

5 Other Issues in Natural Resource Management

5.1 Watershed Management

Soil and water conservation is a serious problem in the high rainfall area of the Himalaya-Karakoram-Hindu Kush mountains. The 1956 policy recommended coercive measures to control land use. Construction of multipurpose dams, started in the 1960s, brought home the need for watershed management programmes. Since then, watershed management has been an integral component of forest policies. Afforestation and planting of fruit trees, and construction of engineering structures, were recommended and implemented under various projects. During the early sixties, a pilot watershed project was initiated in the Murree Hills and Gallies of Hazara Civil Division. Hill farmers were provided with incentives and subsidies to use fuel-efficient cooking stoves and kerosene to reduce wood consumption. Fruit tree saplings (apples, pears, apricots, peaches, plums, and persimmons) were distributed free of cost to discourage cultivation of agricultural crops on steep slopes and help farmers diversify and increase the income from their small landholdings. Initiatives on grazing management and fodder cultivation were ignored, however. This pilot watershed project also lacked any concept of community participation through village organizations or NGOs. The forestry officials involved in the project were not trained in participatory approaches or for out-reach functions.

In the 1980s, the concept of community participation in watershed activities gained ground. The importance of Village Organizations (VOs) and NGOs for successful implementation of projects, and their role in

the protection of forests, soil conservation, wildlife management, tree planting, and cultivation of orchards as components of an area development package, were recognised in a series of projects especially in the NWFP, NAs, and AJK. The projects included the Malakand Social Forestry Project, the Kaghan Integrated Development Project, the Tarbela Watershed Management Project, and the Aga Khan Rural Support Programme. The services of VOs and NGOs have been used effectively in participatory planning and implementation of community-based programmes.

5.2 Range Management

Management of rangelands was first mentioned in a policy directive in 1962. The policy recognised grazing in forest areas as an important land use and recommended development of fodder resources, feed lots, range research, and extension. Little headway has been achieved in participatory or social ranges, mainly because of unregulated grazing by nomads and the dependence of the mountain communities on keeping large herds of livestock. The situation was further aggravated by the influx of 30 million Afghan refugees and their livestock herds into the alpine pastures and lower altitudes. This led to further degradation of the natural ecology of the Himalayan-Karakoram-Hindu Kush mountain ranges, resulting in further deterioration of rangeland productivity.

5.3 Forests and People

One of the objectives prescribed in Forest Working Plans is to meet the needs of the mountain communities and especially the right

holders, for fuelwood, timber for house construction, grazing, and grass. However, the provisions of the working plans are regulated in a manner that deprives local communities of their legal rights in the forests. The policy directive of 1962 recommended acquisition of the rights of local people by the government and shifting of local people from critical upland watershed areas to the plains and other centrally located villages. This provision of the policy was too harsh to be implemented. People who had been living in the mountain areas since time immemorial were unwilling to move, and the necessary financial resources were also lacking.

The 1956 policy recommended far greater control of land use for soil conservation. The 1962 policy directive recommended enhancement of penalties under the Forest Act, 1927, and demanded magisterial powers for forest officers. This policy also recommended legislative measures prescribing planting of a minimum of three trees by farmers on their lands. The 1991 policy recommended legislative measures for the management of rangelands. Instead of involving people in the management of forests, these policies recommended greater control over people through legislation. The only policy recommendation that can be considered as 'people friendly' is that of 1975, which emphasised awareness raising and recommended the use of negative legal measures only as a last resort.

5.4 Logging and Utilisation

Sale of standing trees through contracts was the rule until the 1970s in the high hill forests of the Punjab, NWFP, and AJK. This practice persists in the NAs as a result of the inaccessible terrain. The contractors used to obtain contracts at unaffordable prices in a cut-throat bidding process, and as a result often indulged in the unethical practice of cutting unmarked trees. The 1956 policy recommended abolishing the contractual system of standing sale of trees. The problem persisted and the recommendation was again made in the 1962 policy directive. However, it was not until 1975 that the provinces initiated departmental logging. In

NWFP and AJK the task of logging was entrusted to state corporations (FDC in NWFP and AKLASC in AJK). The 1991 policy recommended that logging should continue to be limited to public sector through these corporations and departmental felling.

The logging methods are crude. Because of the difficult terrain and low road density, especially in the Northern Areas, timber cannot be extracted in log-form. The logs are converted to scantlings by hand tools resulting in wood wastage and poor quality of the product. Realising this, all forest policies have recommended implementation of improved logging methods. The policies of 1955 and after recommended improvements in harvesting methods. The Kalam Integrated Project in NWFP addressed this issue and successfully demonstrated the benefits of improved logging and harvesting practices. The project also demonstrated the use of aerial ropeways and skyline-cranes for timber extraction. Based on this experience, the 1991 policy recommended adoption and replication of this technology and recommended exemptions of tariffs on the import of equipment needed for skyline-cranes.

The draft Policy of 1998 recommends mechanisation of logging operations in addition to development of a harvesting code to preserve watershed values. The strategies include rationalisation of import duties on timber to help conserve the natural forests dispersed in the HKH mountain ranges.

5.5 Wildlife

Wildlife is an integral component of forest ecosystems, and the 1956 policy recommended protection of wildlife and conservation of their habitats. The 1991 policy paid greater attention to the protection of the wildlife resource through a number of recommendations, including recovery plans for endangered species and raising awareness. The IUCN and WWF-Pakistan have launched collaborative programmes in fifteen valleys of the NWFP, Northern Areas, and Deosai Plain like the Himalayan Jungle Project in the Palas Valley. Communities have been involved in the

conservation of wildlife through various incentives. Trophy hunting has been introduced as one measure for conserving and propagating wildlife in the Himalayas and Hindu Kush mountain ranges.

In recent years, trophy hunting of ibex has been allowed to foreign hunters at a rate of US \$3,000. Seventy per cent of the trophy-hunting fee goes to the Village Wildlife Conservation Fund and 25 per cent to the Provincial Government exchequer. The export of trophy hunts is regulated under the CITES regulations at Federal level by the National Council for Conservation of Wildlife and the Ministry of Commerce. The conservation of wildlife and other development activities are financed out of the village fund. This methodology for involving communities has yielded positive results as shown by the increase in the population of ibex. During the 10th CITES Conference of Parties held in Harare in 1997, Pakistan obtained an annual quota for export of trophies of ten markhor (*Capra falconeri*), which is one of the Appendix-1 species. Using the analogy of ibex conservation, the HKH communities expressed their desire and willingness to protect Markhor and their habitat and to secure trophy hunting permits for the economic improvement of rural communities in the remote hill tracts. If this trend in community participation in conservation of wildlife persists, the status of markhor will be down-listed from Appendix-I to Appendix-II.

5.6 Upland-Lowland Linkages

The uplands and lowlands have a vibrant organic link. The basis of this link is provided by the differences in the natural resource endowments of the HKH mountain ranges and the plains of the Indus Basin, and their productive potential and opportunities for exchange. Bio-physical environments in uplands impose constraints as a result of the high degree of inaccessibility, fragility, marginality, and even diversity. During the winter snows and summer monsoons, the mountain areas can be isolated for many days because of avalanches, glacial movement,

landslides, and rolling boulders. As a result, mountain communities acquire the status of marginal entities in their economies and their interactions with mainstream urban dwellers in the plains.

The uplands of the Himalayan-Hindu Kush mountain ranges produce raw material for the mainstream lowland communities where the bulk of the population is either engaged in irrigated agriculture or employed in agro-based industry. Over-exploitation of natural resources like timber, water, and biodiversity benefits the downstream areas, but no compensation is paid to the mountain dwellers. Even the petty trading of mountain products like herbs, seeds, fruit, and mushrooms is constrained by poor means of communication, perishability, and the low bargaining capabilities of people operating in a buyers' market that is characterised by under-pricing. In contrast, the resource and commodity flows from plains to uplands have always been small and selective, making this linkage virtually a one-way process.

As a result of the skewed relationship between the upstream and downstream economies, and the constant sacrifices of the mountain communities, the magnitude of negative impacts has been accentuated. These inequitable linkages have become a focus of attention as a result of the flooding that has become a normal feature since 1992. The damage inflicted by floods in the form of destruction of agricultural crops, infrastructure, life, and property has been estimated at Rs 2.5 billion annually.

5.6.1 Economic Flow Matrix

In view of the vast diversity of biophysical and socioeconomic circumstances and the inaccessibility of mountain areas, any attempt to determine economic flows is a great challenge. Table 9 provides a broad idea of the economic linkages between the HKH mountains and the downstream areas. The different categories are described further in the following sections.

Table 9: Upland-Lowland Economic Linkages

Categories	Traded Commodities & Service Flows	Managed/Semi Managed Natural Resource Flows	Human Resource Flows	Social and Public Sector Investment Flows
Major items	Fruits, herbs, mushrooms, and others	Irrigation water	Seasonal migration of mountain labour	Cash or kind
Relief/subsidy				Flows to mountains
Investment	- Timber/forest products - Hydropower - Tourism	Nutrient and environmental resources/ services from mountains	Management of tourists/external interventions	Welfare

5.6.2 Traded Commodities, Service Flows, and Natural Resource Flows

Traded commodities, service, and natural resource flows include: (a) special mountain products like fruits, herbs, vegetables, and mushrooms with which mountains are naturally endowed; (b) timber and other forest products as the major items of trade in urban centres in the plains; (c) ecotourism, the major high-value service provided by upland communities without securing extraordinary gains; (d) flow of water and nutrients to downstream lowlands, which is as eternal as the mountains, and harnessing of water flow by human activity to regulate water for irrigated agriculture by constructing dams at Tarbela and Mangala; and (e) production and export of hydropower from the highlands to the lowlands, without direct involvement of mountain communities.

Semi-managed natural resource flows from the HKH mountain ranges include: invisible environmental services or gains in terms of groundwater recharge, soil nutrients, biodiversity, silt-free water flows, and the physical security of downstream farmlands, which is directly related to the preservation of watershed values by the mountain dwellers. For want of proper computation and lack of pricing, the cost of these services and the efforts of mountain communities, especially in the high monsoon zone, remain uncompensated. The gains of the downstream beneficiaries are never shared by the upland people.

5.6.3 Human Resource Flows

The HKH region in Pakistan offers a unique opportunity for the affluent class of people living in urban and peri-urban areas in the plains to escape to hill resorts during the harsh summer. In the absence of alternative sources of income in mountainous areas, men migrate from the mountains to the lowland areas to seek employment. This seasonal migration creates a temporary labour scarcity that adds to mountain women's burdens. The nomadic grazers also descend along with their livestock herds to pass the winter at lower altitudes. Every year, 80,000 livestock trek from the Neelum Valley (AJK) to the Potowar plateau in winter and journey back at the beginning of the spring season. These human resource flows between high and low altitudes keep the mountain economy vibrant.

The gains in the mountain economy could be enhanced substantially, if the requisite integrated approach were adopted. It is essential to alter the circumstances that force out-migration by creating local opportunities for gainful employment through infrastructural development, development of local resource-based micro-enterprises, expansion of the hotel industry; improvement of local skills for the development of cottage industries, and increasing the capability to benefit from these changes. The tourist flow encourages local communities, and especially women, to develop cottage industries and improve their skills in the distribution of goods and services so that they can augment their earnings and command higher wages.

5.6.4 Social and Investment Flows

The major economic flows from the plains of the Indus Basin and lower altitudes to the uplands of the HKH are: (i) cash and kind supplies in the form of welfare relief and subsidies, and (ii) public sector development funds. Despite an increase in investments, the flows are much lower than the economic flows from the mountains to the plains. As a result, the uplands, besides strengthening the downstream economies, continue to suffer from the permanent malaise of under-investment and resultant escalation of poverty and under-development.

Public sector development also remains confined to those mountain areas and locations where

irrigation and hydropower projects, mining activities, tourism, and horticultural potential are harnessed to meet the needs of urban populations and the priorities of lowland areas. Even when development interventions in the uplands are free of lowland bias, the design and implementation mechanism of the development projects lack a mountain perspective on such things as fragility and diversity. This reduces the relevance and effectiveness of investment in the upland mountain region.

To rectify the situation, utmost priority must be given to development investment and design strategies with a mountain perspective. Gradual elimination of under-investment should also be a priority.