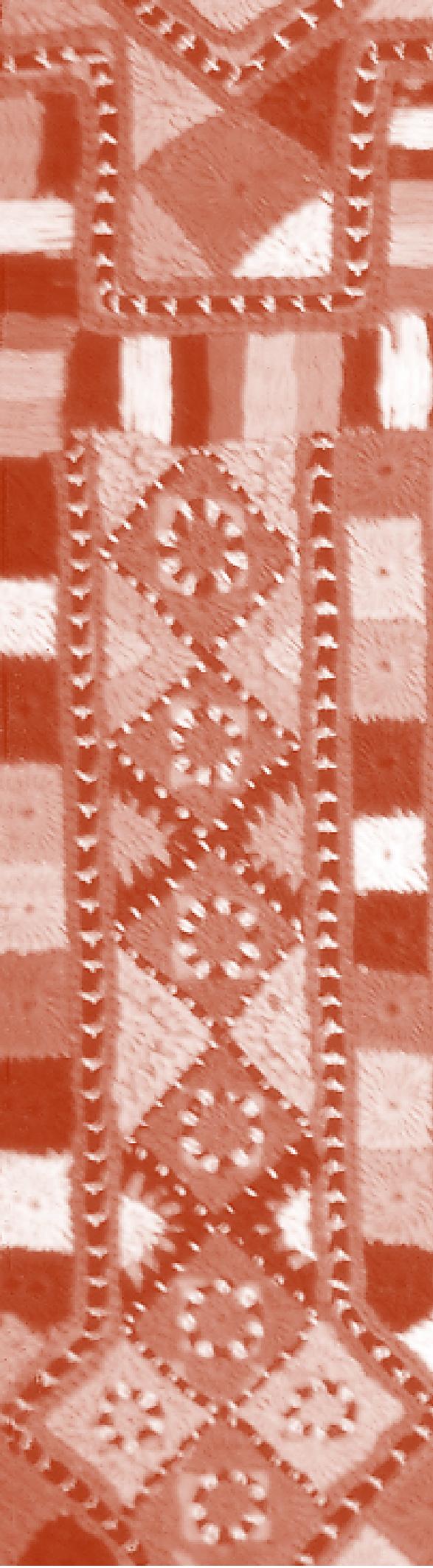


UNESCO

# Balochistan Conservation Strategy

AN OVERVIEW



# Balochistan Conservation Strategy

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# Why a BCS?

**R**ich in natural resources yet poor in material terms, Balochistan today is a province at the crossroads. With its wealth of biodiversity and vast reserves of natural gas, petroleum and minerals, Balochistan has immense potential as a future success story. There are, however, serious impediments in the path to a brighter future. Low literacy levels, widespread poverty, poor communications and a hostile climate and terrain are just some of the obstacles in the way. Add to this depressing picture a long history of poor planning and unsustainable development efforts and the future prospects seem bleaker still.

Although the Government and the people of Balochistan have made various attempts over the years to improve their situation, many of these efforts have been marred by a lack of vision and of clear priorities. As a result, development planning has been largely sectoral, aimed at addressing short-term needs. Often, political pressures rather than objective needs determined the planning process, benefiting a handful of people and bypassing the vast majority. These efforts have not only failed to reduce poverty but have led to a rapid depletion of natural resources and severe environmental degradation.

With the launch of the Balochistan Conservation Strategy (BCS), the hard-pressed people of the province finally have an alternative vision. The BCS is a systematic provincial-level policy framework that tackles a whole range of environmental problems and offers practical solutions. Aimed at reversing the negative impact of poor planning and unsustainable practices, the BCS hopes to deliver a better future to the people of the province.

The BCS is the culmination of a long process that began in 1992. In that year, the alarming state of the province's environment was identified by two documents: the Environmental Profile Balochistan and the National Conservation Strategy (NCS). They drew attention to the gravity of the situation and stressed the need to take urgent action to conserve nature and natural resources. The NCS recommended that the provincial governments develop their own strategic policy frameworks to reverse the downside and address a number of important issues. For Balochistan, the most critical issues were the acute shortage of water, degraded pastures and forests, desertification, poorly planned settlements and rapidly growing slums, contaminated



Liaqat, BCIAP



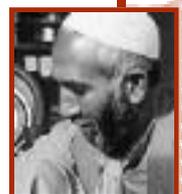
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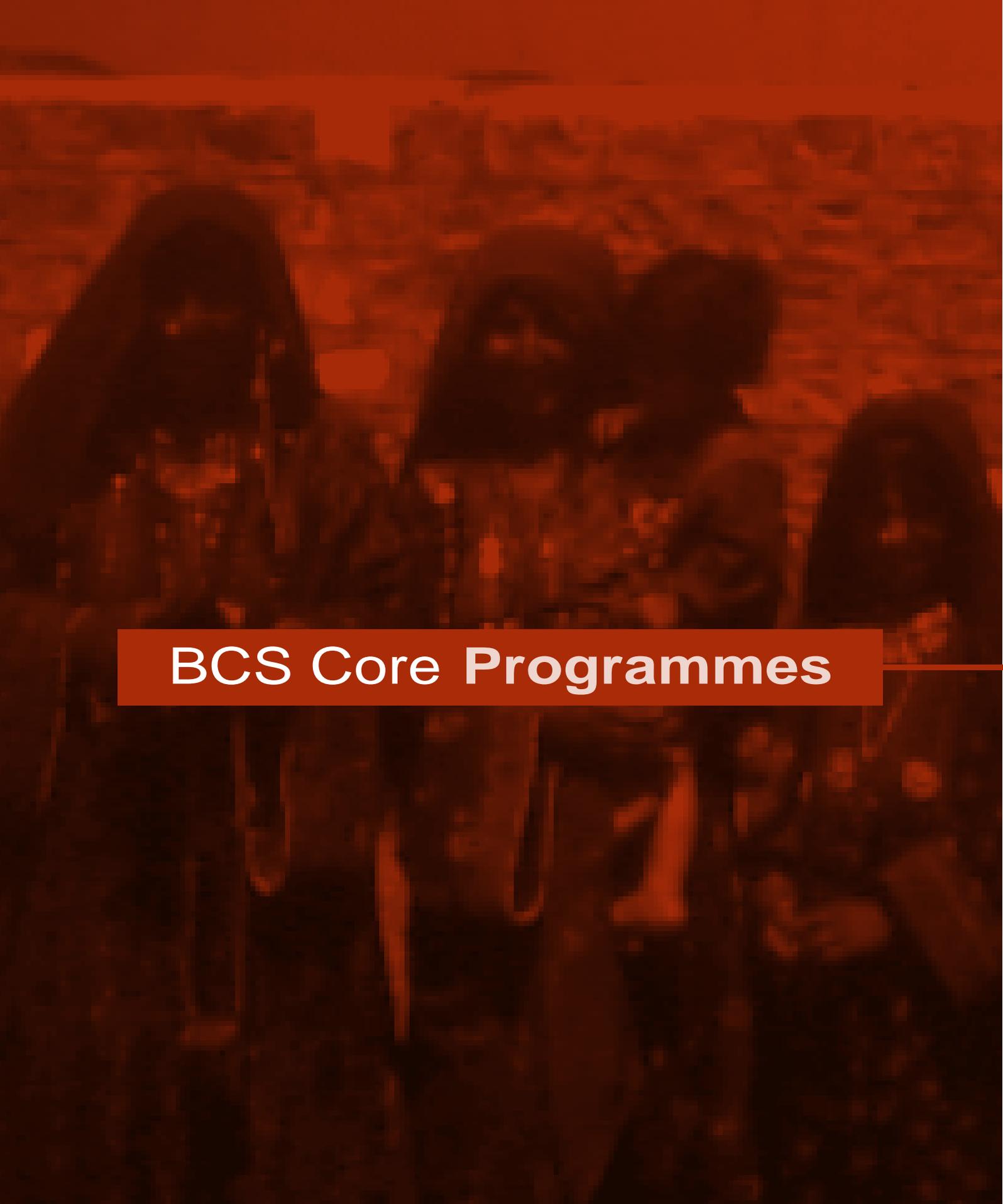
water supplies and inefficient or non-existing sanitation and waste management services, air and marine pollution, lack of good governance and institutional inefficiency, and, most worrying, poverty at a massive scale. The BCS is a response to the growing environmental crisis in the province.

There was also an international dimension to the need for a Balochistan-specific strategy. Balochistan is bound by Iran and Afghanistan and shares many resources with its neighbours, including water, fish and wildlife. It is conscious of its responsibilities as a steward of these transboundary resources. In addition, Balochistan has its own distinctive environment and resource base, a unique social structure, and a multicultural population. The province's development needs are therefore clearly different from those of other parts of the country. It was recognised at an early stage that the BCS must respond to the distinctive needs and nature of the province if it was to succeed.

Balochistan is a largely arid province spread across a vast area of almost 350,000 square kilometers. Its population of 6.5 million is culturally and ethnically diverse and lives under harsh climatic conditions with extremes of temperatures. Droughts and seasonal migrations are common features. Clearly, achieving development objectives and dealing effectively with poverty depend, at least for the next decade, on the ability to manage natural resources in a sustainable manner and to conserve the natural environment. The Balochistan Conservation Strategy aims to support the government's attempts to reconcile its environment and development objectives.

The BCS aims at promoting the well-being of the people and ecosystems of Balochistan. It discusses issues, initiatives and policy recommendations in important areas such as natural resources, the social and economic sectors, as well as thematic areas. A need was also felt for a concise list of actions required for sustainable development in Balochistan. To cater to this need, the BCS proposes 14 core programmes that are spelled out in more detail over the following pages.





# BCS Core Programmes

1. Raising public awareness
2. Improving governance and effectiveness of institutions
3. Institutionalising environmental education
4. Arresting depletion and pollution of groundwater and increasing irrigation efficiency
5. Making agriculture sustainable
6. Managing rangelands and enhancing productivity of livestock
7. Developing coastal and marine resources sustainably
8. Sustainable planning and management of urban areas
9. Creating and sustaining environment-friendly development
10. Conserving, rehabilitating, developing and using forests sustainably
11. Conserving and using biodiversity and wetlands wisely
12. Conserving cultural heritage and developing tourism
13. Collecting authentic data and managing information
14. Alleviating poverty



## Objectives

**Providing a framework and strategic plan for the conservation of the environment and sustainable use of the natural resources of Balochistan.**

**Promoting behavioural change for the protection of the environment, biodiversity and natural resources.**

**Facilitating better access to information to improve decision-making at all levels.**

**Improving mechanisms for promoting public awareness and popular support for the sustainable use of resources.**

# Raising Public Awareness

**R**aising public awareness of environmental issues in Balochistan is a formidable challenge. With a literacy rate of a mere 26.6 per cent, an inadequate road network, a multilingual population and a dominant rural-tribal social set-up, getting the message across is not an easy task. Traditional channels, such as newspapers, have limited readership and penetration. Coverage of issues such as the environment on television is inadequate. Although television is a popular medium in Balochistan, it is widely viewed as a medium for entertainment. Programmes on serious topics attract few viewers and with satellite television, viewers have the luxury of switching channels. The rare exception to this rule are travel programmes, which are popular and can be used to encourage ecotourism.

A vast majority of the population owns radio sets, but the duration of the local transmission is not even sufficient to provide entertainment. However, if proper training in covering and presenting environmental issues is provided, radio broadcasts can play a significant role in raising awareness.

Public libraries are limited in number and those that do exist are in a miserable condition. The public is not in the habit of going to libraries, so most of these institutions serve as newspaper reading rooms.

Unreliable telephone connectivity and low computer usage are constraints in networking and information dissemination through the internet and e-mail. However, various public sector and civil society organisations are using the internet to spread their message.

In a traditional society like Balochistan informal channels of communication are more important than formal ones. Religious leaders, tribal elders, members of jirgas, teachers and people commanding respect in society are the opinion leaders in a predominantly tribal set-up. Convincing these people of the worth of the environment and enlisting their assistance can result in positive changes in attitude towards the conservation and management of natural resources.

Traditional fairs, such as the Sibi Mela, are attended by a large number of people and



Environment Foundation Balochistan



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can serve as focal points for the dissemination of messages. These gatherings can be tapped to bring people from different ethnic groups together, networking between producers, traders and consumers, and introducing environment-friendly technology for the sustainable use of natural resources.

The private sector, especially the Balochistan Chamber of Commerce and Industries and various traders' organisations, could play a major role in these efforts.

Many other NGOs and professional associations have also been playing a significant role in awareness raising – for example, WWF Pakistan, Society Environmental Awareness, Shajar Environmental Society and IUCN Pakistan.

Establishing, strengthening and institutionalising women's groups to share and disseminate environmental information will raise public awareness of environmental issues. It will also help to introduce innovative approaches towards sustainable resource use.

The media, especially the print media, needs technical capacity building to be able to 'green' their coverage of issues.

The bottom line is that many actors, traditional and non-traditional, will need to get involved in raising awareness.

## Recommendations

**Roundtable on Communication.**

**Sectoral and thematic communication strategies.**

**Building capacity.**

**Supporting involvement of media and others.**

**Monitoring impact and re-planning.**

# Improving Governance

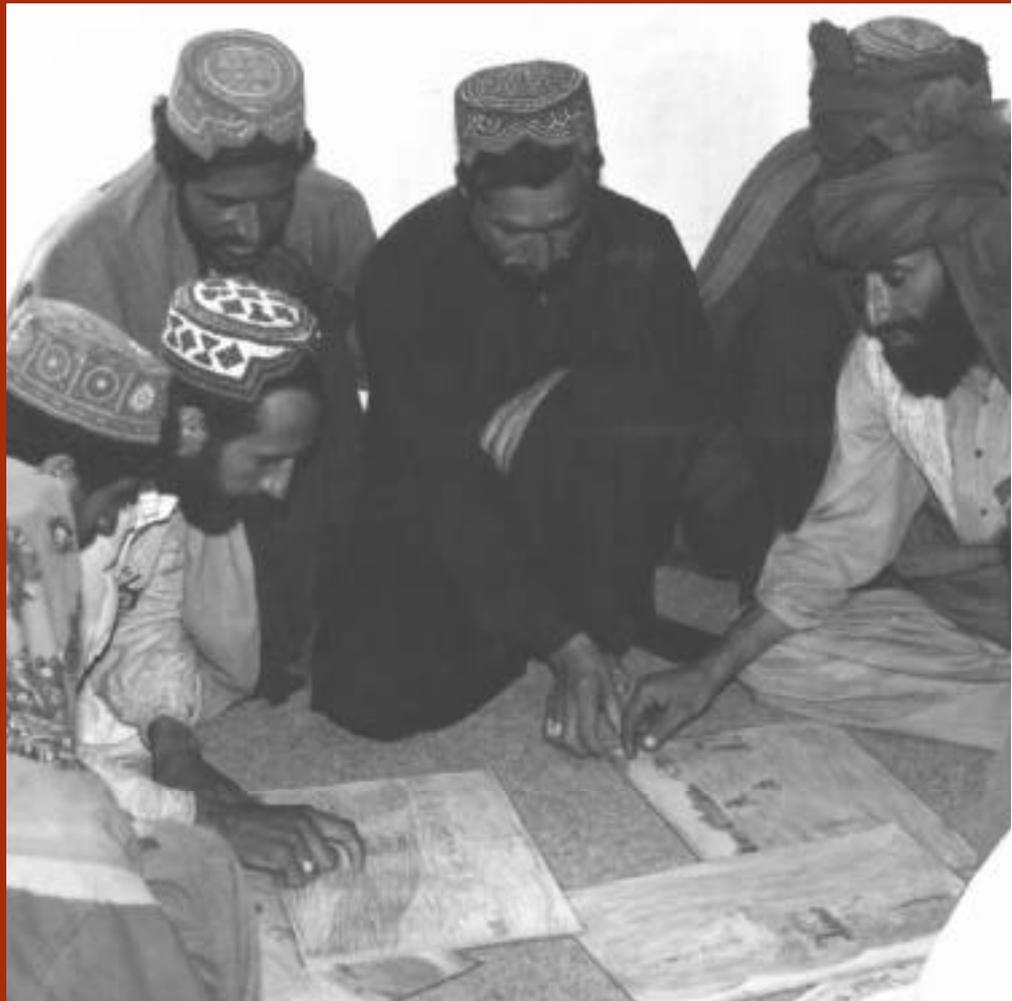
**D**uring the formulation of the BCS, ineffective governance was the issue singled out by most people in consultative meetings with communities and civil society at large. The inefficiency of institutions and the lack of coordination between them was another matter that was raised frequently. Incidentally, this inefficiency was not restricted to government departments alone. It encompassed autonomous bodies, civil society institutions as well as the private sector.

Traditionally, governance in Balochistan has been based on a top-down planning and implementation approach. Political instability, hierarchical and compartmentalised structures, and a poor chain of communication have all served to erode confidence in public institutions and the government. There is a lack of ownership and an absence of a cooperative culture between local communities. All this has served to sabotage development initiatives and, as a consequence, increased pressure on natural resources.

The general public is rarely consulted before framing policies. Most people feel that their natural resources are owned by the government, and exploit them unsustainably.

The province's juniper forests – one of the largest of their kind in the world – where the loss of biodiversity has reached an alarming level, provides one such example.

The problems are compounded because local technical capacity is either unavailable or underdeveloped. The major reasons for this are lack of access to reliable information, unavailability of refresher opportunities, frequent transfers and an absence of political will to change the status quo. A poor educational system and a lack of research facilities only serve to make the picture bleaker.





Sajjad Ahmed

The absence of effective coordination between departments is another major problem. This can lead to large amounts of funds being spent, over and over again, on the same initiatives. Frequently, one public sector organisation dismantles the work done by another organisation, for example, newly built roads are regularly dug up to lay telephone, gas, electricity and sewage lines. This lack of coordination causes a heavy drain on the public exchequer through the overlapping of functions and over-staffing.

Some steps have been taken to address this vital issue. The Balochistan Trial District Management Project (being implemented in the Loralai and Jhal Magsi districts) is one such effort. However, much more needs to be done to improve coordination.

The government's devolution of power and local government initiatives are aimed at decentralising decision-making from the national to provincial and from the provincial to district level. This step will not only improve inter-organisational coordination but will also encourage transparency and accountability and, consequently, have a positive impact on the lives of ordinary people.

## Recommendations

**Roundtables on all natural resource, social and economic sectors and thematic areas mentioned in the BCS.**

**Management review of key institutions.**

**Improving objectivity/ transparency/ accountability through participation of stakeholders; access to information; annual performance of government organisations; improving performance appraisal system; merit based recruitment, promotion, posting; improving disciplinary action system; sharing of responsibility by political leaders; controlling misuse of funds and facilities; withdrawal of discretionary powers and indemnity; declaring nepotism and favouritism a crime; giving constitutional protection against victimisation; improving working conditions; capacity building; and authenticity of information.**

**A provincial ombudsman.**

**Decentralization of powers.**

**Establishing a Land Use Planning Directorate and Urban Planning Council in the P&D Department.**

**Developing an electronic atlas of Balochistan.**

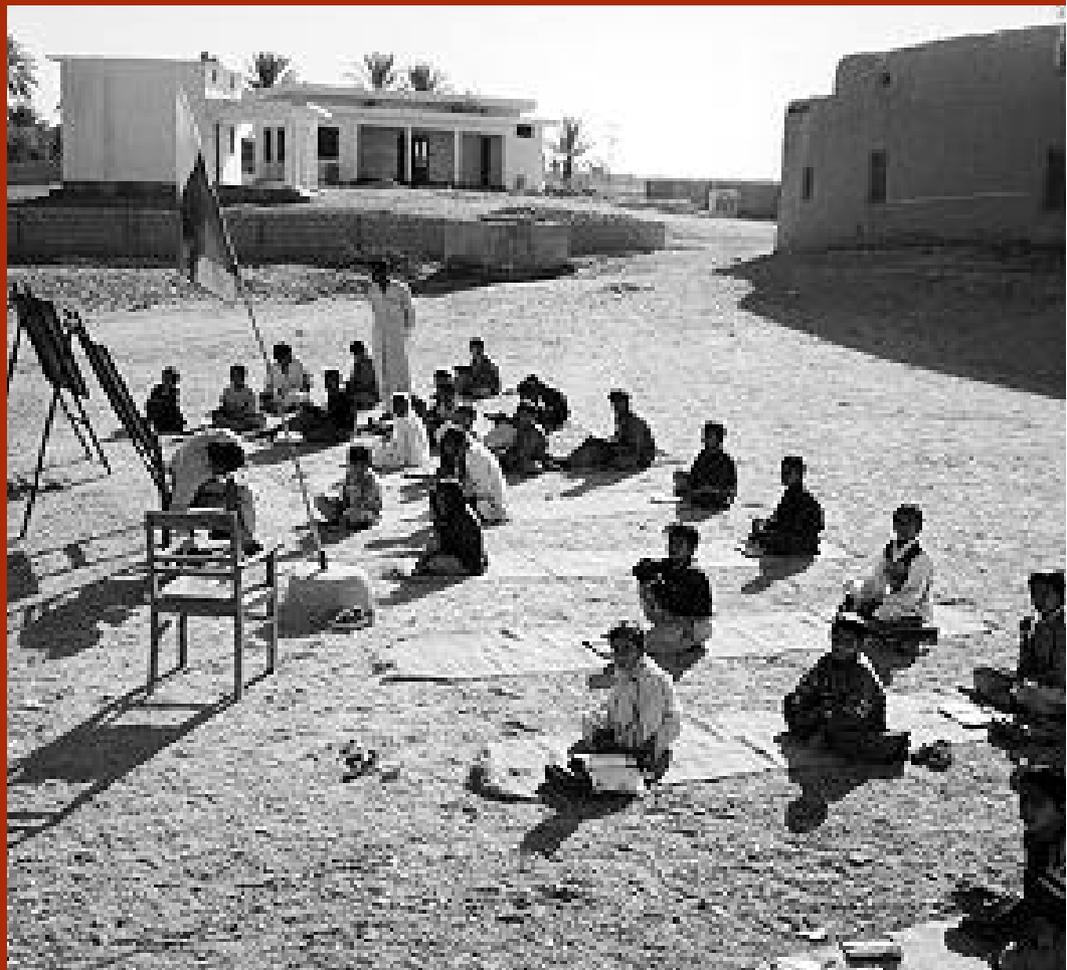
# Institutionalising Environmental Education

**B**alochistan has the lowest literacy rate in Pakistan, an abysmal 26.6 percent overall. While 36.5 percent of males were categorised as literate in the 1998 census, the female literacy rate was a mere 15 percent. According to the census, about a million persons were found to be either attending some educational institution or had done so in the past. Many schools, especially girls' schools, do not have teachers, appropriate buildings or furniture. The syllabus, meanwhile, remains inconsistent with the emerging needs of the time. The situation is even worse in the rural areas. In this dismal scenario, environmental education has obviously taken a back seat.

As literacy is a crucial factor in awareness raising, the issue requires special emphasis. One idea is to deploy school children as carriers of messages. In this context, investments will have to be made to ensure equitable access to primary education for both boys and girls and provide opportunities for their continued education. Refresher courses for teachers, especially with a focus on environmental education, will have to be arranged. Many girls' schools are non-functional due to the paucity of female teachers. Special incentives and facilities will have to be provided to encourage women to teach in the rural areas of the province.

NGOs are playing a vital role in the field of formal as well as non-formal education. It is important to build their technical and institutional capacity to allow them to play a greater role in the educational field.

The curriculum of public and private educational institutions needs revision in the light of the



Hamid Sarfraz, IUCN



principles and guidelines of environmental education.

Environmental education per se has never been introduced in formal educational institutions. There is no environmental engineering department in the universities or environmental health department in the medical college. However, environmental education as a theme is part of the curricula, especially of private schools. The Balochistan Textbook Board and the Bureau of Curriculum have initiated efforts to incorporate environmental concerns into the syllabi of public sector schools. However, lack of appropriate capacity is a major obstacle. The provincial government intends to invest in capacity building of teachers and master trainers for environmental education.



## Recommendations

**Building capacity – orientation and training in environmental education.**

**Education that is relevant to the needs of Balochistan.**

**Infusing environment in curricula and training.**

**Developing extracurricular materials.**

**Involving NGOs and parents.**

# Arresting Groundwater Misuse

**B**alochistan is primarily arid with an average precipitation level below 250 mm per annum. Total cultivated land (2.09 million hectares) constitutes only 6 percent of the geographical area of the province, of which only 580,000 hectares are irrigated through perennial water sources. However this irrigation water is misused. The remaining land is rainfed or flood irrigated. Low precipitation not only affects groundwater levels but also irrigated agriculture. Crops grown under these conditions are obviously of poor quality and yields are low.

The indiscriminate use of tubewells has created its own problems. Owners of orchards typically sink tubewells, run them round the clock on electricity charged at a flat rate, and irrigate their orchards to produce fruits worth thousands of rupees. What most growers have failed to understand, however, is that groundwater is a finite resource. Their actions have led to a decline in the level of groundwater in many places and an acute shortage of water, even for drinking purposes. Nisai in Qila Saifullah District is one such example. In the 1980s this area became a centre for the production of high quality apples from tubewell-irrigated orchards. Today, these orchards have withered because of the unavailability of water. The same ominous scenario is gradually unfolding in Quetta Valley where the issue of drinking water is becoming a most crucial one.

Issues such as groundwater and irrigation efficiency are primarily of a systemic nature. However, there is hardly any reliable information available to facilitate the precise planning and management of water basins. There is an urgent need for a basin-specific water management system involving community participation.



Although water-bodies are not as contaminated as in the other provinces, the increasing use of fertilisers and pesticides suggests that this problem will become more serious in the years ahead. There is a need to promote the rational use of chemicals so that biodiversity dependent on water-bodies remains conserved. At the same time, the availability of freshwater to the marine ecosystem needs to be ensured.

Karezes, traditionally a very effective source of water, are drying up due to the installation of tubewells and dugwells, lack of maintenance, and droughts in the province. This trend is more visible in areas with orchards. There is a need to review the policy on tubewells and to revamp karezes.

Improving coordination and research in this area is also recommended. Establishment of a Water Board for the planning and management of each water basin will be a useful step towards sustainable use of groundwater and an efficient irrigation system.

## Recommendations

**Improving irrigation efficiency.**

**Improving recharge.**

**Harvesting rainwater/reducing excessive use.**

**Controlling water pollution.**

**Considering ecosystems in development planning.**

**Establishing a sovereign Provincial Water Board.**

## Karezes

**Traditionally, karezes served as a major source of irrigation water in arid Balochistan. These are usually constructed on a communal basis, yield up to 200 litres/second and serve a maximum of 200 shareholding families. Each share in a karez represents the amount of time that water is available for irrigation purposes. These shares may, in turn, be rented out and are often fragmented into very small units. The nature of the karez system helped create particular societal relationships and socio-economic conditions in the villages they served. Unfortunately, internationally sponsored irrigation surveys in the 1970s viewed the karez as traditional and outmoded and not amenable to updating.**



# Making Agriculture Sustainable

**A**lthough agriculture is not very extensive in Balochistan, with only 6 percent of the area under cultivation, about two-thirds of the population is dependent for its livelihood on this activity. With a yield valued at almost

Rs. 70,000 million in 1996-97, agriculture is a significant economic activity.

Despite the contribution of agriculture to the provincial economy, documentation of this area is extremely rudimentary. Land use planning, for example, is an alien concept in the province. Government land records are either non-existent or inaccurate. Similarly, annual agricultural statistics are unreliable, with numerous discrepancies between their content and field data. Only a small proportion of agricultural land has settled land tenure. Communal lands are usually under the control of Sardars and the elite who seldom share the benefits with tenants – the actual farmers. Due to a lack of knowledge and proper guidance, people are unable to use their land resources properly.

The same is the case with irrigation water. Where available, water is misused to irrigate crops and orchards. This not only results in the depletion of groundwater resources, but also affects the long-term sustainability of agriculture and horticulture. About 60 percent of agriculture consists of dry land farming, dependant on rain (khushkaba) and flood irrigation (sailaba). To date no attention has been paid to harvesting floodwater.

Due to poor extension services, people are unaware of high-yield varieties of seed. Moreover, seed supply and handling is not only inappropriate but also inadequate. Farmers either do not have information on modern agricultural techniques or do not want to adopt them. As a result, yield is not only low but also of poor quality, thereby failing to provide adequate economic benefits to the people or to the provincial economy.

However, the careless introduction of exotic species of crops can disturb the existing biodiversity cycle. Therefore, genetic diversity of cultivable crops should be preserved and the cultivation of wild plant species of economic importance should be promoted and encouraged. NGOs



Liaqat, BCIAP

and the media can become actively involved in agriculture extension services.

Land erosion and desertification pose increasing threats to the existing agriculture system. Overgrazing and unsustainable practices have led to severe soil erosion.

The indiscriminate use of chemical fertilisers and pesticides can prove disastrous in the long run. Their use will have to be rationalised, with biological fertilisers and integrated pest management promoted as alternatives. The conservation of water-bodies can help protect biodiversity and also maintain soil fertility.

Another serious problem is the poor state of the weather forecasting system. Thus when drought conditions do occur, thousands of families depending on agriculture and livestock are caught unawares and suffer the terrible consequences.

The Department of Agriculture lacks the capacity and opportunities to carry out research and disseminate its findings to farmers. Research organisations, academia, the meteorological authorities and media must be supported in developing a more accurate forewarning system.

The absence of appropriate marketing networks is another constraint to achieving sustainable agricultural development. Under the current state of affairs, the middleman gets the lion's share



## **Sustainable Irrigated Agriculture through Community Participation**

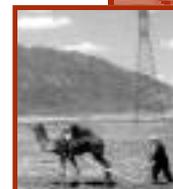
**Lakhora is a small village located about 53 km east of Khuzdar with a population of 720. The Karkh River is the only perennial source of water to irrigate farmlands. A few years ago, only 55 hectares were under cultivation because of the limited water supply (1.6 cusecs). The Balochistan Community Irrigation and Agriculture Project motivated the farmers to participate in improving the supply of water to their farmlands. The proposed work involved providing pipelines, rehabilitating existing pipelines and installing new ones, constructing manholes and new channels with ancillary structures, and constructing flood protection bunds. The community was organised, their needs identified and the scheme was completed with their participation – not only through cost sharing but also through contributions in the form of the workforce. Today, the water supply has increased to 5.9 cusecs, irrigating 240 hectares.**



and growers of potentially lucrative products such as dates and apples are unable to benefit. The local processing and preservation of orchard produce has not been attempted on a significant scale. The Balochistan Chamber of Commerce and Industries will have to play an active role in this regard while the government could help in capacity building efforts and by providing technical inputs. The promotion of an agro-based industry, improved marketing of agricultural produce and well-managed export of fruits and vegetables could provide substantial support to people and the provincial economy.

The Government of Balochistan intends to promote coordination and consultation with stakeholders, including farmers, line departments, the private sector, academia and research organisations, as well as the media. A Roundtable on Sustainable Agriculture has been established to facilitate this dialogue, with a mandate to coordinate research, planning and development in the field of agriculture.

Liaqat, BCIAP



## Recommendations

**Improving irrigation efficiency.**

**Controlling groundwater mining/rainwater harvesting for *sailaba* cultivation.**

**Reclaiming waterlogged and saline soils.**

**Promoting integrated pest management.**

**Conserving topsoil on agricultural lands and maintaining fertility.**

**Preserving genetic diversity.**

**Cultivating economically valuable wild plants.**

**Promoting agro-based industries.**

**Improving marketing.**

**Improving research and education.**

# Managing Rangelands and Livestock

Approximately 79% of the area of Balochistan can be categorised as rangelands. This area fulfils 90% of the feed requirements of small ruminants, 40% of pack animals and 5% of cattle in the province. Range-based livestock farming is a major source of livelihood for people living in the rural areas.

Six main breeds of sheep – Bibrik, Balochi, Harnai, Rakhshani, Kakri and Mengali – are found in Balochistan. The Pahari, Kajli, Khurasani and Lehri types of goats are kept for their hair and meat while Barbari and Kamori cross-breeds are kept for milk production. Cattle breeds include Bhagnari, Lohani and Red Sindhi. These breeds adapt well to local conditions. The only buffalo breed found in the province is Kundi. Camels are of the Mahari, Bari or Ladu breed.

An increase in the number of livestock is considered a barometer of success in livestock management. The result is that there are some 20 million small ruminants in the province, a number that is six to seven times greater than the actual carrying capacity of the province's rangelands. This results in severe overgrazing and puts enormous pressure on already rapidly degrading rangelands. Inadequate nutrition results in high mortality, high parasitic infestation rates and stunted growth. Due to these reasons, livestock owners sustain high losses, especially during droughts. Due to unsustainable and excessive grazing in rangelands, almost all vegetation has been stripped resulting in increased wind erosion, excessive runoff of rainwater, low recharge of water basins, loss of topsoil and nutrients, and an overall degradation of pasturelands.

Traditional breeds are not very profitable because of their low weight. However, new breeds introduced in the province have not been able to adapt due to the harsh climate, scarcity of feed, and inadequate veterinary health services. There is a need to introduce more productive and adaptive breeds so that quality instead of quantity can be emphasised. Dairy animals, if managed properly, can have a major impact on raising household income. Livestock farmers should be helped through the provision of better breeds and artificial insemination. Preventive veterinary health services should be introduced and promoted.



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The traditional pargorh (rotational grazing) system had ensured sustainable use of rangelands. But it has been abandoned due to the growing trend amongst transhumant populations to settle, and the consequent distribution of communal lands to individual families. There is a need to revive this very effective indigenous grazing system along with modern range management approaches.

Marketing of livestock produce is another important issue. Skins and wool from small ruminants can provide raw material for the leather and wool-garment industry. Traditional woollen blankets and rugs can be a major source of income for families dependent on livestock, provided there is an efficient marketing system in place.



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## Recommendations

**A multidisciplinary unit.**

**Improving livestock breeds.**

**Improving grazing capacity and organizing grazing.**

**Preventive and veterinary care.**

**Assisting grazing communities.**

**Preserving genetic diversity.**

**Supporting women in handicrafts.**



# Conserving Coastal and Marine Resources

**W**ith a coastline stretching across 770 km, Balochistan is rich in marine resources. This wealth, however, does not translate into prosperity for the coastal population. Most people in Gwadar and Lasbela, the two coastal districts of the province, live below the poverty line. Today, this area is among the least developed in Pakistan but there is great potential that the area could become the economic lifeline of the province as well as the country.

The waters of Balochistan are known for their high quality fish and shrimp produce as well as for their flora and fauna. The vast stretches of virgin beaches along the coast have the potential of attracting large numbers of tourists.

Balochistan's beaches have great biodiversity value because they serve as a major nesting ground for the endangered green turtle. Another important resource in the area are the mangrove forests. Mangroves not only serve as a source of wood, provide food for camels but are also nurseries for shrimp. Special efforts, including an adequate supply of fresh water to the mangroves, are needed to conserve these habitats.

Balochistan's waters produce a significant quantity of fish and shrimp. In the absence of adequate policies and a proper marketing network, most of the catch is sold directly in the open sea to foreign trawlers or to traders from outside Balochistan. This practice deprives the province of considerable revenue. Another problem is fishing by foreign trawlers. These trawlers use nets that rope in all kinds of fish and other sea creatures of low economic benefit but high environmental value. This indiscriminate fishing disturbs the life cycle of many types of fish. It not only affects the overall fish stock in Balochistan's waters but also the quantity of catch by the fisherfolk.

There is no fisheries-based industry in the coastal areas of Balochistan. If financial assistance and technical guidance is provided, there is great potential for preserving and canning shrimp and other fish in the area. However, an adequate marketing system is also a prerequisite.



Tahir Qureshi, IUCN



Hamid Sarfraz, IUCN

Boat making is a traditional craft of the area. This craft can be further developed into an organised industry through technical training, financial assistance and marketing.

The pollution of Balochistan's beaches and waters is another issue. Besides a continuous threat of oil spillage, washout from oil tankers is a major pollutant. Due to weak law enforcement, most tankers passing through Balochistan waters consider the coast a safe place for washing and dumping waste. The polluted coast and waters seriously affect marine life, and in the long run, can prove disastrous for local fishing.

The federal and provincial governments have a special interest in coastal development. However, issues of sustainability, geographical threats to the area including earthquakes and typhoons, environmental protection, and adequate town planning would have to be seriously addressed before launching any ambitious plans. For example, the proposed coastal highway can give rise to unplanned human settlements all along the route, which in turn could create slums without civic amenities, and lead ultimately to biodiversity loss.

There is a need for an integrated coastal zone management plan in accordance with guidelines provided by UN ESCAP. The Government of Balochistan has committed itself to such a plan and intends to boost sustainable economic activities in the area through the provision of basic amenities and communication infrastructure (electricity, highways, link roads, telephones, etc) and devising a conducive policy for ecotourism. Starting a ferry service to provide access to coastal human settlements is also under consideration. Fisheries will be reorganised along modern lines and fisherfolk (both men and women) will be provided adequate training. Sustainable town planning will be ensured and alternate resources of energy (for example, wave and wind) will be explored to serve the population.

## Recommendations

### **Integrated Coastal Zone Management Planning.**

**Environment-friendly development of coast including sustainable management of natural resources; desalination of sea water; provision of ferry service; construction of coastal highway and key link roads; establishment of a fisheries centre; tourism development; establishment of non-polluting industries with abatement/pollution control; planning sustainable new townships; and cleaning existing settlements.**

**Developing and sustainably using natural resources**

**Controlling land-based pollution.**

**Developing coastal tourism.**

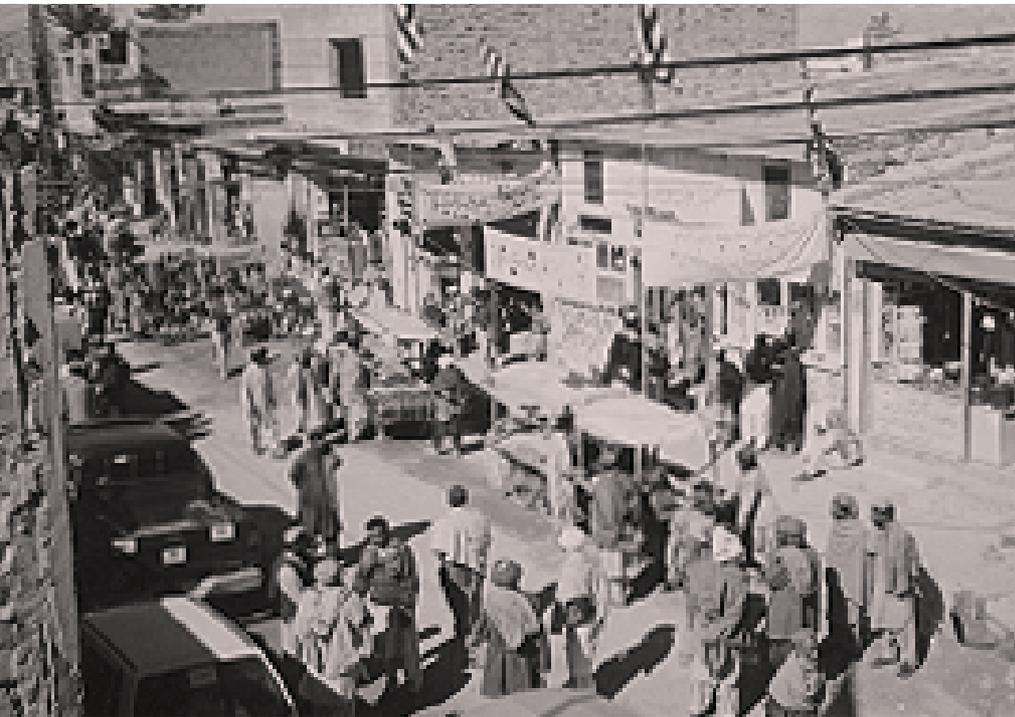
# Planning for Urban Areas

**A**lthough 77% of the population of Balochistan currently lives in the rural areas, at the present rate of urbanisation, about half of the people of the province will be living in urban areas by the year 2030. Quetta, the largest urban centre of the province, hosts about one-third of the urban population. With increasing economic and educational opportunities in the urban centres, an influx of rural to urban population has already started, resulting in pressure on limited urban resources and civic amenities. This situation has given rise to slums and katchi abadies (squatter settlements).

Town planning has not been given much priority in Balochistan, resulting in unplanned and unsustainable human settlements with inadequate civic amenities. Matters are made worse by the lack of safe drinking water, inefficient sewage and solid waste disposal facilities, air and noise pollution



Nadeem A. Khan



Ghiasuddin Siddiqi, IMPLAN

due to traffic congestion, and construction irregularities in violation of the building rules. Earmarking of land for green spaces has become essential if clean air is to be provided to urban residents.

In Quetta, groundwater has become a major problem. Not only is the supply insufficient and decreasing day by day, but the water that is available is being contaminated because of damaged sewage lines. Given this situation, awareness raising campaigns for the rational use of water must be promoted accompanied by an improvement in public health facilities.

Rickshaws have long been a major source of air pollution with a resultant increase in respiratory diseases in Quetta. This problem has worsened due to high-sulphur smoke emitting brick-kilns around the city. There is an immediate need to ban the registration of new rickshaws and to shift brick-kilns away from the city limits. The introduction of compressed natural gas (CNG) as a fuel is a positive step in this direction.

The Government intends to prepare and implement master plans for the urban areas to ensure appropriate planning. There is a need to redefine the role of government organisations from controller/service provider to facilitator. In this regard, NGOs, CBOs and the private sector should be motivated and facilitated to play their role effectively.

## Recommendations

**Placing QDA, BWASA, QMC under the Local Government and Rural Development Department.**

**Water supply for Quetta from an outside source.**

**Controlling new developments in the Quetta valley.**

**Treating and re-using sewage from Quetta.**

**Planning and development of existing and new towns.**

**Planning a new city on the lines of Quetta.**

**Managing watersheds of all settlements.**

**Water and sanitation for settlements.**

**Safe disposal of all kinds of solid wastes.**

**Environment-friendly master plan for Quetta.**

**Controlling air, water, land and noise pollution.**

**Green spaces in settlements.**

# Sustaining Environment-friendly Development

**B**alochistan is an underdeveloped area by any standards. All the ingredients of economic development, including industry, minerals and mining, trade, agriculture and livestock, energy resources, and communications infrastructure, are still at a rudimentary level. As development always has an impact on the environment and natural resource base, it is important that environmental considerations are kept in mind in any effort to broaden the province's economic base.

At present, Balochistan's mineral potential is vastly under-explored. Although the Government of Balochistan has offered reasonable concessions to international mineral exploration companies, their response has been slow mainly because of poor governance and law and order concerns. However, many companies are actively involved in oil and gas exploration, and some have been successful. Lack of a conducive minerals policy, unavailability of risk capital from banks and development finance institutions for exploration, small scale mining of low-value commodities, use of antiquated mining techniques, and lack of safety measures for mine workers are other obstacles in the development of the mining sector in Balochistan.

As far as industrial development is concerned, there is hardly any significant industry outside Hub and Quetta. Such concentration of industries is causing problems such as the depletion of groundwater reserves and the growth of slums. Despite a tax holiday for the rest of Balochistan, industrialists are not willing to invest because of the unavailability of skilled labour, the local elite's demands for monetary benefits, inappropriate communications infrastructure, and unavailability of credit facilities.

Electricity and gas are available to a limited proportion of the population. Until recent years there was no major power generation plant in the province. Even after the establishment of power plants at Hub, Dera Murad Jamali and Quetta, the power produced is being supplied to the national grid and Balochistan is still suffering from a shortage of electricity. This is another factor impeding the geographical spread of industry in the province.



Shaukat Changezi

Along with industrial growth, environmental concerns are also increasing. The Environmental Protection Agency (EPA) Balochistan, which is mainly responsible for the enforcement of environmental laws and regulations, lacks capacity and human resources. Environmental standards are also not available for enforcement. Outdated techniques and practices, the absence of regulatory mechanisms, and lack of awareness not only endanger the environment but also the health and safety of workers. Emission of sulphur dioxide from coalmines is causing air pollution while industrial wastes pollute the land. The high demand for water by industries and mining ventures adds another dimension to the problem.



The Government of Balochistan, in its Ninth Five-Year Plan, intends to develop growth centres with the aim of diverting pressure away from existing industrial or urban centres. The government also recognises that a clear policy on the ban on exploration activities in protected areas is highly desirable. Renewable energy resources will be promoted and exploited to reduce pressure on woodlands and other non-renewable energy resources. Environmental regulatory laws will be refined and implemented. In this regard, the role and capacity of the provincial EPA will be strengthened. Compliance with the National Environmental Quality Standards (NEQS) will be ensured by motivating and involving the private sector. The use of Strategic Environmental Assessments (SEA) and Environmental Impact Assessments (EIA) will also be encouraged.

## Recommendations

**Controlling pollution and complying/enforcing NEQS.**

**Undertaking SEA of policies/programmes and IEE/EIA of projects.**

**Occupational health and workers' safety.**

**Cottage, small and medium agro-based industries.**

**Promoting arts, crafts and tourism.**

# Using Forests Sustainably

For thousands of years, the people of Balochistan have based their survival needs on forests and the flora and fauna they spawned. Trees and shrubs were traditionally used for fuel and construction materials and herbs for food and medicine. In recent years, the forests of Balochistan have been facing serious threats.

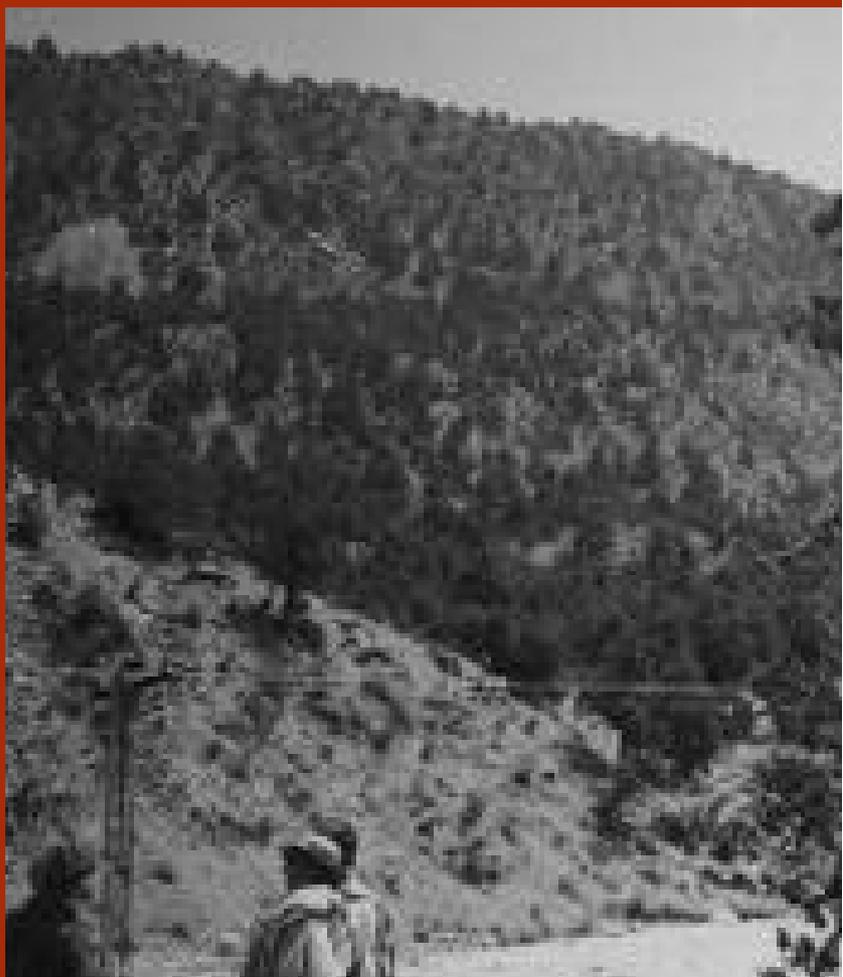
Given its varied topography and climate, there are a number of distinct types of forests in the province. A limited number of trees are grown in irrigated plantations in Lasbela, Sibi, Zhob, Pishin and Quetta Districts. The remaining areas, except for state lands, are considered common property. The primary use of these lands is for pastoral purposes, but they also serve as wildlife habitat and play a valuable role in recharging groundwater.

The major type of forest in Balochistan is the coniferous forest; this includes the chilghoza (pine nut) and juniper forests. The province has one of the largest juniper forests of its kind, covering 141,000 hectares, with the best examples in the Ziarat and Zarghoon valleys.

Scrub forests are found at 500-1,500 meters. They provide protection to agricultural land by reducing soil erosion and the intensity of flash floods. Two other forest types found in the province are the riverine forests – very little of which survives in its natural condition – and the mangrove forests along the Mekran coast.

Alarmingly, the already limited forest cover is being rapidly cleared for agriculture (especially orchards), the construction of houses and roads, and for commercial purposes. The cutting of trees and their branches is increasing for their use as timber, fuelwood, fencing material and for thatching. Parasitic infestation, viruses and other diseases are also continuous threats to these forests. Natural regeneration, meanwhile, is almost insignificant due to heavy grazing in these areas. The loss of centuries-old juniper trees in Ziarat, Quetta, Sibi, Loralai and Kalat districts is an example of communities' priorities, in which immediate needs triumph over the long-term requirements of conservation.

A decrease in forest cover does not simply mean the loss of trees but also the loss of other flora and fauna dependent on



Jalaluddin Qureshi



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these forests. If habitats are not available, how can wildlife survive? Given the current situation, it is imperative to initiate a protected areas system plan in the province.

Farm and community forestry has not been widely practised in Balochistan. Promotion of such forestry can help reduce the pressure on natural forests.

Much of the data on forests is derived from secondary sources, and is of limited use for planning and management of forests. The traditional protective approach of the Forest Department is clearly not viable any more. There is a need for collaborative forest management with the active participation of communities. The Forest Department also needs reorientation and restructuring to play a more effective role. For this purpose, a management and operational review, capacity building and strengthening of the department is of crucial importance.

## Recommendations

**Involving communities in forest management.**

**Managing forests sustainably.**

**Encouraging farm forestry and tree plantation.**

**Managing watersheds.**

**Using alternatives.**

**Reorganising the Forest Department, and reorientating and training staff.**



# Conserving Biodiversity and Wetlands

**B**alochistan is especially rich in biodiversity, given its position in the transitional zone between two of the major zoo-geographical regions – the Palearctic and the Oriental. The geography of the region has an impact on the distribution of plants and animals. Wide variations in physical features and climate have produced diverse landscapes, ecosystems and habitats that are an important part of national and global heritage.

At least 1,750 known plant species and an impressive variety of animals can be found in Balochistan. A number of these are endemic to the province. Balochistan also boasts of some of the finest wetland habitats in the country. Although small in number, they have a particular value given their location in a semi-arid region. They attract a large number of waterfowl including swans, herons, geese and ducks. The Zangi Nawar Lake in Chagai District is a wetland of international importance. More than 60,000 birds were counted there in the mid-1980s. Spin Karez and Hanna Lake near Quetta, Siranda Lake in Lasbela, and Biroon Kirthar Canal in Jaffarabad attract a variety of birds and animals. Another area of importance to biodiversity are the mangrove forests of the Mekran Coast.

Balochistan is one of the most important wildlife regions of Pakistan and is home to a large number of species not found in other parts of the country. Among these are the markhor, urial, chakor, ibex, black bear, straight-horned markhor and Afghan urial. Amongst mammals, the black bear and the Chiltan markhor are critically endangered while the straight-horned markhor and urial are amongst threatened species. Among marine species, the green turtle, marsh crocodile and various sea snakes are endangered. Some of the important migratory birds are the houbara bustard, falcon and crane. The Chagai desert has the distinction of being home to a unique assemblage of reptiles including six endemic species and rare creatures such as the sharp-tailed spider gecko, whip-tailed sand gecko, Baloch spiny-tailed lizard, dark-headed gamma snake, Indian desert monitor and Tartary sand boa.

The wanton cutting of trees and bushes, overgrazing, unsustainable hunting and



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trapping of wild animals, illegal export of animals, and soil erosion are the main factors contributing to the loss of biodiversity and habitats. Due to indiscriminate fishing, marine species are endangered. The introduction of new breeds and cross-breeding in agriculture and livestock has also resulted in a disturbance of local biodiversity. The use of DDT and the discharge of industrial waste into rivers and streams not only kill species and contaminate the water, but eventually affect the marine habitat as well. A reduction in freshwater supply to estuaries, meanwhile, has resulted in the loss of mangrove forests.

Systematic knowledge of the flora and fauna of the province remains incomplete and a comprehensive analysis of endemism, species density, and relationships is not available. Academic institutions and research organisations should be supported in pursuing research on such topics in order to fill in the blanks.

## Trophy Hunting in Torghar

In the Torghar Mountains of northern Balochistan, trophy hunting is being used as a management tool for the conservation of the internationally threatened straight-horned (Sulaiman) markhor and Afghan urial. These species were on the verge of extinction when the Society for Torghar Environmental Protection (STEP) began its work in 1985. The local communities were persuaded that it was in their interest to stop hunting these animals. In exchange, they receive some income from limited and carefully controlled trophy hunting. These hunts are based on annual surveys, which allow scientists and villagers to assess the status of the markhor and urial populations. Since the introduction of the programme in 1985, the population of these two species have recovered dramatically, and the communities are committed and proud of their role in saving these animals.

## Recommendations

**Implementing international conservation conventions.**

**Designing a Protected Areas System (PAS).**

**Management planning of PAS.**

**Managing protected areas scientifically.**

**Developing recovery plans for endangered species.**

**Controlling houbara hunting and the capture/trade in falcons.**

**Involving communities in managing natural capital.**

**Developing policies and legislation.**

**Institutional arrangements.**

**Orientation and training.**



# Conserving Cultural Heritage

**B**alochistan has a civilisation that stretches back to thousands of years. Excavations of historic and pre-historic settlements have been carried out in many areas of the province, and finds include stone implements, rock paintings and engravings in caves. Waves of invasions and migrations have created a fascinating mix of cultures in this land and left behind a rich wealth of cultural heritage. The study of some sites, especially those at Mehrgarh, shows that prehistoric culture underwent many changes which led to two transformational phases – the development of an economy based on livestock and irrigation, and the formation of a highly organised society which later gave birth to the celebrated Indus Valley Civilisation.

The cultural heritage of Balochistan is as old as humanity itself. The region has long been famous for its rich traditional arts and crafts. To this day, embroideries depict the domestic traditions of the three major ethnic groups: the Baloch, the Pashtun, and the Brahvi. Each ethnic group and each tribe within it has its own original symbols, motifs and colours. These embroideries are of very high quality and have a potentially large international market. Other crafts such as felts, rugs and other woolen items such as bags (for grain and flour), ropes and mattresses are usually made of wool and the hair of camels, sheep, and goats. Beautiful ornaments, musical instruments, everyday utensils and tools are made from metal. Balochistan also boasts a rich heritage of music, folklore, poetry, and dances such as the Attan, Balochi Chap and Jaffarki.

Balochistan is blessed with a large number of potential tourist attractions including the golden beaches of the Arabian Sea, the stunning Sulaiman Range, and centuries-old rock dwellings and caves. There is potential to develop a rail safari and rail tourism using the old railway track on the Sibi-Bostan-Zhob-Quetta route. Different local festivals, including the Sibi Mela, are also of interest. There is great potential for ecotourism, especially along the coastal belt, the juniper forests and the desert areas.

The lack of a proper communications infrastructure is the biggest constraint to tourism development. Another major handicap is that most parts of the province



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are restricted areas for foreign travellers. The private sector, meanwhile, is not ready to invest in this sector mainly because of lack of concessions and incentives and unavailability of credit facilities for tourism development. Basic tourism facilities, including accommodation, transport, adequate information, safety and guidance, are also lacking.

Most of the protected and unprotected archaeological sites and monuments are privately owned. The sites located in urban areas are facing a serious threat from encroachments. Owners tend to construct residences and commercial buildings after dismantling these sites. Most of the important archaeological sites and monuments are without any protection, and are rapidly deteriorating. Except for Mehrgarh, none of the other archaeological and architectural sites are given any publicity or coverage in the media to attract tourists. In fact, very few people in Pakistan and Balochistan even know about Mehrgarh, which is among the most important sites in the entire region.

Artists and artisan are also not given adequate recognition. As a result, generations-old crafts are disappearing. Craftsmen are gradually turning away from their profession to adopt more lucrative ones. The handicrafts of Balochistan have considerable marketing potential, which remains untapped. There is a need for arranging micro-credit facilities in this area, promoting and institutionalising craft transfer, and providing marketing support to craftsmen and women.

Information about Balochistan's rich cultural heritage needs to be compiled and made public. This information should be attractively packaged using modern advertising methods and widely disseminated. The internet can also be used for this purpose. Museums should be established and those that exist should be revamped. A separate provincial organisation should be established for the purpose and existing staff should be re-oriented. Community managed tourism should be promoted so that communities can benefit from tourism.

## Recommendations

**An authentic inventory and map of cultural and natural heritage.**

**Improving museums.**

**Exhibiting arts and crafts in the Quetta museum.**

**Publicizing cultural and natural heritage.**

**Enabling tourism from abroad.**

**Preparing for 2001-Pakistan's Year of Tourism.**

**Involving local communities in tourism.**

**Excavating key sites.**

**Conserving heritage.**

**Documenting traditional knowledge.**

**Institutional strengthening.**

# Managing Information

Keeping written records is not a cultural tradition in Balochistan. As a result, information management is one of the most serious systemic issues. In most cases information is not available, and if available, is not reliable. Information from one source often contradicts that from another. Data on natural resources and the environment is virtually non-existent, with even basic information on pollutants, natural habitats and species not available.

An effort was made by the Planning and Development Department in 1997 to develop district profiles for all 26 districts in the province. Although these documents provide a considerable amount of relatively reliable data, they require continuous updating, which is not being done.

The provincial organisation responsible for this task – the Bureau of Statistics (BoS) – lacks resources. The BoS publishes a handbook of provincial statistics that is often contradicted by field data. The Bureau does not have the resources to conduct field studies and collect field level data. Lack of technical capacity is another issue constraining the proper



Sajjad Ahmed



Liaqat, BCIAP

functioning of the Bureau. Government records are not intact either due to negligence or lack of capacity to maintain them. In the absence of any counter-check, most data from government departments remains suspect.

Indigenous knowledge about traditional practices like pargorh, karezes, changes in climate, droughts, and the use of natural resource exists but is not given serious attention because it is considered outdated. This knowledge should be documented and used in planning and implementing conservation and development initiatives.

Intra-departmental coordination and information sharing does not exist. This results in overlap, contradiction and a waste of resources. The Government's policy of sharing only selective information with the public is another hurdle. There is a need for a progressive policy on information sharing and access to government records. The provincial government intends to improve intra-organisational coordination and information sharing through the strengthening of the facilitative role of the Bureau of Statistics. Electronic archiving and access of information through e-mail and the internet could be a useful option for ensuring effective information sharing.



## Recommendations

**Improving coordination.**

**Strengthening the Bureau of Statistics.**

**Information management in the province.**

**Disseminating information over the Internet.**

**Managing a Balochistan information centre.**

**Promoting access to information.**

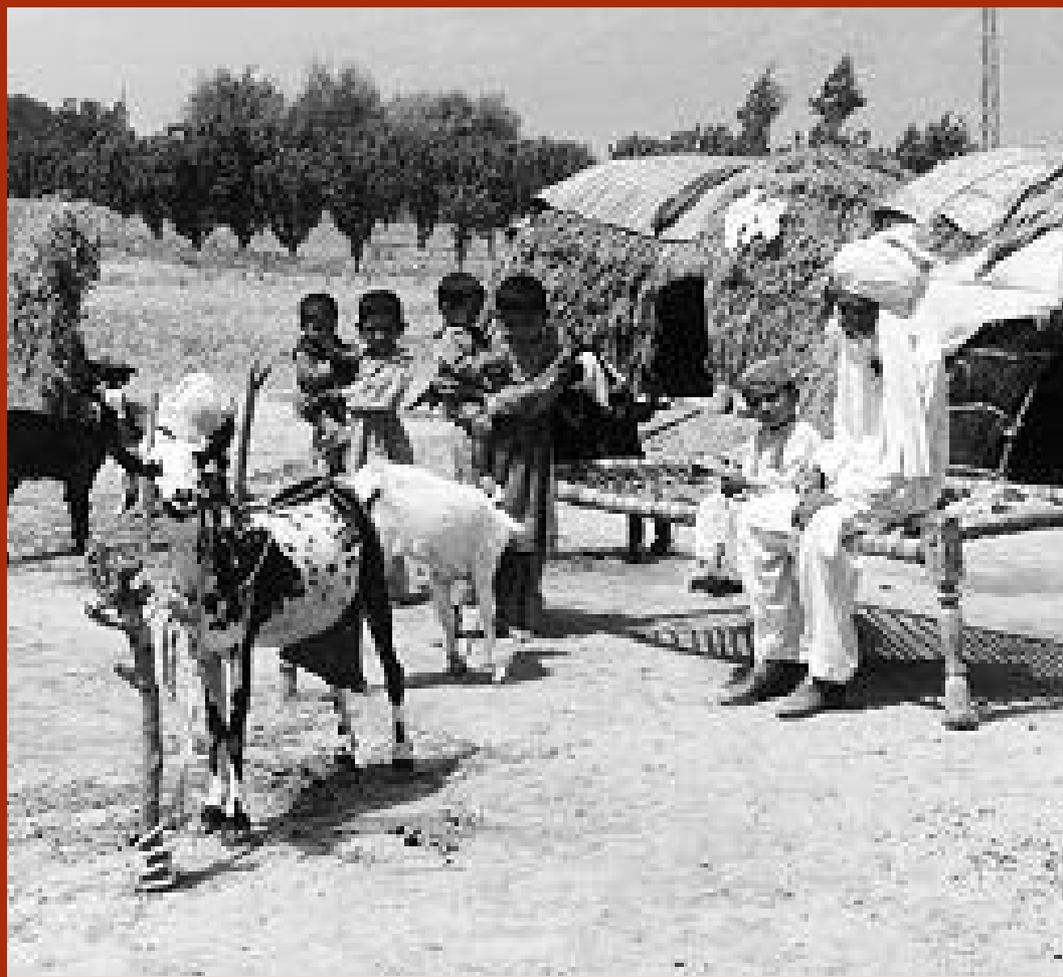
# Alleviating Poverty

**B**alochistan is rich in resources but a significant proportion (about one-quarter) of its population lives below the poverty line. The reasons for this deprivation are numerous: an over-dependence on traditional agropastoral economy, political insincerity, vested interests of the elite in maintaining the status quo, unsustainable and inequitable exploitation of natural resources, lack of economic opportunities, absence of or inadequate communication infrastructure, high fertility and mortality rates, preference for male children, and a generally fatalistic attitude.

Poverty and degradation of the environment and its natural resources are directly linked and create a vicious cycle. The poor exploit all available natural resources unsustainably to fulfil their daily needs, thus depleting future resources. The unsustainable use of natural resources results in environmental degradation, which in turn affects the health and well-being of the poor, causing a loss in their productivity and consequently increasing their poverty.

This cycle is clearly evident in the chilghoza forests in Zhob District where people have cut trees for immediate monetary benefits jeopardising the future of coming generations. The same syndrome was witnessed in Nisai (Qila Saifullah District) and Mangochar (Mastung District) where people sank a large number of tubewells to pump out groundwater and irrigate orchards and farmlands only to discover a few years later that their actions had left the water basins dry. Today, these areas have become barren and are facing a drought-like situation.

Apart from the unsustainable exploitation of resources, other



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factors are also playing a part in increasing poverty. Rapid population growth and the dominant joint family system in Balochistan are also contributing factors. The limited resource base is unable to sustain a rapidly growing population. Very few attempts have been made to analyse relationships between population growth, resource use patterns and poverty. The same applies to migration and settlements patterns.

In March 1999, the Government of Balochistan announced its Poverty Alleviation Strategy. The focus was on creating economic opportunities through the exploitation of natural resources and opening up employment opportunities in the public sector. Despite all its structural and thematic inadequacies, this programme can provide a baseline to initiate poverty reduction activities. In this regard the sustainable use of natural resources, consideration for environmental protection and equitable sharing of benefits by all strata of society will be crucial.

Although immediate measures to improve this situation are necessary, there is a need to devise a well-thought-out poverty reduction strategy focussing on the sustainable use of natural resources, equitable benefit sharing, healthy living patterns, supportive social structures, efficient marketing of local produce, a gradual shift from agro-pastoralism to industrialisation, and attitudinal change from fatalism to realism.

## Recommendations

**Raising awareness regarding opportunities.**

**Involving representatives of the poor.**

**Integrating poverty alleviation in policies and development planning.**

**Improving literacy/health care and encouraging population planning.**

**Conserving natural resources for the sake of the poor.**

**Improving environmental health in poor localities.**

**Diversifying income and developing skills.**

**Vocational training.**

**Organizing the poor for collective action.**

# Implementing the BCS

## Implementation Mechanisms

Institutional strengthening through roundtables, BCS focal persons in line departments, restructuring of public sector institutions, improving coordination, information and data collection, information sharing and capacity building.

Strengthening environmental communication and education.

Supporting and catalysing policy and legal reforms.

Increasing human and financial resources for BCS implementation by increasing efficiency and using existing resources properly and wisely; and generating additional resources through the revenue budget, rational consumer charges, establishment of the Sustainable Development Fund and donor funding.

Motivating, mobilising and helping all implementation partners to play their roles and undertake their responsibilities in BCS implementation and monitoring.

# Implementation Partners

Political leaders for policy and legal reform; and resource allocation and monitoring.

The federal and provincial government for coordination, collaboration and information sharing; policy review, legal reforms and use of economic tools; good governance, local government, roundtables and strengthening; applied research and development and information sharing; awareness, behavioural change and mobilization; extension, mobilization and facilitation (sectoral); reorientation and increased resource allocation; and planning – consultations and integration.

Judiciary for public interest litigation; and improving enforcement of law.

Armed forces for environmental awareness, behavioural change and mobilization; identifying, planning and implementing environmental activities; and understanding and taking care of the environment in conflicts.

District authorities and local bodies for awareness/behavioural change/mobilization; participatory/integrated planning and management; governance/strengthening/law enforcement and decision-making; creating enabling environment/interagency relations; and project planning/reorientation/implementation/monitoring.

Private sector for environmental awareness/behavioural change/mobilization; coordination with government agencies, NGOs and others/funding; and improved management practices/processes.

NGOs, CBOs, and citizens' fora for awareness/advocacy/motivation/mobilization; coordination/networking; capacity building; integrating environment and gender in mandate and action; facilitating management of communal resources; development-project planning/implementation and maintenance; and service delivery.

Tribal elders, ulema and community leaders for environmental awareness/advocacy/motivation/mobilization; and community organization/mobilization of own resources.

Community for developing understanding/behavioural change/self mobilization; development planning/investing capital and labour; and improving management practices.

Media for environmental awareness/advocacy/disseminating information; roundtable/integrating environment/gender and poverty; and investigative journalism/reporting on environmental issues.

Donors for policy reform/programme approach; technical assistance/joint programmes and monitoring; capacity building; and prioritization of investment and resource allocation.

# Resource Mobilisation

**A four-point approach has been suggested to finance recommendations of the BCS:**

Releasing resources through improvement in efficiency and effectiveness.

Re-assessing and re-orienting existing programmes and projects to align them along with the goals and principles of the BCS.

Reviewing the public sector development planning process to integrate the BCS goals, approaches, guidelines, programmes, interventions, and recommendations into all Five-Year Plans, Annual Development Plans, and Three-Year Rolling Plans.

Raising and allocating additional funds through establishing and/or using funds like the NGO Fund, the National Heritage Fund and the Fund for Sustainable Development; broadening the tax base; and donor funding.

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