

Part – 4 Conclusion

In Pakistan, a focused approach to address environmental issues took a head start with the formulation of Pakistan's National Conservation Strategy. With the conscious efforts made by the Government of Pakistan, as well as civil society and private sector, the challenges of sustainable environmental development coupled with growing poverty are still far from being fully addressed. Pakistan has initiated a comprehensive program to combat poverty by creating an enabling environment to promote proper economic growth, investment in physical infrastructure, access to basic social services including health reproductive health and family planning services adopting special measures to reach women and children; promoting decentralization and increased role of local authorities in eradication of poverty; and securing sustainable livelihood for the poor including access to productive assets.

Pakistan is also making concrete efforts to address the issue of unsustainable patterns of production and consumption. The broad objective is to conserve resources and minimize wastes. During the past 15 years, several policies, plans, programs and projects have been initiated for environmental protection and conservation in the sectoral areas of water and air pollution control, land use, forest management, energy efficiency, biodiversity conservation, and waste management, etc. In addition, Pakistan's role in the international community vis-à-vis its responsibilities for sustainable development has also become known through the Government's show of commitment for instance on biodiversity, drought and desertification, and climate change, etc.

Complementing the efforts directed upon environmental conservation, the Government has also taken a number of steps to integrate the environment and development in policy, planning and development. There have been notable achievements in institutional development, including the development of the 1997 Act, establishment of key institutions, and innovative measures such as the environmental tribunals, and the conservation strategy program with their associated district conservation strategies and round tables.

The steps towards institutionalising environmental concerns as crosscutting themes within all planning and decision making processes have led to making it mandatory for all plans, programs and projects to conduct initial environmental evaluations and/or environmental impact assessment (EIA). Although significant results have been achieved in promoting an EIA conscious process of development, much still needs to be done. The question of adequate capacities within public as well as private sectors remains a critical area of concern. Similarly, there is a general hesitation for facilitating public consultation although recognised as an important aspect of EIAs. This hesitation partly stems from the lack of experience of both public and private sector proponents in social analysis of developmental plans and projects. In addition, following up on the recommendations and results of the public consultation has been another area of concern for the masses at larger as well as the EPAs. Further mainstreaming of EIA into policy framework and operational mechanisms of project approval processes is still a major gap. Specific policy steps are required for instance through making EIA an integral part of feasibility report/PC-II. EIA requirements have usually high costs associated to these exercises, which reflects through lack of commitment from proponents.

The Pakistan Environmental Protection Agency and its provincial counterparts have been the primary actors in ensuring adherence of public and private sector to environmental standards (NEQS). Several incentive based steps have been taken in this regard, particularly for pollution control. These include establishing a self-monitoring and reporting system for the industries and other proponents as well as establishing quality monitoring

checks and research and development. Nevertheless, monitoring and ensuring that reporting takes place as per the mitigation measures identified through EIA, has been less than desirable. In addition, a continuous process of updating EIA guidelines and manuals is yet another gap requiring attention. Keeping pace with the international knowledge and practice development, awareness and expertise on strategic environmental assessment as well as building socio-economic analysis as an integral aspect of environment and development in Pakistan pose other challenges.

It is well known that the challenges that Pakistan is facing in environment, development, governance and the international arena are formidable. It is also acknowledged that some of these are new challenges but most of them are inherent in nature. There are sectoral gaps – capacity and knowledge – that limit the rate of success of initiatives for pollution control and environmental protection and management. These are highlighted through the discussion presented in previous chapters (see chapters 1 through 9) however a brief narration to conclude the discussions on gaps and areas of improvement is presented below:

Water

Pakistan is faced with severe water shortages and water quality issues. The productivity of fresh water is being reduced due to losses in the movement of the water from the canal heads to the croplands and due to pollution from industrial and agricultural chemicals and human and chemical wastes. In the backdrop of these challenges, the gaps are enormous surrounding policy, capacity, technology and stakeholder participation aspects.

The orientation of the water management institutions and experts is largely toward harnessing the resource in the service of economic growth, and not towards its conservation or quality. This a primary reason why the more recent social and environmental concerns relating to water access, quality and ecosystem degradation continue to be subsumed under a mega-project mindset oriented towards large dams, irrigation and drainage projects.

The unavailability of accurate water availability data has been a key gap identified for water sector reforms. This lack of information is partly responsible for heightened resistance to water infrastructure development projects, including construction of the large dams most notable among them being the Kalabagh Dam, The Thal Canal, the Ghazi Barotha Project, the Chashma Right Bank Canal and the Chotiari reservoir. The water availability problems are intertwined with a host of ecological and social issues. It is therefore imperative to address the socio-ecological aspects of water sector development planning in order to bridge the communication gap between decision makers, planners/implementers, and the beneficiaries.

The planning and implementation of irrigation and related activities has followed a fairly random pattern. The practice has been to proceed sub-secotrally rather than coordination and integration. Clearly, this has created gaps in terms of synergies between activities as well as partners in the realm of irrigation, drainage, groundwater development, and on-farm water management. Clear strategies for stakeholder participation as well as responding to gender issues in water management have been sporadic and less than successful. This reflects negatively upon centralised planning and decision making processes currently being practices. However, with the increasing awareness levels the trend is changing towards 'development for all by all'.

Air

As a signatory to Male Declaration on Control and Preparation of Air Pollution and its like transboundary effects on South Asia, Pakistan depicted its serious commitment to improving ambient air quality. As a first step, Pak-EPA conducted a baseline study and developed national action plan. The base line study provided status of air pollution levels, current

provisions for monitoring, emission sources and estimates, ongoing research programs and national response to air pollution. The national action plan focused on filling of existing knowledge and information gaps for improving air quality as well as establishing monitoring networks in 5 cities, emissions inventory, assessing impacts of air pollution and air pollution reporting mechanisms.

Although making headway in addressing ambient air quality in the country, Pakistan is struggling with ineffective air quality management systems. Some of the primary reasons being limited understanding on Air Quality Management Systems (AQMS) by planners, implementers, which consequently result in lack of necessary linkage amongst various players such as EPAs, local governments, traffic police, academia, industries / chambers, industries, and health professionals etc. Adding to this burden is the fact that at present there is no continuous monitoring station present in country and most of the data reported is obtained from mobile monitoring units or spontaneous onsite sampling with laboratories based results. This lack of infrastructure has contributed severely to an incomplete analysis of air pollution.

Contributing to the institutional gaps of air pollution control, an absence of incentives based monitoring and reporting system lets high emission levels prevail. The need to explore privatization policies to encourage private capital for power generation, new refineries and gas project has been suggested time and again but without concrete follow up. Traditionally, industrial protection, provided through trade restrictions (tariffs, quotas), industrial licensing and other administrative controls on investment, provided the protectionist slack for using inefficient, high emission generating technologies. However, this trend is changing now creating a hope for solid action.

Similarly, the lack of resources restricts compliance with other measures/regulations such as the Motor Vehicle Ordinance (1965) and the Motor Vehicles Act (1969), aimed to control vehicles emissions. The average vehicle in Pakistan, which is over 15 years old, emits 20 times more hydrocarbons, 25 times more carbon monoxide and 3.6 times more nitrous oxides than the average vehicle in other developed countries. Similarly, lack of information on the status of self-monitoring and reporting initiative impedes an assessment of success of failure of this approach.

Forests

Forestry sector in Pakistan has been amongst the very few areas of environmental protection that received focused attention. Despite the commitment of government as well as private sector and civil society, a halt and recovery of the country's forest resource is yet to come about. There are several dimensions to this continuing degradation. At policy level, the planning and decision making has been relatively strong however lack of monitoring and keeping a continuous check have compromised successful implementation of plans, programs and project.

Nevertheless, creating institutions that hold the mandate to building human resources as well as knowledge and information base – such as PFI – has directly addressed the capacity building needs in this sector. Similarly, at the policy and legislation level, there exist several gaps. For instance, the existing laws and regulations governing the use of forest resources provide penalties for contravention but no incentives for compliance. This partially because up till, 1996, the legislation governing the forestry sector was meant to police the forests and communities were perceived as a threat to forest resources, which contributed to illegal logging and over harvesting of forest resources.

While reforestation is the major focus of many projects and plantation, success is mostly judged on the basis of number of saplings planted in a particular year, with no consideration

given to the post-plantation survival rate. Ultimately, community based forestry projects lack post-project sustainability. Participatory and integrated approaches to forest management tend to be unsustainable in the absence of an enabling institutional environment

Land

Given the number of constraints on the resource and research base, progress in areas directly related to desertification in Pakistan has been modest. A sound understanding of the causes of land degradation exists in Pakistan, but although various technologies and methodologies have been developed to deal with its major causes, their widespread dissemination remains limited.

Recent policy reforms have recognized the importance of community involvement and participation in resource conservation initiatives. An understanding of the wide-ranging underlying causes of desertification also exists at the policy level. Social and economic policies, such as the flat rate tax on groundwater extraction and the promotion of mono-cultural agrarian regimes, are being re-examined, and proposals for policy reforms are being extended. For the effective retardation of desertification, successful implementation of these policy reforms remains to be seen. In addition, there is a need to diversify focus of programs and project to extend beyond only industrial and urban pollution problems.

Strengthening human resource and institutional development is an areas requiring particular attention through provisions for strengthening agricultural universities and other government departments engaged specifically in activities related to the management and development of dry land areas.

Informed decision-making can only be possible through departmental integration and improved communication. The need to create working synergies between the provincial and national Desertification Control Units and other relevant departments to enhance information transfer and exchange hence is the need of the hour.

The range of technologies transferred for addressing desertification varies from expensive to cost-effective and from traditional to locally-adapted imported types. Although relevant technologies are available and ready for use with various government departments, their distribution and integration into the local system is a major obstacle. To overcome this, there is a need to strengthen institutional integration and cooperation and educate the local communities in deployment and use.

Projects arresting and reversing trends in desertification have been implemented in various regions of the country, but these efforts have largely been of an individual nature, with little coordination between local communities, NGOs and government line departments. Communities, NGOs, local research institutes, and provincial line departments have a valuable stock of knowledge accumulated from experience that needs to be integrated into and utilized while designing policies for reversing the current trend in desertification. Similarly, rural women are extensively involved in activities such as sowing, planting, harvesting, livestock management, and the collection of fuel wood. As such, they play an important role in natural resource management, and desertification, when it occurs, affects them adversely. Although the potential for involving women in conservation initiatives has already been demonstrated, the need to set up an institutional framework in order to harness that potential has yet to be addressed.

Biodiversity

Following the CBD's ratification by the national cabinet in 1994, Pakistan automatically assumed the globally shared responsibility of employing constructive measures towards the protection and preservation of habitats, species, and genes. Since then, Pakistan's

commitment to the cause of protecting the diversity of its natural environment has been reflected in the amplified importance that it has allocated to both environmental and wildlife preservation issues. In following up on the government's commitment, the Biodiversity Action Plan (BAP, 1999) was Pakistan's first attempt to meet the planning requirements of the Convention.

For a program where the overall success rate depends on capacity and multi-sectoral commitment, biodiversity conservation remains an end for which the means are not readily available in a resource deficient country such as Pakistan. Nevertheless, some notable progress has been achieved over the last few years – including a comprehensive response to Article 6 of the CBD; formulation of the BAP based on multidisciplinary approach; publication of a Protected Areas System Review and Action Plan in 2000; introduction of trophy hunting practices across several biologically sensitive areas; initiation of projects such as Maintaining Biodiversity in Pakistan with Rural Community Development, and Mountain Areas Conservancy Project; introduction of the GEF Small Grants Program to support civil society initiatives; and stipulation of mandatory IEE and EIA as part of all development programs and project.

However, the achievements cannot fully surpass the challenges and hence additional interventions, in terms of those areas of concern that harbour greater importance for the long-term sustainability of biodiversity initiatives in Pakistan, would require further planning and action.

While concern for biodiversity in policy matters has definitely improved over the past decade, challenges persist. The biggest of these relate to the relative newness and the previously mentioned multi-sectoral nature of the biodiversity issue. Moreover, since most of the existing provincial laws were enacted well before the advent of either the NCS or the BAP, they do little to help Pakistan meet its obligations under treaties to which it is a signatory.

The conservation and management of wildlife are, for the most part, provincial responsibilities in Pakistan, to be handled by the relevant forestry, fishery, and wildlife departments of the area. As in most cases in the country, these institutions face a lack of funding and a dearth of resources in terms of both trained staff and equipment. Consequently, the real problem lies not in the capacity constraint per se, but in the proper allocation of existing human resources.

Pakistan's ability to organize available resources in order to execute knowledgeable decisions regarding its biodiversity conservation initiatives is severely limited. This process of coordination and dissemination of research findings, and their ultimate utilization in the execution of future initiatives, relates directly to the absence of the institutional capacities discussed above. Despite the presence of established institutions—such as the Zoological Survey Department, the Pakistan Forests Institute, and the Pakistan Museum of Natural History—there still exists no complete and authenticated compilation of Pakistan's endemic species of mammals, birds or reptiles. The non-existence of proper channels for sharing and disseminating information restricts the utilization of valuable information by federal and provincial wildlife authorities.

It has been noted that women are more sensitive to understanding the importance of biodiversity conservation, and because their daily activities of firewood collection and livestock grazing are directly linked with the state of their surroundings, it becomes all the more important to invest in their environmental awareness. Consolidating random project-based activities into fully integrated gender strategies, whereby women and men can equally be involved in the preservation of their surroundings, remains a gap.

Marine Resources

Over fishing and polluted waters are the primary issues contributing to the reduction of productivity of the marine and inshore fisheries. The precarious condition of mangroves in coastal zone and the even more precarious status of certain aquatic wildlife, such as the Indus freshwater dolphin, are but a few glaring indicators of a rapid degradation rate.

Against this persisting scenario, Pakistan has been able to take a few notable steps to address impending pressures. Amongst these the formulation of Coastal Environmental Management Plan stands out as the key commitment for action.

Similarly, to several other sectors, the persisting knowledge and information gaps in marine and coastal management areas are the significant hindering factors for the government. There is a lack of ample research on several technical areas for instance chemical accumulation and its impact on marine environment. Similarly, the analysis of direct pressures created through growing urbanisation and land reclamation from mangrove forest areas has not been noticed by the government and civil society as anything requiring immediate attention.

The growing recognition of limited scientific data as well as data on marine fisheries has found a place in current policies and planning processes. At the same time there is heightened awareness of lack of human resource development, illegal and harmful practices in fishing, and absence of micro-finance facility. These areas have been included in the present 5-year plan however; their implementation is yet to be fully organised and hence undertaken.

Waste Management

In absence of standards for clean up of contaminated sites and limits for disposal of waste on land, those industries which are causing contamination of land and water bodies through inappropriate waste disposal are not legally bound to clean the site unless ordered by judicial intervention to do so. This has created a large gap in actual adherence to waste management practices even though their recognition exists.

Similarly, due to the lack a reliable waste inventory, there is very little practice at present for using tools such as EIA for hazardous waste management. Although attempts have been made at various governmental levels in some selected pockets of the country to identify and quantify municipal waste and biomedical waste, there are no state/nation-wide waste inventories available to evaluate any impact. This also directly contributes to the difficulty faced by environmental protection institutions namely EPAs, to prepare appropriate waste management plans.

Apart from some dedicated facilities at large chemical industries, Pakistan lacks the sort of infrastructure that is required for proper treatment and disposal of hazardous waste largely due to the inability of regulatory authorities to achieve strict enforcement of rules. Most of the waste whether municipal or biomedical, is at present dumped in open low lying areas with no provisions for liners, leachate collection and treatment system or gas collection system. In absence of segregation of waste at source, waste treatment alternatives such as recycling, waste-to-energy projects and or composting become uneconomical to operate. Most infectious biomedical waste segregated at the source of generation gets disposed at municipal waste dumpsites in absence of dedicated waste disposal facilities for biomedical waste generators.

Energy and Renewables

The energy transmission losses are extremely high in Pakistan despite the fact that it cannot afford the high cost of its imported oil. Similarly, energy use continues to be inefficient and commercial fuels are not accessible to rural households and the poor.

Against this backdrop of issues and stresses the energy planners and policy makers have achieved a considerable headway in addressing cleaner energy needs of the country. However, the process of exploring potential for cleaner energy sources is still at very initial stages largely due to high costs associated to the technology transfer and experimentation. The most pertinent gap need addressing is incentive based clean energy programming in the country. The potential for public-private partnership is a key area identified but not fully explored.

Similarly, developing an inter-sectoral framework for energy conservation, renewable resources and research and development is still to be materialised. Without an integrated approach to energy sector planning and development, stakeholders such as transporters, industrialists, etc. have not come forward to show their commitment and support.

There exists tremendous potential for exploring wind, solar, hydel and nuclear energy sources in Pakistan however, lack of supportive infrastructure as well as institutional gaps have been the key hurdles to date in moving forward in this direction.

Climate Variation

There is growing recognition that climate change is likely to reduce biodiversity, and the goods and services that ecosystem supply to Pakistan by several means such as increasing desertification in arid and semi-arid areas; increasing seawater intrusion of the Indus delta with a consequent; reduction in mangrove cover, and a loss of sandy beaches; increasing the threat of retreat of glaciers and an upwards shift in ecological zones in the; the desiccation and die-back of forests; and reduction in agricultural production and fisheries.

However, despite a growing recognition of existing and potential impacts of climate change, the topic is still viewed as a specific and narrow environmental concern to be dealt with by specialists, and not as a wider national development priority that cuts across many economic and policy sectors. Therefore, the acceptance or understanding of climate change imperatives remains limited as part of policy making, leading to a suboptimal and sporadic implementation of planned actions.

Pakistan is faced with the challenge of slow pace of developing national capacity to assess, devise, and implement related technical and environmental activities. The development of a national capacity on the whole nevertheless remains uneven, with key institutions, especially in administration, academia, and the private sector, largely uninitiated in terms of technical knowledge, relevant activities, and awareness of possible benefits and opportunities. The small but growing base of professional expertise in the field is scattered, and the risk of such intellectual capacity dispersing gradually remains high in the absence of an overall national program of action to sustain uninterrupted capacity building.

There exists a tremendous scope in Pakistan for the transfer of suitable technical and technological expertise in the areas of climate change and impact assessment, evaluation of GHG emissions, assessment of mitigation options, and adaptation of a host of relevant mitigating technologies. To date, such a transfer has been sporadic and limited to very few applications, but given the size of the country and its development forecasts, the possibilities of a much larger assimilation of technical know-how with widespread replication potential is enormous.