

PART – 5 ACHIEVING SUSTAINABILITY – RECOMMENDATIONS AND STEP FORWARD

The issues identified in each of the above chapters provide the basis for highlighting policy, knowledge and institutional gaps in the previous sections. This section identifies the corresponding sectoral recommendations based on issues and gaps analysis. In addition, institutional mechanisms for State of Environment reporting capacity and monitoring in the light of international experiences are also presented as a separate set of recommendations.

Recommendations for Water Sector

Lack of infrastructure

The irrigation and drainage infrastructure is one of the priorities of the government but is already financed largely by the World Bank and the Asian Development Bank. Additional aid would have only a marginal effect and would not be judicious.

Similarly the infrastructure for urban water treatment and wastewater treatment are of prime importance but they require very large investments and the reliability of the institutions holding charge do not guarantee success. Promotion of public private partnership in this area could be envisaged possibly by financing feasibility studies.

Access to information for irrigation

Lack of information on water resources and their use prevents informed decisions. It would be worth taking action in this direction. It is possible to build on the existing facilities, by providing technical assistance to perfect the telemetry system. It should, however, be noted that the responsibility for operating the system was handed over to a private company.

Here too, the approach is based on supply and not on demand and is exclusively centred on surface water. It would be interesting to map the irrigated water in Pakistan and to determine the water resources and the needs according to the crop and the time of the year. Two possible partners for this are PCRWR who are to set up a GIS laboratory in the next few months, and IMWI who already have experience in this field although only in a very small area in Pakistan.

Right to water

One of the neglected areas in the water sector in Pakistan in the formulation of the right to water which is a key element in the sharing of water. There are no regulations at the moment; one way of extending cooperation would be to provide technical assistance for formulating these rights. It is important that this work be based on the preliminary research carried out by the World Bank.

Reduction of water pollution by industries

Rather than dealing with the effects downstream of industrial pollution, it would be worth directly taking the industries upstream, through public private partnership. A possible partner UNESCO, in charge of the decade of education for sustainable development. This initiative will enable the co-operation of the private sector. The action would be to promote the use of clean production methods and treatment of wastewater. Other partners who could be involved are PNUD, through their programme of sensitising the public opinion as well as industries, WWF Pakistan, which already has field experience and SDPI, which has already carried out research on the subject.

Sensitisation of the people to treatment of water for domestic purpose

The quality of water used for domestic purpose all over the country could cause catastrophic results. Improvement of water quality could be achieved only in the long term through mobilisation of public opinion. An action in the shorter term is to inform people about treating water at home, even providing low cost decontamination kits. The methods development by UNICEF in partnership with PCRWR and by Network could be adopted and extended further. These organisations should necessarily be associated with the project. In the rural areas Public Engineering Department of Punjab could be involved, the water quality in the rural areas of this province is very bad.

Training of young experts in water management

Finally, a group of young experts could be training in water management. Indeed, the lack of quality in human resources is one of the difficulties in water management in Pakistan and rebuilding teams depleted by the retirement of older members is a problem. Not only engineers but also management personnel generally, specialising in water management should be trained. It would be wise to select young graduates with specialisation in water and to offer them training of several months or a year. The training would be ideally developed specifically for them.

Encouraging Industries

It is recommended that industries should be encouraged to work towards achieving ISO 14000 Certification. To achieve this, industries have to follow standards for environmental management systems (EMS), and economic/market context of the ISO 14000 standards. In addition, ISO 14000 has the advantages of requiring compliance with national environmental legislations while also referring to management structure.

The need is to bring about a perceivable shift in water management philosophy to address water problems. Water resource managers and professionals are beginning to focus on the use of existing infrastructure to meet the demands of a growing population by improving efficiency, reallocating water for different uses, prioritizing the water demand sector-wise and adopting policies and practices that check resource degradation.

Recommendations for Air Pollution Control

Cost benefit analysis

There are many mitigation options available to tackle the issues of air pollution however a cost benefit analysis is required with a focus on collaborative approaches. In addition, fostering legislative enforcement through financial and technical resources needs immediate attention. This could be the essential prerequisite for facilitating EPAs perform their assigned functions under the Act 1997. Similarly, adding economic incentive base for air quality monitoring, reporting and cleaning initiatives remains a gap that requires strategic planning.

Road transport sector

An integrated approach to air quality improve will have to include transport sector as a key contributor to air pollution levels. Several specific measures can be considered in this regard:

- Development of comprehensive transport policy to address air pollution issues and taking steps to improve traffic engineering in all major cities
- Introduction of an effective vehicle emissions inspection and maintenance program, outsourcing inspection to the private sector
- Improvement in traffic system and engineering management and promote fiscal reforms and price regularisation

- Substitution of fuels resulting in higher emissions should be made for both stationary and non-stationary sources
- Introduce inter-city mass transit systems in major cities
- Non-transport dust particulate matter control policy be formulated by including the provision for paving all sections of the road and/or landscaping with trees and vegetation cover. Additionally stop open burning of solid waste, open frying of meat and cooking of food items
- Implementing an energy efficiency plan by conserving conventional sources of energy and increase proportion of renewable sources
- Fuel substitution policy needs environmental initiatives for effective results, that is, inter-se prices of High Speed Diesel, Petrol and Compressed Natural Gas

Regular monitoring and reporting

Initiation of continuous air quality monitoring programs is an essential parameter for assessing increase and decrease in air quality standards. At the same time, although encouraging self-monitoring and reporting amongst industries and transport sector is a viable option, it has to be coupled with incentive measures. Options such as introduction of test or emission certification system like MOT in UK, showing that the vehicle is worthy of travelling on road, or like in Japan that a specific age (like 5 years) is fixed beyond which the car is not allowed to be on road, need to be explored in Pakistan as pilot projects. In addition, self-monitoring and reporting system should be coupled with the random inspections of industries by EPAs and periodic auditing of the industries. Another means for promoting a monitoring and reporting culture could be through establishment of continuous air quality monitoring stations in major cities of Pakistan and establish benchmarks for air quality.

Response to international obligations

Focus action planning to fulfill Pakistan's international obligations under general/specific air pollutants concerning MEAs has been another gap that requires attention. Pakistan can not afford to delay its international commitment and hence it is pertinent to develop a comprehensive action plan that integrates various aspects of air pollution control mechanisms and coordinates at an inter-sectoral level. In addition, air pollution issues be attended through Pakistan Clean Air Program which will serve as the long term strategic plan to combat air pollution in Pakistan. All air pollution control activities, actions and projects may fall under the program.

Air quality standards

For ensuring NEQS implementation, specific parameters related to air quality standards should be built into all monitoring and reporting processes. These standards must be elaborated with specific performance indicators such as reducing sulphur content in diesel produce in Pakistan from 1% to 0.2% and in imported diesel from 0.5% to 0.05% as well as limiting sulphur content of imported furnace oil to 0.2%.

Information Collection and Analysis

The self-monitoring and reporting initiative has been much applauded by industries and private sector stakeholders however to date a status report on this key pollution control and abatement strategy is not available. In the face of lack of information of the status of compliance or lack thereof proper judgement regarding scaling up of this strategy will remain ill-informed. Hence an immediate need is to monitor the status of self-monitoring and reporting by various stakeholders including industries and other private sector entities.

Recommendations for Forests

Enabling environment

Despite receiving considerable attention from policy makers and program planners, forestry sector in Pakistan by far remained under-developed. The need for creating an enabling environment to reap full benefit of policies and plans is stronger than ever before. One criticism on the forestry sector has its lack of coordination with other inter-sectoral strategies for environmental management. This lack of flexibility has time and again resulted in less than optimal use of institutional as well as other resources. At the same time, although there has been recognition of multi-stakeholder involvement for effective resource management, lack of enabling environment has barred various groups of stakeholders from playing their due role towards the common interest of forest development.

Statistical issues

There is considerable debate and disagreement over availability and correctness of information in the forestry sector. With the advent of integrated forest management programs and the corresponding requirements of quality data to facilitate analysis and thus inform policy processes, the statistical issues need a resolution in an amicable manner – one which bases itself on thoroughness, reliability and agreement on source and accuracy of information. There are a number of players whose coordinated involvement can resolve this long standing issue – amongst these, the Pakistan Geological Survey, Federal Board of Statistics and Ministry of Environment's IGF office are of special mention.

Friends of forests

Public awareness campaigns have been the key strategic initiative of environmental protection movement in Pakistan. However, there have been very little incentive based awareness raising. Innovations can be explored through establishing schemes such as 'friends of forests' awards in recognition of contribution made by various groups towards health, maintenance and regeneration of forest resources.

Recommendations for Land

Integrated approach to land conservation

There have been sporadic initiatives for land management and addressing land use issues. However, to date an integrated land conservation approach has not been identified. With the growing list of issues associated with land use and care, it is the need of the hour to coordinate land management strategies. Developing a holistic action plan for land conservation hence is a pertinent option worth further exploration.

Human pressures

Multiple stresses on Pakistan's limited but fertile lands are heightened due to haphazard and unchecked conversion of agricultural lands into residential and commercial as well as industrial real estate. Land reform efforts have been intensive but far from achieving the sustainable use patterns and thus remaining largely ineffectual. Land use regulatory procedures with strict monitoring and compliance checks are therefore an urgent need. Similarly, town and urban planning and development needs to be align with land degradation and salinity and sodicity issues.

Recommendations for Biodiversity

Scaling up success stories

There have been notable multi-stakeholder initiatives such as trophy hunting, which have proven their effectiveness and acceptance. It is therefore worth investing in scaling up of efforts such as these to enlarge the bracket of beneficiaries.

Coordination and collaboration

By the virtue of multi-sectoral nature of biodiversity, there are many stakeholders involved in its conservation. Of special importance are the sectoral line ministries who directly or indirectly deal with stresses of biodiversity losses and conservation. Similarly, research institutes play an important role in biodiversity monitoring and evaluation of health of ecosystems. While given a lower priority, local communities are yet another set of custodians of biodiversity as they are also the direct users. Another major group that has emerged as key environmental stakeholder is the civil society. Without focus on coordination amongst these stakeholders there is very little hope that efforts although designed in the best interest of biodiversity conservation may reap full benefits. Hence coordination and collaboration is of utmost significance.

Recommendations for Managing Marine Resources

Research and Information Management

Management systems have to be supported by research and information. There is therefore need for research on various aspects. The important aspects that can not be neglected are appropriate size and siting of sanctuaries or protected areas; resources enhancement and habitat rehabilitation techniques; selective fishing management reference points; ecosystem modeling and policy and institutional support. Documentation and retrospective analysis of existing information and past studies (trawl surveys) is important for purpose of comparison and for the potential insights they provide for the management of coastal fisheries. Establishment of statistical baseline information should be consistent with Monitor control and surveillance. Ultimately the development of aquaculture techniques should given top priority. The most useful technique would be to establish hatcheries and besides fish production juveniles can be produced and added to natural population.

Recommendations for Waste Management

Industrial and hazardous waste management

A comprehensive strategy is required to ensure scientific management of hazardous waste. One which over the years aligns itself with the liberalised economic policies and related growth in industry to cover all aspects of waste management cycles starting from generation of waste to its handling, segregation, transportation, treatment, and disposal. This strategy should also target waste minimisation/reduction as its primary focus. In addition, any recycle/reuse effort may in fact earn net revenue on the waste generation.

Waste inventory

There is need to constantly upgrade waste inventory so that appropriate waste management strategies can be incorporated in waste management plans. Although substantial progress has been made in imparting training and capacity building to relevant stakeholders and institutions, additional capacity at provincial EPA and district environmental departments is needed to deal with analytical and monitoring requirements regarding tracking of hazardous waste movement and management. In addition training is also required for critical industrial

sectors generating hazardous waste to address their responsibility in handling, storage, transportation, treatment and disposal of hazardous waste.

Municipal solid waste management

In order to have a satisfactory, efficient, and a sustainable system of solid waste management, proper planning, implementation, and management systems must be incorporated in framing the national policy for solid waste management for the country. Present and future ways to manage solid waste stream need consideration of various aspects. These may include setting targets for waste reduction; setting fees and tax incentives to promote market mechanisms to effect source reduction; establishing mandatory standards and regulation; and promoting education and voluntary compliance with policies by business and consumers.

Institutional and regulatory reforms

The tehsil municipal administrations could be entrusted with the responsibility for solid waste management. However, it must be noted that most of the urban local bodies, barring a few progressive ones, are unable to provide the desirable level of conservancy services. There is a need to empower the local bodies by giving them independence, authority, and power to impose taxes, duties, tolls, and fees for services including public health, sanitation, conservancy, and solid waste management.

Recommendations for Energy and Renewables

Renewable subsidies

Renewable energy sources although beneficial are largely too expensive to experiment let alone to scale up for consumer attraction. Creating viable subsidies for import of raw material and technology transfer is therefore a key area to address through policy and research and development. Promoting incentive based private sector partnership for this purpose should be explored.

Recommendations for Climate Variation

Capacity Building

The need for sustained capacity building in climate change activities in Pakistan would require many parallel actions: the development of suitable technical training and academic courses in related disciplines; the involvement of greater institutional participation in planning, research, and project implementation; institutional reforms within relevant government administrative agencies to effectively support climate change initiatives; and greater awareness and information dissemination to attract private sector interest in targeting investment opportunities, including those provided by international financing mechanisms such as the GEF and CDM.

Technology transfer

The creation of an endogenous capacity within the Ministry in the form of a competent Climate Change Cell, the development of an annual plan of activities and targets, external technical and financial support, and the independent monitoring that is inherent in such assistance, would all collectively help improve both the decision-making process in the government as well as help propagate such changes down the line to other participants and stakeholders. However, optimal technology transfer can only take place when an enabling environment consisting of a sound policy regime, supportive institutional and legislative infrastructure, and a domestic constituency of interested stakeholders exists. However, pilot phase, demonstration-sized technology programs, of which some notable examples already

exist, can be readily undertaken to initiate a longer-term, commercial-scale technology collaboration. These kinds of pioneering efforts are critical in building up local awareness, expertise, and investment interest and their support pipeline must be immediately widened to allow a more diverse range of activities to take place, especially given the long gestation periods involved in the maturing and proliferation of such technologies locally. ALGAS and subsequent work has identified and highlighted many areas for such collaborative projects with high benefit-cost ratios, especially in renewable energy and industrial and appliance efficiency improvements.

Stakeholder analysis and participation

As a beginning, climate change programs must enlarge their focus to specifically include vulnerable groups, and gender equality criteria must be built into planning and project formulation. In the longer term, Pakistan is shifting its focus equally towards addressing adaptation and vulnerability issues, in which donor agencies can play a particularly important role. Ultimately, a balance must be achieved between globally relevant mitigation priorities, for which international assistance would be readily available, and local adaptation needs, which would largely require strong domestic support.

Environmental Protection – A Common Responsibility

There are aspects to the management, protection and monitoring of environment that require overarching institutional approach to developing environmental consciousness amongst stakeholders. Some of the recommendations hence point to the need for concerted efforts from different groups of environmental stakeholders including government, private sector, industrialists, and civil society.

State of environment reporting in Pakistan

The past two decades have seen a worldwide move towards state of the environment reporting, a process for communicating information on conditions and trends in the environment, describing their context and significance. In Pakistan there is a need to first establish a natural resources inventory as well as reporting systems. Once these are in place, state of environment reporting and ultimately sustainable development reporting may be undertaken in Pakistan.

In order to establish environmental reporting systems in Pakistan, it is necessary to be aware of the potential problems related to data availability and reliability. While numerous environmental sampling initiatives exist, a closer look reveals that there is limited trust in the quality of sampling and analysis and a sporadic approach to information gathering. Regular environmental monitoring and reporting, GIS compilation of environmental resource inventories, comprehensive land surveys and titles, and monitoring public health and environmental sanitation have repeatedly been recognised as the prerequisites for informed policy-making.

There is a need to streamline data collection methods and systems as well as the agencies and organisations involved to ensure reliability, accuracy, and consistency as existing institutions and methods of data collection and processing have not been designed to measure progress towards goals of conservation strategy, not to mention sustainable development. The development of state of environment reporting systems will build on existing sectoral studies, reports, research methodologies, and data collection methods.

Update Carter Brandon study

The 1995 Crater Brandon study on economy wide cost of environmental degradation received much applause as it opened avenues for linking environmental protection, conservation and management with economic costing and value. This not just provided

impetus to environmental movement in several countries, including Pakistan, but it also directly contributed to strengthening policy making and public sector development plans with increased allocation of financial resources to environmental management.

An effort to update this study was made in 1999 by Gandapur and Bouzaher however the findings were never made public. At present, when Pakistan is being driven by economic forces especially for compliance to environmental standards it is even more pertinent to attach price tags to environmental resources as well as inaction on environmental management.

Involvement of local government

Strengthening the role of local governments through providing them administratively powers to enforce legislation and to monitor natural resources at local levels is another viable strategy needs testing. The major gap between environmental quality monitoring and reporting has been centralisation of these operations at federal and/or provincial levels whereas much can be achieved through local level – district, tehsil/town – systems. Hence, involving the local government structures to adhere to achieving environmental quality standards in their respective areas can reap better results.

Institutionalisation of local governance structures into environmental management and care also require extensive input to capacity building. Moreover, elaboration of bi-laws and rules of business for district and further devolved levels of environmental and peripheral departments are urgently needed for these structures to play their envisaged role.

Poverty and environment nexus

It is the poor who are most likely to be affected by declines in environmental conditions, natural resource scarcity and hazards. Hence Pakistan needs a national sustainable development strategy since the most significant improvements to the environment over the longer-term are likely to come about through a combination of poverty reduction and economic improvements.

Promoting private sector involvement

The private sector has become a decisive factor in many spheres, influencing environmental performance and long-term environmental sustainability. International private resource flows to developing countries have contributed to this process as these flows became more than five times greater than ODA during the 1990s. Within the private sector (especially multinationals), there is a strategic shift from the traditional reactive approach to environmental protection (“do no harm”) toward the concept of sustainable development and corporate citizenship (“do most good”). Likewise, progressive investment bodies have moved from screening out bad practice, to seeking companies with positive roles to play in environmental conservation and social development. Environmental and social development issues are an integral part of this new approach. Pakistan needs to take account of this shift and benefit from it. Public-private sector partnerships, particularly for large infrastructure projects, are likely to increase in many countries, given the availability of private capital and governments' need to reduce public expenditure.