

Chapter 1

Overview

Introduction

There is increasing awareness of the need for reliable environmental information to inform policy and planning for sustainable development. In many countries, however, it can be difficult to discover sources of, or gain access to, the appropriate information—even if it exists.

The Asian Development Bank (ADB) environmental policy requires environmental considerations to be mainstreamed into both investment projects and programs, and country and sector strategies. As a contribution to this, a country environmental analysis (CEA) was prepared in 2004 as an input to ADB's country strategy and program for Nepal. The CEA was prepared by the International Centre for Integrated Mountain Development (ICIMOD) in line with its aim as a mountain learning and knowledge center to gather and disseminate the information needed as a basis for the development of economically and environmentally sound ecosystems while improving the living standards of mountain populations.

The CEA report contained a wealth of data and information that could be relevant for Government agencies, funding agencies, nongovernment organizations, academia, and other concerned parties. Thus ADB and ICIMOD agreed to develop the report further and publish it for a wider audience; the present publication is the result. The aim was both to disseminate the findings of the CEA report more widely, and to provide a broad list of sources that would provide a starting point for future researchers and practitioners in need of environmental data.

Environmental data is still a new and incomplete area in Nepal. It can be difficult both to discover what data are available and to obtain access to them. Relevant data are scattered among many institutions, and are often unpublished. There are many gaps and inconsistencies, problems in data quality, lack of clear information about methods and definitions used, lack of time series, and lack of comparability between different data sets. These issues have been highlighted in the appropriate sections in this book. Nevertheless, the information published here provides a basis for assessing the

state of the environment in Nepal, as well as factors like environmental governance, financing, and trade that influence it. The extensive sources listed will provide future researchers with a basis for identifying new sources of data for future work, and it is hoped that the identification of gaps and needs will encourage further development of an “environmental statistics” culture in the country.

Organization

This book is organized broadly into five parts. The first comprises this overview chapter together with Chapter 2, which discusses the relationships among rural environment, poverty, and livelihood. The largely rural population of Nepal is still almost totally dependent on land, forest, and water resources for their livelihood. As resources become depleted or degraded, resource rights, vulnerability, food security, marginalization, and resources-related conflicts have increased. Clashes between traditional and contemporary systems of property rights are often at the root of livelihood insecurity. Other pressures on natural resources come from emerging markets, a growing population, and rapid expansions of different types of infrastructure. While these are an integral part of the present development scenario, environmental problems can no longer be overlooked as people displaced by the loss of environmental resources are easily pushed into conflict situations.

The overall environmental conditions of the country are described in the second part comprising Chapters 3 to 8. The main findings in these chapters is summarised below.

Nepal's forest area in 1986 was 6.2 million ha. According to the most recent survey, based on satellite imagery, the country now has 6.8 million ha of forest and shrubland, with 37% of the land area covered by forest and 9% by shrub. However, these figures do not differentiate in terms of crown cover or other measures of forest health. They may also be higher than in reality (see discussion in Chapter 3). In the absence of other energy sources, fuelwood is the main source of energy for cooking and heating. This has been the main cause of deforestation. The

forests are also used for infrastructure development, such as roads, schools, buildings, and houses. Deforestation has resulted in increased landslides, soil erosion, floods, and loss of biodiversity.

Nepal's 8 bioclimatic zones and 35 vegetation types support a rich biodiversity in terms of fauna and flora. Nepal has more than 100 species of mammals, 800 species of birds, 600 species of butterflies, numerous invertebrates, over 5,000 species of flowering plants, and about 200 ferns. Several of these have become endangered as a result of various factors, including deforestation.

About 18% of the land area has been demarcated as protected and conserved areas. Proper management of the protected areas for biodiversity conservation, poverty reduction, and livelihood improvement is a necessity.

Soil degradation and loss of productive land are serious environmental problems. With the increasing population and growing need for food, agriculture is being expanded to sloping lands and forests. The heavy monsoon rains make fragile mountain slopes vulnerable to loss and degradation of land and soil through landslides, erosion, and river cutting. As much as 5% of all landslides in Nepal are associated with newly-constructed roads and trails.

Solid waste is a common environmental problem in urban areas. The major cities have experienced high rates of population growth and unmanaged urban development, which have resulted in an increasing volume of solid waste. The main sources of solid waste are urban households. Slightly over 14% of the population live in Nepal's 58 municipalities; they generate more than 80% of all solid waste. About two thirds of the waste materials are organic. The impacts of inappropriate solid waste disposal on rivers and human health are substantial. The disposal of waste into local rivers has adversely affected the quality of water and the aesthetic value of rivers and cities. This problem is particularly acute in Kathmandu Valley.

The municipalities are responsible for solid waste management. However, most municipalities do not have adequate resources or the technical expertise to manage solid waste disposal. Solid waste disposal in landfill sites has become socially very sensitive and people's participation in it is generally weak. Lack of suitable infrastructure, such as landfill sites, is also a problem in urban areas.

Nepal is rich in water resources. Over 6,000 rivers and streams drain the country. The rapid increase in population has increased demands for water for drinking, sanitation, irrigation, industry, energy, and recreation. Water shortages and water pollution are serious problems in urban areas because of rural-urban migration, population growth,

and unplanned urbanization. The problem of securing a safe drinking water supply is very serious, particularly in Kathmandu Valley.

There is evidence that water quality is deteriorating rapidly in urban areas. Urban areas generally lack the infrastructure for the collection, treatment, and disposal of sewage. Limited facilities built for this purpose are either ineffective or nonfunctional. Drainage is a common problem, particularly in the Terai. As few houses are connected to the wastewater system, untreated domestic waste is discharged into rivers. Most households in rural areas do not have latrines; people defecate in open areas such as riverbanks and public lands. Likewise, most industrial effluents are discharged directly into rivers. All of these practices contribute to surface and groundwater pollution.

Water pollution has become a serious public health problem. Biological water pollution, combined with inappropriate sanitation and hygiene practices, is responsible for diseases such as diarrhea, typhoid, skin diseases, and intestinal worms. These are the most common diseases in Nepal, and a large number of infants die annually due to diarrhea alone. Recently, arsenic contamination of the groundwater of the Terai has become a concern.

Water pollution has also adversely affected aquatic ecosystems. Nepal's rivers have rich aquatic biodiversity, which is threatened due to growing water pollution. The rivers of Kathmandu Valley, particularly in the core city areas, have already lost aquatic biodiversity.

Air pollution is a serious concern in urban areas due to dust generated by vehicles, increasing use of fossil fuels for transportation, and concentration of industries. Air pollution by industrial emission is a local concern in many areas. Kathmandu Valley is especially vulnerable to air pollution due to its topography (a bowl-shaped valley), rapid and haphazard urbanization, and significant increase of vehicular transport in narrow streets. In addition, the poor maintenance of the roads aggravates air pollution by contributing particulate matter to the air.

The transport sector is the largest contributor to total emissions of pollutants in Kathmandu Valley, followed by the household, industrial, and commercial sectors. Gasoline is the largest contributor to the total combined emission of all pollutants, while fuelwood and coal are also major contributors. With the improved technology of brick kilns, pollution from this sector is expected to be reduced in Kathmandu valley. Indoor air pollution due to burning fuelwood in unventilated rural houses also causes serious health hazards.

The third part of the book, Chapters 9 and 10, deals with environmental governance, the evolution of environmental policies, standards regulation, the roles of different stakeholders, and the financing of environmental programs. Weak enforcement of environmental decisions and regulations appears to be the most serious and persistent problem. Despite significant progress in introducing environmental regulations and legislation, the loss of credibility of the Ministry of Population and Environment (MOPE) as an effective environmental organization resulted in its dissolution, with environment functions being moved to the Ministry of Science and Technology. This ministry has been renamed the Ministry for Environment, Science and Technology (MOEST). It has yet to be seen whether the difficulties encountered by MOPE will be successfully overcome by this reorganization. Some of the problems related to poor implementation of environmental decisions are endemic to all government organizations, while others are specific to particular environmental issues.

The fourth part, Chapters 11 to 13, deals with three emerging environmental themes that are quite new in the context of Nepal but are now receiving a good deal of attention. The discussion on environment and conflict shows that conflicts regarding natural resources are widespread in land, forest, and water resources. A new area of environmental conflict is also beginning in urban areas. Some of these problems have remained unresolved and unattended for so long that organizations may be hesitant to 'bell the cat', given the continuing political turmoil and conflict situation in the country. The most surprising revelation is that the Government does not have an established mechanism to address the ongoing conflicts related to natural resources, particularly some aspects of forest resources.

Trade and environment represents a new area that has become important for Nepal since it joined the World Trade Organization (WTO). Some exports from Nepal have already been subjected to environmental barriers by other countries including India. As a relatively new player in this area, Nepal has a lot of catching up to do in terms of improving institutional capacity, technical standards, and quality assurance of its exports; intellectual property rights; market access; trade in services; and comprehensive surveillance of domestic and international trade.

The discussion on environmental information emphasizes the need for monitoring progress and developing appropriate indicators. This has been achieved to some extent by sharing and exchanging data with different organizations. Information must be linked to policy analysis and decisions. This book

seeks to make analyzed information available in a form that is easily understood and accessible to policymakers.

Finally, in Chapter 14 the book deals with the emerging strategic issues for Nepal. The first of these is promoting integrated ecosystem management and sustainable livelihoods. The chapter brings together the different aspects of livelihood security in rural areas and argues that further deterioration of rural livelihoods can be prevented by more effective integrated ecosystem management. It focuses on the issues of sustainable use of resource endowments and ecological niches; participatory and collaborative approaches; harnessing ecological, economic, cultural, and institutional opportunities; and promoting decentralized and transparent decision making. The second issue is promoting integrated urban environment management. Urban environmental problems are likely to become serious because of rapid urbanization, poor infrastructure, haphazard management of urban development, and the inadequate resources of urban development organizations. Unless organizations work together within a common framework, urban growth is likely to have a significant negative impact on environmental resources because of increasing air and water pollution, and unrealistic prices for natural resources used by urban residents.

Another priority area is institutional strengthening and capacity building. MOPE was disbanded because it was seen as a weak organization with limited capacity. The critical question now for its successor MOEST is how to strengthen the organization and how and where to build its capacity. The lesson from MOPE's dissolution is that other organizations in the Government have also developed important environmental capacity; the new organization must find a niche that cuts across sectors, that supports sectoral work, and that provides leadership and vision regarding the changing environment and its management in the future. Some of the specific areas where further work is needed include policy reforms, improvements in the legislative system, working with others on trade and environment, and mobilization for stronger enforcement of environmental laws and environmental impact assessment (EIA) and strategic environmental assessment (SEA) recommendations.

The final priority is for an environmental and natural resources information network. The demand for appropriate environmental information is growing. What is available is often dispersed, heterogeneous, inaccessible, discontinuous, and unreliable. This situation added to the difficulty in producing this report, and is responsible for occasional inconsistencies in the data reported here,

as data gathered by different agencies at different times may be based on different definitions and methodologies. Improvements are needed in all these areas including presentation in spatial forms that are recognizable, understandable, and based on reliable evidence. New technology has provided many options for developing new information and has facilitated monitoring over time. There are many

opportunities available and decision makers can no longer afford to neglect these in their environmental decisions and actions.

The information provided in the chapters is supplemented with an Annex containing a brief account of Nepal's progress in fulfilling the Millennium Development Goals (MDG) commitments.