mechanism through Conservation Area Management Committees (CAMCs).[33] All CAMCs operate within the respective Village Development Committees (VDCs) under the Conservation Area Regulation; work to fulfil legitimate local demands for resources; and integrate traditional resource management into protected area management. They differ in ethnic composition, socio-economic indicators and ecological settings.

© ACAP

ACAP office, Ghandruk

[33] A CAMC has a five-year tenure and is formed within each village development committee (VDC). It consists of nine locally-elected members, five members nominated by ACAP staff and the VDC chair.

Trekkers in Annapurna Conservation Area

ACAP collects tourist fees; allocates resources to CAMCs; prepares overall management plans; complies with national legislation; and coordinates with the central government. CAMCs manage natural resources within their jurisdictions; collect revenues from harvest permits; implement conservation and development programmes; mobilise local groups; and monitor all activities.

In its first five years, ACAP's budget was $2.5 million, with 75 per cent from international sources. Subsequently, tourist fees have provided a regular and increasing source for project finances. The number of tourists has increased rapidly from 25,000 in 1984, to 88,418 in 2010. In the period 1986-96, these funds empowered local communities and enabled integrated conservation and development projects to be implemented under various themes: natural resource conservation; conservation education and extension; plantations and alternative energy; tourism management; rural and community infrastructure development; sustainable agriculture; cultural heritage conservation; and women's empowerment. The negative environmental impacts of tourism were reasonably contained, dependency on forest resources reduced, and there was an increase in forest cover which led to increased populations of wildlife – and increased crop damage for which no compensation measures are yet in place. ACAP has yet to resolve spatial inequality in tourism, resource allocation, and development within and among CAMCs.

ACAP has had a significant influence in reducing deforestation by promoting a shift in cooking fuel use in most households from firewood to kerosene (used in iron stoves distributed with a 50 per cent subsidy), Liquefied Petroleum Gas (favoured because it is cheaper and lasts longer), and electricity supplied through microhydro schemes. Some households have also started using bio-gas.

ACAP has also promoted environmental conservation through occasional poem and song competitions, and has published a book of poems entitled '*Thorang lama samrakhchankabita*' ('थोरोन् गलामा संरक् षण कवता').

Household solar heater near Muktinath

ACAP activities have resulted in a number of other positive environmental impacts:

- Local communities have been regulating the rules and regulations on the use of their local resources, such as forests products, stones, gravel and sand, and non-timber forest products. This has helped to conserve and promote the sustainable use of natural resources.
- There has been an increased level of awareness about village sanitation and levels of hygiene, even in the remote areas where the ACA helps to promote tourism.
- ACAP has provided the opportunity for research on biodiversity conservation, cultural promotion, sustainable tourism management, conflict minimisation and so on. This ultimately helps to enhance environmental awareness, understanding and positive actions.
- Heritage conservation, for example physical restoration of monasteries and chortens in Upper Mustang, and cultural sensitisation by ACAP has brought positive local environmental impacts. Together with the same partners, some of the major monasteries such as Thupchen Gompa, Jhampa Gompa and Chhaaede Gompa have been successfully restored. Intangible heritage such as the Tenchi festival, one of the most popular festivals of Lo Tsho Dhun, has also been preserved. These efforts have encouraged the Senior Buddhist Monks 'Khempo' and other Monks to promote a conservation ethos during their regular Buddhist deliberations including, "*Avoid killing, or harming any living thing.*" This has contributed to the conservation of many endangered species, including the Snow Leopard. The heritage conservation effort has also directly contributed to maintaining village environments and other conservation activities.
- Income-generation programmes, for example planting of tea, coffee, cardamom, broom grass and other crops, have also directly helped to increase greenery in the area and soil conservation.
- 3,369,966 tree seedlings have been planted to increase forest cover.
- Over two thousands households have access to electricity from micro-hydro and electricity is also being used for cooking and heating.

- Firewood consumption has been reduced through the promotion of alternative source of energy and energy saving devices and technologies. For example, the introduction of 1,253 bio-gas plants is estimated to have reduced fuelwood consumption by 6,265 tons annually. And ACAP has enforced rules against firewood use by hotels in the ACA – they now use Liquified Petroleum Gas (LPG).

ACAP has emphasised institutional strengthening and local capacity-building. As of 2010, 969 community committees or groups are functioning (Table 3). These committees and groups have developed several rules for nature conservation, increasing the diversity of overall conservation efforts. ACAP also provided specialised training to villagers, conducted adult literacy classes, and provided scholarships for girls to attend school.

During 2001-06, political problems and the Maoist insurgency had a negative effect on the ACA. ACAP and CAMC offices were attacked; possibly because of its association with the late King. Under the state of emergency declared in 2001, all group meetings were banned and security forces harassed CAMC members and arrested some on suspicion of supporting the Maoists. CAMC members and ACAP staff also felt threatened by the rebels (who extorted 'donations'), and programmes that required mass participation, such as forest patrols, were temporarily abandoned for fear of encounters with either the army or the rebels. Villagers were also displaced by the insurgency. Tourist numbers temporarily declined (75,278 in 2000 to 37,901 in 2006) and ACAP operated on a deficit for several years with staff made redundant. As a result, ACAP operations were compromised during this period. Many CAMCs did manage to work independently, however, although with varied performance.

Mules hauling LPG cooking gas from the ACAP depot in Annapurna Conservation Area

[Table 3] ACAP community committees and groups

Local institutions	Total
Conservation Area Management Committee	57
Forest Management Committee	133
Women's groups	304
Conservation farmers	110
Saving and credit groups	58
Tourism Management sub-committee	47
Campsite Management sub-committee	12
Micro-Hydro Management sub-committee	13
Conservation Education School	77
Green Force Club	77
Snow Leopard Conservation Management Committee	9
Musk Deer Management sub-committee	1
Livestock management sub-committee	7
Tea Development sub-committee	5
Reproductive health youth club	8
Vegetables seed production group	2
Pastureland Management sub-committee	8
Total	**969**

Following the end of the insurgency in 2006, CAMCs began to function freely again and increased their ethnic diversity and female membership. Support was also garnered from the former rebels. Visitor numbers started to increase and finance flowed again to ACAP.

One of the major challenges now facing the ACA – which is beyond ACAP influence and control – is the construction of roads in the area. These have already reached as far as Kagbeni and Muktinath in the west and Chyamche in the east, extending over two thirds of the famous Annapurna circuit. They are changing access to remote areas and presenting both environmental risks as well as development opportunities. Other key environmental issues are the poaching and illegal trade of wildlife, the harvesting of non-timber forest products and the development of micro-hydro schemes in the area. Encroachment of the public land mostly by hotels and restaurants is another issue that needs to be controlled in the ACA.

Lessons learned

- ACAP empowers local communities to implement conservation and development programmes, generating a sense of 'ownership' or custodianship and imbuing responsibility for the actions of local residents. It has ensured that communities are directly involved in taking decisions in project planning, implementation, and evaluation of developmental activities that must have minimum or no negative impact on the environment.

- ACAP's experiments on the use of cultural media such as poetry and songs to convey environmental messages have had some success in promoting nature conservation, and such approaches could be scaled up at national level. During wider debate, it was acknowledged that there is real potential to convey environmental messages to people, especially to the remote rural population, through folk singers, comedians and theatre. Such agents need to be engaged to motivate them on environmental issues.

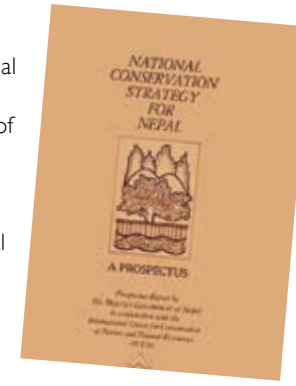
- Sustainability has been enhanced by encouraging local people to participate and invest – in cash or kind – in conservation and development. This has ensured the continuation and optimal management of ACAP schemes. But people do not get involved in conservation unless they can see direct benefits to themselves.

- Many infrastructure developments and programmes supported by ACAP (for example, irrigation canals, drinking water schemes, micro hydro, school buildings, and marketing of agro-products) frequently need its continued input. To date, local communities have not been able to maintain such projects or undertake repairs.

- Programme implementation is easier and more sustainable when built within traditional systems and practices.

- Local people are more motivated to engage in conservation when their capacity is increased.

[2.3] The National Conservation Strategy (NCS)



After endorsing the World Conservation Strategy in 1980, Nepal was the first country to prepare a National Conservation Strategy. The process, led by the National Planning Commission (NPC) with technical support from IUCN, involved extensive consultation at all levels with government and non-government organisations, and the preparation of technical papers and review workshops. The draft NCS was reviewed by various experts and the government endorsed the NCS in 1988.

The NCS elaborates principles that reflect the real value of the natural environment expressed in terms of human needs: material, spiritual and cultural. It had four main objectives:

- to ensure sustainable use of Nepal's land and renewable resources;
- to preserve biological diversity and enhance its productivity and production;
- to maintain essential ecological and life support systems, for example, the protection of water and air, and soil regeneration; and
- to satisfy the basic needs of both present and future generations.

The NCS included analyses of the natural environment and economic activities by sectors. The agenda addressed institutional requirements, conservation awareness, research needs, conservation policy and resource planning. It also proposed 'vanguard' (pilot) programmes focused on the conservation of land, water and forests in four geographical regions.

In 1989, the NPC, with continuing technical support from IUCN and financial support from the Swiss government, began an implementation programme (NCS/IP) (1988-98). This aimed to integrate environment in the development system. Its priority areas were: environmental education; environmental impact assessment (EIA) and environmental planning; environmental

law and heritage; and biodiversity conservation. It developed various programmes in partnership with various organisations: government institutions, NGOs, CBOs, traditional institutions, IUCN member organisations (KMTNC, NHS, NEFEJ, ECCA), as well as donors. It aimed to set the foundation for concrete action on environmental conservation first by laying the basis in legislation, institutional strengthening, awareness-building (such as through primary educational resource materials), and elaboration of concepts; and preparing legislation, action plans (such as the Nepal Environmental Policy and Action Plan), guidelines and manuals (for example, for EIA and environmental planning at national and local levels), and a large array of documents and books (such as those on ecotourism and wetlands management).[34] The achievement of the NCS/IP are documented in an end of programme workshop report.[35]

Arguably, the NCS has been the most significant environmental mainstreaming initiative in Nepal. The NCS/IP pioneered the integration of environmental and conservation issues in government policy, strategy, plans, programmes and activities. (Box 3).

[Box 3] Environmental mainstreaming initiatives of the National Conservation Strategy Implementation Plan

Environmental education and communication

- Environmental concerns incorporated in the formal education system – helping to influence attitudes and behaviours towards the environment.
- The Ministry of Education integrated environmental concerns in primary and secondary school texts.
- Environmental education courses developed and integrated into B.Ed. programme of Tribhuvan University.
- Government and NGOs integrated environmental concerns in non-formal education training programmes. Environmental education packages were used by training institutions.
- NEFEJ used the media to promote concern about population growth and environmental degradation, conservation and sustainable development among the rural population.

Environmental Impact Assessment

- Initiated national system of environmental assessment, integrated into development planning and combining environmental conservation with economic development.
- Prepared National EIA Guidelines through a participatory process involving stakeholders from government agencies, NGOs and private sector. Government endorsed National EIA Guidelines in 1992 and gazetted in 1993. Project-led EIA has been the most direct and effective means of combining the aims of conservation and development.

Environmental Core Group

- Established an intersectoral network comprising representatives from various government and non-government organisations. This worked to develop environment planning and EIA guidelines and encouraged the establishment of environmental sections/units in many organisations.
- The participatory Core Group acted as a network to advocate environment and conservation within and beyond their organisations.

[34] In total, between 1991 and 1996, the NCS/IP produced 190 documents: environmental education and communication (73), environmental impact assessment (57), environment planning (24), environment law and policy (2), and heritage and biodiversity conservation (34).
[35] NPC/IUCN (1998)

Environment in National Plans

- The government incorporated a chapter on 'Environment and Resource Conservation' in the 8th Five Year Plan (1992-97). It set the concept of reconciling conservation and development (espoused in the NCS) as a major requirement for human survival, and put emphasis on maintaining and improving the productivity of natural resources. The preceding 6th and 7th Plans had included environment and land use policy as separate sections.
- The process of integrating environment in periodic development plans continued with emphasis on environment and sustainable resources in the 9th Plan (1997-2002) and population, environment and natural disaster management in the 10th plan (2002-07).

Nepal Environmental Policy and Action Plan (NEPAP)

- NCS/IP coordinated the preparation of NEPAP, approved by the government in 1993. This addressed a number of serious environmental challenges and made a firm commitment to continue efforts to incorporate environmental concerns into the country's development process.

Environment Protection Council

- The NCS recommended the establishment of a National Council for the Conservation of Natural and Cultural Resources. In response, in 1992, the government constituted the Environment Protection Council, a policy-making body chaired by the Prime Minister with representatives from concerned sectors, such as government ministries, academic institutions and NGOs. A Natural Resources Management Committee was established in parliament.

Environmental law

- Environmental regulatory framework initiated by the NCS/IP, and an Environment Protection Bill submitted to the government in 1992. Redrafted in 1995 by the NCS/IP and the newly formed Ministry of Population and Environment, leading to the enactment of the Environment Protection Act (EPA) in 1997.
- Environmental protection regulations promulgated under the EPA 1997. The government passed the Environmental Protection Rules in June 1997, establishing formal regulations and procedures for preparing and approving IEE or EIA of development proposals.

Heritage and biodiversity conservation

- National Register of Heritage Sites and a computerised database of over 1,250 sites outside of Kathmandu Valley.
- Habitat classification based upon geophysical and biological classification and vegetation types.
- Biodiversity database of protected species, protected areas, and heritage sites.
- Wetland inventory for Terai region and establishment of a National Wetland Database.
- Government organisations, NGOs and other agencies involved in heritage and biodiversity conservation use the data and information when developing plans.

Lessons learned

It is remarkable that the NCS was able to make so many pioneering contributions to environmental mainstreaming in Nepal, despite not entailing vast expenditure. It was an innovative process at the time, especially given Nepal's troubled political history. Although new critical issues have emerged subsequently, such as climate change, all of the issues the NCS addressed remain a concern today.

The creation of a Core Group to champion the NCS/IP worked very well. It built in ownership, commitment and enthusiasm for integrating conservation and development. Unfortunately, without the mechanism of the NCS/IP and the drive provided by IUCN, this could not be

sustained when the NCS/IP came to an end. The provision of a government budget allocation for a continuing NCS/IP as a national initiative might have signalled genuine political commitment and enabled the momentum to continue.

Implementation faced a number of constraints. It did not propose investment in environmental restoration and management to produce economic returns. The Environmental Protection Council, established at the political level, could not sustain its functions because it was primarily an advisory body with limited mandate for implementation. Thus, the Ministry of Population and Environment (MoPE) (now Ministry of Environment) was established as an apex body on environment. The NCS/IP did not manage to provide overarching coordination for environmental activities. For example, from the mid-1990s, many donor agencies were allowed to initiate projects related to their own priorities. There was no effective working relationship on environmental planning between the government agencies and other institutions. This remains a continuing problem.

[2.4] Environmental mainstreaming in industry, and promoting energy efficiency and cleaner production[36]

A number of institutions have been established that support environmental mainstreaming initiatives in the industrial sector: the Ministry of Industry, Industrial Promotion Board, Department of Cottage and Small Industries (DCSI), Nepal Bureau of Standards (NBS), and Federation of Nepal Chambers of Commerce and Industry (FNCCI). Some notable initiatives have been efforts to keep large-scale polluting industries out of Kathmandu: the development of an industrial pollution inventory (1994), the establishment of environmental divisions/sections/units in ministries, and the introduction of mandatory IEE/EIA for polluting industries. In addition to national efforts, the donor community has also supported initiatives aimed at making the industrial sector more environment-friendly. Examples include the application of UNIDO industrial standards (1981-1983); the Danish Environmental Sector Support Programme (1999-2005); Swiss support for constructing vertical shaft brick kilns (2003-2011); and German support for the Nepal Energy Efficiency Programme (2010-2014). Energy saving has been a major environmental target in the industrial sector.

Vertical shaft brick kiln

In 1993, the Ministry of Industry, Commerce and Supplies (MOICS) (the Ministry of Industry (MOI) from 1998) initiated an Industrial Environmental Management Project with technical assistance from the World Bank. This focused on energy audits of industrial boilers, industrial equipment and hotel lighting, and explored energy-saving options. Following the completion of this project, in 1998 the MOI launched the 'Industrial Energy Management Project' to provide energy management services to industries. Energy efficiency also became a component of the DANIDA-supported

[36] Source: ENPHO, 2007

[Table 4] Energy savings results in manufacturing and service industries

Energy source	Energy saving	
	Potential	Achieved
Electricity (KWh)	12,004,761	4,215,794
Fuel (L)	2,801,031	935,472
Fuel (MT)	39,377	10,145
Thermal energy (Mkcal)	148,127	59,987
Greenhouse gas reduction (MT)	66,508	24,827

Environmental Sector Support Programme (ESPS) in 2000. As a result, work on energy efficiency continued and yielded some good results. The energy saving potentials and achievements of 332 manufacturing and service industries are presented in Table 4.

The ESPS was launched in 1999 as a fully-fledged environmental programme for the industrial sector. It focused mainly on introducing the cleaner production concept in 332 manufacturing and service industries (249 small, 48 medium and 35 large). An evaluation report revealed that the ESPS had carried out continuous monitoring of 177 industrial units and had managed to secure annual reductions of 345,000 cubic metres of effluent at the monitored units, including 9,500 MT of solid waste and 24,000 MT of greenhouse gases. Moreover, occupational health and safety conditions were also improved. The evaluation also found, however, that only 2,126 (33 per cent) of 6,460 cleaner production options recommended by the ESPS project had been implemented. Most of these were low- and no-cost options, such as the use of energy saving lamps, translucent sheets, self-closing water hoses, oil and grease traps, and so on. Industries were very reluctant to implement options demanding high investment, those related to environmental benefits, or to working environment improvements.

Pollution prevention approaches such as cleaner production and energy efficiency are fairly new concepts in Nepal; and the implementation of some recommended options has clearly demonstrated economic benefits to industry, whilst also providing high environmental benefits.

Lessons learned

Environmental mainstreaming in the industrial sector is fairly successful. Yet there is room for improvement. Current government policies on environmental mainstreaming in the industrial sector need to be broadened from focusing only on pollution prevention or pollution mitigation, to more proactive approaches such as energy efficiency and resource optimisation. The energy programmes need to focus beyond the central level by increasing the participation of district and regional stakeholders and partners. In many cases, local governments (at district and VDC level) have expressed dissatisfaction over central agencies' indifference to the local proposals and inequality in fund distribution. At the same time, industrial units are reluctant to implement, and are indifferent to, recommended pollution prevention options. This is possibly because of inadequate understanding or awareness of the seriousness of the environmental consequence of pollution. Furthermore, the government has been unable to persuade the private sector to invest in pollution prevention options in the absence and/or inadequacy of incentive schemes such as award or subsidies.

[2.5] National and Local Adaptation Programmes of Action (for Climate Change) (NAPA/LAPA)

Nepal is the fourth most vulnerable country to climate change, according to the 2011 report of risk-analysis company Mapplecroft. In response to the risks posed by climate change, the government approved the National Adaptation Programme of Action (NAPA).[37] Its broad objective is to mainstream climate change concerns into development plans to reduce poverty, strengthen livelihoods and build resilience. This has been promoted through:

- Institutional response, such as the establishment of a Climate Change Council under the National Planning Commission, and climate change units, divisions, sections and centres across government.
- Policy response: for example, the formulation of a climate change policy, environmental laws and bylaws.
- Programme response: such as actions on reducing emissions from deforestation and forest degradation (REDD) for mitigation; introducing clean development mechanisms; and developing Local Adaptation Plans for Action (LAPA) for adaptation to climate change at district and village levels.

The Government of Nepal has set out its adaptation planning, through its Climate Change Policy, NAPA document and National LAPA framework. Both the NAPA and LAPAs have been formulated through extensive consultation with a wide range of stakeholders at local, regional and national levels. This has ensured coordination and collaboration with other existing mechanisms and initiatives. Pilot programmes have been successfully accomplished in ten districts representing different eco-development regions of Nepal, where local committees have started sensitising residents through climate change awareness programmes. At the national level, MoEnv is coordinating with different government agencies, NGOs, private sectors, donor agencies and development partners to assess priority actions and support climate change vulnerable communities.

LAPA-piloted sites along with entry points and partner NGOs are presented in Table 5.

[Table 5] LAPA piloting partner organisations

LAPA entry point	Partner organisation	Working area
Public health	BNMT – British Nepal Medical Trust, Kathmandu	Ghodasain and Danabari VDC of Achham and Illam District
Forestry planning	Rupantaran Nepal, Kathmandu	Dhungegadhi, Pyuthan district Ransi VDC of Rukum district Sukrauli VDC of Nawalparasi
Agriculture	RIMS – Resource Identification, Management Society Nepal, Dhading	Jogimara VDC of Dhading district
Watershed management	Li-BIRD – Local Initiatives for Biodiversity, Research and Development, Pokhara, Nepal	Rupakot, Majhthana VDC and Lekhnath Municipality, Kaski
Water for sanitation	NEWAH – Nepal Water for Sanitation, Kathmandu	Rauta VDC of Udayapur district
Finance and service delivery mechanism	RSDC – Rural Self-Reliance Development Centre, Kathmandu	Shivagadi and Kumalgaun, Kalikot
Core and Gateway Systems	ISET-N, Institute for Social and Environmental Transition – Nepal, Kathmandu	One VDC each at Kapilvastu and Arghachhin

Source: MoEnv2010.

[37] MoEnv2010.

The proposed NAPA/LAPA framework integrates with the existing planning and service delivery mechanisms. It also focuses on strengthening mechanisms that enhance the mobilisation of locally-established networks and institutions and resources.

There remain several challenges for effective mainstreaming of NAPA/LAPA initiatives:

- Building capacity amongst key stakeholders (which requires a capacity assessment) – 20 per cent of the NAPA implementation budget will be allocated to increase the capacity of local institutions and individuals.
- Ensuring policies and guidelines address climate change issues.
- Securing funding to support climate change adaptation initiatives; and human resources to manage these and increasing institutional/organisational responsibilities and mandates.

The NAPA document identifies ten priority adaptation programmes and the implementation framework proposes that 80 per cent of climate finance goes to implementation. The LAPA establishes a framework for integrating local climate change priorities into the annual development planning cycle. The NAPA[38] has been approved by the Government of Nepal and the Secretariat of the UN Framework Convention on Climate Change (UNFCCC). The Government has secured funding for its adaptation planning, through multilateral and bilateral funding – this includes support from the European Union (EU), USAID and the UK's Department for International Development (DFID).[39] Multilateral funding has been secured through the Least Developed Country Fund (LDCF), (NAPA was a precondition for developing countries to access this fund) and the Pilot Programme for Climate Resilience (PPCR).[40]

The PPCR has been devised under a different framework, with a wider scope to ensure ecosystem services, improved climatic information and building resilience. Nepal has secured agreement with the World Bank to provide $86m for its implementation – $50m is in grants and $36m as conditional soft loans. This is currently a matter of controversy, because there is a debate under the UNFCCC on the issue of loan versus grant based adaptation financing. Additional co-financing for PPCR from multilateral development banks is also expected to be heavily loan-based. There remains debate over whether such loans will increase the country's indebtedness.

Lessons learned

Climate change relates to existing climatic variability and uncertainty and its impacts are additional, new and cut across all brown, green and blue sectors. They will affect communities cultivating land in different ecosystems indiscriminately. Within each ecosystem, however, some households are likely to become more vulnerable. This will be dependent upon their capacity to adapt to stresses; the sensitivity of the natural system on which livelihoods depend; and community access to ecosystem adaptation services; and the kinds, quality and extent of support services provided locally. Local environments play a key role in determining the exposure and sensitivity of ecosystems to climate change and the vulnerability of the communities that depend on them. Climate and environment are directly linked: many human activities directly affect the environment and can result in changes in climatic variability, uncertainty and extreme events; which, in turn, can affect human activities.

[38] The NAPA report (2010) was prepared by the Ministry of Environment, Government of Nepal with support from the Embassy of Denmark, UK Department for International Development (DFID), Global Environmental Facility (GEF) and United Nations Development Programme (UNDP), Nepal.
[39] DFID has committed to provide some GBP 14.6 million in grants to implement NAPA priority profile 1 in Nepal's most vulnerable districts of the mid and far western regions.
[40] Thapa, K. (2011).

NAPA and LAPA have been endorsed by the government. The philosophy of LAPAs is to address the growing climatic uncertainty and hazards and the aggregate impacts of climate change on the local environments, livelihood assets and local practices. They elaborate climate adaptation plans, setting out immediate and urgent needs, from the bottom-up – that is, with the participation of the climate vulnerable poor. LAPAs need to be integrated with, support and build on local development plans and be vertically integrated with district, sector-specific, and national plans.

LAPAs are implemented through local bodies and aim to draw down resources to deliver adaptation services in a timely and effective manner. Local bodies are not only accountable and responsible to the people but also have the mandate to facilitate, coordinate and regulate local development plans. They are well suited to integrate crosscutting issues such as climate change, environment, gender and social inclusion in local planning.

The government has created a Climate Change Council headed by the Prime Minister, and a Multi-stakeholder Climate Change Initiatives Coordination Committee with representatives from line ministries, donor agencies, development partners, civil society organisations and the private sector, coordinated by the Secretary of the MoEnv. There also still exists the Environment Protection Council (EPC), although not currently functioning, and Environment Divisions, Sections or Units in many line ministries. Since climate change and the environment are 'two sides of the same coin', they should be addressed in an integrated manner. These separate institutional arrangements should be harmonised to ensure coordination and an integrated response to climate change and environmental challenges.

[2.6] Mainstreaming environment in formal education[41]

The 8th Five Year Plan (1992-97) stressed the need for environmental education and made it mandatory at all levels of formal and non-formal education, including in service training extension service, technical education and vocational training programmes. For formal education in Nepal, three main approaches have been used for the introduction of environmental components in existing curricula: infusion, integration, and separate subject approaches.

School level: The New Education System Plan 1973 incorporated some aspects of environmental protection in the school curriculum. Subsequently, based on the recommendation of National Education Commission (1992), environmental education was included in the curriculum within "Population Studies and Health Science".

Higher education: Environmental components are integrated in a number of courses, such as applied science, humanities and management, and education; and the technical disciplines of engineering, agriculture science, medicine and forestry. Three Universities (Tribhuvan, Kathmandu and Pokhara) are offering separate environment courses: environmental science and environmental management at Bachelor and Master levels.

- *Bachelor level:* the objectives of the courses are to produce medium-level capacity in the field of environment, which can also serve at the field level. For example, Tribhuvan University covers mainly environmental science and practical aspects. Similarly, the Pokhara University curriculum includes general environmental aspects and recent trends, as well as management technology with field investigation. The Kathmandu University syllabus (cr. hr148) covers all important environmental components with more emphasis on scientific knowledge and application than on management aspects.

[41] Source: Joshi, 2011

[Box 4] Environment in school curricula

Primary level (grades 1 to 5): some important elements related to the environment are integrated into the curriculum subjects under themes such as the home and school environment, the earth surrounding the village, and field and forest environment.

Lower secondary level (grades 6 to 8): environmental concerns are addressed in social studies courses in lower secondary level. The curriculum is designed to develop students' understanding of the relationship between humans, landscape, plants and animals. Course units related to population (population status, cause of population growth, impact of population on environment) and environmental conservation (status of natural and cultural resources, environmental factors, interrelation between population and environment, measures to control environmental issues) have been included in the curriculum.

Secondary level (grades 9 and 10): environmental education is offered as a separate course entitled "Health, Population and Environment". The syllabus covers the concept of health, population and environment; family life education; determination of population change; natural resources; caring of the Earth; reproductive and sexual health; environmental health and pollution, consumer's health, and beyond.

Higher secondary level (grades 11 to 12): the curriculum addresses three aspects of environment: the national education objectives related to environment; the country's growing concern about environmental degradation; and the academic opportunities for studying environmental subjects.

- *Master level:* post-graduate courses focus on national and international perspectives and issues along with policies and plans. All three universities offer a similar range of courses covering important environmental topics (identified by key words relating to environment). For example, the syllabus of Pokhara University covers all important areas needed for environmental management, including new subjects such as environmental engineering, environmental management systems, strategic planning, urban environmental management and environmental governance and diplomacy.

Masters degree (environmental management) students graduating at Pokhara University

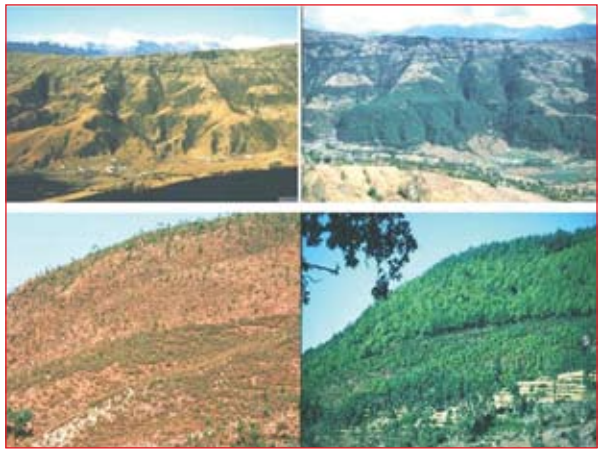
Lessons learned

As in all countries, ensuring that the environment is well covered in educational courses at all levels provides the bedrock for securing future understanding about the role of environmental assets and the benefits they provide, and building commitment to their sustainable use. Today's students are tomorrow's decision-makers and leaders.

After more than a decade of effort, environmental education is well established in Nepal. The Nepal Public Service Commission[42] recognises environmental courses. Yet despite the fact that the Environmental Protection Act and Regulations stipulate environmental positions in central- to local-level government offices, a separate 'environmental service group' is yet to be included in the public service commission system. This prevents the environmental graduates and professionals from securing and building a career in government organisations.

[2.7] Community-based forest management[43]

In the past, Nepalese forests were protected mainly by common property regimes, under which they were perceived to be private property. But the Forest Nationalisation Act, 1957 brought all forested lands and grasslands under state jurisdiction. In the process of enforcing this act, a coarse assumption was made that all forested lands are forest, and thus to be brought under the state jurisdiction. In many instances, private forests (including those owned or managed by households) were mistakenly brought under government's ownership. In response, people started to clear trees from private forests to prevent loss of the ownership. In some instances, government forests were also cleared to falsely claim the ownership of the land. Thus, introduction of the Act resulted in a devastating loss of forest area in Nepal at that time (see also section 2.2). However, the government considered forest degradation to be a technical problem, so technical solutions, such as plantations and fencing, were pursued. In 1978, the concept of community based forestry was adopted, accepting participatory management as the key to forest protection. Subsequently, Nepal became an early leader in initiating innovative 'community forestry management' programmes involving local communities.



Cover change over time in Community Forest areas of Nepal:
Top: Jiri in 1968 (left) and 2005 (right)
Bottom: Dandapakhar in 1978 (left) and 2005 (right)

The first significant step toward adopting community forestry approaches was when Nepal hosted the Ninth Forestry Conference in Kathmandu in 1974. The National Forest Act of 1976, and its subsequent amendments of 1977 and 1978, attempted to return some degree of ownership and control over forest resources to the people. The Community Forestry Act was introduced in 1993. By 1999, rapid expansion of this programme had resulted in the Forest Department handing over 620,000 ha of forest area (which it had previously managed) to 8,500 forest user-group committees to manage (Table 6).

[42] The Public Service Commission is involved in selecting meritorious candidates required by Government of Nepal for various vacant posts of the civil service. The PSC maintains a pool of experts and specialists for the purpose of selection.
[43] Sources: (Nagendra, Karmacharya, & Karna, 2005) and (Kanel, 2006).

Based on the 1988 Master Plan for the Forestry Sector, the Forest Act of 1993 authorises District Forest Officers to hand over any part of a national forest to a user group in the form of a community forest. Communities then develop an operational forest management plan, which is subsequently ratified by the Forest Department. This enables them to conserve and manage these forests, and sell and distribute products, including forest timber, and to independently set the prices. An amendment to the Act in 1998 mandated that the user group should invest at least 25 per cent of its income in forest development and conservation activities. Recent amendments have attempted to place further restrictions on the harvest and sale of forest products, and distribution of the resulting income.

[Table 6] Summary of user groups, areas and households involved (as of March, 2006)

Management models	User groups	Area (ha)	Households
Community forests	14,300	1,187,000	1,640,239
Leasehold forests	2,524	11,109	18,497
Buffer zone community forests	17	15,924	19,362
Collaborative forest management	1	3,139	33,000
Total	**16,840**	**1,217,172**	**1,711,097**

Source: Kanel, 2006.

Lessons learned

During the past 28 years, almost 1.2 million ha of national forests (25 per cent of existing forests) has been handed over to about 14,300 local community forest user groups (CFUGs). The user groups cover about 35 per cent of the country's total population and the process has led to better forest conditions, better participation and income generation for rural development, and institution-building at grassroots level in Nepal. This case demonstrates that, like the ACAP case (section 3.2), handing responsibility for management and decision-making over local natural resources to local groups ensures their sustainable use and is far more effective than government control.

Based on the successful experience of community forestry, the government has also started participatory soil conservation and watershed management activities with people. A participatory watershed management system is in place in a number of districts, for the conservation and rehabilitation of degraded watersheds. Community groups are now actively involved in terracing and conservation plantation on degraded hill slopes, and in water source protection.

User groups have also been mobilised to manage the buffer zones of the Terai national parks and reserves since the mid-1990s. This approach has been expanded to all the protected areas in the country (nine national parks, three wildlife reserves, three conservation areas, and a hunting reserve) in a phased manner. Local user groups have been instrumental in managing and utilising natural resources for community development in a sustainable manner.[44]

[44] MOFSC 1996.

[2.8] Environmental management system (EMS)

In Nepal, the concept of EMS was introduced only in 2001, through the *Environmental Sector Program Support* (ESPS) – a collaborative programme of the governments of Nepal and Denmark. The programme focused on improving the environmental performance of industries and it promoted a preventative approach in order to minimise waste generation and optimise the use of resources. The concept of environmental management was fairly new to industries in Nepal and they were rather uncertain about implementing EMS. It took a long time and hard work to persuade a few proactive industries to adopt EMS (ISO 14001).

Quality and Environmental Management Services (QEMS) – a well-known consulting firm – has helped over 150 industries in Nepal with ISO 9001 certification, six with ISO 14001(EMS) and seven industries with food safety standard ISO 22000:2005.

Another EMS tool, Cleaner Production (CP) is now well accepted by Nepali industries. Cleaner Production practice in enterprises covers waste minimisation, energy efficiency and occupational safety and worker health. It was first introduced by UNIDO during 1993-98 in five industrial sectors: textiles, sugar, carpets, vegetable oil and ghee, and the metal industry. Subsequently, the ESPS promoted CP as a proactive waste management tool in over 360 industries (66 per cent small, 21 per cent medium and 13 per cent large). It was assessed that:

- implementation cost for all recommended CP options was NPR 900 million;
- potential for savings was worth NPR 260 mill/yr;
- the average payback period was less than 20 months;
- there was a greenhouse gas saving of 20 per cent (84,780MT/yr);
- Sulphur dioxide (SO2) saving was 13 per cent.

The 10th Five Year Plan (2002-07) recommended the promotion of CP in Nepali industries, and CP remains an ongoing activity of the Ministry of Industry (MOI). However, CP is a non-certifiable EMS tool, so it is unclear how many industries are practising it.

A project to promote the eco-labelling of woollen carpets in Nepal was undertaken by the National Bureau of Standards and Metrology (NBSM) and the Nepal Wool Carpet Association during 1997-2001, with the support of the Government of Finland. However, there was weak ownership of this project and, when funding ending, activities ceased.

Lessons learned

Whilst Quality Management Systems (QMS) are well accepted and used by Nepali industries, they see EMS as a financial burden with no monetary gain. It is perceived as merely a requirement of international bulk buyers, not something demanded by consumers. Because this mindset is widespread, today only some 30 industries have taken up ISO 14001 certification. Many more are implementing Quality Management Standard (QMS) ISO 9001, which is related to consumer satisfaction. In all cases in Nepal, EMS certification (ISO 14001) is seen as a marketing tool, not as a social responsibility, and is implemented alongside Quality Management System (ISO 19001) certification. There are several other obstacles to the acceptance of EMS by industries:

- High costs of implementation, certification and verification.

- Lack of an EMS certifying agency in Nepal. Recently the Nepal Bureau of Standards and Metrology (NBSM) has developed capacity for certification but it is still in the process of accreditation. As a government institution, however, it is already authorized to issue EMS certificates to industry. Recently, it has certified one Nepali industry with ISO 22000:2005 for food safety and another industry with ISO 9001:2008 quality certification. The accreditation body to NBSM is the National Accreditation Board for Certification Bodies (NABCB), India.

- Initial assessment for EMS implementation takes a long time and EMS is not a requirement of government procurement.

- Very stringent environmental requirements must be fulfilled for the implementation and certification of EMS.

Interest in EMS in Nepal has now been over-shadowed by the new issues related to climate change and greenhouse gas emissions. Industries are more attracted to the Cleaner Development Mechanism (CDM), through which they can gain some monetary benefits.

[2.9] Climate Public Expenditure and Institutional Review

The UNDP/UNEP Poverty-Environment Initiative (PEI-Nepal) is working at national level through the National Planning Commission and at local level through the Ministry of Local Development Village Development Committees. The initiative aims to assist poverty reduction and inclusive development by integrating pro-poor climate and environmental concerns into development planning and economic decision-making. Climate change has to compete for policy attention in what is already a crowded policy space; and climate finance will be a critical issue in the years to come. Therefore, PEI-Nepal initiated a Climate Public Expenditure and Institutional Review (CPEIR) to determine how much of public funds are being spent by ministries, local administrations and donor projects on environmental concerns and climate change, and how institutional landscapes are supporting the investment. The review covered a three-year period between 2007/8 and 2009/10. The CPEIR, completed in November 2011, drew heavily on the lessons learned from similar studies carried out in the region. It was intended that the information generated would be used to provide key guidance to strategic planning and budget preparation and to identify ways in which to improve the efficiency and effectiveness of resource allocations.

The exercise has shown that it is often difficult to determine how much of public funds are actually devoted to environmental or climate change interventions, because of the lack of definition of climate expenses. A wide range of terms are used in climate expenditure, which makes it difficult to distinguish between each type of climate activity and climate expenditure; and therefore even more difficult to evaluate the intended outcomes. Furthermore, it is not clear how categorise expenditure on salaries, operations, travel, and so on, under climate or environment projects; for example, whether the expenses of those people working on environment or purchasing vehicles for environmental work should be included. Within the Government Budget Classification Chart there is little explicit recognition of climate change-related expenditure. Despite this difficulty in pinpointing exact expenditure, a broad classification was used to track public expenditure on environment and climate change. The following figures show that the level of climate change-related expenditure by the GoN is significant and increasing:

- Annual expenditure in climate change constitutes around 2-3 per cent of Gross Domestic Product (GDP) and around 2-8 per cent of government expenditure, depending on definitions. In both cases the trend is increasing.
- Highly relevant budgeted expenditure represents about 1.8 per cent of total government budgeted expenditure.
- Around 80 per cent of climate change expenditure relates to adaptation activities.
- Around 90 per cent of expenditure relates to capital expenditure.
- Around 60 per cent of the climate change expenditure is executed directly by central government agencies and 40 per cent of the nationally-controlled budget is executed through local agencies of ministries.

Lessons learned

One of the key recommendations of the study is to update national classification standards of public expenditure. Priority should be given to incorporate terminology related climate change. The report suggests establishing a national budget coding system that helps track thematic climate and environment related expenditure.

The findings of the review have been received well within the government. To work out the details for climate budget coding, it has now formed a Climate Finance Working Group, coordinated by the National Planning Commission, with representatives from the Ministries of Finance, Environment, Local Development, and Forest and Soil Conservation.

[2.10] Indigenous and religious practices

Long-standing indigenous cultural and religious practices can be very effective in managing the environment sustainably. For example, in the remote Manaslu mountain region, a zone is set aside as '*Bheyul*' (a sacred and secret area for Buddhists – something like Shangrila). Here, poaching, hunting, the destruction of river systems and the cutting of trees is banned. This is an indigenous form of protected area that plays a significant role in biodiversity conservation.

All seven Village Development Committee areas of Manaslu region, along with the part of Tibet autonomous region of China within 30 km of the border, has been declared as '*Beyul Kyimolung*' (meaning 'happiness'). Guru Padmasambhava, who promoted Buddhism in Tibet, declared 104 Beyul in the Himalaya region. The main objective of declaring the Beyul is to preserve Buddhism when there is crisis in Buddhist religion and doctrine. The Guru also hid a number of religious treasures (*termas*) in lakes, caves and forests, to be found and interpreted by future tertons or spiritual treasure finders. Buddhist texts indicate the Beyul are discovered when the planet is approaching destruction and the world becomes too corrupt for spiritual practice. Hence, the natural objects that lie inside the Beyul region should be preserved. Natural features such as lakes, mountains, streams, rivers, forests and wildlife are part of the Beyul where the religious treasures are supposed to be deposited. So the protection of these features is necessary to preserve the Beyul.

Effective mainstreaming of environmental issues can sometimes be achieving by lobbying directly to leaders. A good example is provided in the case of the trafficking of wildlife products from Nepal to Tibet, where they are traditionally used in ceremonies and as ornaments and costumes. Restricting this trade has proved difficult, despite the countries' being signatories to the Convention on Trade in Endangered species (CITES). Eventually, Nepal's WWF representative, the late Mingma Norbu Sherpa, made an effort by appealing to His Holiness the Dalai Lama, persuading him to publicly condemn the use of wildlife parts in clothes and ornaments during Kala Chakra ceremonies. In response, all monasteries and local Tibetans set fire to piles of fur trimmed and restricted the use of wildlife parts.

Lessons learned

The spiritual teaching of Beyul practice supports the protection of biodiversity. Unfortunately, this indigenous practice has been ignored by the government. No efforts have been made to safeguard indigenous and religious practices which can be an effective tool in mainstreaming environment and ensuring sustainability.

[2.11] Science and Technology Innovation Initiative (STI)

In 2009, the then Ministry of Environment, Science and Technology initiated a process to formulate a National Strategy on Science and Technology, led by NAST with financial support from UNESCO. A Steering Committee was formed, chaired by Vice Chancellor of NAST, with representatives from the National Planning Commission, the Ministry of Science and Technology, and NAST.

A Technical Committee of scientists and managers carried out consultations with researchers/ academics and opinion leaders of science and technology innovation (STI), to determine major areas for research and development projects. Emphasis was given to applied scientific research and technological development covering important areas such as agriculture, environment, information, alternate energy, and technology. Through email dialogues and brainstorming sessions, five areas were subsequently selected for consultation with the subject experts, practitioners, government representatives and others:

1. Biotechnology application and bio-safety,
2. Biodiversity assessment and utilisation,
3. Information and communication technology,
4. Science education and popularisation, and
5. Energy and climate study.

The aim was to identify problem areas and key issues in sectors (Box 5) and possible research and development projects that could generate visible impacts in society within five years.

[Box 5] Problems and issues for science and innovation research

Biotechnology application and bio-safety

- Sustainable use and conservation of flora, fauna and microbial diversity.
- Food security.
- Disease diagnosis.
- Management of GMO.

Biodiversity assessment and utilisation

- Lack of exploration and evaluation of flora, fauna and microbes.
- No long-term monitoring of biodiversity in different ecological zones and impacts of disturbances.
- Lack of data on agro-biodiversity, bio-pesticide, bio-fertilizer and genetic research on major endangered species.
- Need for ecological studies, trade, domestication, value addition, industrialization and chemical analysis of medicinal plants.
- Lack of documentation of traditional knowledge and their scientific verification.
- Need to identify natural resources, develop management plan, undertake policy analysis, and develop mechanism to manage biodiversity.

Information and communication technology

- Lack of policy on maintaining scientific data.
- Policy programme for automating processes.
- Database management.
- Lack of people-centered product and service delivery application.

- Resources not shared.
- Constraints of capital investment in ICT.

Science education and popularisation

- High school student failure, drop out and grade repetitions.
- Science education needs to contribute to building of character with human values.
- Need to study how to fill the gap between School Leaving Certificate (Secondary Level) and 10+2 science (Higher Secondary Level).
- Lack of resource materials, laboratory and training opportunities.
- Need to reform curriculum content, practice, and examinations.
- Science popularisation activities need to focus on children and teachers.
- Grades 6-8 should focus on science and technology; grades 9-12 should have general science for all and special science (optional) for serious students who wish to pursue higher education.
- Science teaching should be interesting, to encourage enthusiasm for science learning.

Energy and climate

- Energy crisis.
- Depleting fossil fuels and price fluctuation.
- Climate change due to global warming.
- Black carbon emission from biomass combustion.
- Centralized energy distribution system.
- Frequent natural disasters.
- High cost of alternative energy.
- Poor quality control system for energy resources.
- Waste management.
- Information gap.

Lessons learned

The consultation exercises helped to mainstream science, technology and innovation issues in Nepal amongst senior-level experts and policymakers, and generated enthusiasm amongst younger researchers.

[2.12] Solid waste management

Nepal has been struggling to manage solid wastes, particularly those produced in the urban areas. Prior to the 1950s, solid wastes were managed locally – almost all were used as organic manure. However, rapid urbanisation and industrialistion in the 1990s[44] changed the volume and type of wastes generated in urban areas – with increasing non-degradable components. A diagnostic study carried out in 2004[45] revealed that more than 20 per cent of the urban domestic waste consists of non-degradables such as plastics, metal, glass or paper. In the absence of a proper waste management system, the waste was increasingly dumped and/or accumulated in public spaces such as river banks and the corners of the settlement areas. Urban solid waste soon became a public nuisance with significant implications for public health and local environmental quality in the urban centres of Nepal.

[44] SWMRMC (2006)
[45] SWMRMC (2004)

Waste dumped in Kathmandu

In response, the Solid Waste Management and Resource Mobilization Centre (SWMRMC) Act was introduced in 1987. The Centre was given authority and responsibility to manage all aspects of solid waste, including categorisation of hazardous waste and collection, transportation, composting, recycling and final disposing at sanitary landfill sites. Under the Local Self Governance Act 1999, the responsibility and authority for managing solid waste passed to local municipalities. Recently, a new Solid Waste Management Act (2011) replaced SWMRMC Act 1987. The SWMRMC has been reformulated into the Solid Waste Management Technical Support Centre (SWMTSC) to provide technical support to the municipalities. Local municipalities are now responsible for solid waste management from collection to disposal (of those wastes not re-used or recycled), as well as management of the landfill sites.

A report in 2004 by the Solid Waste Management and Resource Mobilization Centre highlighted the status of solid waste management practised in Nepal and drew attention to the need for further action.[47] Key points include:

- The municipalities in Nepal often lack areas where household waste can be collected before being taken to transfer stations or landfill sites. As a result, waste is often collected in corners and at the side of busy roads, markets or living areas, causing health hazards and public nuisance. Local clubs have developed a rickshaw waste collection scheme which has resulted in some reduction of such waste piling.

- Composting of the organic component of waste is mainly practiced in rural households: the organic portion of their waste tends to be higher than urban households; they have sufficient space available to practice composting; and they can use it as fertilizer on their fields.

[47] SWMRMC 2004

- There are few cases of small-scale waste re-use or recycling. Some NGOs have started pilot projects to reuse and/or recycle papers and plastics.

- Some hospitals in Kathmandu are using incineration to handle infectious waste. However, it is rarely managed properly.

- In almost all municipalities, scavengers (*Kawadi*) are mainly involved in recycling activities; they collect and sell recyclable material from the waste – metal, plastics, papers, and so on, to scrap dealers and private vendors.

- Disposal of waste is a challenge in Nepal. Waste is mainly disposed on riverbanks, depressed land or dumps, open pits or temporary open piles. Only ten municipalities have sanitary landfill sites and only about 50 per cent of municipalities have plans to develop such sites.

- City authorities increasingly seek to dispose of city wastes in landfill sites located far away in rural settings. But there is frequent resistance from and conflict with local residents who adopt a *Not In My Back Yard (NIMBY)* attitude. As a result, waste management systems in the cities are often disrupted.

Lesson learned

Nepal's experience with solid waste management has been difficult. There is a lack of explicit data on the impacts of inadequate solid waste management on the environment, though there is clearly a significant link. The deteriorating condition of the Bagmati river in Kathmandu Valley[48] is an obvious example.

The legal and institutional frameworks for solid waste management are in place in Nepal. And solid waste management needs to be extended across the entire country and practices need to improve. Almost all municipalities manage their waste through disposal but this is not a sustainable approach. Only a few municipalities have sanitary landfill sites; the rest dump on places such as riverbanks or open public sites. There is a need to promote waste recycling and re-use and composting.

[48] Khadka, R B and Mathema, A B (2012)

[3] Explaining progress in environmental mainstreaming: the main drivers and constraints

[3.1] Initiatives that integrate environment and development objectives

Nepal's economy is dependent on its natural resource base. Wise environmental management is therefore critical for its development and the well-being of its people. There are a number of factors, actors and initiatives that can be seen to drive the inclusion of environmental concerns in development activities. We explore these in the next section. Yet it is also clear that there are some stumbling blocks to overcome. These are discussed in section 3.3.

Following a definition adopted by IIED,[49] we apply the term 'environmental mainstreaming' to mean *any positive attempt to include relevant environmental concerns into mainstream development policy, plans, investment decisions and institutions*. These can be taken at any level from national to local.

We also believe, however, that the term environmental mainstreaming needs to reflect cultural values that have existed in Nepal for generations. So we would add that it should also aim to *promote a positive attitude to the environment and defend traditional values and cultural norms that work to conserve and sustain environmental assets*.

Reviewing environmental mainstreaming experience in Zambia, Lubinda Aongolo and colleagues[50] used the metaphor of a river, where various environmental tributaries are able to effectively join the development river – not merely to be swept along by the mainstream, but to change it, perhaps by enriching its nutrients or altering its destination (Box 6).

[Box 6] Outcomes of environmental mainstreaming[51]

Environmental mainstreaming produces several useful outcomes:

- better understanding of environmental goods (assets) and bads (risks);
- higher development values obtained from environmental assets (food, energy, wood, water, tourism, and so on) – realising income, health, security and other benefits;
- reduced negative environmental impacts of development activity;
- empowerment of environment-development groups;
- improvements over longer timeframes that cover ecosystem change.

All of these outcomes are critical to development, since good development itself entails:

1. improving the productivity of assets per person – including environmental assets;
2. reducing risks at national, sector, livelihood level – including environmental risks;
3. empowerment – including environmental rights;
4. holistic and long-term perspective – including environmental changes.

Thus, environmental mainstreaming is critical for a country such as Nepal, where both the economy and peoples' livelihoods are heavily dependent on natural resources.

[49] Dalal-Clayton and Bass 2009
[50] Aongolo et al. (2009)
[51] Source: Aongolo et al., 2009

[3.2] Mainstream entry points, drivers for environmental concerns and constraints

As in many other countries, in Nepal there is a wide range of institutions and actors – both governmental and non-governmental and at various levels from national to local – that are concerned with or have an interest in environmental mainstreaming (see Table 7). There is little coherence between them, however, and there are widely varying expectations of how mainstreaming could or should take place. There are also organisations and interests which have little or no interest in environmental mainstreaming happening. Often they see the environment as a brake on development.

Political instability for the last two decades and current stalemate over agreeing a new Constitution has inhibited government agencies to focus on charting a sustainable development path and address environment-development links in policies, national and sector plans and development programmes at all levels. The government is unstable and ministers change regularly. As a result, political will and commitment to the environment has fluctuated, and there is no real leadership or message on linking environment and development. Furthermore, staff are frequently transferred between agencies and there is political interference in programme implementation. Not surprisingly, Nepal's current national priorities are security, the peace process and poverty, which have become serious issues following twelve years of civil armed conflict.

Central government has a pivotal role to play in environmental mainstreaming. It exercises power, controls resources, and initiates much activity in environment and development. Environment has been included in successive national periodic plans since 1980 (as discussed in section 1.2), with repeated environmental commitments leading to a series of national initiatives, policies and legislation, such as National Conservation Strategy (NCS) (1988), Master Plan for the Forestry Sector (1989), National Environmental Policy and Action Plan (1993), Industrial Policy (1992), and the Environmental Protection Act (1997) introducing EIA. Most recently a National Adaptation Programme of Action (NAPA) for climate change has been prepared.

The National Planning Commission is a powerful central planning agency which also plays a coordination role – mainly in terms of economic growth. But it has not been successful in ensuring the full integration of environment and development objectives in Nepal's key institutions and plans. Although there has been some progress on making an institutional response to the challenges of environmental mainstreaming (for example, through the formulation of environmental policies and legislation, and establishment of the Ministry of Environment and environmental units in different ministries), coordination concerning environmental-development links remains weak. This is a problem common to many countries. The problem is compounded by overlapping institutional mandates. There are no clear signals from the government on how environment, development and poverty reduction should be balanced, or guidance on what roles different actors can play or actions they can take to respond to this challenge. The concept of SEA – a process that is geared to promote integration – was introduced in the 10th FYP, but remains to be formally introduced and institutionalised.

Individual government departments and agencies have made some progress over the past three decades in addressing environmental issues, although initiatives have come and gone, often lasting as long as donor support has been available. A prime example is the NCS, which made significant contributions during its implementation phase (1988-98) when it received strong donor support. But, as discussed in section 2.3, with loss of external support and the drive provided by IUCN through its technical support, the moment faded. The Environmental Protection Council, set up following a recommendation in the NCS, had strong potential as an integrating body but it is no longer functional. There have been calls for its reactivation, which would be a major progressive step for environmental mainstreaming.

[Table 7] Examples of key Nepali institutions that address environmental issues

Government	Climate Change Council 'Environment Bench' in Judiciary (proposed) Environmental Protection Council (currently not functioning) Line ministries Ministry of Environment National Planning Commission (NPC) Nepal Academy of Science and Technology (NAST) Nepal Agricultural Research Centre (NARC)
Local government	District Development Committees (DDC) Environment Officers in municipalities/metropolitan areas Village Development Committees (VDCs) – Agriculture and Environment Committees
Private sector	Federation of Nepali Chambers of Commerce and Industry (FNCCI) Industry and business houses
NGOs	Centre for Environmental and Agricultural Policy Research, Extension & Development (CEAPRED) Environment and Public Health Organisation (ENPHO) National Trust for Nature Conservation (NTNC) Nepal Forum of Environmental Journalists (NEFEJ) Federation of Community Forestry Users (FECOFUN) Local Initiatives for Biodiversity, Research and Development (LIBIRD) Namsaling Community Development Centre (NCDC)
International organisations and NGOs	European Neighbourhood Policy (ENP) International Centre for Integrated Mountain Development (ICIMOD) UN Educational, Scientific and Cultural Organisation (UNESCO) World Wide Fund for Nature (WWF) Practical Action Bilateral and multilateral donors
Community organisations	Annapurna Conservation Area Project (ACAP) Community Forest and Women's User Groups (FUGs, WUGs) Practical Action Traditional authorities
Academia	Educational institutions (schools, colleges, universities), for example, the School of Environmental Science and Management Research organisations, such as the Nepal Academy of Science and Technology (NAST) or the Nepal Agricultural Research Council (NARC) Training centres
Media	Radio (FM, Radio Nepal, Radio Sagarmatha) Television Print media
Art and culture	Drama groups Fine art groups Musical association

Advances have been achieved by government at the local level. The Ministry of Local Development (MoLD) has made provisions for self governance and devolution of authority to local bodies. MoLD has responsibility for the co-ordination, facilitation and monitoring and evaluation of activities undertaken by local bodies (75 District Development Committees (DDCs), 58 Municipalities and 3,915 Village Development Committees (VDCs)). DDCs, VDCs and the Municipalities are the focal institutions for planning and coordination at the grassroots level and are responsible for the management and rational utilisation of resources within their jurisdiction. MoLD has produced several environmental guidelines to support work undertaken by the ministry and its agencies, such as:

- Social and Environmental Safeguard Framework (MoLD 2008).
- Environmental Assessment and Review Procedures – with Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR 2007).
- National Environmental Impact Assessment (EIA) Guidelines for Solid Waste Management Project in the Municipalities of Nepal – with the Solid Waste Management and Resource Mobilization Centre (SWMRMC, unpublished].

The Local Self Government Act 1999 entitled the local bodies under MoLD (VDCs, DDCs and municipalities) to make investment decisions using unconditional capital grants, based on the demands expressed by citizens (MoLD 2008). Such investments are mostly small-scale (for example, construction of agricultural or village roads, farmer managed irrigation systems, community drinking water supplies, or culverts) and do not come under the jurisdiction of the national environmental legislation (EPR and EPA). The environmental and social consequences of each individual project are usually insignificant but local bodies carry a large number of such projects and, thus, they can result in substantial cumulative environmental and social impacts. These guidelines therefore play a crucial role in safeguarding environment and social concerns in MoLD's undertakings. They have ensured:

- environmental integration in project decision-making and management procedures through, for example, undertaking EIAs and IEE studies prior to implementation, environmental monitoring throughout the project, environmental auditing and so on;
- integration of an environmental component within the institutional setup of MoLD and its lines agencies – currently MoLD has an environmental management division, environmental management sections in its lines agencies, and environmental desks in municipalities;
- capacity building in MoLD and its agencies, as well as for agencies working with MoLD in undertaking projects.

Community-based approaches to environmental mainstreaming have flourished in Nepal. A large number of local communities are now managing natural resources in their areas and taking key environmental decisions directly linked to development activities. Particularly significant are the 14,337 community forest user groups that have been established. In conservation areas such as Annapurna (see section 2.2) and Kanchenjunga, responsibility for conservation and environmental management decisions has been returned to village-based representative committees. Such community-based approaches provide for far more accountability and transparency about decisions. At the local level, around the world, such approaches have proven to be far more effective in linking environment, development and poverty issues, building on traditional knowledge and making sustainable resource management decisions than centralised top-down control. Donors have been very supportive of these initiatives.

Civil society organisations and NGOs are playing an increasingly important role in Nepal in environmental mainstreaming. Many of the most experienced environmental professionals now work in the NGO sector, and it is common for government officers to also have links with NGOs and work with them as a second occupation. The National Trust for Nature Conservation (NTNC) has pioneered community-based approaches to conservation. Many Nepali NGOs treat environment as both a crosscutting issue and a discrete theme, depending on the nature of the projects they are involved in. For example, the Kathmandu-based Urban Environment Management Society (UEMS) is dedicated to sustainable, clean and healthy urban environment for better living. The environment is reflected in its vision, as well as its thematic areas of work such as water, sanitation and hygiene; solid waste management; rainwater harvesting; and climate change and alternative energy. A number of international NGOs are also active in the country at different times, promoting and supporting environmental integration and conservation efforts (for example, IUCN assisted NCS implementation; and WWF has supported various projects including community management of Kanchenjunga Conservation Area).

The increasing activity of NGOs/INGOs in the environmental sector in Nepal reflects growing civic engagement in policy formulation and implementation. Their presence and commitment has been inconsistent, however. Nepalese NGOs are criticised for lacking professionalism, coordination, monitoring and evaluation, transparency, and long-term commitment, as well having a weak financial base.[52] The majority of NGOs have been established to execute a particular project and have then disappeared once the project has been completed or funding for the project has ended. Not surprisingly, therefore, there is doubt amongst Nepalese about NGOs' ability and commitment to address environmental issues. There are exceptions, however, and some prominent NGOs have been consistently undertaking environmental activities and have established a solid institutional reputation in Nepal (such as the Nepal Forum of Environmental Journalists (NEFEJ) and the Environment and Public Health Organisation (ENPHO).

The private sector is yet to play a significant role in environmental mainstreaming in Nepal. Although there have been some mainstreaming initiatives amongst businesses and industries (see section 2.4), they remain largely unaware of the importance of addressing environmental concerns in their activities, or of the possible benefits. They have adopted a reactive approach to environmental management, rather than pursuing proactive options such as energy efficiency, resource optimisation and cleaner production.

Research institutions in Nepal play an important role in analysing environment and development links and problems, suggesting solutions and how beneficial outcomes can be achieved. This paper draws heavily from the insights and perspectives of these organisations, as well as from numerous mainstreaming initiatives in Nepal. However, with some exceptions, research groups tend to serve the status quo rather than challenge it –perhaps because their work is largely funded or commissioned through government, donors or other organisations of the 'establishment'. They also rarely seem to integrate the factors that can potentially drive change. As Nepal emerges from the recent period of conflict and uncertainty, however, and hopefully seeks to reduce poverty, establish a green economy and pursue sustainable development, such organisations (for example, NAST, see Box 7) will be able to play a key role.

Making environment a core element of education courses at all levels is vital to raising awareness – and commitment to the environment – amongst tomorrow's leaders and decision-makers. Nepal has made significant progress following the introduction of environmental courses and degrees at educational institutions. As discussed in section 2.6, however, environmental graduates and professionals cannot build a secure career in government organisations due to the continuing lack of an 'environmental service group' in the Nepal public service system.

[52] Dhakal, T N (2007)

[Box 7] Nepal Academy of Science and Technology

The Nepal Academy of Science and Technology (NAST) was constituted in 1982 and endorsed by an Act of Parliament in 1992. It is the premier organisation in Nepal that conducts and promotes scientific (including environmental) research and technological innovation. Early work in the late 1980s included monitoring pollution in the Bagmati and Narayani rivers, and radioactive fall-out after Chernobyl disaster. Since 1985, NAST's science awareness programmes for the public have addressed environmental issues. Every four years, NAST organises a national science congress, and environmental and forest issues are regular themes.

An Environment and Climate Study Unit has been established under NAST's Faculty of Science, receiving nearly 25 per cent of the faculty's research budget. The unit's current activities cover: ground water quality analysis; monitoring background radioactivity; climatic impact on vegetation shift at high mountains; and post-operation impact of solid waste dumping sites. The unit's staff include ten full-time research scientists, including PhD fellows and several graduate students.

In 1990, with the support of Italian organisation Ev-K2-CNR, NAST established an International Pyramid Laboratory, powered by photovoltaic panels, at Lobuche (alt. 5050m asl) near Everest base camp – the highest in the world – to facilitate high altitude environmental and other research activities. In 2006, NAST scientists set up permanent plots to record the temporal change at the tree-line (alt. 4,050m asl) under impending global warming. Very recently, a webcam was installed on Mt Everest, providing real time images of conditions.

In 2009, NAST started a broad, integrated, multi-disciplinary research project focusing on the high mountain zone of Manaslu Conservation Area. It aims to generate comprehensive scientific information on the area's biodiversity, environment and climate change.

In 2010, the Government of Nepal created Nepal Climate Change Knowledge Management Center (NCCKMC) – under NAST – as a part of National Adaptation Program of Action (NAPA). Apart from housing documentation and research literature on climate change, NCCKMC promotes public awareness of climate change through a mobile library, covering all 25 districts in the south and involving over 12,000 students and teachers. It is also undertaking learning events, including policy dialogues at national and regional levels, and providing environmental training for 25 young researchers, particularly on the impacts of climate change.

The mass media (radio, TV and print) is increasingly active. It carries regular articles about environmental affairs. Television documentary programme Aankhijhyal (Window) has been widely acclaimed for its investigative approach to sustainable development and social justice issues since it began in 1993. It has showcased development, environment and social issues and inspired much discussion and debate. Its subject matter has ranged from land reform and agrochemical misuse to the conservation of heritage sites; from timber smuggling to glacial lake outbursts; and also issues related to the human, social and environmental costs of Nepal's violent insurgency and pro-democracy struggle in recent years.

The Nepal Forum of Environmental Journalists (NEFEJ) (www.nefej.org), established in 1986, has been particularly effective in conveying information on environment and development to the general public. It raises awareness on conservation and sustainable development, delivering information on social justice and equity, and encouraging conservation at local and national levels. It provides a forum for debate, study, influencing public policy, and focuses on public information, advocacy, lobbing and promotion of environmental media resources. NEFEJ has a significant influence on the formulation and amendment of environmental laws and rights and has successfully advocated for the proper management of solid waste generated in the capital. Recently, the NEFEJ

developed a toolkit of environmental reference materials for journalists and others in simple language and in both Nepali and English, and signed a memorandum of understanding with the Ministry of Environment to collaborate on promoting conservation, sustainable development and climate change management.

The role of the arts and cultural media in raising environmental awareness and conveying key messages is often under-rated. Yet they can be very influential. Far more people listen to the songs of popular singers every day than pay attention to what politicians have been saying.

Folk singer Komal Oli captivating a festival crowd

There are a number of examples of environmental and conservation messages being incorporated in folk and other Nepali popular songs. As discussed in section 3.2, poem and song competitions in the communities of the Annapurna Conservation Area have also played an important role in increasing awareness of the value of environmental conservation. Another example is a dance piece to express something of Nepal's experience of climate change. This was commissioned by the International Institute for Environment and Development (IIED) as part of its support to the development of the National and Local Adaptation Programmes of Action (for climate change) (NAPA/LAPA). The dance involved five movements: the time before climate change became an issue; the era of mechanisation/industrialisation; the destruction caused by the effects of climate change (such as floods, droughts, crop failure, and the loss of assets and life); the loss and suffering (for example, mass extinctions of plants and animals, and strife amongst human populations); the shock, anger and despair experienced; and, finally, portraying the hope that comes from working together to find ways to adapt to climate change. A DVD of the dance piece was produced as an open resource to be used for raising awareness about climate change and triggering discussion in communities/local government throughout Nepal. During research undertaken for IIED on mitigation co-benefits, folk songs and role-play were used to both illustrate climate change mechanisms, effects and impacts, and to celebrate the co-benefits and adaptations that the research had identified at the beginning and conclusion of the time spent in particular communities.

International organisations and donors operating in Nepal have an influential voice in environmental mainstreaming. Nepal relies heavily on foreign aid. Until 2002, donor aid represented over six per cent of GDP, and aid financed over 50 per cent of Nepal's development expenditure.[53] In the absence of a coordinated Nepali approach to environmental mainstreaming, donors have frequently driven this agenda through the initiatives they have funded. For example, donors funded the work on the NCS in the 1980s and the more recent work led by the MoEnv to address climate change – developing the NAPA and now LAPAs. The current UNDP/UNEP Poverty-Environment Initiative is seeking to integrate environmental issues in national planning processes. In 2006, donors and developing country partners agreed and signed the Paris Declaration, which seeks to improve the effectiveness of aid. One of its clauses commits both to "develop and apply common approaches for "strategic environmental assessment" at the sector and national levels". SEA is rapidly becoming one of the key processes to achieve environmental mainstreaming. So far, only one donor-funded SEA has been completed (for the National Water Plan), but more are likely to follow, and there is huge potential and significant benefits to Nepal in now developing its own SEA system.

Progress will be dependent on environment and development actors understanding each other's agendas and working together much more closely. Currently they operate in separate worlds and pursue distinctly different agendas (Box 8 and Table 8). A critical challenge as Nepal moves forward will be to break down the barriers and build bridges across agendas.

[Box 8] Why environment and development actors and agendas are separate

1. Development actors are not generally aware of, or trained in, environmental issues and therefore pursue their own agendas.
2. Environmental professionals are in the wrong place – often they are not familiar with what they have responsibility for.
3. There is emphasis on developing legislation but no serious focus on implementation: environmental actors' efforts in formulating policies and laws on environment issues are thwarted by developmental actors' lack of interest in their proper implementation – probably due to a lack of environmental awareness and a lack of meaningful economic incentives.
4. Institutional arrangements are not coherent: developmental actors are trained in different ways, therefore in the planning process, environment is not well integrated.
5. Different actors are trained within their fields, which leads to 'silo' thinking and behaviour.
6. Limited resources (human, technical and financial) are available for the environment compared to developmental activities.
7. The agendas of development actors are those of their institutions (that is, to provide service to the public or clients); but the agenda of environmental actors is the maintenance or enhancement of environmental assets.
8. The general level of awareness of the role and benefits (such as proven economic returns) of development actions is much higher than for environmental initiatives (uncertain outcomes or economic returns).
9. There are far more developmental actors and agendas than environmental ones, and minimal overlap.

[53] Bhatarrai B.P. (2007)

[Table 8] Institutional environmental agendas in Nepal

Institutional category	Agendas
Government	Policy mainstreaming Ensuring sustainability in environment and development Conservation EIA implementation
Private sector	Industrial pollution control Profit-making
NGOs	Ensuring environmental and social safeguards Sustainability-focused
Community organisations	Conservation Rational use of resources
Academia	Knowledge generation Education
International organisations and donors	Driving policy, programmes and projects
Media	Information & communication Awareness raising Sensitisation/exposure
Arts and culture	Awareness raising

Environmental mainstreaming in Nepal is below expectations. Although the government has formulated comprehensive sets of policies, plans and programmes, many have failed for several reasons: an inadequate focus on crosscutting issues, continuous intervention by political parties, the inability of national advisory bodies to function properly, the inability of policy institutions to implement policy and, most important, the lack of adequate financial, human and technical[54] resources. To be effective, environmental mainstreaming needs to be part of all phases of decision-making, planning, execution and management. There are several reasons for this ineffectiveness:

- *Inadequate fulfilment of international obligations.*
  Though Nepal has signed a number of treaties, conventions and protocols, it has not satisfactorily met its obligations to them by enacting required national legislation or taking necessary actions – in part due to weak institutional capacity. For example, The Ramsar Convention (Convention on Wetlands of International Importance, especially as Waterfowl Habitat) has been implemented in only a few of Nepal's identified wetland systems; but, even here, conservation works have not been carried out effectively. Currently, the wetlands are reported to be under pressure from sedimentation, encroachment and agricultural expansion, pollution, overuse of resources, and eutrophication.[55] The most-serious constraints on fulfilling Nepal's international commitments are: (a) lack of policy regarding coordinating bodies; (b) inability to translate policies into specific laws; (c) failure to specify the roles and responsibility of agencies involved; and (c) absence of political willingness and/or political prioritisation.

- *Inability of policymaking institutions to implement policy.*
  Key institutions like the National Planning Commission, Ministry of Environment and other line agencies have not been proactive in implementing approved policies. For example, despite tremendous efforts to prepare and secure approval of the Nepal Biodiversity Strategy and the National Water Plan, these have not been implemented.

[54] ADB, 2006
[55] Kafle & Savillo, 2009

- *Lack of adequate resources.*
  Lack of sufficient skilled human resources and inadequate budgetary allocations are serious constraints which have dramatically reduced the effectiveness of environmental mainstreaming efforts. In most ministries, professionals with relevant qualifications and experience are thin on the ground – someone commented that it is akin the having 'singers in the cockpit'. There is also inequality in the budgetary allocations that are made. Far more is currently earmarked for climate change work than any other environmental issues. The EIA system in Nepal has a well-structured policy framework, an established institutional set-up, is widely practiced and familiar to all walks of society. However, the system is unable deliver expected results. Staffing levels in the EIA section of the Ministry of Environment (MoEnv) and its line agencies are inadequate. Environmental monitoring and auditing of project implementation has been poor because MoEnv has never been funded to undertake these tasks. Similarly, sectoral agencies have been unable to fully implement EIA regulations due to lack of funds and inadequate infrastructure capacity. Agencies with other (non-environmental) mandates have only had enough capacity to fulfil their own priorities – so environmental requirements have taken second place and, more often than not, have been left unattended.

- *Inadequate environmental information.*
  Environmental and scientific data is critical to understanding environmental status and trends, and access to (and integration of) such information is necessary for informed decision-making. In a developing country like Nepal, where concern about the environment is a recent phenomenon, the availability of adequate environmental information and its management is a major challenge. No central records are kept of environmental information, nor is there a comprehensive list of data sources. Environmental publications, reports and information tend to remain with the agencies that generate them with no clear mechanism to share and promote access.[56]

[56] ADB, 2006

[4] Summary lessons on successful environmental integration in Nepal's development

[4.1] Governance conditions for successful environment mainstreaming

In common with experience in many other countries,[57] in Nepal we can identify several conditions that – if already in place – enable development objectives and environmental management objectives to be better integrated:

1. *Legality*: the legislative system supports both environmental protection and social justice, with no significant inconsistencies between the two.

2. *Institutional home*: all sectoral and decentralised institutions have mandates for tackling the environment as a crosscutting issue within their own work.

3. *Public concern*: public demands to tackle environmental degradation and to nurture environmental assets are significant and well-expressed.

4. *Public and media advocacy*: mass organisations and NGOs are able and free to raise difficult policy issues in environment and development.

5. *Leadership*: government and other top leaders are prepared to listen, to change policy, to act, and to be accountable.

6. *Communications and transparency*: there are many ways of accessing, sharing, and feeding back information about environment-development links.

7. *Cooperation*: there are shared initiatives, processes and other means for actors to collaborate – centre-province, sector-sector, and government-nongovernment.

Where all the above conditions are fully present, this would amount to a political economy with extraordinarily good potential for balancing human with ecosystem wellbeing, short-term with long-term objectives, and public with private interests. No country is in very good shape in relation to all these conditions. Nepal has made some progress in many conditions but little in others. Future progress will depend upon both high-level leadership and public engagement, as many of the conditions cannot be created by environment and poverty reduction initiatives alone.

[57] For example, Dalal-Clayton & Bass (2009); Bass et al. (2010).

[4.2] Principles for successful environment mainstreaming

From experience to date in Nepal and elsewhere, we can also identify some principles that can guide initiatives that aim to integrate environment and development:

1. *Identify, encourage and use the above governance conditions*: so that the environmental mainstreaming process benefits from them.

2. *Spend time getting to know exactly how 'mainstream' decisions are made and by whom*: this will help case-making, policy formulation and capacity development.

3. *Use existing mainstream procedures and 'language'*: helping organisations to integrate environment-development needs into their own procedures is more effective than imposing special new procedures and 'language' just for environment-development issues.

4. *Work from bottom-up as well as top-down*: community plans and field solutions are as necessary as national policy pronouncements and institutions.

5. *Generate both quantitative and participatory information*: combining scientific credibility (meaningful numbers) with political credibility (reflecting stakeholder opinions, as well as what can realistically be done by government).

6. *Anticipate trends and future needs*: so that mainstreaming is aimed at resolving future problems and potentials, not only addressing current or past problems.

7. *Construct cases around mainstream concerns*: such as jobs (for example natural resource-based jobs), not only environmental concerns such as endemic species.

8. *Encourage integration capacity within each relevant ministry and the districts*: such as a coordination unit and not only a single 'umbrella' institution.

9. *Expect mainstreaming to take time and require several 'pathways'*: it is a long institutional change process involving many stakeholders, not a short-term project.

10. *However, fast-track tactics will also be needed*: this will avoid major environment and poverty threats and will exploit opportunities, such as stopping environmentally damaging subsidies and rapidly scaling up good practice.

11. *Aim mainstreaming work at specific people, places and sectors*: concentrating on groups of poor people (people living on infertile or polluted land); or on sectors where major investment needs to be made (energy, transport or health).

There is real scope through initiatives such as the global UNDP-UNEP Poverty-Environment Initiative, and regional organisations such as the Asian Centre for Environmental Management and Sustainable Development (AEMS), to share practical learning between countries on such principles.

[5] Priorities for the future: some ideas for more effective integration of environment and development in Nepal

In setting priorities for environmental mainstreaming in Nepal, it will be important to *ensure that the views of the main groups of stakeholders are taken into account* – gathered through workshops, surveys and other approaches. A special effort will be necessary, however, to *ensure that the views and needs of the poor and the marginalised (who often lack a voice) are expressed and captured*, especially:

- *The chronic rural poor, particularly in remote mountain areas,* who need access to common property resources and the means to generate viable livelihoods from them. These include payment schemes and other incentives that will encourage them to generate public environmental goods such as water, hydro-electric power, carbon, (agro)biodiversity and landscape, and support for resource rehabilitation and recapitalisation alongside food and forest products. They also need climate change adaptation strategies and protected area management regimes to be more understanding of their vulnerabilities and supportive of their needs and capabilities.

- *The urban poor*, who form an increasing proportion of the population, wish to participate in approaches that help both settled and migrant poor groups to improve their livelihoods and legitimate employment prospects – and thus reduce the social costs associated with urbanisation (water poverty, energy poverty, environmental health burdens, and so on).

- *All poor groups and ethnic minorities* have in common a need for secure rights regimes, permissions to settle and trade, capacity support, sustainable natural resource management regimes, effective delivery mechanisms for environmental health and the ability to hold state agencies to account.

However, specific needs and capabilities will need to be identified in particular locations. Within each group, women, migrants, religious sects and ethnic minorities will also have specific demands and capabilities.

[5.1] Recommendations

We make a number of recommendations below which we believe will enable Nepal to mainstream the environment more effectively. This will help the country to be more resilient to increasing and often unpredictable environmental risks and hazards, and will improve its ability to ensure that its abundant environmental assets can benefit the country's development, underpin livelihoods and reduce poverty. Each recommendation draws from our review of progress to date and seeks to address gaps that need to be filled.

Ensure that the 'environmental rights' of people, animals and plants are enshrined in an article in the new constitution of Nepal – tackling the rights gaps

Nepal is currently focused on developing a new Constitution following two decades of unrest. The country is ready to move forward. This process provides a golden opportunity to incorporate an article that recognises the key role of the environment in the country and safeguards the

rights of the Nepalese people to live in a healthy environment. Useful pointers might be found in the Constitutions of an increasing number of countries that now include provisions for the environment. That of Bhutan provides particularly strong commitments to the environment (Box 9). More often, the provisions tend to be minimal and differ in content, context, clarity and detail. Nevertheless, they should provide a potentially powerful driver for environmental mainstreaming. Commonly, they have one or more of the following elements:

- The right to a healthy environment (some add other qualifiers, such as "free of contamination" or "ecologically balanced". In South Africa, for example, Section 24 of the Constitution states that South Africans "have the right to an environment that is not harmful to their health or well-being").

- A general obligation on the state to protect the environment and/or natural resources.

- An obligation for the rational and/or sustainable utilisation of natural resources.

[Box 9] Environmental commitments in the Constitution of the Kingdom of Bhutan

Article 5 : Environment

1. Every Bhutanese is a trustee of the Kingdom's natural resources and environment for the benefit of the present and future generations and it is the fundamental duty of every citizen to contribute to the protection of the natural environment, conservation of the rich biodiversity of Bhutan and prevention of all forms of ecological degradation including noise, visual and physical pollution through the adoption and support of environment friendly practices and policies.

2. The Royal Government shall:
   a) Protect, conserve and improve the pristine environment and safeguard the biodiversity of the country;
   b) Prevent pollution and ecological degradation;
   c) Secure ecologically balanced sustainable development while promoting justifiable economic and social development; and
   d) Ensure a safe and healthy environment.

3. The Government shall ensure that, in order to conserve the country's natural resources and to prevent degradation of the ecosystem, a minimum of sixty percent of Bhutan's total land shall be maintained under forest cover for all time.

4. Parliament may enact environmental legislation to ensure sustainable use of natural resources and maintain intergenerational equity and reaffirm the sovereign rights of the State over its own biological resources.

5. Parliament may, by law, declare any part of the country to be a National Park, Wildlife Reserve, Nature Reserve, Protected Forest, Biosphere Reserve, Critical Watershed and such other categories meriting protection.

Source: The Constitution of the Kingdom of Bhutan.

The Constituent Assembly formed the Committee on Natural Resources, Economic Rights and Revue Allocation (CNERRA) on 15 Dec 2008. It has prepared a concept paper on the themes that are within its jurisdiction (including the environment) to be considered for inclusion in the Constitution of Nepal.[58] The Committee has emphasised that environmental protection needs to be ensured within the Constitution. It recommends that, on one hand, the state should be obligated to ensure the protection of biodiversity and sustainable management and use of natural resources, guarantee environmental rights as an inseparable right to life so that every person shall have clean and healthy environment; and, on the other hand, that citizens should also obliged to conserve and management the natural resources.

Develop an organised knowledge base on environment-development linkages, initiatives and lessons – tackling the information gap

A major challenge in Nepal is the lack of understanding – at all levels – of the environmental foundations of development, and only limited appreciation of the efforts that have been undertaken to mainstream the environment in recent decades. The lessons from Nepal's experience to date of environmental mainstreaming should be used to support the other recommendations we make, and to scale up approaches that have worked, avoid poor practices, plug gaps, and raise awareness. This report and a thorough analytical review of environmental mainstreaming efforts in Nepal over the past 30 years (due in early 2012) being undertaken by AEMS will provide evidence and helpful pointers. AEMS is also establishing a resource centre to provide information on environmental and development programmes and projects in the country and region. We urge support for this centre as a national resource. The UNEP/UNEP Poverty-Environment Initiative (PEI-Nepal) is also working to improve the available information base on environment-development and poverty-environment links in Nepal, but this needs to be organised and made available to key development actors, ideally in cooperation with the AEMS centre. ICIMOD also maintains an excellent library of mountain-related environmental information from Nepal and the rest of the Himalayan region. NPC, MoEnv, MLD, other line ministries, district authorities, NGOs, the private sector, academia and donors would be principle 'customers' of such information, as well as being providers of some information.

We also recommend that the government take steps to ensure indigenous knowledge, art and culture, and cultural practices that serve to raise environmental awareness are gathered, documented and promoted.

Establish a Sustainable Development Council – tackling the multi-stakeholder forum gap

In 2012, the world community will meet in Rio de Janeiro for the Rio+20 conference – a UN summit to reflect on progress towards sustainable development since the first Earth Summit in Rio in 1992. One of the key themes of the summit will be transitioning to a green economy. It is well recognised that environmental mainstreaming is a fundamental requirement for achieving progress towards green economy and delivering sustainable development. Nepal will need to respond positively and effectively to the commitments made at Rio+20 if it is to move forward on these objectives. In this regard, we believe the time is right to establish a national multi-stakeholder forum on sustainable development, where challenges can be examined, issues debated, solutions identified, recommendations for action (by all actors) made, and initiatives launched – not least as regards environmental and sustainable development mainstreaming.

[58] CNERRA (2009)

A very useful model is offered by Nepal's Environment Protection Council, established in 1992 as a high-level national, non-statutory, advisory body, chaired by the Prime Minister. It was mandated to focus on management and protection of the environment and executed many programmes and decisions. EPC members included ministers of relevant ministries, senior civil officials, representatives of NGOs and the private sector, and individual environmental professionals. A secretariat was provided by the then Ministry of Environment, Science and Technology. The EPC was charged to provide guidance on the management of natural and physical resources and coordinate environmental activities among the relevant national agencies (taking into account the EIA of project developments), disseminate information on the environment, and promote environmental awareness and education.

Being only an advisory body with no independent secretariat, however, the EPC could not sustain itself and is no longer active. The Transaction of Business Rule (1990)[59] requires that before a proposal is submitted to the Cabinet for decision, the advice of the National Planning Commission must be sought, not that of the EPC. However, the EPC was a well designed radial organisation, and it was able to address issues related to environment (as a crosscutting issue relevant to all ministries). As a multi-stakeholder forum, it could function more effectively in addressing crosscutting solutions than an individual Ministry of Environment.

A new Sustainable Development Council, chaired by the Prime Minister, could build usefully on the experience of the EPC. Its functions, responsibilities and institutional needs (for example, secretariat and budget) will need to be defined so that it complements and supports line ministries and interacts effectively with parliament, the private sector and civil society. It will need to address those issues which are truly crosscutting, where different sectors and stakeholders need to come together and chart common purpose and effective modalities for progress.

Formulate an holistic environmental policy by updating and integrating existing/ new policies – tackling the policy gap

Several policies, plans, and programmes have been formulated over the years to address the environment, either explicitly or as a crosscutting issue in particular sectors (such as Infrastructure Development Policy, Housing Policy, and Irrigation Policy). These address environment in a disjointed manner with little coherence between them, however, and they remain largely ineffective in improving the quality of the environment. Key national agencies such as the National Planning Commission and sectoral agencies have not been effective in implementing and monitoring these policies and plans.

An holistic environmental policy is urgently needed that addresses the environmental issues relevant to all sectors, developers and institutions in an integrated way. The absence of such a policy has been a major reason for Nepal's inability to prepare a strategy for the environment with a long-term vision, and a plan for its implementation. All existing policies need to be reviewed, assessed for consistency (addressing where they are complementary and mutually supportive, and where their objectives conflict), and revised/updated as necessary under the framework of a new overarching, harmonising, national environmental policy.

This need is urgent. Conflicts and problems related to overlapping mandates can be found in many areas but are especially prevalent between institutions with long histories and those that are relatively new. There is a strong need to review and harmonise all existing sectoral environmental legislation. Box 10 describes three examples of conflicts that can arise between different agencies and ministries to show how pervasive the problems are.

[59] GON (1990) Karya Sampadan Niyamavali (Transaction of Business Rules), Government of Nepal

[Box 10] Conflicting and overlapping institutional mandates

Conflicts arise, for example, in cases which involve forested areas. As per the provisions of the Environment Protection Act and Regulations, MOEST [now MoEnv] is authorised to approve EIA reports on development projects (like transmission lines and hydropower plants). Nevertheless, the Forest Act 1993 says that in cases where such projects involve forested areas, MOFSC also has the right to review and reject them. Lack of expertise and facilities means that the approval process by MOFSC may take a long time, and often these delays compromise project viability. Experiences of programme implementation reveal that while awaiting an environmental decision, developers often take matters into their own hands and clear extra forests and inflict other damage. Legislation and human resources to monitor or prosecute this behaviour are weak or lacking, and in the process, projects of possibly national importance are jeopardized.

Similarly, the National Parks and Wildlife Conservation Act 1973, amended 1993, prohibits any outside interference in projects undertaken in protected areas. Yet MOFSC has a mandate to oversee all forest administration. If MOFSC undertakes projects in forested protected areas, these can be vetoed by park authorities. Other conflicts over forested areas arise from the fact that under Environment Protection Act rules, MOEST can declare certain forested areas to be conservation areas. MOFSC has a similar mandate under the Forestry Act. While the discussions over jurisdiction continue, important forest areas continue to degrade, as do watersheds, wetlands, and river basins.

Agriculture-based private industries registered with the Ministry of Industry, Commerce and Supplies can sell imported products such as fertilizers and pesticides to farmers. When these products are of low quality, they can wreak havoc on agricultural production, the soil, the environment, and people's health. Since these industries are not registered with the Ministry of Agriculture and Cooperatives and one ministry cannot interfere with the jurisdiction of another, the Ministry of Agriculture and Cooperatives cannot prosecute their wrong-doing. In this turf war, the farmer ultimately loses.

Yet another area of conflict arises where ministries have an obligation to monitor projects implemented under their jurisdiction; however, MOEST can also intervene to monitor them under the Environment Protection Act and Regulations. This creates confusion and conflicts between MOEST and the ministries concerned.

Source: ADB (2006)

Start to apply strategic environmental assessments (SEA) to policies, plans and programmes – tackling the methodology gap

Pilot SEAs should be commissioned for existing or proposed new policies, plans and programmes to gain experience of how this approach works and can benefit Nepal. For example, reducing the risks that poor or ill-thought-out policies will lead to costly and unforeseen environmental damage, and helping to reduce the numbers of EIAs and streamline their scope. Such pilots should include a focus on raising awareness about SEA and building capacity. In due course, with experience, an SEA system tailored to Nepal's context and needs should be established, guidelines prepared and training programmes instituted. The concept of SEA should be included in university-level environmental courses.

One area where an SEA would make immediate sense is hydropower. A large number of schemes are being proposed for micro-hydropower schemes and for each one an EIA is required. Often,

many of the issues in each case are the same. An SEA of the hydropower sector would enable the big strategic issues and alternatives to be considered, and the pros and cons of a limited number of large schemes versus a large number of micro schemes to be compared.

Promote sustainable public procurement – tackling the sustainable public investment gap

One of the clearest ways in which government could offer leadership is in the implementation of a sustainable public procurement programme. This would ensure that government contracts for materials, services, buildings and other supplies preferentially use environmentally- and socially-sound products and processes. A good example, employed now in many countries, is timber supplies – ensuring wood products are from legal and / or sustainable sources, sometimes certified, for example to Forest Stewardship Council standards.

Regularise public environmental expenditure reviews – tackling the government commitment gap

There is a strong perception that government lacks political will and commitment to the environment. This is certainly given force by the limited budgetary resources that are allocated to environmental actions. Public Environmental Expenditure Review (PEER) is a relatively new approach that examines government resource allocations within and among sectors, and/or at national and sub-national levels of government. It also assesses the efficiency and effectiveness of those allocations in the context of the environmental management framework and priorities. In addition, it identifies reforms needed to improve the effectiveness, efficiency and sustainability of public spending for environmental management. PEI-Nepal has recently completed a Climate Public Expenditure and Institutional Review review, which showed that annual expenditure in climate change constitutes around 2-3 per cent of GDP and around 2-8 per cent of government expenditure. In both cases the trend is increasing. It is highlighted that national classification standards of public expenditure need updating. Priority should be given to incorporate terminology related to environment and climate change. The review also suggested establishing a national budget coding system that can help to track thematic climate and environment related expenditure.

We recommend that the government commissions a PEER on a regular basis. It offers a way to systematically assess the equity, efficiency and effectiveness of public environmental spending. The data and insights it will yield could be very valuable for designing policy reforms, government budgets and investment projects. They examine whether government expenditures are effectively matched to environmental priorities, and identify areas of inconsistency. If done well, it could highlight any mismatch between (new) environmental policy and plans and (historical) low levels of spending in those areas of government that are now linked to environmental priorities. In many cases, PEERs have helped to redistribute spending towards institutions responsible for environmental priorities, towards longer-term goals rather than short-term, and in some cases have helped to considerably increase environmental budgets.

Organise a regional conference on environmental mainstreaming and green economy – tackling the vision gap

The concepts of environmental mainstreaming and green economy[60] are relatively new to Nepal and a number of other countries in the Asian region. Yet the Rio+20 conference in mid 2012 will focus on these issues in addressing progress made towards sustainable development. It is

[60] Defined by the Green Economy Coalition (www.greeneconomycoalition.org) as a "fair and resilient economy, which provides a better quality of life for all achieved within the ecological limits of one planet'.

also likely that interest in and momentum towards the goal of green economy will accelerate as a result of Rio+20. Given this, and following on from Nepal's highly successful first workshop on environmental mainstreaming in Pokhara in October 2011, we suggest that is now both important and timely to share our learning with our neighbours in the region and learn from their practices and experiences. We therefore propose that a regional workshop be organised on environmental mainstreaming and green economy.

This would provide a neutral forum for Asian professionals to raise their awareness of the latest thinking on these concepts, discuss their relevance in an Asian context and how regional and national technical institutions can engage effectively (individually and collectively) to promote them, and review national experience, drivers and challenges. It will enable participants to rehearse the issues and possible responses, as momentum to address them builds through the Rio+20 process. The workshop would also help initiate a regional network of organisations and individuals concerned with key issues of environmental management and sustainable development in the region.

Maintain the current Environmental Mainstreaming and Learning Group (ELLG) and inter-ministerial Steering Committee (for Environmental Mainstreaming) – tackling the learning gap

The ELLG can continue with the important role in the country of an independent forum for environmental and development experts and champions. It should be commissioned, when needed, to address and provide advice on particular pressing environment-development challenges. Its format could be widened and role evolved so that it replicates the function of the Environmental Core Group established under the NCS Implementation Plan.

The ELLG should remain answerable to the Steering Committee and its membership should be adaptable, bringing in particular expertise as required for particular tasks.

Enhance endogenous capabilities of individuals and institutions

Environmental consciousness and conservation awareness and commitment is a fundamental part of the traditional way of life of the Nepalese people. The plethora of expert reports have hardly recognised this existing knowledge system, however, and it is not acknowledged by new scientific approaches. Environmental mainstreaming will reach the grassroots and become embedded in local decisions and actions only when the local institutions and communities take it on board as an integral part of their own requirements and innovations. One of the key goals of environmental mainstreaming, therefore, should be to enhance endogenous (home-grown) capabilities to address the environment. We will significantly improve our efforts to mainstream the environment by recognising existing traditional knowledge systems and practices for environmental protection, understanding their importance and the priority given to them, and explaining them in modern scientific terms.

Create an 'environment service group' within the public service commission system

Several service groups[61] have already been established within the Public Service Commission under Nepal's Civil Service Act 1993. But as yet, there is no such group concerned with the environment. As previously noted, this is inhibiting the career of environmental professionals in government service. We recommend that an 'Environment Service Group' is created, embracing all environmental graduates and professionals with an environmental background and working in

[61] The recruitment and management of government jobs in Nepal are governed by the Civil Service Commission of Nepal – a constitutional body which categorises professionals in "service groups and sub-groups", such as engineering, medical doctors, forestry, and so on. Government employees have to pursue their career in within these groups and sub-groups.

the environment sector. Such a group would help to motivate and retain trained environmental professionals within government agencies. Currently, many transfer to other sectors to progress theit careers.

Enhance environmental education and training – tackling the skills gap

Environmental education and training are an integral part of the socio-economic development process, ensuring that current best practice is maintained. Environment has been incorporated in the formal education system and plan, and environment-related courses should be made attractive, with clear signals about the opportunities for employment and their eligibility for the inter-universities credits transfer system. Similarly, there are many professionals in the environment sector within government and non-government institutions who need to receive training on the use of new and emerging environmental tools, techniques and best practices. The government and concerned authorities need to prioritise environmental education and training to ensure that they are sustained, and allocate adequate financial support.

Another way to tackle the skills gap is to find ways to directly involve students in addressing conservation issues, waste minimisation and resource optimisation and by promoting active collaboration and coordination among universities and public institutions for access to information-sharing and decision-making.

Encourage the media and artists to be more proactive in championing environmental issues – tackling the awareness gap

The government, academics, NGOs and others should engage far more actively with the media to promote environmental awareness and good stewardship. Evidence in Nepal, as in most countries, shows that one of the key challenges to environmental mainstreaming and causes for continuing environmental damage is the continuing widespread lack of understand of the importance of the environment in underpinning the economy and its key role in maintaining a range of services and supporting livelihoods. This is particularly so in poor countries that are highly dependant on their natural resource base. Whilst 'dry' technical reports, produced by experts, are vital for synthesis and presenting analysis and facts, they are not read by leaders and ordinary people, and even where they are, they are not inspirational. It is necessary to seek other ways to communicate to the masses to raise environmental awarenss and encourage changed behaviour. As Nepal's leading folk singer, Komal Oli, has put it, "*Song is a very powerful medium for everyone. We all listen to and are influenced by music. If you say to people "do this or don't do that", most likely they will be irritated and do nothing. But through music you can change people's attitude, thinking and behaviour.*"

Since it was established in 1990, the Nepal Forum of Environmental Journalists (NEFEJ) has been consistently sensitising and making the general public aware of environmental issues. NEFEJ is currently running an environmental theme through its print media, an FM radio station (Radio Sagarmatha) and a weekly magazine broadcast on national television channels.

The kind of initiative that can help is exemplified by a proposal developed in early 2012 by the National Planning Commission in association with IIED. The proposal outlines a programme to support Nepal in its preparations to participate in the Rio+20 UN summit on sustainable development (June 2012 in Rio de Janeiro, Brazil). It includes various technical activities, as well as the idea to commission a song conveying key messages on managing Nepal's environment sustainably. The aim is that leading artists will record the song in several styles (folk, pop, rock and rap), in both Nepali and English. These versions will be presented on CD and also with an accompanying video depicting with environmental issues in Nepal; and will be showcased both in Nepal (on all 330 FM radio stations) and on all 29 national TV stations, and at the Rio+20 summit. In this way, key environmental issues and messages will be conveyed to the masses and to an international audience.

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Annex 1. Nepal's commitments to environmental international conventions[62]

a. Natural Resource Management

- Plant Protection Agreement for the South East Asia and the Pacific Region; Date of entry into force in Nepal: 12 August 1965.
- Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES); Date of entry into force in Nepal: 16 September 1975.
- Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention); Date of entry into force in Nepal: 17 April 1988.
- International Tropical Timber Agreement; Date of Ratification or Accession: 3 July 1990.
- Agreement on the Network of Aquaculture Centers in Asia and the Pacific; Date of Ratification or Accession: 4 January 1990.
- Convention on Biological Diversity (CBD) Date of entry into force in Nepal: 21 February 1994.
- UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa; Date of entry into force in Nepal: 13 January 1997.

b. Cultural Heritage

- Convention for the Protection of the World Cultural and Natural Heritage; Date of entry into force in Nepal: 20 September 1978.

c. Nuclear Weapons

- Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water; Date of Ratification or Accession: 7 October 1964.
- Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies; Date of entry into force in Nepal: 10 October 1967.
- Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-bed and the Ocean Floor and in the Subsoil Thereof; Date of entry into force in Nepal: 18 May 1972.

d. Marine Environment

- Convention on the High Seas; Date of entry into force in Nepal: 27 January 1963.

e. Waste Management

- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter; Date of Ratification or Accession: 1 January 1973.
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes (Basel Convention); Date of entry into force in Nepal: 13 January 1997.

f. Ozone Layer Protection

- Vienna Convention for the Protection of the Ozone Layer (Vienna Convention); Date of entry into force in Nepal: 4 October 1994.
- Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol); Date of entry into force in Nepal: 4 October 1994.
- London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (London Amendment); Date of entry into force in Nepal: 4 October 1994.

g. Climate Change

- United Nations Framework Convention on Climate Change (UNFCC); Date of entry into force in Nepal: 31 July 1994.

h. Conventions signed only

- Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological)and Toxic Weapons and on their Destruction; Date of Adoption: 10 April 1972; Date of Nepal's signature: 10 April 1972.
- UN Convention on the Law of the Sea; Date of Adoption: 10 December 1982; Date of Nepal's signature: 10 December 1982.
- Convention on Fishing and Conservation of the Living Resources of the High Seas; Date of Adoption: 29 April 1958; Date of Nepal's signature: 29 April 1958.
- Convention on the Continental Shelf; Adopted 29 April 1958; Signed: 29 April 1958.
- Stockholm Convention on Persistent Organic Pollutants (POPs); Date of Nepal's signature: 5 April 2002.

[62] TADB, 2006

Annex 2. Environmental mainstreaming milestone in Nepal

Year	Milestone	Focus
1970s	Community forestry	Government recognised that the forest can be best managed by involving local people.
1980	"Environment" mentioned in 6th Five Year Plan (1980-85)	Environmental degradation and ecological imbalance resulting from deforestation – prevent progress.
1988	Nepal Conservation Strategy (NCS)	Objectives of NCS were to: ■ ensure the sustainable use of Nepal's natural resources; ■ ensure the sustainable use of Nepal's natural resources; ■ preserve the genetic diversity of Nepal; ■ maintain essential ecological processes and life support systems; ■ help satisfy the basic material, spiritual and cultural needs of all the people of Nepal, both present and future generations.
1986	Master Plan for the Forestry Sector	Formalised the efforts on community forestry, by proposing that the mid-hills should be handed over to the local communities, formed in User Groups.
1987	Establishment of Environment Division within National Planning Commission	To facilitate the integration of environmental aspects into the development planning process.
1990	Parliamentary Committee on Environment	To advise the House of Representatives on environment, forests, soil conservation, industry and housing and physical planning.
1992	Environmental Protection Council	Formed under the chairmanship of the prime minister.
1993	Environmental division/section in sectoral ministries/departments	Institutional reform to deal with environmental issues.
1993	Environmental Impact Assessment Guideline	IUCN/ National Planning Commission prepared EIA guidelines to streamline EIA initiative in Nepal.
1993	Nepal Environmental Policy and Action Plan (NEPAP)	Prepared and endorsed by EPCI. NEPAP was Nepal's effort to fulfil its commitment to environmental management and sustainable development expressed at UNCED in 1992.
1995	Ministry of Population and Environment (MOPE)	Established for the purpose of environmental conservation, pollution prevention and control, and conservation of national heritage as well as the effective implementation of commitments expressed in regional and international levels.
1997	Environmental Protection Act 1997 and Environmental Protection Regulation 1998	Introduction of mandatory rules and regulations (for major development works) on environmental pollution, and Environmental Assessment in the form of EIA and IEE.
1999	Environmental education in universities	Pokhara University started BSc/MSc in environmental management through SchEMS; Kathmandu university started BSc in environmental science, later upgraded to MSc around 2001. Tribhuvan university also started BSc followed by MSc in environmental science.
2005	National Water Plan	25 year plan. Subjected to strategic environmental assessment (SEA) to satisfy donor's requirement.
2010	National Adaptation Programme of Action (NAPA)	Adaptation to consequences of climate change.

Annex 3. Environment-related legislation[63]

1. Patent Design and Trademarks Act, 1936 (new Act, 1965)
2. Agriculture Cooperatives Act, 1954
3. Nepal Mines Act, 1956 (new Act in 1985)
4. Private Forest Nationalization Act, 1956
5. Forest Protection Act 1956
6. Lands Act, 1956 (Revised 1965)
7. Ancient Monuments Protection Act, 1956
8. Animal Feed Act, 1956
9. Royal Nepal Airlines Act, 1956 (revised 1963)
10. Wildlife Protection Act, 1957
11. Nepal Factory and Factory Worker's Act, 1958
12. Civil Aviation Act, 1958
13. Nepal Industrial Development Corporation Act, 1958
14. Birta Abolition Act, 1959
15. Aquatic Animals Protection Act, 1961
16. Land Survey Act, 1961
17. Industrial Enterprises Act, 1962 (revised 1982; new Act, 1992)
18. New Civil Code, 1962
19. Explosives Act, 1963
20. Land Acquisition Act, 1963
21. Forestry Act, 1963
22. Irrigation Act, 1963
23. Town Development Committee Act, 1964
24. Vehicles Act, 1964
25. Nepal Electricity Act, 1964
26. Malaria Eradication Act, 1965
27. Contagious Diseases Act, 1965
28. Nepal Medical Council Act, 1965
29. Tourism Industry Act, 1965
30. Tourism Act, 1957, and Mountaineering Regulation, 1979
31. Highway Construction Act, 1965
32. Mills Act, 1965
33. Food Act, 1966
34. RaptiDoon Land Development Area (Sale and Distribution) Act, 1967
35. Agriculture Development Bank Act, 1966
36. Canal, Electricity and Related Water Resource Act, 1967
37. Forest Protection (Special Arrangements) Act, 1967
38. Town Development Plan (Implementation) Act, 1970
39. Plants Protection Act, 1972
40. Jhora Sector Land Distribution Act, 1972
41. National Parks and Wildlife Conservation Act, 1973
42. Pasture Land Nationalization Act, 1974
43. Public Roads Act, 1974
44. Narcotic Drugs Control Act, 1976
45. Animal Feeds Act, 1975
46. Medicines Act, 1976
47. Nepal Standard Act, 1979
48. King Mahendra Trust for Nature Conservation Act, 1982

[63] Source: UNESCAP 2011

49. Soil Conservation and Watershed Management Act, 1982
50. Decentralization Act, 1982
51. Natural Calamities Relief Act, 1982
52. Nepal Electricity Authority Act, 1983
53. Nepal Petroleum Act, 1983
54. International Centre for Integrated Mountain Development Act, 1983
55. Solid Waste Management and Resource Mobilization Act, 1986
56. Pashupati Area Development Trust Act, 1987
57. Kathmandu Valley Department Authority Act, 1988
58. Royal Academy of Science and Technology Act, 1988
59. Nepal Water Supply Corporation Act, 1990
60. Village Development Act, 1990
61. Municipality Act, 1990
62. District Development Board Act, 1990
63. Constitution of the Kingdom of Nepal, 1990
64. Pesticides Control Act, 1991
65. Water Resources Act, 1992
66. Electricity Act, 1992
67. Forest Act, 1993
68. Transport Act, 1992
69. Constitution of the Kingdom of Nepal 1992

Annex 4. Institutional responsibilities for environment in Nepal[64]

SN	Agency/Ministry	Department/ Units	Responsibilities
1	Parliamentary Committee on Natural Resources and Environmental Protection	Parliament Secretariat	Oversee the actions of the government in the area of environment and gives advice and directives to the government on environmental-related issues.
2	National Development Council	National Planning Commission as Secretariat	Highest level advisory body to deliberate on major development issues and future directions for the country.
3	Environment Protection Council (*not functional*)	Ministry of Population and Environment as Secretariat	National policy formulation, coordination, evaluation.
4	National Planning Commission	Environment Division	Coordination.
5	Ministry of Population and Environment	Three Divisions	Formulation and implementation of policies and plans, legislative measures, surveys and research, monitoring and evaluation.
6	Ministry of Agriculture	Agriculture	Biotechnology, land use, improvement and management, agricultural extension, fisheries, agricultural production, plant quarantine.
		Agricultural Marketing Services	
		Livestock Development and Animal Health	Animal husbandry, animal feed and fodder.
		Horticulture	Fruit and vegetable development and promotion.
7	Ministry of Commerce		Formulation of international trade policies.
8	Ministry of Communication	National News Service Radio Nepal	Dissemination of environmental information, awareness creation.
		Radio Nepal	Dissemination of environmental information, awareness creation.
		Nepal Television	
		The Gorkhapatra and rising Nepal daily newspapers	
9	Ministry of Defence	Royal Nepal Army	Surveillance of national parks and reserves.
10	Ministry of Education and Culture	Archaeology, archives, ancient monuments, museums	Awareness creation, documentation.
11		Nepal Central Library	
12	Ministry of Finance		Allocation of funds, coordination of foreign aid.
		Customs	Prevention of illegal trafficking of forest products.

[64] Source: UNESCAP 2011

13	Ministry of Forest and Soil Conservation	Forests (Regional/District Offices)	Forest management, protection and community forestry.
		National Parks and Wildlife Conservation	Protection of ecosystems, biodiversity, endangered flora and fauna.
		Soil and Watershed Management	Soil conservation and watershed management, EIA, environment education.
		Plant and Forest Research	Research and herbarium, botanical garden, genetic resource.
14	Ministry of Health	Health Services	Public health and family planning.
		Health and Sanitation Services	Environmental health.
15	Ministry of Home Affairs		Enforcement of Acts and regulations related to environmental protection and consumer protection.
16	Ministry of Housing and Physical Planning	Housing and Physical Planning, Town Planning Boards	Urban planning and development, sewerage, sanitation and pollution control.
		Solid Waste Management and Resource Mobilization Centre	Collection, recycling and disposal of solid wastes and sanitation improvement.
17	Ministry of Industry	Industry/Cottage and Village Industry	Pollution control; mineral, mining and technological development; transfer of technology.
18	Ministry of Law and Justice		Legislative procedures for related Acts.
19	Ministry of Land Reform and Management	Land Reform	Land tenure, land surveying and mapping.
20	Ministry of Local Development	District Development Units	Integrated rural development, decentralisation.
21	Ministry of Science and Technology		Promotion of science and technology.
22	Ministry of Supply	Timber Corporation	Sale and distribution of forest products (fuelwood and timber).
23	Ministry of Tourism	Tourism	Tourist services, trekking, mountaineering and environment protection.
		Civil Aviation	
24	Ministry of Water Resources	Irrigation, Electricity Authority, Meteorology and Hydrology	Utilisation of surface and groundwater, electricity, and flood and river control, meteorology/hydrology information.
		Water and Energy Commission	Policy and planning.
25	Ministry of Works and Transport Water and Energy Commission Technology	Roads	Land and water transport, environment protection.

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