

ENVIRONMENTAL DEGRADATION IN NEPAL

Prof. Dr. Meen B. Poudyal Chhetri^a and Anil Shakya^b

^a Disaster Preparedness Network, Kathmandu, Nepal

^b Department of Urban Development and Building Construction, Ministry of Physical Planning and Works, Government of Nepal

ABSTRACT

Environmental degradation is a very big problem in Nepal which is causing human health hazard particularly due to the creation or disposal of pollution, sound, heat or wastes. Increasing number of vehicles, garbage and dust particles are the main factors of pollution particularly in city areas resulting into health hazards like bronchitis, soaring throat, asthma, chest infection and lung diseases. According to a study carried out by Mr. Sharma in 1997 in the Kathmandu valley SO₂ has been found up to 202 µg cm⁻³ and NO₂ to 126 µg cm⁻³ particularly in winter months when a thick layer of fog covers the till 10 am in the morning. All the gases are mixed within the limited air below the fog and the ground. On the other hand, in Kathmandu city alone municipal waste of 500 m³ a day and also liquid waste dumped directly into the rivers at the rate of 500,000 l d⁻¹ worsens the situation and makes the city polluted and dirty.

KEY WORDS: Environment, pollution, hazard, degradation, waste.

1. SCENARIO OF ENVIRONMENTAL DEGRADATION IN NEPAL

Nepal is one of the least developed countries of the world having open natural resources such as land and forests as the main sources of livelihood for a large proportion of the population. Poverty is intimately related to environmental degradation and loss of biodiversity. Poor people have no choice but to engage in unsustainable uses of natural resources and Nepal is no exception. Some 44% of people in rural areas and 23% in urban areas live below the national poverty line (World Bank 1999). A large number of poor families have small farms and over two-thirds of rural households own less than half a hectare of land (APP 1995; HMG-NPC 1999). Most of the people in these groups collect and sell forest products to survive from one day to the next. In efforts to increase production, poor farmers expand cultivation into highlands that are not suitable for agriculture. The result is accelerated soil erosion, land degradation, declining productivity of farmland and sedimentation in downstream areas. The fast population growth has led to a rapid increase in demand for fuel wood, timber, fodder and land to grow more food. Forests were cleared and converted to agriculture (Soussan et al. 1995) and the process is ongoing.

Landslide is another contributing factor of environmental degradation. Seventy-five percent of the landslides in Nepal occur naturally (MOPE 1998). However, Laban (1979), who analyzed landslides triggered by both natural and anthropogenic causes in the Mid-hills, discovered that natural large landslides occur at a frequency of 0.2/km², but that this increases to 2.8/km² in areas of human interference. Toxic substances and other pollutants affect biodiversity at the ecosystem level by disturbing vital ecological processes and modifying the species composition of plant and animal communities. On a local and regional scale, significant populations of lichens, bryophytes, algae and freshwater life, particularly fish, have been eliminated and air pollutants pose a serious threat to many birds and mammals. But there is no known case of pollutants being the main cause of a species

disappearing altogether. Plants have varied responses to air pollution and Jha et al. (1997) have recorded a reduction in the flowering period of roadside trees because of pollution. In the last two decades, the Mid-hills in general and Kathmandu in particular have witnessed increased numbers of mosquitoes and other insects mainly as a result of pollution.

Very few fires are naturally caused in Nepal. Karkee (1991) found that 40% of forest fires in the Mid-hills are started by accident and 60% are started deliberately. Accidental causes include carelessness with cigarettes and matches, fires which are set to clear for cultivation and which then burn out of control, smouldering charcoal left by charcoal burners, fires set to smoke out wild bees when collecting honey and which go out of control, etc. Fires are also set deliberately in forests to kill trees so that the dead wood can then be collected and used for firewood, to induce new grass growth for cattle grazing, to clear land for farming, to make firewood and fodder easier to collect and for hunting.

Uncontrolled overgrazing by livestock directly affects the species composition and productivity of the grassland vegetation. Due to relative preferences for different plant species, overgrazing allows an increase in the populations of those species undesirable or unpalatable to the grazing animals. Overgrazing by domestic and wild animals may arrest succession or even reverse it. Overgrazing also causes changes in the diversity of the fauna. The loss of grass cover reduces insect populations, which in turn changes the bird life. Birds found on grazed grasslands are largely seedeaters, while those on non-grazed grasslands are insectivores. Overgrazing also affects the quality of the grazers themselves. Some of the effects of overgrazing on the grazers include low body weight, poor health, low milk production. Reasons for overgrazing in Nepal include too many animals on limited grazing land (more cattle than the land's carrying capacity) and lack of organized fodder production and pasture management.

The lack of awareness about the ecological functions of wetlands amongst communities who depend on wetland resources contributes to their degradation. Although wetlands provide alternative livelihoods to many people, they have become resources that are openly accessible to all with no concern for their conservation, which could be managed through the formation of user groups. The capacity of technical staff to manage wetlands in a sustainable manner with the participation of local stakeholders needs to be built. Two very serious indirect threats to biodiversity are lack of sensitivity and awareness among the general public and inefficient management of natural resources.

In this way environmental degradation is a big problem in Nepal particularly in Kathmandu valley which is causing human health and other hazards particularly due to the air, water, sound, heat, industrial wastes, garbage and pollutions.

2. CAUSES OF ENVIRONMENTAL DEGRADATION IN NEPAL

Nepal faces a number of environmental challenges. The causes of environmental degradation in Nepal can be summarized as follows:

- collection of firewood;
- grazing;
- deforestation;
- crop raiding by wild animals;
- animal poaching;
- environmental pressure from tourism;
- pollution from factories;

- fishing using explosives and poison;
- hydropower plant construction;
- high tension electrical transmission;
- irrigation canals;
- flooding;
- siltation;
- garbage;
- collection of medicinal plants;
- unscientific waste disposal;
- tree felling;
- excessive human encroachment;
- low level of public awareness;
- High population pressures and prevailing poverty;
- lack of documentation and monitoring;
- lack of research and development;
- weak institutional, administrative, planning and management capacity;
- lack of integrated land and water use planning;
- inadequate coordination;
- inadequate data and information management; and,
- inadequate policies and strategies for environmental protection.

3. POLICEY, LEGISLATION AND GOVERNMENT INITIATIVES

Although After the establishment of the Ministry of Population and Environment, it assumed responsibility for environmental protection in different sectors. The Environment Protection Act, 1997, and the Environment Protection Regulations, 1997, have made Initial Environmental Examinations (IEE) or Environmental Impact Assessments (EIA) mandatory for development proposals involving forests, industry, roads, tourism, drinking water, solid waste management, and agriculture. However, a thorough analysis of these requirements shows that the Initial Environmental Examination and Environmental Impact Assessment guidelines are too complicated for many who should be applying them.

Policy, legislation and implementation mechanisms set forth by the government are as following:

a) PARLIAMENTARY COMMITTEE ON NATURAL RESOURCES AND ENVIRONMENT

The Interim Constitution of Nepal, 2007 provides for the establishment of a Natural Resource Management Parliamentary Committee. The powers and functions of the Committee include the evaluation of the policies and programs, resource mobilization and administration in collaboration with the Ministries of Energy, Land Reform and Management, Agriculture, Forest and Soil Conservation, and Population and Environment, and relevant departments and agencies under these ministries. The Committee is required to submit a report to the Parliament, including comments and recommendations. While preparing the report, the Committee is empowered to consult representatives of the ministries and departments and relevant experts. The Committee on Natural Resource Management and Environment has existed since July 1991; however, it has been dormant for most of the time. As multiparty democracy matures in Nepal, the efficacy of such parliamentary committees is expected to improve. When fully functional, this Committee can be expected to have a very positive impact on the promotion and protection of environment.

b) ENVIRONMENT PROTECTION COUNCIL

The Environment Protection Council (EPC) was first established in 1992 and carried out several important activities during its first two years. Acting on the initiative of the EPC, the government ratified the Convention on Biological Diversity and the Convention on Climate Change and acceded to the Vienna Convention on the protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer. Furthermore, on the EPC's initiative, vehicular emission standards have been developed and, to some extent, are being enforced. The Environment Protection Act, 1997, recognized the EPC and provided for its establishment as a statutory body. However, the Act does not provide for the composition, powers, and functions of the EPC, which has therefore remained under the chairmanship of the Prime Minister, with seven independent experts as members. The Environment Protection Regulations, 1997, are also silent on the role of the EPC. In the absence of such guidance under the Environment Protection Act and Regulations, it is hard to determine whether the EPC would be an appropriate institution for developing policies and legislation and overseeing their implementation as well as those of various programs. In order to do so, and for the co-ordination of such, the establishment and effective functioning of a high-level, multidisciplinary body is crucial. It would probably not be advisable to entrust this responsibility to an institution such as the current EPC unless its advisory status, powers, functions, and secretariat are strengthened by law.

c) LOCAL AUTHORITIES

The District Development Committee (DDC) is the apex body of local government in each district. Local Self-Governance Act, 1998, requires the DDC to formulate and implement plans for the protection and promotion of environment. Similarly, Village Development Committees (VDCs) are required to formulate and implement programs for the protection and promotion of environment. Development activities take place in each district with the approval of the District Council of each DDC. Since the majority of the population lives in the 3,912 VDCs and 58 Municipalities, activities for the protection of indigenous knowledge, innovations and practices should begin at the local level. However, no practical measures have been taken to integrate conservation, sustainable use of biological resources and equitable and fair sharing of the benefits arising out of these into district level decision-making in Nepal.

4. WAY FORWARD

Although the government has taken some initiatives like: the endorsement of the National Conservation Strategy in 1988 and establishment of the Environment Protection Council in 1992, to address the challenges mentioned above, the government and the people of Nepal should have firm, concerted and coordinated efforts to integrate environmental concerns with development objectives. At the grassroots level, village and district level agencies, private sector and NGOs should be made responsible to manage the resources.

The following measures should be taken to address the environmental degradation problems in Nepal:

- (i) Raising awareness;
- (ii) Promotion of alternative energy;
- (iii) Pollution from the factories should be controlled;
- (iv) Flooding and siltation should be controlled;
- (v) Collection of medicinal plants should be controlled;
- (vi) Garbage should be managed;

- (vii) Deforestation, over fishing, animal poaching and over grazing should be stopped;
- (viii) Population control and poverty reduction should be prioritized;
- (ix) Coordination among the concerned stakeholders should be enhanced;
- (x) Possible hazards should be taken into account while designing and implementing any development works;
- (xi) Development of integrated national strategies for the conservation of environment and biological diversity and the sustainable use of its components;
- (xii) Strengthening the conservation, management and sustainable use of ecosystems and habitats
- (xiii) Control of wild and domestic animals to address the problem of overgrazing;
- (xiv) Capacity building, including human resource development and institutional development;
- (xv) Formulation and implementation of proactive policies, rules and regulations;
- (xvi) Development of innovative measures that create economic incentives for environment protection and biodiversity
- (xvii) Strengthening the involvement of local and indigenous people in the conservation and sustainable use of environment and biodiversity;
- (xviii) The integration of social dimensions, including those related to poverty, into the conservation and sustainable use of biodiversity;
- (xix) Research and development should be prioritized;
- (xx) Environment Protection Act and Rules, 1997 should be strictly implemented.

The government of Nepal reiterates that the protection and management of biological diversity in Nepal is seen as the Government's responsibility on behalf of the people of Nepal. However, while accepting the lead role, the government should welcome the participation of NGOs and civil society to complement its work in partnership. The role of NGOs has become increasingly important in local, people-oriented development activities and in extending services and facilities at the grassroots level. However, only a few NGOs are well organized, have sufficient resources and are effective. Therefore, it is highly necessary to mobilize NGOs to contribute to socio-economic development projects and encourages their activities in the poor, remote regions of the country.

5. CONCLUSIONS

The problems stated above and other disguised problems that may be identified through a broad-based analysis hold the key to successful environmental protection in Nepal. Until these fundamental problems and root causes are addressed, success is not likely to be sustainable and the threats will reappear. Therefore, concerted and coordinated efforts are highly desirable from the government with the broad participation of all stakeholders. It is also very necessary to consolidate and build on past successful efforts and additional interventions are required to address the root causes of the major threats to protect Nepal's environment. In addition, since human and financial resources are limited, unfailing criteria should be proposed for ranking problems and root causes should be identified according to their overall impact on environment and priority for remediation.

REFERENCES

- Belbase, N. 1997. The Implementation of Environmental Law in Nepal. IUCN-Nepal, Kathmandu, Nepal.
- Botkin, D. & Keller, E. 1995. Environmental Science: Earth as a Living Planet. John Wiley & Sons, Inc., New York.
- Environment Protection Act, 1997, the Government of Nepal.
- Environment Protection Rules, 1997, the Government of Nepal.
- GoN/MOPE, 1998, Environmental Strategies and Policies for Industry, Forestry and Water Resource Sectors, vol. 1 and 2. HMGN, Ministry of Population and Environment, Kathmandu, Nepal.
- GoN/MOPE, 1998, Nepal Environmental Policy and Action Plan (NEPAP), Kathmandu, Nepal.
- GoN/IUCN. 1988. The National Conservation Strategy for Nepal- Building on Success. HMGN and IUCN Nepal, Kathmandu, Nepal.
- GoN-NPC, 1998, A Compendium on Environment Statistics 1998 Nepal. Central Bureau of Statistics, National Planning Commission, HMGN, Kathmandu, Nepal.
- GoN-NPC, 2009, Statistical Year of Nepal 2009, Central Bureau of Statistics, National Planning Commission, HMGN, Kathmandu, Nepal.
- GoN-MOPE. 1998. State of the Environment of Nepal. Ministry of Population and Environment, Kathmandu, Nepal.
- Jha, P.K. 1992. Environment and Man in Nepal. Craftsman Press, Bangkok.
- Jha, P.K., Shrestha, R. and Shrestha, B. 1997. Effect of Air Pollution on Roadside Trees of Kathmandu Valley.
- Karkee, T.B. 1991. Forest Fire - Causes and its Relationship with Economic Variables. Nepal J. Forestry 6(2):75-80
- Laban, P. 1979. Landslide Occurrence in Nepal. Phewa Tal Project Report no. SP/13, Integrated Watershed Management Project, Kathmandu, Nepal.
- National Conservation Strategy, 1988, the Government of Nepal.
- Nepal Disaster Report: The Hazardscape and Vulnerability, Disaster Preparedness Network-Nepal, 2009.
- Nepal Environmental Policy and Action Plan, 1993, the Government of Nepal.
- Poudyal Chhetri, M.B. (2001), "A Practitioner's View of Disaster Management in Nepal: Organization, System, Problems and Prospects," Risk Management: An International Journal, Vol. 3, No.4, Published by Perpetuity Press Ltd., Leicester, UK.
- Poudyal Chhetri, M.B. (1999), "Disaster Management in Nepal: Problems and Solutions " An Article Published in the Book on Natural Disaster Management, Edited by Jon Ingleton, Tudor Rose, Holdings Limited, Leicester, England.
- Sharma, C.K. (1997), "Urban air quality of Kathmandu valley Kingdom of Nepal" 1997, vol. 31, no17, pp. 2877-2883 (10 ref.).
- Soussan, J., Shrestha, B.K. and Uprety, L.P. 1995. The Social Dynamism of Deforestation: A Case Study from Nepal. The Parthenon Publishing Group Limited, London.