

GEF SMALL GRANTS PROGRAMME FOR PAKISTAN;  
ASSESSMENT OF CONDITIONS AND RECOMMENDATIONS

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Prepared for the UNDP by

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GEF SMALL GRANTS PROGRAMME FOR PAKISTAN:  
Assessment of Conditions and Recommendations

A. CONSULTANCY OBJECTIVES AND SCOPE OF WORK

1. The GEF Small Grants Programme (SGP)

Pakistan is one of the 30 pilot countries for the GEF-SGP. The Programme aims at supporting NGO projects that deal with the following environment related subjects:

- reducing greenhouse gas emissions;
- protecting bio-diversity;
- reducing pollution of international waters; and/or
- reducing ozone layer depletions.

In general the following types of NGO activity will be eligible for support, whether carried out within the country or within the framework of an inter-country project:

- community based participatory activities that address an area of need
- development of priorities and strategies
- research, data collection and inventories
- capacity building and strengthening of local institutions and resources, including training; and
- education, community mobilisation and advocacy.

Awards for NGO activities within a pilot country will be limited to US\$ 50,000 and awards for inter-country projects will have an initial ceiling of US\$ 250,000.

2. The Terms of Reference (TOR) for the Consultancy

The TOR for the consultancy forms Appendix - 1 to this report. Briefly they require the consultant to

- assess the country's needs and priorities in GEF eligible fields;
- determine the policy framework within which these needs are

being addressed and whether this framework is conducive to the implementation of GEF-SGP;

- assess the strengths and weaknesses of the NGO sector in Pakistan;
- identify NGO projects that are of relevance to GEF-SGP and NGOs that can support the Programme;
- identify local scientific and technical resources;
- develop procedures and mechanisms for the development and implementation of the Programme.

### 3. Methodology

The consultant has previously prepared a number of reports on NGO activity and the environment and has visited most of the major relevant projects in Pakistan and the region. As such visits to institutions and project sites was not considered necessary. However, recent literature on the subject was consulted for the purposes of preparing this report. A list is attached and forms Appendix - 2 to this report.

## B. THE FOUR GEF CONCERNS IN THE PAKISTAN CONTEXT

### 4. Greenhouse Gas Emissions

#### 4.1 Quantum of emissions

Pakistan contributes only 0.25 percent to the world greenhouse gas emissions (1). However, in the 1978-88 decade the quantum of emissions increased by over 150 percent (see Table - 1) and given the country's development plans and social and economic compulsions, this trend will continue for the foreseeable future.

#### 4.2 Main sources and causes of emissions

##### a) Energy production and inefficient use

At a GNP growth rate of 7 percent per year and with current energy efficiency rates, Pakistan's energy requirement 20 years from now will rise from its current level of 814 to 3370 petajoules. However, if energy efficiency is improved to the level of Switzerland, 20 years from now only 918 petajoules of energy will be required to sustain a 7 percent GNP growth (2). These figures highlight the need for conservation practices both in the domestic and commercial sectors.

Pakistan has increasingly shifted from hydel to thermal generation of electricity. Initially oil was the major fuel for this generation. However, given the increasing demand for electricity

and the high cost of importing oil, Pakistan is turning to the use of coal for power generation. Coal generates the highest volume of greenhouse gases and Pakistani coal is of exceptionally poor quality. In addition, no technology to limit carbon dioxide emissions from coal exists.

There is still considerable potential for the development of hydel power in Pakistan. However, the building of dams creates a number of ecological problems. In addition, as it invariably leads to the displacement of local communities, whose awareness levels are increasing, there is a growing opposition to it.

The trends in energy supplies, generation and demand are given in Table - 2.

#### b) Transport

There is no comprehensive data on vehicular emissions in Pakistan. However, over the last decade there has been a 10 per cent per year increase in the number of motorised vehicles in use. According to one estimate, an average Pakistani vehicle emits 20 times as much hydrocarbons, 25 times as much carbon monoxides and 3.6 times as much nitrous oxides in grams per kilometre as an average vehicle in the United States (3). Another study shows that in Lahore 90 percent of the total annual emissions of hydrocarbons, aldehydes, and carbon monoxide are from vehicles (4). There is every reason to believe that conditions in other urban areas are similar. The reason for these alarming statistics are the high lead content of petrol in use, poor quality of the vehicles and adulteration in the diesel and petroleum.

Vehicular emissions is primarily an urban issue. However, most settlements on highways linking the urban centres are being increasingly affected.

#### c) Deforestation

In the last 75 years forest cover in the regions that constitute Pakistan has fallen from 14 percent of the land area to 5.2 percent (5). Most of this deforestation has taken place over the last 35 years.

It is estimated that 90 percent of all wood consumed in Pakistan is for fuel (6). According to the Housing Census of Pakistan (1980), 79 percent of rural and 48 percent of urban households use wood for cooking and heating purposes. Fuel wood provides 50 percent of the domestic sector's total energy requirements (7). By the year 2000, Pakistan's fuel wood needs, given the current trends, will increase by 100 percent over the 1989 figures (8).

Efforts at afforestation and watershed management have been undertaken by the government of Pakistan (GOP) and more recently

by NGOs as well. However, these have not kept pace with the increased demand for fuel wood.

### 4.3 Alternative sources of energy

There are a number of alternative non-polluting or less polluting sources of energy which can be developed in Pakistan. These are discussed below.

#### a) Bio-gas

A larger number of bio-gas plants have been installed in Pakistan and various government and private organisations promoted their development in the seventies. However, the programme has come to a halt for a variety of technical, social and managerial reasons. Most cattle in Pakistan is individually owned and a household seldom owns more than two. Collective action is needed for collecting animal excreta. This collective action has seldom evolved. In addition, the in where animals are stall fed, such as the Indus plains, cheap electricity and gas are easily available and as such people are not willing to take the trouble of operating and maintaining a bio-gas plant. In the barani areas, where electricity is usually scarce, cattle is left to graze and as such it is very difficult, if not impossible, to collect enough excreta for operating a bio-gas plant.

#### b) Wind energy

Wind energy can be generated in the coastal regions of Pakistan upto 100 to 150 kilometres inland. A number of windmills have been installed in the Thatta and Badin districts and the Karachi division for purposes of pumping water. Most of them, however, are now inoperative due to poor maintenance and serious design defects. Where these have been handed over to communities, training for maintenance has not been provided and spare parts for the machinery are not available. In addition, considerable research is required into wind energy technology and economics, and the social aspects of communities accepting, operating and maintaining windmills.

#### c) Solar energy

Solar panels for domestic use are manufactured and marketed in a modest way in Pakistan. The cost of such installations is about Rs 350 per KWH. This high cost cannot be borne by low or even middle income families without a loan component. The government of Pakistan has installed 18 units of a capacity of 389 KWH in various parts of the country for domestic and community use. Many of these units are now inoperable because of maintenance problems and absence of technical knowhow and expertise regarding solar installations. In addition, the capital costs of developing solar energy averages out to Rs 230 per KWH as opposed to Rs 14 per KWH for development of conventional energy.



To make solar energy popular, research is required into lowering capital costs, developing maintenance and operation expertise and systems, and initiating a loan programme for marketing solar panels and batteries for domestic use.

#### **d) Nuclear Energy**

Nuclear energy constitutes 0.5 percent of the total energy generated in Pakistan. Problems of disposal of nuclear wastes constitutes a major problem in its development and use. In addition, it is not something which community organisations and NGOs can develop, operate and maintain.

#### **4.4 NGO and state perceptions regarding greenhouse gas emissions**

Except for environmental scientists, there is no understanding of the greenhouse effect in Pakistan, except in very abstract terms. The media has not tried to explain it, and by and large, communities are understandably unconcerned about it. NGOs on the other hand feel that this is a problem created by northern countries and they should deal with it (9). However, people are very concerned about industrial and vehicular emissions and are increasingly relating their health problems with atmospheric pollution (10).

### **5. Bio-Diversity**

#### **5.1 Pakistan's climatic and vegetational zones**

Pakistan has many of the world's major climatic and vegetational zones within a relatively small area. These consist of snow fields and cold deserts in the Karakorum mountains; alpine areas of meadows, sub-alpine scrub and forests in the Northern Areas; montane temperate forests in the NWFP, Azad Kashmir, the Zoab Valley in Balochistan and Northern Punjab; tropical deciduous forests in the Hindu Kush and Karakorum foothills; dry step vegetation in the plateau and arid areas west of the Indus; arid and semi-arid sub-tropical scrub and tropical thorn forests in the desert areas of Sindh, Balochistan and Punjab; riverine and marsh vegetation in the riverine tracks of the Indus rivers; and littoral mangrove forests at the Indus delta and the Balochistan coast line (11). In addition, Pakistan possesses a great variety of wet-lands throughout the country. Details of these wet-lands are given in Appendix - 3.

#### **5.2 Pakistan's flora and fauna**

Due to the great variety of climatic and vegetational zones, Pakistan has a wealth of flora and fauna. Areas of special importance are the wet-lands which are host to migratory bird species; the deserts, some such as the Chagai in Balochistan are of great antiquity; the Indus delta area, which contains the mangrove forests and is the nursery of a variety of sea and fresh

water fish life; and forests in the hilly regions of the country. Some of these forests, such as the Juniper forest in Balochistan, are of great antiquity and have trees in them that are over 2500 years old.

Of the 6,000 old species of vascular plants recorded in Pakistan, 300 are endemic to Pakistan. 90 percent of the endemic varieties are found in the northern and northern-western mountain regions at altitudes of over 1200 meters (12).

Of the 4,100 mammal species in the world, 188 have been reported in Pakistan. Of these the Indus Dolphin, the Chiltan Markhor and Suleman Markhor are endemic to Pakistan. Of 8,600 species of birds, 666 occur in the country; and of the 6,500 reptile species 174 are found in Pakistan (13).

### 5.3 Threats to Pakistan's flora and fauna

#### a) In the mountain region and its foothills

Road building in these regions has made the forest areas accessible. This has led to deforestation for commercial purposes and made game hunting of rare species possible. Deforestation in turn has led to soil erosion and destruction of a large variety of flora making the survival of animals in the region difficult. It is estimated that forest cover in Pakistan is lost at 1 percent per year (14).

#### b) In the barani or desert areas

Most barani and desert areas in Pakistan are used for cattle grazing and subsistence rain-fed agriculture. They also have the richest variety of flora and fauna in Pakistan. These areas are rapidly being subject to soil erosion, deforestation and desertification. The reasons for this are

- the collapse of the old social system has taken place and a cash economy has replaced the old subsistence economy. Due to the collapse of the old system wells, tarais, embankments of water catchment areas are no longer maintained, and trees can no longer be protected from being logged;

- the cash economy has put pressure on the communities to produce more. Due to this protected gowcher lands have been brought under cultivation. After a period of drought, the top soil of the ploughed land is carried away. In addition, the cash economy has also led to a massive increase in the number of animals. For example, in Tharparkar the number of animals increased from 445,240 in 1976 to 1,268,960 in 1987 (15). This has put an enormous burden on the meagre pasture-land, leading to its desertification;

- the desert and/or barani communities used to migrate with

their animals to the flood plains of the Indus rivers in the dry season. This migration protected the desert pasture-lands in a season when they most needed it. Such migration is no longer possible because the flood plains have almost entirely been replaced by irrigated agricultural lands;

- in a number of barani areas tubewells have been installed. This mechanical extraction of water is leading to a depletion of the shallow sub-soil aquifers resulting in massive desertification. Cases of such aquifer depletion have taken place, or are taking place in the Karachi division, in the Quetta-Pishin areas of Balochistan and in Thar.

#### c) In the canal irrigated areas and the Indus flood plains

The flood plains of the Indus rivers were covered with tamarisk forests before the irrigation system was developed. The process of destroying these forests and making way for agriculture has continued since the nineteenth century. The process continues and has resulted in the destruction of a variety of flora and fauna. In more recent years, forests have been destroyed for commercial purposes and in Sindh because they were considered to be a refuge for dacoits.

Other factors affecting bio-diversity in these regions are:

- Water-logging and salinity: As a result of the perennial irrigation system and ineffective water management, 40,000 hectares of agricultural land are lost to salinity and water-logging every year (16). The trees die and the area becomes a waste-land. One of the major reasons for salinity and water-logging is bad water management at the community level which relates to the distribution network of small channels and the absence of local level drainage system.

- Use of pesticides: The use of pesticides on crops in Pakistan was unknown before 1958. In 1980 only 915 tons of active ingredients of pesticides were used in the country. By 1985 this had arisen to 3,455 tons (17). This increase in use, along with the development of surface drainage systems, is definitively poisoning the drainage channels and wet-lands which are the sanctuaries of wild life in Pakistan. However, no studies on this subject have so far been undertaken.

#### d) The Indus delta region

84 percent of the water of the Indus river is withdrawn by the irrigation system before it reaches the sea. As a result, the Indus delta has shrunk from an area of 3500 square kilometers to 250 square kilometers. This area was criss-crossed by the Indus distributaries and contained large tracts of tamarisk forests, rich grasslands for animal grazing and over 850,000 acres of mangroves in the coastal region (18). Since this region was

really one big flood plain, it was also the richest agricultural area in the Indus valley. Its agricultural and dairy produce, along with its timber, was exported to the Gulf, Muscat and the northern areas of the west coast of India. It had at least two substantial port towns.

The Indus distributaries have now dried up and the sea has crept in to take their place. As a result of the disappearance of fresh river water and the consequent upstream movement of sea water, the mud flats that were used as pasture lands and for agriculture have become saline and barren. The tamarisk forests have perished and the port towns are now small hamlets. In the coastal region, the drying up of the Indus has also meant the disappearance of potable water. These problems have forced the local population to migrate in large numbers to the areas colonised by the Kotri barrage scheme and has destroyed a lot of flora and fauna of the region.

The Indus delta is no longer flushed by the fresh waters of the river. The silt, one million tons a day, that the river carried with it no longer stabilises the coast line. These factors are now endangering the mangrove ecosystem of the coast, which is the nursery of fish life in the region and which can only survive in the presence of fresh river water flushing out salt sea water. In addition, the nutrients that the river carried to the coast and which sustained the fish nurseries and other marine life are no longer available. As a result of these factors, a number of marine and fresh water species are in danger of becoming extinct. More immediately, the coastal fisheries are being rapidly depleted of fresh stock.

#### e) Threats to the wet-lands

The wet-lands in Pakistan are also being degraded. The threats they face consists of

- pollution from industrial waste which is discharged increasingly into rivers and lakes, is damaging the ecosystems;
- contracting out of wet-lands for commercial fishing. This activity not only depletes fish life but effects other wildlife as well;
- sedimentation caused by serious erosion in the water catchment areas is turning the wet-lands shallow;
- heavy hunting pressure in wiping off entire species of wild-life.

#### f) The coastal areas

The coastal areas of Pakistan have become major zones for commercial fishing. Mechanisation of boats, introduction of

nylon nets and the use of trawlers has increased catch from 63,000 tons in 1958 to 408,000 tones in 1985 (19). Similarly, the number of trawlers has increased from 3 in 1958 to 1631 in 1985.

The large trawlers are legally confined to deep sea areas over 12 miles from the coast. However, there have been many instances of conflict over the encroachment by various types of craft in zones prohibited to them. This is one indicator of the rapid depletion of fish which is taking place as a result of over-fishing by commercial vessels. The larger trawlers, with their fine nets, draw out all deep sea fish, including the immature. The commercially-viable ones are selected from the catch, and the rest thrown back into the sea (20). These dead fish decay, polluting the water and rendering it unhealthy for other fish. As a result of this wastage and pollution, many varieties of valuable fish are being depleted beyond sustainable levels. Though regulations governing fishing activities according to breeding season and geographical limits do exist, they are not enforced.

Fishing operations also create considerable pollution. The catching, loading and unloading, packing of fish and the storage and use of ice, diesel and salt all produce solid waste, most of which is inorganic. In the absence of any solid waste management system, this material litters the beaches and is washed into the sea. In addition to this type of pollution, 20,000 tonnes of oil from marine-related activity is also deposited on beaches, in harbours and fishing grounds (21).

The growing of babul trees for fuelwood was common in the coastal regions of Baluchistan. However, people have now abandoned forestry and agriculture for fishing. In addition, these scattered clumps of trees are now being used in ship-building and saw mills have been established in Gwadar to process them. This has raised the price of fuelwood and timber for building and there is a general concensus among the population that the forests are vanishing. This process will lead to soil erosion and the death of whatever pastoral and agricultural activity that still survives (22). This in turn will effect the flora and fauna of the region.

## 6. Pollution of International Waters

### 6.1 The Arabian sea coastline

The Pakistan rivers for the most part originate in Afghanistan, China and India. They link up with the Indus river system and flow to the Arabian sea. In Balochistan, a number of seasonal rivers, and two perennial ones, also enter the Arabian sea. Hence the only body of international or regional waters to which Pakistan contributes is the Arabian sea.

The Pakistan coast-line stretches from the Sir Greek, an Indus distributary in the east on the Indian frontier, to the Dasht river Delta in the west near Iran. This coast-line is about 500 kilometers in length.

## 6.2 Sources of pollution

### a) Oil spills

As mentioned in the previous section 20,000 tones of oil is deposited due to marine activity in the sea. Almost all of this pollution takes place in the Karachi region where the 2 major harbours, Keamari and Port Qasim, are located. New harbours are being built in Gwadar, Pasni and Ormara on the Balochistan coast. Once they become fully operative, the entire Pakistan coast line will be effected by oil from marine activity.

### b) Raw sewerage

Pakistans urban population is increasing at a rate of about 5 percent per year against a total population growth of 3.2 percent. Almost 70 percent of this urbanisation is through the development of informal inserviced settlements. As a result only 47 percent of the urban population in Pakistan has sewerage and drainage facilities (23). In the informal settlements this figure is no more than 24 percent. Here the sewerage flows through the lanes into natural drains or nullahs and then to the river or sea. Alternatively, it is collected in a cesspool or johar. When the johar fills up, residents drill a well and connect the effluent to the subsoil water. In most cases, this subsoil water is used for drinking purposes through hand or mechanical pumps. Alternatively, the johar effluent is pumped out into the nearest canal or river and finds its way to the sea.

Karachi is one of Pakistan's best-serviced cities. But even here, 192 MGD of sewerage is generated and only 40 MGD is treated (the situation in Karachi is summed up in Table - 3). The rest flows untreated into the sea causing severe marine pollution and health hazards. In most intermediate cities of Pakistan, the situation is much worse and in the smaller towns sewerage systems, treatment plants and solid waste management systems are unknown.

In recent years an increasing number of large rural settlements have also started to develop. In the absence of an alternative, their sewerage systems also end up in canals, irrigation and drainage channels, and rivers.

The only places where fresh water is available on the Balochistan coast is in the subsoil aquifer in the dry river beds. It is here where the important and expanding port cities of the province are located. The untreated sewerage is being channelised through these river beds to the sea. There are no plans as yet

for a sewerage system for these cities or for treatment plants.

### c) Industrial wastes

In 1947, when it came into existence, Pakistan was entirely an agricultural country. Though the rate of industrialisation has not been as rapid as in some other Asian countries, 43 years later, industrial production and its related sectors account for over 30 percent of the GNP, and this proportion is increasing. In addition, the proportion of population involved in the industrial and related services sector had increased from 42.21 percent of the labour force in 1968 to 48 percent in 1983 (24).

Industrial activity in Pakistan is primarily of two types. One is through large-scale industrial units operated by the state, large industrial houses and the multinationals. These units include the steel mill sited at Port Qasin, near Karachi, and its downstream industries; energy production plants; agro-chemical units and other chemical industries; oil refineries; cement plants; light and heavy engineering industries and the textile industry. The other type of industry is small-scale, serving the larger industrial units. Many of these are operated by the informal sector. These industries include power-looms in both urban and rural areas for the manufacture of textiles and carpets; tanneries; cotton ginning and rice husking units; brick manufacturing units; small-scale manufacturing of dyes, soap and chemicals; foundries and light engineering workshops and lathe machines.

Most of the industries are located in large urban areas such as Karachi, Kotri, Multan, Faisalabad, Peshawar, Gujranwala and in the industrial suburbs of Lahore. The larger formal sector industries are located in industrial estates which were originally outside the city limits. However, most of the early estates, such as SITE in Karachi, are now part of the city and are surrounded by low-income residential areas. On the other hand, many of the major agro-chemical plants, such as the Pak-Saudi in Mirpur Mathelo and the Exxon plant in Dharki, are in the rural areas. The smaller units, however, especially of the informal sector, are located in low-income residential areas of the cities, near transport activity or on the periphery of formal industrial estates. In the smaller towns they are located in or near the wholesale markets. Most of the areas where small units are situated are either badly serviced or unserved. Small units and informal industrial activity have developed mainly in the rural and urban areas of the districts of central Punjab, where there is a tradition of artisanal skills and feudal control has traditionally been weak.

An industrial waste pollution survey carried out by the EUAD of industrial areas of six Pakistani cities - Karachi, Multan, Faisalabad, Nowshera and Peshawar - reveals that a number of industries are discharging effluents with high concentrations of

pollutants varying from toxic metals and metal salts to bacteria, acids and oils (25). However, very little work has been done in Pakistan to assess the quality and quantity of industrial effluents and their impact on the environment. Whatever work has been done is mainly on Karachi by the IUCN and NIO (National Institute of Oceanography) and on the Punjab by the Punjab Environmental Protection Agency (PEPA).

Studies on Karachi have established that effluent from tanneries contains a higher pollution load of oil than the oil industry itself. In addition, it contains chromium and other toxic metal salts that are used in the tanning process, such as chlorides and sulphates of sodium and potassium. There is no on-site treatment of this effluent, not even the removal of suspended solids. The effluent from the cotton industry, though high in organic contents, is less noxious but does contain traces of chromium and copper (26). The cotton industries and tanneries are the most widespread industrial activity in Pakistan and are carried on through small, often informal units, in both the urban and rural areas.

In Karachi 1,354 million cubic metres of sea water is processed for cooling purposes for the major industrial units, and heated water is sent back into the creek system on the Karachi coast. The intake naturally kills all the planktonic organisms in the water, and such a large volume of heated water entering the sea is bound to put many organisms under stress. Large industrial units discharging into the Korangi creek system are the steel mill, oil refinery and Sindh Alkalies. The main discharge from the steel mill is particulate iron. This is not considered particularly harmful to the environment as it is an inert material. Refineries, on the other hand, produce a very small portion of the total water load (27).

Again in Karachi, tests revealed that sea-water was contaminated by petroleum hydrocarbon residues, chlorinated hydrocarbons which include chlorinated pesticides, biphenyls and trace metals. However, with the exception of a high level of mercury pollution, values are not high enough to pose a threat to the marine environment in the foreseeable future. Studies to determine organo-mercury levels have not been carried out and as such the threat posed by high levels of mercury can neither be evaluated nor eliminated. No strong evidence of contamination was discovered in marine life, and pollution levels in the Korangi creek area were of a lower range than other polluted areas in the world. However, dry fish meal samples had a very high level of contamination. This contamination was also found, but at a very low level, in chicken who feed on this fish meal and in the eggs they produce (28).

Apart from small industrial units which pollute water bodies, most cities also have larger formal sector units that do the same. In Multan, the Pak-Arab Fertiliser factory releases highly



polluted waste into the Multan canal, a major irrigation and drinking water source for animals. The effluent of 235 industries in Faisalabad is carried untreated to the river by the main drain of the city. At Kala Shah Kaku industrial estate in Lahore, the industrial effluent is also carried untreated to the river Ravi through the Deg nullah. All this ends up in the Arabian Sea.

#### d) Solid wastes

In Lahore and Karachi, the best serviced cities in Pakistan after Islamabad, only 30 percent of the solid waste generated is taken to the municipal dumping grounds. The rest is left to deteriorate or is dumped by the residents in natural drainage channels, canals and rivers. Most of the metal, plastic, glass and paper is removed from this waste for recycling purposes and hence this waste consists mainly of organic matter. However, in recent years polythene bags are being used in Pakistan in a big way and have become a major source of pollution. The beaches around Karachi, Pasni and Gwadar are full of them.

#### e) Fishing activity

Pollution caused by fishing activity has been dealt with in paragraph 5.3 (c). Its caused mainly by oil, large quantities of unwanted catch, plastic containers, polythene bags and discarded nylon nets.

#### f) Use of pesticides

Use of pesticides for agricultural purposes and for malaria and fly eradication in the urban areas certainly contribute to the pollution of international waters. However, no comprehensive data on the subject has been developed.

### 6.2 NGO and state perceptions regarding pollution of international waters

The NIO, a federal government organisation, is the only state agency which looks at marine pollution in the larger international context. However, a number of government agencies and NGOs are involved in micro-level and city level programmes dealing with sewerage, solid waste management and control on industrial pollution. A large number of communities are also involved in these activities for health reasons and for creating a better physical environment. However, these programmes and involvements are not keeping pace with the rapid increase in the activities that lead to the pollution of international water.

## 7. Ozone Layer Depletion

Pakistan's contribution to the process of ozone layer depletion is minimal. It is, however, a matter of concern that over much of the Indian Sub-continent the ozone content is already much

lower than in the mid-latitudes and consequently ultra violet dosages are higher.

The concept of the ozone layer depletion does not figure in the consciousness of Pakistani policy makers, research institutions, NGOs and communities. In addition, programmes to deal with this issue will inevitably have to be linked with the key question of the free flow of technology to develop ozone-friendly alternatives to CFCs. Given this state of affairs, the only viable programme related to this GEF subject can be awareness raising about it in the environmental lobby in Pakistan.

### C. EXISTING POLICY FRAMEWORK

#### 8. The Nature of GOP Response to Environment Related Issues

Most development since the nineteenth century, in the regions that constitute Pakistan, has resulted in the creation of environment-related problems. Until recently these problems were not viewed in their larger ecological context nor was the philosophy and politics of development that produced them questioned. They were tackled individually, either through rectification and relief programmes or through the enactment of isolated laws and regulations. Thus, waterlogging and salinity led to the development of the Salinity Control and Reclamation Project (SCARP); deforestation and soil erosion to watershed management projects and the West Pakistan Goats (Restriction) Ordinance 1959; industrial pollution to the Factories Act 1934; and so on.

These government programmes are designed and implemented by a number of agencies. These include semi-autonomous organisations such as WAPDA, provincial line departments of the PWD, PHED, education, health and irrigation; local bodies with support from the LG & RD department; and specially created organisations that operate prestigious internationally-supported projects, such as BIAD (Balochistan Integrated Area Development) in Balochistan.

The first attempts at government level to relate development to larger ecological issues are to be found in the fifth 5-year plan (1978-83) documents and are further expanded upon in the sixth and seventh 5-year plans. In 1983, the Environmental Ordinance was enacted and in 1984 the Environmental Protection Council (EPC) and the Pakistan Environment Protection Agency (PEPA) were created to promote the objectives of the Ordinance. Government policy can thus be divided into two clearly defined and parallel zones: one, plans for a larger environmental policy, and two, response to the effects of development. In the paragraphs below both these responses are dealt with in detail.

## 9. Plans for a Larger Environmental Policy

### 9.1 The Pakistan Environmental Protection Ordinance

In 1983, the government of Pakistan enacted the Pakistan Environmental Protection Ordinance (PEPO). The objective of the ordinance was "to provide for the control of pollution and the preservation of the living environment." The ordinance, through the institutions that it has created and seeks to develop, is in a position to question and reframe existing environment-related legislation and standards and to propose new ones. Thus, the piecemeal approach to environmental legislation has, in theory, been replaced by an integrative one.

The idea of a comprehensive set of laws relating to the environment was first conceived during the 1970s by the then PPP government. The first draft was due to be submitted to UNESCAP for comments in 1977, but political events in Pakistan precluded action in this regard. Subsequently, a comprehensive ordinance was drafted, which encompassed pollution control and solid waste management, the development of national parks, remedial measures for existing environmental problems, and the mandatory application of Environmental Impact Assessments (EIA). However, the government of General Ziaul Haq rejected the comprehensive draft of the ordinance, and retained only the institutional provisions and the introduction of Environmental Impact Statements for new projects. The ordinance was finally promulgated in 1983, and led to setting up of the EPC, headed by the president.

In the seven years since the EPO was promulgated, the EPC has not been able to meet. As a result, the remaining provisions of the ordinance have also largely remained in cold storage. However, a Director-General has been appointed for the proposed Pakistan Environmental Protection Agency, and Environmental Protection Agencies (EPA) have been set up in Sindh and Punjab and, on a "part-time" basis, in Balochistan and NWFP. The federal government formally requested the provincial governments to set up their own EPAs, but the response has been largely a function of the interest shown in environmental matters by the two largest provinces.

The functions of the PEPA are to administer the ordinance and prepare the national environmental policy for approval by the government. In addition, the PEPA is charged with the responsibility for developing national environmental standards and for establishing systems of monitoring environmental pollution with the aim of combating it. For this purpose, it is to promote necessary scientific and social research and its extension, and to coordinate its work with relevant government departments, international agencies and NGOs.

The first provincial EPA was set up in Punjab in July 1987, under instructions from the federal EUAD, and in the provincial

department of Housing, Physical Planning and Environment. The Punjab EPA has its headquarters in Lahore, and field offices in Faisalabad and Lahore. It is funded by the department of housing, through the provincial ADP.

The Punjab EPA has initiated some moves to control pollution and has proposed measures to assist local industries in this regard. However, it is obliged to act through existing laws and regulations, as it is not empowered to draft its own laws. Its powers are limited to administering orders, rules and regulations; to establishing systems for surveys, surveillance and monitoring; and to carrying out analyses on physical indicators of pollution. EPAs in other provinces have yet to develop proper administrative systems and employ necessary technical staff.

## 9.2 The institutional framework

The ordinance has provided for the creation of a National Environmental Council (NEC) and the PEPA. In addition, it requires that all proposals for development should be accompanied by a detailed Environment Impact Statement (EIS) along with details of economic and technical factors related to the design and implementation of the project.

The functions of the NEC are to ensure the enforcement of the ordinance and establish a comprehensive national environmental policy. This means that the NEC has to ensure that environmental considerations are interwoven into national development plans and policies.

## 9.3 The role of EUAD

In the absence of the PEPA and the lack of interest shown by the EPC, EUAD remains the major government agency directly concerned with environmental administration. However, its role is largely confined to that of a clearing house for various environment-related policies, and its location in the Ministry of Housing and Works places considerable constraints on its scope of work. Though, in theory, EUAD is considered to have a coordinating function between various ministries, in fact it is unlikely to have much influence outside its own ministry. This factor must be borne in mind when considering the role EUAD is expected to play in relation to the National Conservation Strategy (NCS).

## 9.4 The National Conservation Strategy

The NCS process was initiated in 1986, as a result of collaboration between the GOP, IUCN and donor governments. It was linked to EUAD, though it had a separate Steering Committee and coordinator. The function of the coordinator was to arrange, with the help of consultants, for a situation analysis. The purpose of this situation analysis was to carry out, firstly, a wide-ranging

investigation of the current state of the environment and, secondly, to recommend measures to address the situation, in particular, reforms and adjustments in policies which are likely to affect the environment. The final set of conclusions and recommendations was submitted to the federal cabinet for consideration and approved in 1992. These recommendations now form the NCS. Action on the strategy is to be taken by the various ministries and agencies.

The NCS process has involved a review of government policy as it relates to environment; technical and scientific reviews of major environmental issues; discussions with local government, provincial government and NGOs; consultancy reports on topics such as women and environment, and the role of NGOs; and "grassroots" meetings to test the assumptions and hypotheses of the NCS.

The NCS recommendations are to be implemented through three major channels. Firstly, environmental concerns, as defined by the NCS, are to be incorporated in the planning and development process at both the federal and provincial levels. Secondly, the monitoring role of EUAD has to be strengthened and EUAD is to become responsible for acting as a watchdog over the implementation of the NCS. Thirdly, specialised institutions are to be created (subject to the availability of funding) to develop policy recommendations, carry out studies and deliver training to government and NGO staff. One such institute, the Sustainable Development Planning Institute (SDPI) has already been created in the non-government sector.

In addition to these broader levels of implementation, the NCS has recommended specific programmes and projects. These include demonstration projects dealing with significant environmental problems; key institutional innovations, and technical innovations. The NCS has not proposed the drafting of new legislation relating to its recommendations. Thus, at present no enforcement measures (other than those already incorporated in the EPO) are envisaged. Since many of the recommendations will require inter-ministry coordination and cooperation for effective implementation, the specific actions envisaged by the NCS depend on acceptance by all concerned ministries.

The NCS emanated from the administrative arm of government and seems likely to remain within this domain. This gives it certain advantages - it is not dependent on any particular government for support or implementation, and is therefore likely to be a relatively stable component of government policy. However, this also means that it largely remains divorced from political or participatory public processes. Attempts have certainly been made during the formulation of the NCS, to incorporate NGO and community concerns and these attempts have been successful. The Steering Committee of the NCS also includes representatives from a wide range of occupations. Nevertheless, public debate and

discussion of the NCS has been conspicuous by its absence except, perhaps, in the English language media, and to a limited extent. How this will effect the implementation of the NCS remains to be seen.

"In the worlds of the Pakistan National Report to UNCED, "In contrast to the existing policies that have focused on a few selected areas, the NCS is designed as a broad-based policy programme aimed at the sustainable use of renewable resources, preventive action against pollution and other adverse effects of industrial and urban growth, mandatory environmental impact assessment of new projects, and more stringent controls on toxic chemicals and hazardous substances. In addition to the formulation of the integrated framework, the strategy has three broad components: the orientation of analysis and language towards conservationist goals; the preparation of an investment programme for the medium term; and the identification of essential institutional development needs.

"The NCS proposes ways of introducing a sustainable development focus in the processes of development planning, helping in the identification of conservation-oriented projects, suggesting desirable directions of institutional reform, and mobilising donor assistance for conservation projects. The government has already instituted the requirement that development projects would be evaluated for their environmental impact. Discussion is under way on specific mechanisms for improved planning at the federal and provincial levels, investment in the protection and improvement of natural resources through government agencies, and strengthening of community-based management systems for the protection and development of common property resources in cities and the countryside.

"The approved strategy lists 14 areas of policy action:

- Maintaining soil in cropland
- Increasing irrigation efficiency
- Protecting watersheds
- Supporting forestry and plantations
- Restoring rangelands and improving livestock
- Protecting water bodies and sustaining fisheries
- Conserving bio-diversity
- Increasing energy efficiency
- Developing and deploying renewables
- Preventing and abating pollution
- Managing urban wastes
- Supporting institutions for common resources
- Integrating population and environment programmes
- Preserving the cultural heritage.

"In identifying these areas, the idea is partly to shift the focus of policy towards integrated concerns, and partly to set priorities for the government's investment programme. Thus, for

example, the strategy speaks of maintaining soils in cropland, instead of agricultural productivity per se.

"The NCS has proposed an investment programme of Rs 150.7 billion, spread over a period of ten years to implement these objectives. This represents an increase of environment-related investment from the existing level of 4 to 8 percent of GNP." The IUCN is currently involved in promoting the NCS's NGO programme.

## 10. Response to the Effects of Development

### 10.1 Responses related to greenhouse gas emissions (29)

#### a) Laws and regulations for air pollution control

In existing form, following legislation applies to control of air pollution:

- The Pakistan Penal Code, 1860 (Section 278) imposes a fine of Rs 500 on any person(s), who voluntarily vitiates the atmosphere so as to make it "noxious to the health of other persons."

- The Motor Vehicles Ordinance, 1965 and Rules of 1969, require that vehicles shall not emit "any smoke, visible vapor, grit, sparks, ashes, cinders, or oily substance," the emission of which could be prevented or avoided by taking reasonable care, or omission of which might cause damage, or annoyance to other persons, or property, or endanger the safety of any other users of the road." (Rule 163). The penalty is Rs 100, or up to Rs 500 for repeat offenders.

- The Punjab Local Government Ordinance, 1979 authorises a district council, upon direction by the government, or an urban council, to prepare and implement actions to prevent air pollution from automobiles, factories, brick kilns, and other specified activities. The Local Government Acts for all other provinces are similar in scope.

Factories Act 1934, has provisions allowing provincial governments to establish rules for factories whose operation exposes persons to "serious risk of bodily injury, poisoning, or disease."

- The Nuclear Safety Radiation Protection Ordinance, 1984 establishes rules and prohibitions concerning acquisition, manufacture, or installation of radiation apparatus, or discharge of radioactive waste, among other activities, subject to up to seven years imprisonment or a fine of Rs 100,000 or both. No enforcement activities have so far been reported.

At present, no environment emissions standards have been approved

by the Pakistan Environmental Protection Council (PEPC) or adopted by the government of Pakistan as a rule. So far, in a piecemeal approach, the government has relied on the World Bank and USAID environmental guidelines for environmental standards. USA's Congressional guidelines make it mandatory for USAID to carry out an environmental social soundness (or impact) assessment for all projects in developing countries. Also, on its own accord and not as a specific requirement by the government of Pakistan, the World Bank adheres to its environmental guidelines for new projects in developing countries. However, guidelines are not applicable to existing (or old) projects completed before mid-1980s.

#### **b) Approval and licensing procedures**

The approval and licensing procedures for industry and road worthiness certificates for vehicles are sketchy and do not conform to modern environmental legislation. However, these issues are being debated at the provincial level. Need for awareness and consideration of these procedures at the planning stage can hardly be over-emphasised.

The integrate EIA procedure into planning and development process, EPA Punjab has taken initiative to request the industries and mineral development departments, Punjab, to coordinate with EPA while issuing No Objection Certificates (NOC) for new projects. A number of meetings were held in this regard. The industries department informed them that under the present liberalisation policy of the government, for capital cost of up to Rs 100 million, the industrialist would not require an NOC from the industries department, therefore, they will be unable to coordinate with them for such projects.

Under the PEPO, it is obligatory for project sponsors to provide an EIA for any new project, irrespective of their size and nature of work. However, rules under this ordinance are still to be formulated. The EUAD with assistance from the Asian Development Bank has drafted guidelines for EIA, but these are yet to be finalised and made official. In order to facilitate the EIA procedure, as an interim arrangement, the EPA Punjab requests the project sponsors to provide environment-related information on the project or in other words an EIS.

Based on this information, the EPA staff decides on issuance of a NOC. Their action includes: verification of "no project-related adverse impacts on the environment; suggesting mitigation measures in case of any adverse environmental impacts; and verification of commitment from the sponsor on allocation of funds for these mitigation measures.

At present, EPA Punjab is actively pursuing collection of environment-related information from Chunian Industrial Estate. To facilitate the issuance of NOCs to new industry, the EPA



Punjab is focusing only on highly polluting industries.

c) Enforcement of air pollution laws and current measures adopted

Air pollution restrictions have been rarely enforced. The only recent exception is Punjab EPA which has been active in penalising the vehicles with the help of traffic police, for violating the rules mentioned in the Motor Vehicles Act. An audit by this agency, completed on 9 January 1990, checked 28,875 vehicles, of which 16 percent emitted heavy smoke, 15 percent were noisy, 32 percent were both noisy and emitted smoke, and only 38 percent passed the checks. Despite the fact that Motor Vehicles Act is general in nature and relies on visual inspection only, EPA staff with assistance from the traffic police reported an average of 60 violation tickets each day of the survey.

Sindh EPA had shown intentions to enforce prohibitions on smoking vehicles starting July 1991, but no details are available as yet.

Private sector industry has shown interest in reducing their emissions, more, due to rising energy costs than respect for human health or any other rules mentioned in the Factories Act, 1934. ENERCN (National Energy Conservation Centre) with assistance from USAID and RCG/Hagler, Bailly, Inc, has contributed to this effort in promoting energy conservation practices in the country. ENERCON is also awaiting approval of Draft "Energy Conservation Law," which is likely to enforce compliance with emissions reduction at source.

d) Inadequacy of GOP response

The following are the key issues that need to be addressed for atmospheric control:

- For the purpose of policy planning, following tools are generally recommended to carry out pollution abatement

- o moral persuasion
- o use of direct controls
- o putting a price on pollution
- o government investments
- o energy conservation practices.

At Present, none of these tools are utilised in any meaningful manner for control of air pollution in Pakistan. Some effort is visible in the area of energy conservation.

- PEPO is not a comprehensive document as it only addresses new industries. There is need for establishing proper rules and regulations, and guidelines for air pollution controls.

- Full powers as explained in the PEPO 1983, are yet to be

delegated to the provincial EPAs. Moreover, there is lack of guidance to provincial EPAs from the PEPA which was established for this purpose under PEPO.

- Approval for proposed standards for industrial gaseous emissions is pending with the PEPC. The first meeting of the council has yet to convened. Even after approval of the proposed standards, it is not clear as to how these standards would be implemented and when the proper and detailed procedures to go with these stadards will be drafted.

- EPAs staff needs extensive training in the technical, legal, and operational fields. Moreover, EPAs lack field laboratries and similar technical facilities.

- Environmental considerations are given low priority on the decision-makers agenda as these are still perceived as a burden on the development budget.

- Community awareness and involvement in these proposals and plans is completely missing.

#### e) Other issues related to greenhouse gas emissions

The issue of deforestation and the governments response to it is given in the section of bio-diversity.

### 10.2 Responses related to bio-diversity issues (30)

#### a) Laws and regulations for the conservation of ecysystems

The government of Pakistan is well aware of the country's extraordinarily rich natural wet-land resources, and has developed an active conservation policy. Draft legislation prepared by the Wildlife Enquiry Committee, set up in 1968, has been adopted, with minor modifications, at the provincial level through the provision of various acts and an ordinance. These includes the

- Punjab Wildlife Protection Act, 1974

- NWFP Wildlife Protection, Preservation, Conservation and Management Act, 1975

- Sindh Wildlife Protection Ordinance, 1972.

Separate laws were passed for the Northern Areas, Azad Kashmir and the Federal Capital Territory of Islamabad. These are the

- Northern Areas Wildlife Preservation Act, 1975

- Azad Jammu and Kashmir Wildlife Act, 1975

- Islamabad Wildlife Protection, Preservation, Conservation

These statutes provide for the creation of national parks, wildlife sanctuaries, game reserves, and in the case of Punjab, NWFP and Islamabad private-game reserves.

Since the promulgation of these wildlife conservation laws, considerable progress has been made in the establishment of protected areas. By 1987, six national parks (category II), one national park (category V), 78 wildlife sanctuaries, one Biosphere Reserve, four reserves of the partially protected category, and six world heritage sites had been established. The management of these protected areas is the responsibility of the provincial forestry and wildlife departments.

Only two significant wet-lands are located within national parks, namely Patisar Lake in Lal Suhanra National Park and Rawal Lake in Margalla National Park. However, most of the major wetlands of national and international importance have been designated as Wildlife Sanctuaries or Game Reserves. Unfortunately, the exceptions include several of the Ramsar Sites in NWFP, which remain unprotected. The protected areas which are wholly wet-land or contain significant elements of wet-land habitats are listed in Table - 4.

#### b) Wet-land area administration

Following the recommendation of the Wildlife Enquiry Committee, government of Pakistan, 1971, a national council for conservation of wildlife was established in July 1974 within the Federal Ministry of Agriculture, Food and Cooperatives, to coordinate central and provincial government efforts in the formulation and implementation of wildlife policies. The council is responsible for the international aspects of the Ramsar Convention and coordinates the implementation of the convention in Pakistan. The council also assists in identifying wet-lands of importance and achieving appropriate designation for their protection.

The actual enforcement of the legislation and management of wildlife is handled by the provincial forest and wildlife departments. Sindh, Punjab and Azad Kashmir have separate wildlife departments, but in NWFP, Balochistan and Northern Areas, wildlife is administered by branches of the respective forest departments. In general, forestry staff look after wildlife in reserved or protected forests while wildlife staff are concerned with protecting wildlife in other protected areas and elsewhere. In addition, legal provision has been made for the creation of wildlife management boards to approve wildlife policies and monitor development activities. The wildlife management boards in Sindh and NWFP are particularly active in the creation of protected areas and management of wildlife, while those in Balochistan, Azad Kashmir and Northern Areas perform only an advisory role.

In the light of previous experience, the rules and regulations related to wildlife and protected areas have been made more stringent, and the penalties for infringement have been increased. Magistrates now have greater powers to deal with wildlife offences, more wardens are employed with enhanced mobility, a network of check points is now operative to improve control on illegal hunting and undesirable hunting practices. Despite these efforts, financial resources are limited and not sufficient to counter the magnitude of threats facing the wetlands.

c) Laws and regulations for wildlife protection

The following legislation applies to wildlife protection in Pakistan.

- Wildlife Birds and Animals Protection, 1912
- The Punjab Wild Birds and Wild Animals Protection Act (No. XIII), 1955. Punjab Wildlife (Protection, Preservation, Conservation and Management) Ordinance (No. XXI), 1972, specific Rules, 1973
- The Goats (Restriction) Ordinance (No. XLIII), 1959
- West Pakistan Wildlife Protection Ordinance, 1959
- Wildlife Protection Rules, 1960
- Sindh Wildlife Protection Ordinance, 1972
- Balochistan Wildlife Protection Act (No. XIX), 1974
- NWFP Wildlife (Protection, Conservation and Management) Act (No. V), 1975
- Punjab Wildlife (Protection, Conservation and Management) Act, 1974

However, separate laws were passed for the Northern Areas, Azad Kashmir and the Federal Capital Territory of Islamabad. These are the:

Northern Areas Wildlife Preservation Act, 1975

Azad Jammu and Kashmir Wildlife Act, 1975

Islamabad Wildlife Protection, Preservation, Conservation and Management Act, 1979.

In general, the Wildlife Protection Ordinances in each province are similar in spirit and content. Each one of these prohibit the hunting of protected animals, hunting of game animals without

permit, use of traps, explosive, chemicals or decoys for wildlife hunting, use of vehicles for wildlife pursuit, or use of hawks or dogs without special licence. (Example: Section 7 and 8 of Sindh Wildlife Protection Ordinance, 1972). In another example from the Sindh Wildlife Protection Ordinance, 1972, the ordinance prohibits possession or transfer of specified wild animals or parts, or the import of exotic species without permits (section 10-13). These acts and ordinances also allow provision for establishment of wildlife sanctuaries for preservation; game reserves for wildlife protection; national parks for recreation, education and research. Penalties for violation of (section 7 and 10-13) include a fine of up to Rs 1,000 or up to 2 years imprisonment, or both. Under (section 8) penalty is Rs 500.

The above mentioned statutes also provide for the creation of national parks, wildlife sanctuaries, game reserves, and in the case of Punjab, NWFP, and Islamabad there is provision for establishing private-game reserves as well. The order of priority in decreasing order for various designations of protected areas is as follows: The highest level protection is offered by a wildlife sanctuary, then a national park followed by a game reserve. Least priority area for protection of wildlife is the Forest Reserve which primarily falls under the Forestry Act and although the Wildlife Protection Ordinance is applicable to these reserves, it is of secondary importance.

The West Pakistan Wildlife Ordinance, 1959 and Rule 1960, describe three schedules for protection of wildlife. The first schedule lists a schedule of wild birds and wild animals which may be killed under a license and to the extent permitted thereby during the period specified. The second schedule listed wild birds and animals which cannot be kept as pets or call birds except under a license. The third schedule describes wild birds and animals which shall not be killed.

Pakistan has ratified the major international wildlife protection conventions:

- The Convention on International Trade in Endangered Species (CITES)
- Ramsar Convention for the Protection of Wet-lands
- The World Heritage Trust
- The Bonn Convention - to protect endangered migratory species such as birds in the Indus flyway; deer, cats, and gazelle; and other species migrating across Pakistan's borders with neighbouring countries.

Pakistan is also a participant in UNESCO's Man and the Biosphere Programme, under which a classified biome (the Lal Suhanra National Park) has been dedicated for preservation of habitat in

its natural state of research purposes.

**d) Key issues of wildlife protection**

- Lack of expertise in wildlife management.
- Lack of community participation. For example: traditional village practices of grazing livestock interferes with the protection of flora and fauna, and in the case of Kunjerab National Park (established 1975) it seriously affects the protection of Marco Polo Sheep, a threatened species. The Aga Khan Rural Support Programme (AKRSP) has introduced development programmes to phase out free and open grazing. Methods include alternative fodder supplies and encouraging community participation.
- Weak enforcement of regulations due to lack of monetary incentives for the management staff, political and community pressures.
- As part of goodwill gesture from the government of Pakistan toward the Arab friends, organised Arab hunting parties kill an estimated 3,000 Houbara bustards, a threatened species found in the Sindh province, every year. All rules, mentioned above under the Ordinances and Acts, against using vehicles, falcons or dogs to chase the game are over-ruled with special sanctions for the friendly rich neighbours. At the recommendation of the Ministry of Foreign Affairs the hunting parties have received special permissions for hunting within the protected areas, and have been granted a limit of up to 200 Bustards per person. Complaints have been registered with the National Wildlife Council and a resolution condemning the action was passed at the international meeting of the World Conservation Union in Perth, 1990.
- No federal law exists to protect endangered species to implement CITES. CITES is implemented in a piecemeal approach to protect endangered species through habitat protection.

**e) Forest conservation**

**i) Institutions**

Several government agencies have responsibility over the state-owned and Guzara (privately-owned but state managed) forests. These include Guzara Forest Advisory Committees under the forest department; the irrigation departments for canal-side plantations; the union councils for preventing grazing of livestock in the forest areas, under the Forest Policy of 1962; the National Council for Conservation of Wildlife, and various cantonment (armed forces) and municipal authorities.

ii) Laws and regulations related to forest conservation

The Forest Act of 1927 is the basic charter for the forest departments in Pakistan. The Act also includes the wildlife departments and provides for the establishment of "reserved forest" areas, which constitute nearly 30 percent of the forest area in Pakistan. "Protected forests" cover the remainder.

The Act authorises the government to establish "reserved forests" from lands owned by the government or over which the government has proprietary rights. "Reserved forests" are specified by delineation without government approval. Private land or legal claims are settled by the Forest Settlement Officer (FSO) with administrative rights of appeal and provision for a forest officer or forest court to render final judgement, which is finally subject to revision by the government.

Activities specifically prohibited in "reserved forests", such as fresh clearings, fires, trespass by livestock, tree-felling, cultivation, mining, and even removal of forest produce can be enforced by the forest officer. Such acts have a penalty of up to Rs 500 or 6 months imprisonment, or both. The government may assign all rights for a "reserved forest" to a village community. It may make rules for regulating management of village forests, prescribing village conditions and duties.

The government may give notification of its establishing a "protected forests" area after private rights have been identified and recorded, unless delay would endanger government interests. The government may declare trees or classes of tree reserves, close areas of any part of a forest, prohibit removal of forest products, mining, or clearing. Rules and regulations may be made for respecting cutting, granting of timber licenses, clearing of land, hunting, fishing, and poisoning of water among other activities. Acts of felling, clearing, fire and other damage to forest areas are punishable as under rules for "reserved forests".

Any forest or waste land not owned by the government may be regulated to control clearing, pasturing, or setting fires in order to protect against erosion from floods, land slides, protection of soils, maintaining watersheds, or preserving public health.

Other laws are applicable to forests as well as wildlife. The West Pakistan Goats (Restriction) Ordinance (XLII), 1959, and the West Pakistan Goats Restriction Rules, 1961, which allows the government to prohibit grazing of goats on any land after a specified grace period, without a permit. The grazing of cattle in Protected Forests (rangelands) Rules, 1978, authorise forest departments to allow or disallow grazing in protected forests and to regulate grazing with permits.

iii) Enforcement of laws and regulations related to forest conservation

Enforcement of forestry laws in the subcontinent date back to the time of British rule. The then, British administration was rigorous in approach and comprised of a professional staff who were rewarded for their efforts in forestry research and timber management. The legal framework was reasonably effective due to the strict administrative rule. But after 1947, as the population pressure increased and administrative weaknesses surfaced, the legal framework was exposed and its enforcement was inadequate for providing effective control of forest resources.

The West Pakistan Goats Ordinance of 1959 reflects on aspects of changed conditions confronting the forest departments. Overall increase in livestock population (from 30 million in 1945 to 85 million in 1986) has also affected the enforcement of this Ordinance. The above figures do not include 6 million animals belonging to the Afghan refugees. A 1 percent decrease in forests per annum is attributed to this increase in livestock.

Forest departments under the law are required to develop ten year management plans for individual forests. Half the forests have such plans, and nearly all forests in the province of NWFP have plans. Two examples are: Model Forest Management Plans for Swat-Kohistan, 1984-94, prepared by Yar Mohammad Khan, and Mohammad Khan, 1984; and Revised Working Plan for Hillan and Batagram (settled areas) Forests in Hazara Tribal Forest Division, 1985/86 to 1994/95 by Hanif Shaw, NWFP Forestry Pre-investment Centre, Peshawar. Their objectives are to collect data on timber resources and develop a management plan for conservation and use. Unfortunately, the plans are mere guidelines and reflect little or no public participation at the planning stage.

Rules for compliance of both management and enforcement aspects of forestry law by the forest officers are laid down in the Forestry Act, 1927. These are strict provisions. Over the last 10 years, only 500 enforcement actions have been taken which include illicit cutting, transportation, and other offences. Enforcement by magistrates is lackluster and ineffective, fines for violations are low, and there is no hold on their equipment under the law. Salary and incentives for forest officers (14,800 in number) have a low premium, and even the one's who are selfless cannot achieve much when they are confronted with the influential lessees and violators.

vi) Key issues in forestry

- Forest conservation: Inherited small forest cover in Pakistan and rapid rate of depletion of forest resource is a major issue. This is an area of serious concern and has come to the policy-makers agenda. The National Forest Policy 1991, envisaged doubling the forest cover by the year 2000. The



government is also working on a forestry master plan which will emphasise on improving the system of forest management by increasing the participation of local communities.

- Forestry legislation: Major thrust of forestry legislation under the Forestry Act of 1927 is in the NWFP province where most forests are found. The Act authorises the provincial governments to manage their forests. A common criticism of prevailing practices under this Act is that it follows the colonial objectives of enhancing the revenue from forests, and does not encourage sustainable development and community participation.

- Forest ownership and management: The 2 major categories of ownership and management of forests are state owned and privately owned. Communal or shamlaat forests are privately owned and managed by communities or individuals. Rules are enforced by community or village institutions (numberdar or jirga), who also exercise control over plantations. Guzaras are also privately owned but managed by the state under the Forest Act. Forest cooperatives exist in Hazara Division of the NWFP province, and share in the sale proceeds for Guzaras. Community rights and concessions are available under the state owned "protected forests". These concessions include rights to fuel wood, timber, grazing and other customary rights. In some areas of the Malakand Division, community people and villagers have a 60-80 percent share in the sale proceeds from timber. Some 56 percent of "protected" and private owned forests in the country have legal shareholders from the local communities.

The main issue remains of local participation in the management and ownership of forests. The forests in many areas remain alienated from the local community. The locals complain that outside contractors engage in ruthless harvesting without caring for the benefits to the area or the local community.

- Other forestry policy issues: Other issues related to conservation of forests include: the Concessions Policy (pre-1947 to 1990) which encouraged over-harvesting resulting in damage to watersheds. Moreover, the forestry policy's thrust was on extracting production from forests, for which they planted lots of fast growing poplar trees. Little or no emphasis was laid on farm forestry extension services, which led to slow extension of appropriate tree species. Forest department policy to take over forests (1970s) led to the destruction of former feudal owned and managed forests, resulting in loss of future income to the region. Farm Energy Forestry Policy (1980s) actually improved the marginal land of big farmers. The Tarbela Watershed Protection (1980s) policy encouraged mono plantations of slow growing chir pines which have contained soil erosion only minimally.

f) **GOP afforestation programmes**

i) **Watershed management (see Table - 5)**

Watershed management through afforestation and soil conservation is one of the major environment protection programmes of the government of Pakistan. In addition, considerable desk research on the afforestation part of the programme has also been carried out by the Pakistan Forest Institute, which has also initiated a number of small pilot projects. These programmes have considerable financial, technical and managerial support from international organisations such as the World Food Programme and the EEC.

Watershed management programmes in Pakistan so far, in spite of considerable inputs, have not been very successful. This is because of a reluctance on the part of farmers to permit their land to be terraced or planted with trees, especially in areas used by them for grazing and cropping purposes, since such afforestation would have to be coupled with strict controls on grazing. The result is that the programme implementation is patchy and therefore comparatively ineffective. In addition, it has only been carried out in a small part of the total catchment area.

People living in the catchment areas where these programmes have been implemented are poor and survive on subsistence agriculture and cattle grazing and depend on timber for their fuel needs which, due to extremes of climate, are considerable. Unless the programme also provides for alternative means of livelihood or finances, and technical support for improved agricultural production and stall feeding of animals, there is little chance of it achieving its objectives.

ii) **Afforestation (see Table - 6)**

Considerable effort has been made at afforestation by the government of Pakistan through the provincial forest departments. However, with the current afforestation rate of 23,000 hectares per year, it would take 50 years to add the present minimum requirement of one million hectares (31).

Potentially, the most effective part of the afforestation programme is seen by experts as the promotion of planting and management of trees on privately-owned land. This requires not only the involvement of individual landowners but also, in many cases, of entire village communities. However, institutions and personnel for undertaking this extension work and the social research that goes with it, have yet to be created. Institutions for technical research, on the other hand, are well established.

There is also a need to re-examine current timber harvesting practices, involve rural communities in this activity and abolish

the previous system of harvesting through private contractors. This may call for major changes in the Forest Act, 1927.

### 10.3 Responses related to pollution of international waters (32)

#### a) Water pollution

##### i) Laws and regulations

The legal framework for controlling water pollution in its modern form does not exist and complete guidelines have not been established. Although, the PEPO was promulgated in 1983, in terms of provisions, it provides more for control of air pollution than other aspects of environmental protection. To date it is practically ineffective due to lack of delegation of necessary powers to the PEPAs.

In existing form, the following legislation applies to control of water pollution.

- The Pakistan Penal Code (1860) authorises a fine of up to Rs 500 or 3 months imprisonment or both for voluntarily corrupting or fouling public springs or reservoirs so as to make them less fit for ordinary use. The Act is rarely applied.

- The Canal and Drainage Act (1873) also prohibits corrupting or fouling of canal water imposing or Rs 50 or 1 month imprisonment or both. In the amendment the penalty is Rs 200 or 3 months imprisonment or both.

- The Factories Act of 1934, includes the Provincial Factory Rules. These are primarily concerned with the working conditions but clause 14, heading "Disposal of Wastes and Effluents", states that (a) effective arrangements shall be made in every factory for the disposal of wastes and effluents from manufacturing process; and (b) the provincial governments may make rules prescribing the arrangements to be made under sub-section (1) or requiring that the arrangements made in accordance with that sub-section shall be subject to the approval of such authority as may be prescribed. Penalties are Rs 500.

- For example, the Sindh Factory Rules (clause 20) relates to clause 14 and states that in every factory all drains carrying waste or sullage water shall be constructed in masonry or other impermeable materials and shall be regularly flushed at least once a day and where possible connected with some recognized drainage line.

- The Punjab Local Government Ordinance, 1979, authorises the urban local councils to provide for and maintain an "adequate system of public drains", and regulate private drains. Other provisions require commercial building occupants to be responsible for waste removal or the urban council can undertake

necessary disposal and recover costs.

- The Karachi Joint Water Board Ordinance, 1949 and the Karachi Joint Water Board Rules, 1956, prohibit fouling of water supplies, water works, or water tanks.

- Karachi Sewerage and Industrial Regulations 1987 have been framed by the Karachi Water & Sewerage Board (KWSB) and approved by the Karachi Metropolitan Council, in accordance with the powers granted to the Board under clause 145 (i) of the Sindh Local Government (Amendment) Ordinance, 1983.

ii) Enforcement of water pollution laws and current measurement adopted

The legislation for control of water pollution does not exist in its modern form. The pieces of legislation mentioned above apply more to water management than water quality. The enforcement of legislation for water management or even achieving the aims of large water projects is extremely weak.

The project is entering its third phase and independent experts and farmers agree that it is not on target. In 13 years in Sindh, out of 40,000 water courses, only 3,000 water courses have been repaired. The problems also include technical incompetence and corruption associated with projects financed by foreign agencies. These projects offer lucrative posts complete with foreign trips, big jeeps and immunity from local anti-corruption agencies. Favoured bureaucrats are removed with every change of government, leaving a trail of unfinished work and no funds.

iv) Key issues related to water management and pollution

- Institutional arrangements for the water sector: There is urgent need to foster better communication and coordination than currently exists between the various agencies associated with the water sector, and to improve and strengthen the planning and implementation potentials of the provincial irrigation departments - with clear delineation of the division of responsibilities between the various federal and provincial agencies.

Generally speaking, in Pakistan each institution basically performs its task in terms of its own partial objectives, and when these tasks are integrated nationally, the overall result is less than optimal. Limited capacities and institutional deficiencies of the provincial irrigation departments have also contributed to poor water management.

- Constraints to on-farm water management: Bureaucrats in the federal and provincial irrigation institutions are unwilling to accept that losses in the delivery system are high to ward off any criticism in their running of the institution.

Engineers, in general, do not consider work in connection with operation and maintenance as exciting. The brighter and more competent ones tend to gravitate towards design and construction of major works, such as dams and canal systems. The bureaucratic red-tape for recruitment further aggravates the situation. On-farm water management requires extensive periods of sojourn in rural areas, and professionals move to urban centres.

On-farm water management is providing limited information on how best to use the water to increase agricultural production. WAPDA (1979) reports that "few farmers know how much water is required for good plant growth, most have no knowledge about the stages of growth when irrigation is critical, and few farmers check the subsoil to determine when to irrigate. All this adds to pollution in the Arabian Sea.

## **b) Solid wastes**

### **1) Legal and institutional framework for solid waste management**

In urban areas, environmental responsibilities related to solid waste disposal rest with the provincial public health and engineering departments. Industrial toxic waste is the responsibility of the PEPA, and municipal corporations are responsible for solid waste disposal and for sewage handling and treatment.

Municipal bodies follow the local government ordinances, for example the Punjab Local Government Ordinance of 1979. There is similar legislation in each province.

Referring to the compulsory functions of the urban local councils as mentioned in the Punjab Local Government Ordinance of 1979, the Ordinance lays heavy responsibility on the municipal corporations for the following areas related to environmental issues:

- Responsibility for sanitation
- Insanitary buildings and lands
- Removal, collection and disposal of refuse
- Latrines and urinals maintenance
- Infectious diseases
- Water supply to private and state facilities
- Drainage and sewage schemes maintenance
- Slaughter houses

- Prohibition against keeping and maintaining cattle within residential limits
- Keeping of dangerous animals
- Disposal of carcasses
- Traffic control
- Social welfare and community functions.

The following appear as optional functions of urban local councils:

- Environmental pollution
- Public water courses
- Animal homes and farms
- Gardens
- Forests

ii) Key issues in solid waste management

- Financial constraints and corruption facing the municipal corporations.
- Illegal dumping in open spaces by local people and industry.
- Lack of interest by the authorities to resolve these civic issues.
- Attempts and offer of bribes to the local people by the developed countries to allow them to dump their hazardous and toxic waste along the Arabian sea coast in vacant areas.
- Separation of domestic waste from medical and toxic wastes, and allocation of suitable disposal methods.
- Setting up of incinerators or controlled waste burning facilities or pre-disposal treatment plants.
- Improving data collection and information on waste generation and waste streams.
- encouraging recycling and composting, and implementing other appropriate waste disposal techniques and integrating the existing recycling processes of the informal sector into management practices.
- Awareness raising among communities and their participation

in solid waste management.

#### **c) Legislation for control of marine pollution**

The Ports Act, 1908 prohibits discharge of ballast or rubbish within the waters of the port area, more due to concerns of safety of shipping than prevention of pollution of waters. More specific powers have been granted to the Port Qasim Authority, under the Port Qasim Authority Act, 1973, to draw up appropriate plans for the control of marine pollution within its jurisdiction but the powers have not yet been exercised.

The Pakistan Territorial Waters and Maritime Zones Act, 1976 is a stronger charter with provisions for preservation, development and protection of marine environment and control of marine pollution; and exploration, development, conservation and management of living and non-living resources in Pakistan's Exclusive Economic Zones which extend up to 200 miles from the coast-line. A specific clause in section 3 "rights of innocent passage", requires ships carrying nuclear or other toxic substances to give prior notice to the government. However, these provisions have yet to lead to any significant conservation actions.

The above mentioned legislations have provisions with room for framing of comprehensive rules to deal with the various sources of marine pollution; discharge of sewage and industrial effluent from coastal cities; debris from coastal construction projects; dumping of wastes from ships and other vessels, both domestic and foreign; oil spills resulting off-shore drilling or from tankers carrying oil; to preserve the ecology of the coast-line; and to declare off-shore areas as marine national parks.

#### **10.4 Responses related to ozone layer depletion**

There are no policy, legal or administrative responses that relate to the ozone layer depletion issue.

### **11. Evaluation of Government Response to Environmental Issues**

#### **11.1 Government's commitment to the protection of the environment**

Government commitment to the protection of the environment is clearly stated in the sixth and seventh 5-year plans. The link between development, environment and community involvement for sustainable development is also clearly spelt out. In addition, decentralisation of the planning and implementation of development is advocated and the importance of women in the process is emphasised. The enactment of PEPO, the development of the NCS, the setting up of the NGOCC, financial support for the expansion of the activities of the Women's Division and increased allocations for watershed and rangeland management and afforestation, all point to this commitment.

To translate government commitment into action, the development of appropriate institutions and the orientation of planners and supporting staff members is necessary. Again, for decentralisation of planning and implementation of development, structural changes are needed in the bureaucratic and local government set up. However, none of these actions have so far been taken by the government and nor are there any plans to do so in the near future.

### 11.2 Constraints in appropriate government planning and implementation processes

In the survey of government response to environment-related problems in the preceding paragraphs, a number of constraints that government programmes face have emerged. These are summarised below.

a) Most government planners and technocrats are trained conventionally and have a poor understanding of the sociology and economics of poor urban and rural communities and of the process of change that has destroyed the old social economy. Many of them belong to the civil services and give greater importance to "good" administration than to innovation and experimentation. Thus, translating environment-related guidelines of 5-year plans into operational plans poses many problems.

b) Government and academic institutions in Pakistan are, by and large, engaged only in desk research, their aims and objectives notwithstanding. Because of an absence of institutional arrangements and procedures even this research does not reach planning and implementation agencies, NGOs or community groups.

c) Almost all research at government and academic institutions is technical and scientific in nature. Social research is seldom undertaken, and even where it is, it is purely academic in nature. As a result, effective extension programmes cannot be developed even where they form an important component of the programme.

d) The programme planning and implementing agencies such as WAPDA, PHED, the provincial line departments or the urban development agencies are geared and structured for the physical implementation of programmes. The social sector components such as community participation, awareness raising, training and education are seldom undertaken, and if they are, they are abandoned due to lack of success.

e) Most government institutions do not have the technical and managerial capacity to operate the programmes they are saddled with. As such, not only are programmes badly implemented, but long delays, over-expenditure and lapsing of funds is a common feature of most development projects.



f) The provincial line departments are responsible for the implementation of most development that affects the environment at a local level in Pakistan. However, the line departments are not organised at a local level, but at a highly centralised provincial level, and have no involvement of community leaders or district or union council representatives. Similarly, in the larger towns, development priorities are set and planning is done by the city development authorities that are bureaucratic, non-representative organisations, and not by the municipal authorities.

g) Local government in Pakistan is organised at village, district, town and city level, is representative in character and in touch with local communities. However, its technical and managerial capacity is weak and at most union council levels and in many district councils and town committees, non-existent. In addition, under the 1979 provincial local body ordinances, the local councils are subservient to the provincial bureaucratic set up. This seriously affects their independence and effectiveness.

h) In addition to the constraints mentioned above, no clear-cut division of functions or coordination exists between many agencies involved in development. Thus, district councils and provincial PHEDs both install, operate and maintain water supply systems in rural areas; municipal councils and provincial education departments both run primary schools in the urban centres; infrastructure is provided to the same urban localities through local councillor-organised programmes, development authority area development schemes and special programmes such as the People's Works Programme or internationally-aided projects. Thus, a lot of parallel and uncoordinated development takes place with resulting environment-related problems.

i) Organisations for monitoring aquatic and atmospheric pollution, such as the PEPA and PCSIR, are in the process of being developed. In addition, there are organisations that can be upgraded to develop local standards related to aquatic and atmospheric pollution, such as the Pakistan Standards Institute. However, there is no institutional set up that can possibly enforce such standards. Similarly, there are no organisations that develop and operate extension and effective awareness-raising programmes on the subject, or carry out the necessary research for their formulation. The problem is further compounded by the diversity of environmental problems in different parts of Pakistan and the different levels of social and economic development in the different regions of the country.

j) The other major constraints to the effective development of environment-related programmes is the poverty of the communities that are affected by them. Many programmes, like watershed and rangeland management, can be of long-term economic benefit to them but in the short-run they adversely affect their already meagre agricultural produce and cash generation. Similarly, the

installation and operation of a treatment unit for effluent from a small informal sector tannery will make the setting up and the operation of the tannery beyond the means of the entrepreneur. In many larger formal sector industries, environmental controls according to western standards will raise the cost of production and may make the manufactured items unaffordable to the lower-income communities. The need, therefore, is for manageable standards and for cheaper treatment and control units.

#### D. COMMUNITY ACTION GROUPS (CAG) AND NGOS IN PAKISTAN AND THEIR INVOLVEMENT IN ENVIRONMENTAL ISSUES

##### 12. The Beginnings of Environmental CAGs and NGOs

The last decade has seen the emergence of the environment as an issue of public and donor concern. As a result, a number of environmental NGOs and CAGs have emerged, encouraged by media coverage and the comparatively easy access to funding from external sources. However, there are a large number of CAGs and NGOs that have been, and still are, involved in local level development work and economic uplift programmes. Some of their work has led to improved environmental conditions at the local level although they have never consciously related it to larger environmental issues. In addition, their impact on improved environmental conditions is far more marked than that of the professed environmental NGOs, and is likely to remain so. In the paragraphs below the nature of CAGs and NGOs is described, along with their shortcomings and potential.

##### 13. Community Action Groups (CAGs)

###### 13.1 Informal groups

Informal CAGs are more an urban phenomenon rather than a rural one. In most low-income urban settlements, and now sometimes in large villages as well, neighbourhood residents get together to tackle some of the problems they face. In the vast majority of cases these problems are related to sanitation and solid waste disposal.

To overcome these problems, the CAG usually undertakes the construction of open drains and, in some cases, of underground sewers and road paving as well. These carry the effluent away from the lane to the nearest natural drain or depression. In many cases, residents get together and employ a scavenger to collect their garbage and dump it outside their neighbourhood, and to sweep their streets. In most cases, the group also tries to lobby with the local government or area councillor to intervene for the improvement of their areas. In almost all cases, the group falls apart after its basic objective is achieved (33).

In the rural areas similar action groups for water management, agriculture-related issues and infrastructure maintenance do not exist. However, there are examples of rural communities fighting deforestation, such as Chaprote in the Northern Areas, or undertaking afforestation, the such as at village Gunyar in the NWFP.

In recent years, residents of Gulshan-i-Iqbal and Qasba Metroville in Karachi have also agitated collectively against emissions from the National and Javedan Cement factories. Residents of Gulshan-i-Iqbal, being from the middle-class, have secured the promise of the divisional administration that the factory will be shifted. However, the Metroville residents, being from the low-income groups, have been ignored.

Almost all development work undertaken by CAGs is defective in quality. Roads are unevenly paved; drains do not have proper gradients; and sewerage systems do not work. People are aware of these defects and because of them they often stop maintaining these infrastructure projects. However, in lanes where building skills are present excellent work is done and is well-maintained. All work done by such CAGs is self-financed and self-managed. Hence, if its quality can be improved, it is potentially sustainable. Lobbying done by informal CAGs for improvement of their areas seldom yields any results. This is because the groups are far too small to be considered of any importance by the authorities and also because they are not legal entities.

### 13.2 Formal groups

Groups usually formalise their existence by registering with the Social Welfare Department. They normally call themselves falah-o-behbood or islahi committees. Registration with the department gives them not only an identity, but also entitles them to some funding from government sources and the possibility of approaching other funding agencies for assistance.

In the case of almost all neighbourhood social welfare associations, the organisers are young men with well-above-average education for the area they live in. Many of them have been active in student politics. In rural areas, especially where feudal control is weak or non-existent, this leadership role is performed by ex-army men.

Few of these groups undertake development work that has a direct environmental impact. Most of them organise mother and child clinics, vocational schools for girls, primary schools or lobby with state agencies for facilities such as water supply, gas, electricity, post offices and banks. They do this fairly successfully.

In recent years, such organisations have received financial assistance from international agencies and mission funds. It has

been noticed that when such funding is curtailed or stopped the organisation stops functioning. In addition, most of this funding is for equipment, training or technical support. Funds for administrative purposes are seldom given. Very often, without such support the organisation cannot function.

There is considerable potential in these community groups for undertaking development work and raising finances from within the community. However, this potential can only be tapped if the necessary orientation is developed and a change of attitude in the office bearers takes place. This requires exposure to new ideas and forms of functioning. Where such exposure has taken place, the differences are apparent.

Such social welfare organisations exist all over Pakistan in large numbers both in rural and urban areas.

### 13.3 Large settlement-based CAGs

A few of these neighbourhood-based CAGs have expanded to become affluent institutions. They run large middle and secondary schools and organise vocational training for over 100 girls at a time. Health education is, in some cases, part of their extension programmes. In addition, their teachers are well-trained and their clinics well-equipped and well-staffed. Their administration is in the hands of paid administrators and their office bearers are well-to-do persons. Many of these organisations own considerable property, the rent from which also finances part of their activities. Such CAGs are usually connected to religious organisations and have access to a large number of funding sources. However, they have no outreach activities, do not involve themselves with larger urban or rural development issues, and as a result cater mostly to the immediate needs of the lower-income classes.

## 14. Different Types of NGOs in Pakistan

### 14.1 Larger welfare oriented NGOs

There are an increasingly large number of NGOs that are not area or settlement specific. They do very much the same things as the neighbourhood social welfare associations, but on a larger scale. Instead of ill-equipped clinics, they run medium or large hospitals; instead of small vocational classes they run secretarial and computer training schools for girls, in addition to elaborate courses for garment stitching, knitting and home management.

The professionals who run these NGOs are often highly qualified and well-paid. The office bearers are normally married women belonging to the elite classes. Often the reason for their involvement with NGO activity is to "do good" for the poor.

Raising funds for these NGOs does not pose problems. Their office bearers are well-connected and have easy access to both the corridors of power and the foreign missions. Budgets of these organisations can be as high as Rs 10 million a year. However, these organisations have never tried to become self-sufficient and one wonders what will become of them when the foreign funds, with which they finance part of their operations, are no longer available.

The NGOs described above do provide health care facilities and education to a large number of people. However, they do not effect a change in the living environment, attitudes, awareness or organisational levels of the urban or rural poor. Nor are their programmes replicable by other NGOs or the state because of their high cost.

#### **14.2 Discipline specific NGOs**

A small number of subject-specific NGOs have emerged in Pakistan. The broad categories are given below.

##### **a) NGOs dealing with women's issues**

These are run, for the most part, by professional women. They deal with awareness-raising among women, adult education and legal aid. To promote awareness and dialogue, they arrange workshops, seminars, publish literature and carry out research. In addition, they touch upon important developmental issues, including the environment, related to society as a whole and women in particular. Since these NGOs deal with women's problems, which are important issues today, they have no shortage of funds. The work of these NGOs is too new to be evaluated.

##### **b) Labour education**

In Karachi, PILER has been involved in labour education and research since 1981. It arranges short and long courses for industrial labour for general awareness-raising. The courses deal with safety, industrial production, environment, health, housing, energy and legal matters. Prominent experts participate as resource persons in these courses. Feedback suggests that a follow-up on the courses can result in effectively involving the course members in development and environment-related issues in their settlements. Funding is from grants by foreign agencies in Pakistan and abroad. Such NGOs are not large in number but given current trends in Pakistan society are bound to increase in number.

##### **c) NGOs involved in family planning**

A number of NGOs are involved in promoting population planning. Judging from reports available, and from the failure of the population growth rate to register a fall, they are not very

successful. However, some of them are impressive organisations spread all over Pakistan (34).

### 14.3 Development-oriented NGOs

In recent years, the concept that development in poor societies can only take place if people are empowered to run their own affairs, has caught on. But to empower people, one has to raise their awareness levels, their technical skills, their economic conditions, and above all motivate them to organise, generate savings, and operate and maintain the development they carry out. In this process, not only do the physical conditions in their areas undergo a change, but their relationship with local governments and with political power becomes less unequal. This in turn makes further development more appropriate to their needs. To make such development possible, a research and extension organisation, based in the area of its operation, is necessary. This organisation needs to be in constant touch with the community and its problems on the one hand, and should be able to call in expert technical advice for the solution of those problems, on the other. But to do this in a big way, not only is trained manpower necessary, but also exposure to this form of development. In Pakistan, a small number of NGOs are involved in developing such replicable models of development (35), while others are trying to train manpower which can help promote this form of development (36). Yet others provide funds to smaller NGOs.

To make such development affordable to the people, technical research has to lower the cost of such development while social research has to relate it to local conditions and help generate local finances.

Successful projects run by such NGOs have demonstrated that both rural and urban communities can generate savings over a period of time (37) and given technical and managerial advice and training bring about development that positively affects the local environment and which can in turn effect the GEF concerns positively.

The work of these NGOs has attracted international attention and they have comparatively fewer problems of funding. In addition, the government, at least at federal level, has shown a great interest in their work and in the last 5 year plan expressed the need for incorporating their principles into official planning.

Although there are a large number of NGOs that undertake development work, only a few have been able to develop successful and replicable models. The others face problems in involving the local communities, giving sound technical advice, modifying traditional practices or developing managerial expertise. Many of these development oriented NGOs also impart training to other NGOs and government agencies in their fields of activity and

their methodology.

#### 14.4 Environmental NGOs

Most environmental NGOs have been created in the last 5 years. The objectives of almost all of them are awareness-raising regarding the environment and lobbying with government agencies for improved environmental conditions. Both these objectives are approached through the holding of seminars and workshops and through the publication of newsletters. Funding for the secretariat and awareness-raising activities comes from foreign mission funds and foundations, government grants, international agencies or through membership fees.

Although most of the environmental NGOs are involved in local level awareness-raising and lobbying, there are some like the IUCN, which are assisting the government in developing environment-related national policies and supporting NGO programmes.

Most environmental NGOs are urban-based, run by the elite and deal primarily with the problems of upper middle-income areas. In addition, it is too early to assess their effectiveness. However, they have certainly been able to draw the attention of society to environmental issues rather than localised environment-related problems.

### 15. NGOs Constraints and Potentials

#### 15.1 Constraints

##### a) CAGs, NGOs and government planning procedures

Government planning concepts at the federal level recognise and promote the need for involving CAGs and NGOs in the planning and implementation of development. However, this never materialises, even in the case of large development NGOs like the OPP. As a result, a lot of NGO action, that can be in support, or as a part of a larger official plan, dissipates itself in uncoordinated and ineffective work.

##### b) Funding

Most CAGs and NGOs do not have the technical and managerial capacity to absorb funds. In addition, most have to depend on external funding sources for their daily functioning. This development breeds an insecurity that is justified, for as soon as the funds stop, the CAG or NGO stops functioning. Attempts at generating funds locally are seldom made, even where the possibility exists. A major problem is the unwillingness of donors to give funds for administrative purposes, without which the NGO/CAG cannot function.

### **c) Community participation**

Most NGO leadership is patriarchal in nature and feels that it can only keep itself in power if it can provide people with facilities rather than help empower them to change their social and physical environment. This is specially true of rural areas where most NGOs are operated by the landed classes and even internationally funded NGO projects are 'hijacked' by them. Similarly, as mentioned earlier, urban-based environmental NGOs usually discuss the environmental conditions of slums and rural areas but have no links with the communities that live there. However, in CAGs and NGOs where the people themselves finance development, popular involvement and participation is guaranteed.

### **d) Technical and managerial support**

Research shows that many attempts by CAGs and NGOs at addressing environmental problems fail because of a lack of access to technical and managerial knowhow. This failure discredits community activists, who are the most valuable asset in any local development project, and results in despondency among the community. In addition, there is a dearth of trained manpower in Pakistan that understands grass-root issues and can relate them to larger environmental and development issues.

### **e) The informal sector**

Due to an absence of effective government and formal sector involvement in the provision of services and amenities, there is a powerful informal sector that serves the needs of both rural and urban communities. This sector provides agricultural credit and manages its marketing and provides land, credit and technical support for housing in the urban areas. In addition, it provides a whole range of other services, including health and education.

The informal sector, although exploitative in nature, is well established. It has the skills and finances necessary for its operation, country-wide linkages and good relations with relevant government agencies. Often NGOs take on projects that compete with this sector and, as a result, fail. Almost no NGOs try to support and improve the activities of this sector whose areas of operation are closely related to GEF concerns.

### **f) National and international aid and NGOs**

Most national and international aid goes towards financing the physical implementation of projects. Comparatively little money is spent on arranging exposure to ideas, training and research. Targets are set for physical development that are unrealistic given the capacity and capability of most NGOs. Failure to make use of funds in time and to submit progress reports often 'blacklists' the NGO. All this results in mismanaged and inappropriate responses to environmental and development issues.



In the last decade, international agencies have promoted the participation of community leaders and activists in national and international seminars and workshops in a big way. Most of these are held in five star hotels and involve international travel. Many rural and urban communities are resentful of the nature of their leaders' involvement in these affairs. This resentment distances the leadership from the community and there are instances where organisations have broken up as a result. In addition, it promotes rivalry and discord among activists as they compete for participation in seminars and for trips abroad.

**g) Lack of coordination between donors and NGO support institutions**

There is a need to bring donors and NGO support organisations together in a dialogue to determine their respective roles. Many parallel programmes in the same area are initiated due to this lack of coordination and the result is detrimental to the development of the NGO movement.

**h) Rural/urban representation**

Pakistan's population is 71.1 percent rural. In addition, many of the environmental issues related to the GEF concerns have rural linkages. However, only 29.4 percent NGOs are operating in the rural areas and the most prominent ones are urban based (38).

**i) Paid staff**

Only 10.5 percent of NGO staff is paid (39). The rest are volunteers. Research has clearly established that effective NGO work cannot be sustained on a volunteer basis.

**j) NGOs are under-pressure**

All NGO studies have shown that Pakistani NGOs, even the larger and better established ones, cannot expand their work and responsibilities without adversely affecting their efficiency. At best they can play a training role for CAGs.

**15.2 CAG and NGO potentials**

The increasing inability of the government to tackle environment-related problems and to provide services to the people is forcing communities to organise and take action at the local level. It is also forcing them to seek help and assistance from NGOs and other support agencies.

The government realises the importance of NGO involvement in development, awareness-raising and relief measures. This realisation has grown over time and is expressed clearly in the last three 5 year development plans.

Pakistan is lucky in-as-much as it has a number of successful replicable NGO projects complete with demonstration areas and well-documented strategies and history. Thus, the development of orientation and training for other NGOs can take place at these institutions.

The government, with the assistance of foreign governments, has undertaken a number of projects that effectively involve local communities. These projects can also serve as training centres.

## **E. SCIENTIFIC AND TECHNICAL RESOURCES**

### **16. Survey of Current Research on Environment**

#### **16.1 Nature of scientific research in general**

Scientific research in Pakistan largely takes place at three levels: university departments of science, special institutions (mostly attached to universities or located on university campuses) and research wings or organisations attached to various government ministries. In all three cases, the research is funded from government sources.

Scientific research is given a low priority in government expenditure, even where it is carried out for applied purposes, as in the case of most research wings of ministries. The worst-off are the university departments, where research is mostly a corollary to the teaching programme, which itself is very poorly funded. As a result, laboratories and libraries are either ill-equipped or virtually non-existent. Very little post-graduate research takes place in Pakistan's universities and only a handful of Ph.Ds are awarded each year.

In the case of special institutions, funding is more generous and it is often supplemented by grants for specific projects and programmes. Some institutions, like the HEJ Institute of Chemistry at Karachi University, are carrying out internationally recognised research work. The quality and nature of these institutions are largely determined by those who lead them, and their functioning is heavily dominated by the personalities and degree of commitment of their leaders. This point is important, because decisions regarding appointments of heads of such institutions are made by the government, and appointments are often influenced by considerations not related to merit or qualification.

Poor funding and bureaucratic control are two of the major reasons why most scientific research organisations in Pakistan lack high quality personnel. Most of those pursuing a scientific career choose to go abroad when possible, and the "brain drain," though a general problem in Pakistan, is probably most acute in this sector, since research scientists rarely find appropriate

employment in the private sector.

## 16.2 Scientific research related to the environment

As a result of this situation, very little scientific research of relevance to the environment, either basic or applied, is carried out in Pakistan. There are, however, some exceptions, the most significant being the case of agricultural research. Much work has been, and continues to be done through the various agricultural institutions, most notably the Agricultural University at Faisalabad, and the Pakistan Agricultural Research Council.

However, since these are essentially an extension of the broader development policies of government, their research is oriented towards fulfilling the needs of such policy. This means, for example, that the majority of agricultural research has concentrated on issues related to the Green Revolution technologies and on the requirements of irrigated and cash crop agriculture. Relatively little attention has been paid to biological resources or crop development in the rainfed or subsistence agriculture sectors, or to the problems of range management, or mountain agriculture and horticulture.

In recent years, however, there has been evidence of growing interest, probably promoted by donor support, in the non-irrigated and upland areas. There is also increased interest in biological aspects of environmental management - for example, controlling waterlogging and salinity or reclaiming wasteland through the use of appropriate plants - and in the development of crop varieties for rainfed areas. Such work is being carried out by the PARC.

One of the major weaknesses of the agriculture-related research that is carried out, is the poor extension of research findings to farmers. The agricultural input suppliers play a much more active role in reaching farmers with new products than do government research institutions. There is, thus, a bias in irrigated agriculture towards heavier use of manufactured inputs rather than improved management of crops. It is estimated that crop yields in irrigated areas could be increased substantially through improved management practices, and that the indiscriminate use of pesticides and fertilisers could be controlled through better farmer understanding of crop growth. However, research and extension in such areas is very limited. If developed it could help promote a number of issues related to the GEF concerns.

The other major institution which works on environment-related areas is the PCSIR. Pollution measurement and control fall within its domain, as does the development of appropriate technology for industry, housing, sanitation, water purification and energy use. However, PCSIR's research programme lacks direction and, again,

its extension links are extremely weak. ENERCON, a more recently established institution is involved at a more practical level in promoting energy conservation practices. The provincial EPAs are also supposed to carry out research on environmental aspects. However, they do not possess the necessary material and manpower needs to do so.

Though the environment as a subject is a recent area of research, aspects of environment have been studied for several decades. Forestry, wildlife, soil erosion, water management, have all been the subject of numerous studies, though the overall pattern of academic research and documentation appears rather ad hoc. For this reason, baseline data are often not readily available or always reliable. Where the "environment" has been a subject of study, the focus has generally been either built environment or pollution-related subjects. Environmental implications of development policy are a recent concern.

Given the paucity of reliable research and the inadequacies of scientific organisations in Pakistan, it is difficult to carry out high-quality investigation of the technical and quantitative aspects of the environment. Both government and non-government organisations are faced with these shortcomings in any attempt to address environmental issues; international and donor organisations also face the same problem.

As a result of this realisation, attempts are being made to support institutional development at several levels, with a view to producing qualified personnel who can carry out environmental impact studies or contribute an environmental perspective to project and programme planning. Such people will, however, be largely within the government sector and as things stand NGOs are unlikely to have much access to them.

## 17. List of Resources

Appendix - 4: Scientific and Technical Resources, gives a list of relevant publications, periodicals, sources of statistical information, organisational profiles of university based research organisations; government research organisations; and NGOs.

## F. EXISTING AND POTENTIAL PROGRAMMES OF RELEVANCE TO GEF CONCERNS

### 18. Components for an Effective GEF-SGP

Given the discussion in the previous paragraphs, the components for an effective GEF programme in Pakistan can be

- a) coordination of the Programme with other government organisations and NGO programmes of relevance;
- b) raising of awareness levels regarding GEF concerns among the public at large and among relevant government organisations and NGOs;
- c) introducing GEF concerns as part of primary school curriculum and at relevant institutions of higher learning;
- d) promoting research and its extension in fields of community participation, energy preservation of industrial and vehicular emissions, land and water management, forestry, protection of wet lands, marine pollution, and sewerage and solid waste issues;
- e) identifying and training and/or orientating NGO activists, relevant government organisation and professionals in GEF relevant subjects; identifying NGOs and institutions where such training can take place; and providing funds for it;
- f) identifying grass-root level NGOs and CAGs which can initiate GEF relevant programmes and arranging for their training and funding;
- g) arranging technical and legal help for NGOs whenever necessary;
- h) monitoring and documenting the above process;
- i) developing and maintaining a register of resource persons, NGOs and institutions that can help in the above task and using them as consultants as and when necessary.

Given the constraints the NGO sector faces today, all the above activities will not be possible. In addition, for the GEF programme to spread and have an impact local grass-root level NGOs will need to be involved in it. The larger NGOs can serve as training centres and their location of work as a demonstration area. What is possible in the Pakistan situation today, is detailed below.

## **19. Coordination of the Programme with Government Organisations, NGO Programmes of Relevance and International agencies**

### **19.1 Government Programmes**

The major government programme of relevance is the NCS. In addition, the Ministry of Local Bodies and its provincial departments are involved in promoting, with NGO collaboration, rural water supply schemes and water management programmes. In addition, the forestry departments have social forestry programmes and watershed management projects in which support of local communities is sought. The Womens Division has considerable funds at its disposal as well, much of which are being channeled into environment related issues. Other government programmes that seek to involve communities in GEF relevant subjects are being organised by Sindh Arid Zone Development Agency (SAZDA) and BIAD in Balochistan. The provincial EPAs are also becoming active in Sindh and Punjab and they seek to involve communities in their work.

### **19.2 NGO programmes**

A larger number of NGO and NGO support projects have major outreach programmes both in terms of training and funding. To a great extent they determine the directions of the NGO movement. Such organisations include the IUCN which is involved with the implementation of the NCS; South Asia Partnership (SAP) which funds Pakistani NGOs through Canadian NGOs and is operating an important HRD programme; the recently established Trust for Voluntary Organisations (TVO) which has a fund of US\$ 30 million for activities related to HRD, WID and community health; the Small Project Office (SPO) which funds development projects and provides technical and managerial guidance and support to small communities; and the recently established Sustainable Development Policy (SDP) which will play an important role in supporting large service organisations and professional institutions, which in turn can have an impact on GEF related issues. The programmes of 2 other NGOs have also had a major effect on the directions taken by the NGO movement both in rural and urban areas. These NGOs are the Aga Khan Rural Support Programme (AKRSP) in the Northern Areas of Pakistan and the OPP in Karachi. The World Wildlife Fund (WWF) on the other hand, works closely with government and has initiated a number of projects relevant to bio-diversity issues. Profiles of these NGOs are given in Appendix - 4.

### **19.3 International agencies and foreign missions**

A number of international agencies and foreign missions give grants to NGOs for their programmes. These include CIDA, SDC, NORAD, Canadian and Dutch missions and UNICEF.

#### 19.4 Necessity for coordination

The agencies mentioned above often act at cross purposes. If coordination and linkages between the above organisations can be institutionalised, the NGO movement can get the maximum benefit from the available resources. The GEF programme cannot establish such a coordination. However, the operating and policy making staff of the Programme will have to keep in touch with the programmes of these organisations and seek to complement and/or support them.

#### 19.5 Introducing the Programme

In addition to coordinating the SGP with other NGO support activity, the programme will have to be introduced to the NGO community through workshops and will have to be evaluated annually.

### 20. Raising of Awareness Levels Regarding GEF Concerns

In the long run the success of community based environmental programmes will depend on public involvement in them. For such involvement awareness raising of the public at large and NGOs is necessary.

For raising public awareness, articles for the press should be commissioned, especially for the Urdu press, and a list of people identified who can write regularly. The promotion of this programme can be through the Journalist Resource Centre (JRC) or through the Pakistan Forum of Environmental Journalists (PFEJ). In addition, a dialogue with Radio Pakistan and the 2 TV channels can be established to support the development of environment related programmes.

NGO workshops are now a regular feature in Pakistan. In addition, PILER runs courses for trade unions in which the environment, and at least 2 GEF subjects (atmospheric pollution and water and sewerage issues), always figure in a big way and are relevant to the participants. It has to be seen whether their activities can be supported to make them more relevant to GEF concerns.

### 21. Education

#### 21.1 Primary education

In the long run the most effective way of tackling the environmental crisis is through producing a generation that is aware of the crisis and understands how to deal with it. This can only be done through the development and introduction of an environment course at the primary school level. The CAS (Centre for Advanced Studies) School in Karachi has introduced such a course and its evaluation needs to be carried out on the basis of which it can be introduced into other schools. The Book Group,

another Karachi institution is involved in upgrading schools in low income settlements. They have introduced fundamental changes in teaching methodology and curriculum. The expansion of their work, with an environmental component, can be supported. In addition, the Aga Khan Education Services (AKES) runs a major education programme for girls in the Northern Areas and Chitral. They have often expressed their interest in introducing environmental education and have initiated work on it. Discussions on the subject also need to be held with the TRC (Teachers Resource Centre).

Attractive books on the environment also need to be produced for primary schools along with guides on their use for teachers. Such books can be produced by the Book Group or by Adult Basic Education Services, 'ABES' both of which have considerably experience in the field but a lack of financial resources.

## **21.2 Professional education**

Professional educational institutions in Pakistan are, by and large, conservative in nature. The GEF subjects are of relevance to engineering, architecture and planning, sociology, geography and environmental sciences. However, the curriculum of these disciplines as it stands, does not relate to larger environmental issues on the one hand and to local social and economic issues on the other. As such the relationship of the subject to community participation and involvement can never be established and institutional issues therefore remain largely unaddressed. However, the Department of Architecture and Planning at the Dawood College, Karachi; The Centre of Excellence in Marine Biology, Karachi University; Human Environment Cell, Agricultural University, Faisalabad; Institute of Environmental Engineering and Research, NED University; and the PHED, UET, Lahore, are exceptions. It would be of considerable value if studies to evaluate the work of these institutions could be undertaken to identify their strengths, weaknesses and needs so as to promote environmentally aware professionals who have a vision of a better future. One or two of these institutions could then be supported to eventually becoming training centres for other institutions. In the absence of such professional institutions, the NGO movement will always remain deprived of technical, managerial and scientific expertise.

## **22. Research and Extension**

### **22.1 Community participation**

A number of projects in Pakistan have successful models of community participation. However, their experiences have so far not been collected and analysed or their methodology developed into manuals. The prominent projects are the AKRSP; OPP; The Gunyar Youth Association; the AKNGOSP's (Aga Khan NGO Support Programme) involvement in Hanzoor Colony, Karachi; the health



programme of ABES; the Self Help School Building Programme of the AKF in the Northern Areas; the water projects of the Mansehra District Development Plan; and the work of the WWF.

Funds to produce manuals and literature on the community participation aspects of these projects could be provided to individual researchers or to the projects themselves, and cheaply printed and distributed to relevant NGOs and CAGs.

## 22.2 Energy conservation

The only organisation in Pakistan in the field of energy conservation is ENERCON. Not only has it been carrying out research but is also involved in working with the industrial sector in Pakistan for promoting energy conservation practices. It has involved professional training and academic institutions in its work.

ENERCON, however, does not have a community based programme. Such a programme for an urban area can be possible and is certainly within ENERCON's mandate. The possibility of launching such a programme with a well established urban NGO is a possibility.

ENERCON's involvement in shaping engineering and architectural training to produce professionals who can build energy efficient buildings also needs to be explored. However, with its limited staff and means, ENERCON cannot extend its work much further.

## 22.3 Alternative sources of energy

There is almost no research work being done on solar or wind energy in Pakistan. Research on both these alternative sources of energy is necessary to reduce costs, increase efficiency and develop marketing systems. Research can be undertaken by the PCSIR; Institute of Environmental Engineering and Research, NED University, Karachi; and by Solar Utility Network (SUN) a private sector commercial organisation in Lahore. Wind energy research has been carried out by Mahmood Fateh Ali of the Karachi Green Society and their windmills have been produced by Marine Ltd., a Karachi based light engineering firm. Further work is required to improve the design, lower costs and develop O and M systems.

Identification of communities that require energy and are willing to opt for the alternative sources is required. Windmills for pumping water from wells can easily be established for water projects in Makran, Thar, Badin and Karachi. An immediate client is the Al-Hamrika Organisation, Kathore, in the Karachi division. The organisation is a member of the Sindh Rural Workers Cooperative Organisation (SRWCO). However, for domestic use solar energy can only be marketed if its cost is reduced and if an NGO is willing to operate a loan programme for its installation at house level. AKNGOSP can be approached to develop such a programme in

a Karachi katchi abadi.

#### **22.4 Quantification and prevention of industrial and vehicular emissions**

The provincial EPAs, the PCSIR and SUPARCO are currently involved in this work. In addition, work on these issues is also being carried out by the Institute of Environmental Engineering and Research. However, there are no programmes for extension and community participation. The aim is to develop standards, laws and policing mechanisms. Except for supporting on-going research, the GEF-SGP can play no effective role in this sector. Given the small sum of the SGP for a forest, such support will not add up to much.

#### **22.5 Land and water management**

There are a number of GOP research organisations carrying out research into land and water management issues. These include The Arid Zone Institute, PARC, and the Pakistan Council for Research in Water Resources. However, most of this research is desk research and does not translate into community programmes nor does it pretend to. SAZDA on the other hand, has a specific mandate to involve communities in its programmes. However, attempts at community participation and mobilisation have not been successful. The causes for their failure needs to be looked into and new initiatives, if they appear workable, need to be supported.

#### **22.6 Forestry**

The Pakistan Forest Institute is involved in research, extension and training of government officials, NGOs and community activists in a fairly big way. There is a need to introduce the larger concepts of the GEF concerns into its work. A dialogue to initiate this process is required. A similar dialogue is also required with PARC.

#### **22.7 Protection of wet-lands and bio-diversity**

The Pakistan council for the Conservation of Wildlife is a policy making body that also carries out research on related issues. It is in touch with NGOs and government agencies and advises relevant ministries on issues related to its mandate. The Council can identify a number of issues relevant to GEF concerns, identify areas under stress and receptive communities. Research on these issues can be undertaken by the Council and can be of assistance to the SGP.

#### **22.8 Marine pollution**

Research into marine pollution has been undertaken by the NIO. Recently the NIO has also been involved with the preparation of a

Coastal Environment Management Plan for Pakistan. The plan preparation has been supported by the EUAD and the UNESCAP. The plan document is complete and envisages NGO involvement in plan implementation. However, there are almost no NGOs, except in Karachi, that are involved in the area of concern that the plan identifies. In addition, the Karachi Master Plan and Environment Control Department (KMP ECD) has also prepared a Coastal Management Plan for Karachi. Community and private sector involvement in its implementation is also foreseen. The plan has a long way to go before it can be implemented as the necessary administrative and support mechanisms have yet to be established. It would be worthwhile to keep in touch with the developments related to these plans.

## **22.9 Sewerage and solid waste**

Sewerage disposal technologies are well known in Pakistan. To make these technologies compatible with the concepts of community participation, the OPP in Karachi has undertaken action research and is involved in extending it to other areas in Karachi, Sukkur, Hyderabad, Lahore, Shikarpur and Larkana through NGOs and the UBS programme of the UNICEF.

Research into solid waste collection and disposal needs to be undertaken so as to understand fully the nature of the problems and issues involved in this activity, and to make the formal sector operations and informal recycling industry related to it, complementary. Only then can this problem be tackled and roles of the various actors involved in the process, defined. This study should be undertaken for a large city, an intermediate city and a small town. An NGO operated pilot project, in all 3 cases, should be the end result of the study. This research can be undertaken by an individual consultant, an academic institution such as the NED University, Karachi; or the UET, Lahore; or by the OPP or the Urban Resource Centre (URC) in Karachi.

A major contribution to the environment in Pakistan would be the development of a reprocessing process for polythene bags. This research can be undertaken by the PCSIR or Najib Murtaza of RCG/Hagler, Bailly, Inc., Islamabad.

## **23. Training and Technical Support**

### **23.1 The importance of training and technical support**

All reports on the NGO sector in Pakistan point to the necessity of training and technical support to NGOs. In paragraph 15 of this report this deficiency and its related issues are detailed. Experience has shown that training for NGO staff and activists is best carried out at other similar NGO projects and that this training is more a learning through association and orientation affair rather than formal lectures and courses (40). The SGP could fund this exchange between communities and smaller NGOs on

the one hand, and NGOs that have something to offer on the other. NGO programmes from which CAGs and other NGOs can benefit are described below.

### **23.2 Community participation**

The Family Welfare Cooperative Society (FWCS) in Lahore trains women community workers for health and education programmes. These women are a major resource for NGOs in these sectors, especially since women workers are not easy to come by. FWCS can train women workers in GEF areas as well provided a course is developed for it and funds are made available. Similar training programmes for women can be developed and undertaken by AURAT Foundation and ASR (Applied Social Research) in Lahore. Pakistan Voluntary Health and Nutrition Association (PVHNA) also trains health workers most successfully GEF concerns could also be introduced in its courses.

Other NGOs, such as the AKRSP and OPP operate training and orientation programmes for government officials, NGO activists and community members in participatory development by exposing them to their work and methodology. The SGP could make use of these programmes by arranging and funding NGO/CAG visits to these institutions.

### **23.3 Energy conservation and development of alternative sources**

There are no NGO projects of this nature.

### **23.4 Prevention of industrial and vehicular emissions**

In Pakistan there have been a number of protests against the damage caused by industrial emissions. These protests have come from Kot Lakhpat industrial area, Lahore; from the Bela village in Balochistan against the Bela Chemical Factory; and against cement factories in Karachi. No legal advice and assistance could be given to the protesting organisations so the movements failed. There is need for the creation of a cell that provides legal assistance and identifies technical assistance in such cases, and keeps track of such protests.

### **23.5 Land and waste management**

Training can be provided at the OPP through its rural programme; the AKRSP; the Save the Childrens Fund (SCF) income generation project in Tharparkar which relieves pressure on land; the Baanh Beli projects in Tharparkar; and at the Sangi Development Foundation. Only OPP and AKRSP offer training and orientation facilities. However, discussion with the other groups, on the subject can be initiated. In addition, technical support can be arranged through the SPO and SAP.

### 23.6 Forestry

AKRSP has supported the planting of 1 million trees in the Northern Areas and has a training and orientation programme. In addition, the Gunyar Youth Association in Malakand; the Malakand Social Forestry Project in Swat; the Kalam Integrated Development Project also in Swat; and the Pak-German IRDP are all potential training grounds, even though they do not offer training facilities.

### 23.7 Protection of wet-lands and bio-diversity

The WWF has a major involvement in the protection of wet-lands and bio-diversity. However, this work is not something small NGOs would involve themselves in except for containing pollution to natural water bodies and undertaking plantation. IUCN is also involved with promoting projects of relevance with smaller NGOs. However, they still have to be developed. Both these organisations could host the SGP in a small way in these fields.

### 23.8 Marine pollution

There are no NGO projects for tackling marine pollution. However, there are fishermen's associations that have expressed their concern over fishing practices that deplete fish life and pollute the sea. One such organisation is the Baba Island Fisherman's Welfare Association, which is a member of SRWCO. A pilot project could be initiated through them.

Another aspect of marine pollution is through industrial effluents entering the sea and water bodies. There is no NGO activity related to issue in Pakistan.

### 23.9 Sewerage and solid waste

The OPP is perhaps the most developed NGO in this field and it is currently working in Larkana, Shikarpur, Sukkur, Hyderabad and Lahore, in addition to a member of Karachi settlements, as a consultant to UNICEF, the World Bank and local NGOs. The Orangi and Sukkur project areas can be offered as training grounds. OPPs sewerage systems are financed and managed by the communities and their treatment plants and trunk sewers are put up by the state agencies as a result of OPP supported lobbying by the communities.

There are no NGO solid waste programmes which have a community participation aspect to them. However, the Karachi Administrative Womens Welfare Society, a Karachi NGO, has forced the local government to address solid waste issues and has instituted cases against the local government in the higher courts of law for negligence, incompetence and corruption. They are willing to present their programme to other NGOs.

#### **24. Identification of Grass-Root Level NGOs**

In the process of looking at the programmes of larger NGOs and NGO funding and support agencies, grass-root NGOs can be identified. In addition, the UNDP has produced a comprehensive publication on NGOs which can be very useful. The needs and potential of these grass-root NGOs, however, will have to be ascertained by the SGP itself.

Unlike awareness raising and research and training programmes which develop human resources projects activity requires sustained funding and support, especial if they are run by small grass-root NGOs. Such initiatives often disappear once support is removed.

#### **25. What Is Possible For The SGP**

Given the constraints faced by the NGO sector in Pakistan, in the next 3 years, the SGP can realistically only build on what exists and initiate awareness and education programmes which may create conditions for the development of more ambitious future initiatives. From the menu developed in the preceding paragraphs the following is possible:

- a) Liason with other programmes of relevance so as to develop an appropriate SGP and introduce it and evaluate it through workshops (paragraph 19).
- b) Raise awareness levels of GEF concerns (paragraph 20).
- c) Develop and introduce an environment course at primary school level, support the publishing of childrens books on GEF related subjects and seek to address professional education (paragraph 21).
- d) Support research on community participation (paragraph 22.1)
- e) support energy conservaion research and extension (paragraph 22.2).
- f) Support research on alternative sources of energy and related pilot projects (paragraph 22.3).
- g) Support development of standards for end prevention programmes of industrial and vehicular emissions (paragraph 22.4).
- h) follow the Coastal Environment Management Plan developments and look for a possible NGO role in it (paragraph 22.7).
- i) Support WWF and IUCN initiatives of relevance to GEF (paragraph 22.7).

- j) Initiate solid waste research and pilot projects (paragraph 22.8).
- k) Develop and support training and technical support programmes (paragraph 23).

## **G. CONCLUSIONS AND RECOMMENDATIONS**

### **26. Conclusions**

#### **26.1 Priorities of the programme**

The priorities of the programme for the next 3 years should be awareness raising; primary school and professional education; research that can lead to the establishment of pilot projects; and support to on-going projects of relevance through training and technical advice. The base created by this activity will generate new projects and directions in GEF related concerns after a 3 year period. In addition, new projects without this awareness raising, research and training effort, will not be sustainable after funding is removed.

#### **26.2 No national NGO can host the GEF-SGP**

Given the constraints NGOs face and the diverse nature of the activities required to address GEF concerns, no national NGO can host the programme. However, the current WWF programmes can be supported where they have a community or NGO involvement; Sangi, Baanh Beli, SCF, can certainly promote water and land management projects through their contacts with the communities they work with; and the AKNGOSP can develop urban energy conservation and alternative energy projects. The rest, if it has to work, will have to be developed and coordinated by a proper office set up for managing the SGP.

#### **26.3 Manpower required for the office**

The Draft Mission Report on GEF-Pakistan, dated May 5, 1992, suggests a part time coordinator and part time secretarial assistance for the programme. Given the scope and nature of work, this arrangement will not be able to deliver the programme and will not be able to evolve to absorb larger funds.

#### **26.4 Selection committee**

The Draft Mission Report also suggests the formulation of a Nation Selection Committee which will wet the applications for support and select projects from them. The composition of the Committee is seen as consisting of a representative of the GOP from the NCS Implementation Unit; Programme Officer (Environment) UNDP; one representative each from IUCN, WWF, OPP, Sangi, AURAT

and perhaps from other NGOs; and a member from the scientific community, such as from the Peshawar University or the HEJ Institute.

The idea of setting up a selection committee is a sound one. However, experience has shown that such high powered committees create a number of problems. Due to their other pre-occupations the committee members often fail to meet and if they do, often there is no quorum. In addition, the meeting cannot possibly be held for more than half a day every 3 months. This time is seldom enough to process the applications, review progress, and evolve new directions.

## 27. Recommendations

### 27.1 Office and office staff

A separate office should be set up for the SGP. Its staff should consist of a coordinator, a field officer (of which 2 may be required at a later stage) and secretarial support. The function of the office will be to carry out the programme as described in Section F of the report.

The coordinator will

- publicise the programme at all available levels
- liason with other programmes of relevance so as to develop the SDP
- keep in touch with relevant NGOs, research organisations, educational and media institutions, and develop proposals with them for programmes and projects
- convene meetings of the Selection Committee
- receive applications for projects, evaluate them with the help of the field officer, short list them and place them before the Selection Committee
- employ consultants for programme evaluations, support to individual projects and for other activities such as the holding of workshops and monitoring purposes
- review the performance of SGP projects and establish new directions if necessary, and put up these to the Selection Committee for discussion and approval
- maintain an updated register of resource persons, institutions and relevant projects
- develop and oversee monitoring mechanisms.



### The field officer will

- visit the NGO which applies for assistance and its project areas; evaluate its work; assess its needs; identify, with the help of the coordinator, institutions and resource persons that can be of assistance, and how such assistance can be provided
- draw up a project proposal after such visits for consideration of the coordinator
- make monitoring visits to the funded and/or supported projects
- document all relevant NGO/CAG activity that may be encountered during such visits
- attend NGO workshops etc. and report back to the coordinator
- help in maintaining a register of resources and acquiring all relevant documentation and publications.

The coordinator will have to be someone well versed with GEF concerns and knowledgeable about the NGO and environmental movement in Pakistan and should be able to deal effectively with government, academic and professional institutions and NGOs on an equal footing.

The Field officer should have a knowledge of GEF concerns and an understanding of development processes. He/she should be able to write English, read and speak Urdu, and be able to establish a rapport with people of all classes. It may not be possible to get such a person easily. But training can be given to an appropriate person by making him/her visit relevant NGO projects.

### 27.2 Office costs for the first year

Salary of coordinator	: Rs 45,000 x 12	Rs 540,000
Salary of field officer	: Rs 18,000 x 12	Rs 216,000
Secretarial support and related costs	: Rs 10,000 x 12	Rs 120,000
Consultants (charged to projects except for evaluations)		-
Operating costs	-	Rs 50,000
Travel and NCS meetings	-	Rs 150,000
		<hr/>
		Rs 1,076,000
		or US\$ 43,000

### 27.3 Selection Committee

The National Selection Committee should be established very much on the lines suggested in the Draft Mission Report. However, its

size should be increased to 15 members and the presence of 5 members should constitute a quorum. The Committee should meet every 3 months. Projects should be short listed by the coordinator and presented to the Committee on a standard format so that the Committee can conclude its work in half a day. Selection should be made on a criteria developed by the coordinator and endorsed and/or modified by the Selection Committee. It should cover issues of relevance; sustainability; NGO potential and constraints; nature of support required, wether technical, financial, managerial or training, and its support source; and the potential of community empowerment. The Committee should be appointed for 3 years.

#### 27.4 Time table

Recruiting of staff and establishing of office	30 days from commencement
Developing criterias, proposal formats, field visit and monitoring procedures, training/orientating of field officer	60 days from commencement
Convening Steering Committee	90 days from commencement
First 5 projects in operation	200 days from commencement
5 additional projects and a final evaluation and monitoring report; a detailed survey on relevant and potential projects for the next 3 years; and linkages with resource persons and research institutions.	360 days from commencement

## Footnotes

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### Abbreviations/Local Terms

#### Abbreviations

ABES	Adult Basic Education Services
AKES	Aga Khan Education Services
AKNGOSP	Aga Khan NGO Support Programme
AKRSP	Aga Khan Rural Support Programme
ASR	Applied Social Research
BIAD	Balochistan Integrated Area Development
CAG	Community Action Group
CAS	Centre for Advanced Studies
CIDA	Canadian International Development Agency
CITES	Convention on International Trade in Endangered Species
EEC	European Economic Community
EIA	Environment Impact Assessment
EIS	Environment Impact Statement
EPA	Environmental Protection Agency
EPC	Environmental Protection Council
EPO	Environmental Protection Ordinance
EUAD	Environment and Urban Affairs Division
ENERCON	National Energy Conservation Centre
FWCS	Family Welfare Cooperative Society
GNP	Gross National Product
GOP	Government of Pakistan

IUCN	International Union for Conservation of Nature
JRC	Journalist Resource Centre
KWSB	Karachi Water & Sewerage Board
LG&RDD	Local Government and Rural Development Development
NWFP	North-West Frontier Province
NCS	National Conservation Strategy
NEC	National Environmental Council
NGO	Non-Governmental Organisation
NIO	National Institute of Oceanography
NOC	No Objection Certificate
NORAD	Royal Norwegian Embassy Development Corporation
OPP	Orangi Pilot Project
PARC	Pakistan Agricultural Research Centre
PCSIR	Pakistan Council of Scientific and Industrial Research
PEPC	Pakistan Environmental Protection Council
PEPA	Pakistan Environmental Protection Agency
PEPO	Pakistan Environmental Protection Ordinance
PFEJ	Pakistan Forum of Environmental Journalists
PHED	Public Health Engineering Department
PILER	Pakistan Institute of Labour Education and Research
PVHNA	Pakistan Voluntary Health and Nutrition Association
SAP	South Asia Partnership
SAZDA	Sindh Arid Zones Development Authority
SCF	Save the Children's Fund
SCARP	Salinity Control and Reclamation Project
SDC	Swiss Development Cooperation

SDP	Sustainable Development Policy
SDPI	Sustainable Development Planning Institute
SUN	Solar Utility Network
SUPARCO	Pakistan Space and Upper Atmosphere Research Commission
TVO	Trust for Voluntary Organisation
UBS	Urban Basic Services
URC	Urban Resource Centre
WWF	World Wildlife Fund

#### Local Terms

barani	rainfed agricultural areas
babul	a kind of tree: botanical name
chir	local pine
faḥlah-o-behbood	social welfare organisation
gowcher	grazing land
johar	cesspool
katchi abadi	squatter settlement
nullah	natural drain
jirga	a committee of the elders of various tribes
shamlaat	community lands
tarai	a depression in which rainwater gathers

**TABLE - 1****ESTIMATION OF AIR POLLUTANTS: EMISSIONS AND TRENDS**(taken from Environmental Profile of Pakistan  
1991, by Najib Hurtaza)

units: thousand tons

Sector	1987/88						
	CO2	SO2	NOx	CO	HC	Pb	Particulates
Industry	28,849.0	478.3	1,138.3	381.0	46.0	0.00	9,565.5
Buildings	50,976.4	4.2	10.0	2,415.0	299.0	0.02	83.8
Agriculture	4,512.3	14.3	34.0	0.0	0.0	0.00	285.8
Transportation	9,659.8	26.4	62.9	1,034.0	14.0	0.50	528.2
Power	10,968.3	68.0	161.8	6.0	27.0	0.00	1,360.0
Total	104,965.9	591.2	1,407.0	3,836.0	386.0	0.52	11,823.3

units: thousand tons

Sector	1997/98						
	CO2	SO2	NOx	CO	HC	Pb	Particulates
Industry	72,122.6	1,195.7	2,845.7	952.5	115.0	0.00	23,913.8
Buildings	127,441.0	10.5	24.9	6,037.5	747.5	0.05	209.5
Agriculture	11,280.8	35.7	85.0	0.0	0.0	0.00	714.5
Transportation	24,149.4	66.0	157.1	2,585.0	35.0	1.26	1,320.5
Power	27,420.9	170.0	404.6	15.0	67.5	0.00	3,400.0
Total	262,414.6	1,477.9	3,517.4	9,590.0	965.0	1.31	29,558.4

**Note:**

Prime source for energy consumption figures is Energy Wing, Ministry of Planning, Government of Pakistan. Projections for 1997/98 are based on a factor of 2.5 which is consistent with the energy projections by the Government of Pakistan. Nitrogenoxides are estimated on the basis of NOx/SO2 ratio of 2.38:1, and particulates on the basis of particulates/SO2 ratio of 20:1. This table is compiled by Najib Murtaza, based on previous work done by RCG/Hagler, Bailly, Inc. in the field of energy conservation in Pakistan, (1987-90).



TABLE - 2COMMERCIAL ENERGY SUPPLIES

<u>Item</u>	<u>Unit</u>	<u>1971-72</u>	<u>1989-90</u>
Crude Oil	mln US barrels	25.79	45.58
Petroluem products	mln tonnes	3.55	9.69
Gas	bln cm	3.49	13.93
Coal	000 tonnes	1246.00	3645.00
Hydel Electricity Generated	HW	419.98	1900.68
Thermal Electricity Generated	HW	432.53	2310.27

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Source: Pakistan National Report to UNCED: EUAD, 1992

TABLE - 3

KARACHI: SEWERAGE GENERATION AND MANAGEMENT

Sewerage generated	192 MGD
Pollution generated	1236 ton BOD
Per capita generated	357 gm BOD
Population served	28 %
Connections	310,000
Collection network	2,140 miles
Treatment plants	2 of 20 MGD
Sewage treated	30 MGD
Sewage rate	100 % subsidized
Staff employed	1980
Capital cost	Rs 2855 million
Annual expenditure	Rs 139 million
Annual revenue	Nil
Agencies responsible	Karachi Water & Sewerage Board

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Source: Environmental Profile of Pakistan,  
Government of Pakistan

**TABLE - 4**

**WETLAND HABITATS IN PROTECTED AREAS**  
 (taken from Environmental Profile of Pakistan,  
 1991, by Najib Murtaza)

No.	Title	Area (ha)	Year Established
<b>National Parks:</b>			
1.	Lal Suhanra	31,368	1972
2.	Margalla Hills	14,786	1980
<b>Wildlife Sanctuary:</b>			
3.	Chashma Lake	33,084	1974
4.	Drigh Lake	182	1972
5.	Hub Dam	27,219	1972
6.	Hadero Lake	1,321	1977
7.	Haleji Lake	1,704	1977
8.	Hawkes Bay/Sandspit		
9.	Keti Bundar North	8,948	1977
10.	Keti Bundar South	23,046	1977
11.	Khabbaki Lake	283	1967
12.	Kharrar Lake	235	1971
13.	Kinjhar (Kalri) Lake	13,468	1975
14.	Langh Lake	19	1980
15.	Nammal Lake	486	1970
16.	Rasool Barrage	1,138	1974
17.	Taunsa Barrage	6,567	1972
<b>Game Reserves:</b>			
18.	Bund Khushdil Khan	1,206	1983
19.	Head Islam	3,132	1978
20.	Head Qadirabad	2,850	1978
21.	Rawal Lake		
22.	Zangi Nawar	1,060	1982
23.	Thanedar Wala	4,047	1976
24.	Bajwat	5,400	1987
25.	Nara	109,966	1982
<b>Sanctuary:</b>			
26.	Indus Dolphin	44,200	1974

*Note: Many of the natural wetlands which do not enjoy legal protection within the reserves are in private ownership and are maintained as hunting areas. Most are used for hunting on only a few days a year, and are generally well managed and kept free from disturbance for the rest of the year.*

TABLE - 5

SUMMARY OF WATERSHED ACTIVITIES IN PAKISTAN

PAST, PRESENT AND FUTURE

(Area treated in thousand hectares)

	Punjab	Sindh	Balu- chistan	NWFP	A.K.	N. Areas
A. Area where work has already been completed						
i) Afforestation	37.0	-	366.1	93.8	52.0	4.1
ii) Soil conservation	436.0	-		73.0	20.9	0.1
B. Area where work is in progress						
i) Afforestation	3.4	-	428.5	307.6	2.5	0.3
ii) Soil conservation	11.6	-		307.6	0.2	-
C. Area where work is contemplated/required						
i) Afforestation	3.2	-	10606.1	72.0	8.3	90.5
ii) Soil conservation	42.6	-		13.2	6.5	90.5
D. Area with severe hazards of soil erosion						
	N.A.	13.5	7400.0	400.0	100.0	181.0

Source: Report of the National Commission on Agriculture, 1988  
Ministry of Food and Agriculture, Government of Pakistan.

TABLE - 6

PROVINCE-WISE AFFORESTATION EFFORTS

(Hectares per year)

Province	1960-61 to 1969-70	1970-71 to 1979-80	1980-81 to 1984-85	1960-61 to 1984-85 (Average)
Punjab	15,980	8,497	5,400	10,900
Sindh	630	575	786	637
NWFP	3,457	2,634	13,320	5,100
Balochistan	60	231	160	148
Northern Areas	345	1,822	1,093	1,304
Azad Kashmir	2,833	4,968	5,617	4,244
Total :	23,305	18,727	26,376	22,333

Source: Report of the National Commission on Agriculture, 1988  
Ministry of Food and Agriculture, Government of Pakistan.

## SUGGESTED TERMS OF REFERENCE FOR NATIONAL CONSULTANT

**BACKGROUND**

The Small Grants programme (SGP) will provide support for small scale activities by NGOs, Community Organizations and Grassroots groups that address the four GEF areas. Because of the nature and scale of activities carried out by NGOs and CAGS, it is expected that most activities may be in the areas of Biodiversity and Alternate energy.

The principal objectives of the GEF-SGP in the initial three-year pilot phase will be to test and demonstrate small-scale projects, strategies and processes by NGOs and CAGs as means of identifying the approaches that could alleviate problems adversely affecting the global environment if replicated successfully on a larger scale over time.

It is expected that the SGP can be offered in approximately 30 countries in the pilot period, depending on the rapidity with which in-country programme implementation mechanisms can be established, and become operational. Grants for projects selected will not exceed \$50,000. NGO proposals for activities to be carried out at a regional and sub-regional level (such as SAARC) will also be solicited. Awards for these kinds of activities are expected to range from \$50,000 to \$250,000. The GEF-SGP will have an initial allocation of \$5 million which may be replenished as needed.

**OBJECTIVES**

Having concluded through previous mission(s), where extensive discussions were held with the NGO community and GOP, that the GEF-SGP should be offered in the country, the objective of this mission will be to determine how the SGP should be structured and implemented and the expected time required to do so.

specifically, the exploratory mission should:

1. Assess the country's needs and priorities in GEF-eligible fields, e.g, the preservation of biodiversity, pollution of international waters, that are being or might be addressed by NGOs and grassroots organizations.
2. Determine the policy framework in which these needs and priorities are being addressed and whether this would be conducive to implementation of the proposed GEF-SGP.
3. Assess the general scope and strengths and weaknesses of activities currently being carried out by NGOs and CAGs.
4. Identify particular NGO projects that appear to meet GEF objectives (mainly as a basis for determining how rapidly programme implementation might begin).

5. **Identify NGOs** (including NGO networks, national NGOs and CAGs, local affiliates of international NGOs, that might make effective contribution to implementation of the SGP at the country level, e.g by helping to determine country-specific priorities and strategies, participating in a mechanism established to screen and evaluate projects for GEF small grants, evaluating funded projects, monitoring programme implementation, etc.
6. **Identify local scientific and technical resources**, e.g individuals from the Scientific community, academic or research institutes, GOP units etc. that might make effective contribution to programme implementation.
7. **Identify materials and resources** that might be available in-country e.g UNDP NGO data-base, or that which might be developed in-country or furnished from outside, needed to launch and carry out the national programme effectively.
8. Determine (in consultation with the UNDP Field Office, local representatives of other implementing agencies, government officials and appropriate NGOs) what **kind of mechanism**, possibly including an in-country coordinator, "lead NGO" and/or selection and screening committee, would be best suited for launching the programme rapidly and for implementing it effectively (at the lowest possible cost).
9. Evaluate the relative merits and demerits of establishing a **National Selection Committee (NSC)**-type mechanism. (e.g can NSC members select/evaluate projects submitted by their NGOs).
10. Based upon initial findings, assist the UNDP office in **identifying potential members of the National Selection Committee** (if recommended), including qualified or interested GOP officials.

#### Contributing to implementation of Sub regional and Regional Activities

Although the mission will focus on opportunities for programme implementation at the national level, the consultant should also be alert to opportunities for supporting programme implementation at the inter-country level.

Specifically, he or she should also try to:

1. Identify NGO networks and NGOs sponsoring or participating in sub regional or regional activities which address GEF goals.
2. Identifying effective projects being carried out by NGOs and NGO networks on a sub regional or regional basis that might be eligible for GEF small-grants awards.
3. Identifying NGOs and /or scientific and technical institutions

capable of providing programme support services on a sub regional or regional basis, including research, training or capacity building services.

In addition to obtaining information and insights needed to plan programme implementation, the UNDP staff members and/or consultant will be expected to interpret the goals, criteria, programme and ways of working of the GEF SGP to the local representatives of the GEF implementing agencies, government officials and other possible partners in order to lay the ground work for the future collaboration based on a common understanding of programme objectives.

#### **ACTIVITIES**

Activities involved in carrying out the missions will include:

Review of relevant materials gathered from UNDP sources such as the AP-2000 report, the exploratory mission report, and from such networks as IUCN and WWF on conditions in the country (recent report by Ian Smilie).

Visits to local resources, e.g research and training institutions.

Site visits, to the extent possible, to selected successful NGO activities.

#### **MATERIALS**

Draft announcement of the GEF, the GEF-SGP project document, the Noble mission report, the AP-2000 report. Additional material such as the National Conservation Strategy document and the National report to the UNCED, may also be obtained.

#### **REPORTING**

The consultant will be expected to report findings and recommendations as follows:

In person, to the UNDP Resident Representative, local representatives of the other implementing partners, officials and others whose endorsement and collaboration are required to launch the programme effectively.

In writing to appropriate Regional Bureau personnel and other responsible staff at UNDP Headquarters.

The report should present findings and recommendations on the points identified above and the identified persons, institutions and activities visited.



APPENDIX - 2

RECENT LITERATURE CONSULTED

1. NGOs: Working for Others: UNDP, Islamabad, 1991
2. Implementation Design for the NCS for Pakistan: IUCN/EUAD, January 1992
3. Environmental Profile of Pakistan 1991: Najib Hurltaza/OECF of Japan, February, 1992
4. Asia Pacific 2000: Pakistan National Report, April 1992
5. NGOs and Pakistan's National Conservation Strategy: IUCN, June 1992
6. Pakistan National Report to UNVED: EUAD, GOP, 1992
7. Literature on GEF, supplied by the UNDP

APPENDIX - 3

WETLANDS OF PAKISTAN, 1990

(taken from Environmental Profile of Pakistan,  
1991, by Najib Murtaza)

Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
1	80,000	<p><b>Deosal Plateau</b> A high plateau of moorland and swamp with numerous lakes and ponds, in the upper drainage of the Indus River at the northwestern extremity of the Himalayan Range. The wetlands are fed by snow melt from surrounding peaks.</p>	No information.	Intense grazing during summer months.
2	25,090	<p><b>Tarbela Reservoir</b> A large freshwater reservoir on the Indus River, created by one of the largest earth and rock dams in the world. Avg. depth is 64m, maximum depth is 137m; average pH=6.5</p>	Reservoir state owned; surroundings public & community owned.	Irrigation; power-gen.; grazing; fishing & boating.
3	644	<p><b>Tanda Dam Reservoir</b> A small fresh water reservoir in a shallow valley; surrounding hills rise up to 700m; reservoir is fed by Kohat Tol stream and local runoff. Very little submerged vegetation; no large areas of marshes. Avg. depth 30.5m, water level depends on rainfall; average pH=6.5</p>	Reservoir state owned; surroundings public & community owned.	Irrigation; grazing; fishing & boating.
4	4,047	<p><b>Thanedar Wala - Game Reserve</b> A shallow, fresh to brackish seepage lagoon and extensive marshy area formed at the junction of Gambilla and Kurram Rivers. Avg. water depth 0.1-0.5m; pH=9.0. Surrounding areas mostly saline.</p>	Wetland under communal ownership.	Cutting Typha for cottage industry; hunting waterfowl; grazing

Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
5	1,554	<b>Kurram River Valley Including Baran Dam and Malugal Dhand</b> Reservoir is fed by Kurram River and runoff. Its a shallow saline lake, about 1m depth. pH=8.5	Tribal territory; Baran and Malugal Dam is state-owned, ownership varies	Hunting for cranes; grazing; firewood; and gravel. Baran Dam: power gen., irrigation.
6	33,109	<b>Chashma Barrage</b> A large barrage on Indus River. Maximum flooding in spring. Exposed land leased to farmers. Five lakes, avg. depth 0.2m (dry season). pH= 6.5-7.2.	Reservoir state owned; surroundings public & community owned.	Irrigation; power-gen.; grazing; fishing & boating.
7	486	<b>Nammal Lake</b> A shallow brackish lake partly impounded by a dam. Maximum depth is 5.8m, and avg. depth is 4.6m. Water is slightly saline with a pH=7.3.	Reservoir state owned.	Irrigation; fishing; grazing; and mining.
8	943	<b>Uchhali Lake</b> A brackish to saline lake, the second largest in the Salt Range, with little marsh vegetation and entirely surrounded by agricultural land. Depth varies from 0.2-0.6m; the water is usually saline with pH= 8.0.	Reservoir state owned; surroundings public & community owned.	Recreation waterfowl hunting; fishing; grazing; mining in hills.
9	100	<b>Jahlar Lake</b> A small brackish to saline lake with little marsh vegetation, in the Salt Range. Similar to Uchhal and Khabbaki lakes.	Reservoir state owned	Watering livestock and waterfowl hunting.
10	283	<b>Khabbaki Lake</b> A shallow brackish lake in the Salt Range, with a little aquatic vegetation but no reed-beds. Lake is fed by runoff and several intermittent streams in the surrounding hills.	Reservoir state owned; Forests community - owned	Domestic use; fishing; illegal hunting; livestock grazing; agriculture.

Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
11	26,500	<p><b>Mangla Dam</b></p> <p>A deep freshwater reservoir on the Jhelum River. The greater part of the reservoir lies in Azad Kashmir territory. Maximum depth is 91m; avg. pH=6.5.</p>	State-owned under WAPDA.	Power gen; irrigation; fishing.
12	1,138	<p><b>Rasool Barrage</b></p> <p>A water storage reservoir with associated marshes and sand banks, created by damming of River Jhelum for irrigation purposes. Maximum depth is 6.5m; pH=6.8-7.2.</p>	State-owned under Irrigation Dept.	Flood control; irrigation; fishing reeds and rushes; cattle grazing, forestry, agriculture.
13	1,620	<p><b>Maralla Headworks (Barrage)</b></p> <p>A water storage reservoir on River Chenab for irrigation purposes. Land exposed at low water levels is leased out to farmers. The depth of water in lagoons varies from 0.2-5.0m; avg. pH=6.8-7.2.</p>	State-owned.	Fishing; irrigation.
14	2,850	<p><b>Qadirabad Barrage</b></p> <p>A water storage reservoir on River Chenab for irrigation purposes. Land exposed at low water levels is leased out to farmers. The depth of water in lagoons varies from 0.2-5.0m; avg. pH=6.8-7.2.</p>	State-owned.	Fishing; irrigation; agriculture.
15	80	<p><b>Ghamaghar Lake</b></p> <p>A shallow brackish lake and associated marshes on the plains between the Sulej and Ravi Rivers. Avg. depth of water is 25 cm.; pH= 7.8.</p>	Privately-owned.	Hunting; fishing; reeds for weaving; grazing and agriculture.

Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
16	235	<b>Kharal (Kharrar) Lake</b> A shallow brackish to saline lake and associated marshes with some dense reed-beds on the plains to the south of Ravi River. The lake formed in 1945 as a result of waterlogging. Depth of water varies from 0.2-3.0m. pH=8.0.	State-owned.	Hunting; fishing; reeds for weaving; grazing and agriculture.
17	6,567	<b>Taunsa Barrage</b> A large water reservoir behind a barrage on the Indus River, near town of Taunsa, land exposed at low water levels is leased out to farmers. Depth ranges from 5.0-11.5m; pH=6.5-7.0.	State-owned under control of Irrigation Dept.	Irrigation; fishing; reeds and rushes; cattle grazing, forestry, agriculture.
18	3,132	<b>Islam Headworks</b> A water storage reservoir on the Sutlej River used for irrigation purposes. Land exposed at low water levels is leased out to farmers. Excellent habitat for waterfowl. Depth of water in the main channel varies from 3-6m, and in seepage lagoons from 0.1-3m.	State-owned under control of Irrigation Dept.	Irrigation; fishing; reeds and rushes; cattle grazing; agriculture.
19	1,935	<b>Palisar Lake (Lal Suhanra)</b> An abandoned water storage reservoir with abundant vegetation, extensive reed-beds and 13 small islands, on the edge of Cholistan Desert 10km. south of River Sutlej. Receives excess water from irrigated land and is fed by Bahawal Canal. Avg. depth is 4.5m, maximum is	State-owned under control of Forestry Dept.	National Park; fishing; irrigated forestry plantations.
20	44,200	<b>Indus Dolphin Sanctuary</b> A stretch of 135 km. in River Indus in northern Sindh. There are some marshy areas on adjacent flood plain.	Owned by Sindh Government.	Fishing; boat transportation; fishing.

Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
21	600	<b>Ghauspur (Rup) Jheel and Sindhi Dhoru Lake</b> A small highly eutrophic, freshwater lake with extensive marshes in a depression in a flood plain on the West bank of the Indus River. Lake is fed by runoff and seepage from irrigation canals.	Privately-owned.	Fishing; waterfowl hunting; grazing; agriculture.
22	unknown	<b>Beroon Kirthar Canal</b> Wetland is located along Kirthar Canal near the western edge of the Indus River. It is fed by monsoon flooding and excess irrigation water. Depth fluctuates around 2m.	Communal lands.	Waterfowl hunting; grazing; fishing; harvesting of Typha; agriculture.
23	180	<b>Drigh Lake Wildlife Sanctuary</b> A small, slightly brackish lake with extensive marshes on the floodplain of River Indus. It is fed by monsoon rains. No outlet channel; heavily impregnated clayey soil. Completely eutrophicated with Typha.	State-owned.	Nature conservation; grazing; illegal hunting; rice cultivation.
24	unknown	<b>Hamal Katchri Lake</b> A shallow lake and associated marshes on the plains on the west bank of Indus River.	No information.	No information.
25	unknown	<b>Pugri Lake</b> A shallow brackish lake, up to one meter deep on west bank of River Indus, near Hamal Katchri lake. It is fed by seepage from irrigation canals.	State-owned.	Waterfowl hunting; grazing; harvesting of Typha; agriculture.
26	6,000	<b>Manchar Lake</b> A large freshwater lake on the west bank of the River Indus, about 16 km. from the river.	No information.	No information.

Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
27	300,000	<b>Nara Canal Area</b> A chain of small, permanent and seasonal, freshwater, brackish and saline lakes and marshes stretching in a broad arc, about 150 km. wide. Wetlands lie either side of the Nara canal., a major irrigation channel which takes water from River Indus near Mirpurkhas.	Privately-owned	Fishing and waterfowl hunting.
27a	245	<b>Soonhari Lake</b>	Privately-owned	
27b	unknown	<b>Sadhori Lake</b>	Privately-owned	
27c	380	<b>Sanghriaro Lake</b>	Privately-owned	
28	30,000	<b>Khipro Lakes</b> A group of about 30 small, permanent and seasonal, freshwater, brackish and saline lakes set amidst sand dunes on the western rim of the Thar Desert, at the eastern side of Indus Valley.	No information.	Fishing; waterfowl hunting; and grazing
29	unknown	<b>Tando Bago Lakes</b> A group of eleven shallow, fresh or slightly brackish lakes and marshes along the eastern edge of Indus Plain.	Privately-owned	Fishing; waterfowl hunting; and grazing
29a	160	<b>Phoosna Lakes</b> Two shallow, slightly brackish lakes with marshes in a waterlogged area on the eastern edge of the Indus Plain, surrounded by rice paddies and sugar cane fields. Depth of water varies from 0.2-2.0 m.	Privately-owned.	Fishing; waterfowl hunting; and grazing
29t	100	<b>Charwo Lake</b> A shallow, slightly brackish lakes with marshes in a waterlogged area on the eastern edge of the Indus Plain, surrounded by rice paddies and sugar cane fields. Depth of water varies from 0.1-2.0 m.	Private hunting reserve.	Fishing; waterfowl hunting; and grazing

Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
29c	500	<b>Khanjo (Khowaja) Lake</b> A freshwater lake with marshes on the eastern edge of the Indus Plain. There are large reed-beds and lotus beds, and about 80 ha of open water. Depth varies from 10cm to 2.0m.	Privately-owned.	Fishing; waterfowl hunting; and grazing
30	unknown	<b>Badin and Khadan Lagoons</b> A large area of very shallow brackish lagoons and wet mudflats at the end of drainage canals in the eastern Indus delta, on the edge of salt flats of Rann of Kutch.	Privately-owned.	Fishing; waterfowl hunting; and grazing
31	20,000	<b>Shahbandar Salt Waste and Jafri Lake</b> A vast salt waste, 30 km. long and up to eight km. wide, and a large brackish to saline lake in the southeastern part of Indus delta near the Indian border.	No information.	No information.
32	100	<b>Mahboob Shah Lake</b> A small fresh water lake with extensive marshes, on the plains east of Indus River about 80 km. from coast. It is one of the most important wetlands on the east bank.	Privately-owned.	Intensive fishing; waterfowl hunting.
33	13,468	<b>Kinjhar (Kalri) Lake</b> A large freshwater lake, the largest in Pakistan with very extensive reed-beds. Its 24 km. long and six km. at its widest part. Depth is maximum 8m.	State-owned.	Fishing; domestic water supply for Karachi; recreation; and scientific research.
34	1,321	<b>Hadero Lake</b> A natural brackish lake, between Haleji lake and Kinjhar site. Depth 1.7m and no outlet. Bedrock of limestone and sandstone.	State-owned.	Fishing; excavation of stone for construction.



Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
35	1,704	<p><b>Haleji Lake</b></p> <p>A perennial freshwater lake with marshes and adjacent brackish water lagoons. Bedrock of limestone and sandstone. Water storage reservoir for water supply to Karachi. Maximum depth 5-6m; pH=6.5-8.0</p>	State-owned.	Limited amount of fishing; some cultivation and grazing.
36	27,219	<p><b>Hub (Habb) Dam</b></p> <p>A large fresh water reservoir constructed in 1981, on arid plains north of Karachi. It rises in the Kirthar Range east of Baluchistan and enters the Arabian Sea. Maximum depth 46m.</p>	State-owned.	Fishing; drinking water supply; irrigation.
37	2,700	<p><b>Siranda Lake</b></p> <p>A shallow brackish lagoon near the coast northwest of Karachi, separated from Sonmiani bay to the west by a series of sand dunes. Lagoon is fed by runoff and possible seepage through dunes.</p>	No information.	No information.
38	60,000	<p><b>Miani Hor</b></p> <p>A large shallow sea bay and estuarine system with several low-lying islands and extensive mangrove swamps and intertidal mudflats, separated from the adjacent Sonmiani Bay by a broad peninsula of sand dunes.</p>	No information.	No information.
39	2,000	<p><b>Hawkes Bay/Sandspit Beaches and adjacent Creeks</b></p> <p>A gently sloping beach with open sandy offshore approaches nearly 20 km. long on the Arabian Sea. Beach platform is high enough for high tides in all seasons.</p>	State-owned.	Recreation; fishing.

Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
40	8 km.	<b>Clifton Beach</b> A long sandy beach with adjacent tidal mudflats and sand dunes south of Karachi.	State-owned.	Recreation.
41	48,386	<b>Korangi and Gharo Creeks</b> A complex of large tidal creeks with extensive mangrove swamps and intertidal mudflats, south of Karachi. Its no longer hydrologically connected to Indus delta. pH= 7.7-7.8	Creeks are state owned under Port Qasim Authority; surroundings privately owned.	Grazing; cutting of mangroves; water for industry.
42	300,000	<b>Outer Indus Delta</b> A vast complex of tidal river channels and creeks, low lying sandy islands, mangrove swamps and intertidal mudflats stretching over 150 km. along the edge of Indus Delta.	State-owned.	Grazing; fishing; agriculture
43	1,296	<b>Bund Khushdil Khan</b> A water storage reservoir with fringing reed-beds and small islands, in an inland drainage basin in the hills of northern Baluchistan. Reservoir was constructed 50 years ago to provide water for irrigation purposes. Avg. depth 2-3 m.	State-owned.	Irrigation; recreation; grazing; agriculture.
44	2,070	<b>Zangi Nawar Lake</b> A shallow brackish, eutrophic lake and marshes surrounded by windblown sand dunes. Desolate region.	State-owned.	Illegal hunting;
45	50 plus	<b>Akara Dam</b> A small water storage reservoir fed by a seasonal river in the hills to the north.	State-owned.	Drinking water supply to Gwadar.

Map Location	Area (ha)	Title / Description	Land Tenure	Land Use
46	unknown	<b>Dasht Kaur</b> A few km from the Iranian border in the lower reaches and estuarine system of Dasht Kaur. Some areas are mangroves swamps adjacent to the coast.	No information.	No information.
47	13 km.	<b>Pasni Bay</b> The rocky shores, sandy beaches and intertidal mudflats of Pasni Bay extend from Ras Jaddi headland and east for 13 km. 1-2 km. of rocky shoreline. 8 km. of sandy beach with shallow bays.	No information.	No information.
48	600	<b>Astola (Haft Tallar) Island</b> A small uninhabited island 6 km. in length. Island lies 25 km. south of desert coast of southern Baluchistan, and is the only significant offshore island along the Arabian Sea coast.	State-owned.	Temporary base for fisherman.
49	251	<b>Kandar Dam</b> A small water storage reservoir.	No information.	No information.
50	263	<b>Kheshki Reservoir</b> A small water storage reservoir with some fringing reed-beds on the Kabul River. There is a boat club on the lake.	Private-owned.	Recreational boating.
51	220	<b>Kallar Kahar Lake</b> A small brackish lake in the Salt Range. Carp has been introduced.	Dept. of Tourism.	Recreational boating.
52	19	<b>Lagh Lake</b> Formerly a freshwater lake fed by surplus water from surrounding rice paddies. Now the lake is completely overgrown with Typha and is being drained for agriculture.	State-owned	None at the moment.

SCIENTIFIC AND TECHNICAL RESOURCES

1. LIST OF PUBLICATIONS

The first publication in this list contains a fairly comprehensive bibliography on environment and related issues. Publications covered by it, except for a few very important ones, are not listed below. The rest of the publications are arranged chronologically.

Pakistan's Environment: A historical perspective and selected bibliography with annotations

Edited by Khawar Humtaz

Published by JRC - IUCN, Pakistan, 1989 (IUCN library, Karachi)

This volume contains a fairly comprehensive and annotated bibliography of selected published and some unpublished material on various aspects of Pakistan's environment and related issues.

The 6th five year plan 1983-88

Planning Commission, Government of Pakistan

The plan is expressed in terms of programmes of development for various sectors, regions and sections of society and not so much in terms of GNP growth rate, saving and investment targets as in terms of benefits for the ordinary people. It is divided in four parts under the following heads. 1) basic economic framework; 2) maintaining the growth momentum; 3) strengthening the diminishing infrastructure; 4) investment in human resource development; 5) cultural heritage; 6) plan and the people; and 7) statistical profile of planned development.

Pakistan: Environmental Rehabilitation, Protection and Management

Reconnaissance Mission Report, IBRD, 1985 (IUCN library, Karachi)

The report describes the World Bank mission's assessment of the environmental status of Pakistan's rural areas, particularly the non-irrigated and upland areas, outlining the major issues which it considers require urgent attention. Its main focus is on government institutional arrangements and their capacity to manage the environment.

Environmental Statistics of Pakistan 1986

Federal Bureau of Statistics, Government of Pakistan

The report contains statistics on natural resources, energy, land, human settlements and pollution. Each section is preceded by an introduction with the environmental issues related to it.

Inventory of NGOs in katchi abadis of Karachi: Area based  
UNICEF, 1986 (available with UNICEF, Karachi)

Listing of grassroots organisations with the services offered in various katchi abadis of Karachi.

Nature of Pakistan: A Guide to Conservation and Development Issues

Edited by Mark Carwardine

Published by Conservation for Development Centre, IUCN, Geneva, 1986 (IUCN library, Karachi)

Articles on various aspects of Pakistan's environment, describing the major features and issues, and outlining the geographical and historical context. Presented in a popular style, with many illustrations and photographs, it is intended to reach a wide audience, and act as educational/informational material in support of the National Conservation Strategy.

Towards a National Conservation Strategy for Pakistan: Proceedings of the Pakistan Workshop, August 1986

EUAD, GOP; CIDA and IUCN (IUCN library, Karachi)

Report of the 1986 workshop held in Islamabad to introduce and discuss the concepts of the National Conservation Strategy. Contains a description of the World Conservation Strategy and its goals; and the aims of the National Conservation Strategy. The remainder of the volume contains the conference papers prepared on the state of the environment in various sectors.

Environmental Profile of Pakistan

EUAD, Government of Pakistan, 1987

Summarizes the current state of Pakistan's environment, setting it in its historical, physical and geographical context. Contains many useful references and a list of relevant legislation, as well as the complete text of the 1983 Environmental Protection Ordinance.

Development Cooperation Report (annual)

UNDP (available with UNDP office, Islamabad)

Produced annually by UNDP's Pakistan office, the DCR gives a comprehensive year-wise inventory of donor programmes and projects. It provides an overview of donor-assisted development in Pakistan and profiles of all major bilateral and multilateral donors.

Environmental Management Project for Sindh, Pakistan

Sindh Environment Protection Board/Industries and Mineral Development Department, Government of Sindh, 1988

The report contains a general description of the province of Sindh and its environmental problems and outlines a strategy for dealing with them.

**Environmental Pollution: The City and its Problems**

Editor: H.M. Nizami,  
Institute of Environmental Studies, University of Karachi, and  
Karachi Development Authority, no date (KDA library, Karachi)

A summary of available data and information on various types of pollution in and around Karachi. Contains bibliography of published material on the subject.

**National Resources Expertise Profile**

IUCN/CDC, 1988 (IUCN library, Karachi)

A country study of expertise available for planning and implementing environmentally-sound development strategies, policies and projects. The report contains detailed listings of government ministries and departments, and a comprehensive listing of individuals and organisations which can provide expertise in various fields.

**Inventory of NGOs in the katchi abadis of Karachi: Service based**

UNICEF, 1988 (available with UNICEF office, Karachi)

A listing of grassroot organisations in the various katchi abadis of Karachi according to their field of service.

**Report of the National Commission on Agriculture**

Ministry of Food and Agriculture, Government of Pakistan,  
March 1988

A review of the agriculture sector for the period 1960-87 assessing the achievements and inadequacies affecting the sector's performance, followed by comprehensive recommendations on agricultural strategies, policies and programmes for the period 1988-2000.

The report explores the potential, resource base, social development, rural institutions, policies, provincial priorities, and investment related to the agricultural sector. It contains a considerable amount of environment-related material.

**7th Five Year Plan 1988-93 and Perspective Plan 1988-2003**

Planning Commission, Government of Pakistan

After reviewing the previous 5 year plan, this document describes the perspective plan 1988-2003 with emphasis on greater self-reliance and better distribution of economic benefits. Subjects covered are key policy areas, production plan, physical infrastructure, social and intellectual infrastructure; the discussion relates directly to development, specially in rural areas.

**Short list of government agencies and NGOs involved in social development programmes for women in Sindh**

UNICEF/Sindh Women's Division Cell/SRPO, 1988  
(available with UNICEF office, Karachi)

**Case study on Management of River Basins: The Kalabagh Dam**

Edited by Dr. Junaid Ahmed and Syed Ali Ahmed

Paper read at the IUCN India Pakistan Conference on the Environment, Lahore, 1989

The paper examines the background of the Kalabagh Dam Project and the environmental repercussions if it is implemented.

**Pakistan: Proposed Environmental Protection and Resource Conservation Project. Identification Report**

IBRD, 1989 (EUAD library, Islamabad)

A follow-up to the 1985 World Bank mission report, proposing specific interventions and projects designed to rehabilitate degraded environments in various parts of Pakistan.

**Present status of marine environment of Karachi - A review of existing data and literature search**

Prepared by National Institute of oceanography for the Karachi Development Authority, 1989 (NIO library, Karachi)

An assessment of the coastal environment of Karachi and the Indus delta, prepared as part of the planning and design of recreational facilities and coastal development projects to be implemented by KDA. Contains a detailed bibliography of publications on the subject.

**NCS: A Sectoral Study of the Industrial Sector**

NCS/NHS, 1989

The study, commissioned by the NCS, assesses the current and potential environmental impact of the industrial sector in Pakistan. In addition, it deals with the interaction of this sector with competing users, and explores the question of sustainability. The report ends with a number of recommendations.

**National Housing Policy for Pakistan**

EUAD, 1989 Government of Pakistan

This is a policy statement by the government related to housing. The policy guidelines relate to land, materials of construction, standards, manpower training, research, institution building and legislation. The document also deals with environmental issues related to housing both in the urban and rural context.

**NCS Prescriptive Report on Research and Technology**

National Management Consultants

NCS Secretariat, EUAD, GOP, 1989

A consultancy report which describes and evaluates the current state of science and technology research in the public sector, and its relevance to the environment. Includes a detailed listing of research organisations and their activities, as well as a number of profiles of important organisations.

**An assessment of Kalabagh Dam Project on the River Indus, Pakistan**

by Dr. Nasir Gazdar, 1990 (published by EHS, Karachi)

The work is aimed at evaluating the Kalabagh Dam Project using sustainability as a key criterion. The author in his analysis recommends alternatives which include water resource management instead of water development, construction of mini-dams and barrages and electricity generators from canal headworks.

**National Conservation Strategy Documents (in 8 Chapters)**

NCS Secretariat, EUAD/GOP, 1990 (IUCN library, Karachi)

Outlines the NCS, describing the state of Pakistan's environment; strategies and modes of implementation.

**Water Sector Investment Planning Study: National Investment Plan**

Federal Planning Cell, Lahore/WAPDA, Government of Pakistan, 1990

The report outlines the problems of water resource management in Pakistan and related issues and develops strategies to deal with them in the decade 1990 to 2000. A number of important environmental issues such as waterlogging, salinity, silting up of the components of the irrigation system are examined in detail.

**The Pakistan National Report to UNCED**

EUAD, GOP, August 1991

**NGOs and Pakistan's National Conservation Strategy**

IUCN, June 1992

**NGOs Working for Others**

UNDP/SPO, 1991

**Implementation Design for the NCS for Pakistan**

IUCN/EUAD/NCS, January 1992

**2. ANNOTATED LIST OF PERIODICALS**

In addition to the periodicals listed below, a number of NGOs and projects produce regular reports on their work and newsletters in Urdu. These publications are listed with the Organisational Profiles of these organisations in C-4, Part II of this report.

**The Aga Khan Health Services** (quarterly)

Published by the AKHS (Pakistan)

Editor: Nasir Pirani

Reports on the various projects of the Aga Khan Health Services and usually publishes interviews of personalities involved in the AKHS projects.



**CEMB News** (quarterly)

Published by the Centre of Excellence in Marine Biology,  
University of Karachi

Editor: Dr. N.M. Tirmizi

**ENERCON: Energy Conservation News** (quarterly)

Published by ENERCON, Islamabad

Editor: Dr. Sabir Mahmood

In addition to news on the activities and programmes of ENERCON, it contains articles on issues pertaining to energy and its conservation.

**EPA bulletin** (monthly)

Published by the Environmental Protection Agency, Punjab

Editors: Wajahat A. Bajwa and Mian Sanaullah

The bulletin provides news on the EPA's activities and on environmental hazards. It also contains a section on seminars and workshops held on environmental issues and cuttings from the local press regarding the environment.

**Indus** (quarterly)

Published by WAPDA

Editors: Razi-ud-Din Shaikh and Fauzia Rafique Kiran

In addition to a news section on WAPDA's activities, Indus carries articles on WAPDA's projects and subjects related to water and power.

**National Building Research Institute** (quarterly)

Published by the NBRI, Islamabad

Editors: Dr. A. Maher and Nadir Mansoor

The newsletter reports on the activities of the Institute.

**National Conservation Strategy (NCS) Bulletin** (bi-monthly)

Published by the IUCN, Pakistan

Editors: Saneeya Hussain and Dhunmai Cowasjee

The bulletin publishes articles and news related to various aspects of the environment in Pakistan. It carries reports on the work and activities of the NCS.

**National Institute of Oceanography: Newsletter**

(no fixed frequency)

Published by the NIO, Karachi

Editor: Dr. G.S. Quraishee

Contains local studies related to the marine environment. It also has a section on the activities of the NIO.

**Nature** (quarterly)  
Published by the WWF (Pakistan)  
Editor: Tanya Shaikh

Besides a small section on WWF activities and related news, the major part of this newsletter is devoted to informative and, at times investigative articles.

**Pakistan Agriculture** (monthly)  
Published by Economist Publishers (Pvt.) Ltd., Karachi  
Editor: M. Fasihuzzaman Qureshi

A popular magazine for promoting awareness among the general public.

**Pakistan Development Review** (quarterly)  
Published by the Pakistan Institute of Development Economics, Islamabad  
Editor: Syed Nawab Haider Naqvi

It contains articles and papers on development economics from all over the world. It has a special section on book reviews.

**Pakistan Economic Indicators**  
Economic Advisor to Government of Pakistan

Concise information on all economic activities in Pakistan and their statistics.

**Pakistan Journal of Agricultural Research** (quarterly)  
Published by the Pakistan Agricultural Research Council, Islamabad  
Editor: Dr. H.H. Qazi

A pure research magazine, started as 'Agriculture Pakistan' in 1949 by Food and Agriculture Council. It changed its name in 1979. It contains research papers and news on agricultural production in Pakistan.

**Pakistan Journal of Agricultural Sciences** (bi-annual)  
Published by the Pakistan Agricultural Research Council, Islamabad  
Editor: Malik Mushtaq Ahmad

Covers a wide spectrum of problems in agriculture and rural life.

**Pakistan Journal of Applied Economics** (bi-annual)  
Published by the Applied Economics Research Centre, Karachi  
Editors: Shahid Zahid and S. Akbar Zaidi

Contains original research work related to the field of applied economics. It also has a separate section of book reviews.

**Pakistan Economic and Social Review** (bi-annual)  
Published by the Department of Economics, University of Punjab

Editor: Rafiq Ahmad

Deals with economic and social problems in Pakistan and other developing nations.

Pakistan Journal of Zoology (quarterly)

Published by the Zoological Society of Pakistan

Editor: Muzaffar Ahmad

Journal of Educational Research (six monthly)

Published by the Pakistan Organisation of Workers in Educational Research

Editor: Dr. Azhar Rizvi

Contains articles on education at many levels; formal schooling, personal training, research etc.

Sind Journal of Agricultural Research (annual)

Published by the Agricultural Research Institute, Tando Jam (Sindh)

Editor: S. Ahmad Pasha Jagirdar and Mohammad Umer Makhdoom

Only four issues 1981-1984 available.

Pakistan Journal of Scientific and Industrial Research (monthly)

Published by: PCSIR

Executive editor: Azmat Ali Khan

Contains original research papers on a wide range of biological and physical sciences and their application.

Pegham (bi-monthly journal in Urdu)

Published by the Pak-German IRDP, Hardan.

Editors: Syed Mumtaz Hussain and Mohammad Karim Khan

Highlights the activities of the agency and reports on development projects taking place in and around the area of Hardan. It also aims to create wider awareness among the local population about development issues.

PCSIR Bulletin (bi-monthly newsletter)

Compiled and issued by Director, Scientific Information Centre, PCSIR.

It highlights the activities and contains news on the research undertaken by PCSIR.

Research in Water Resources (quarterly)

Published by the Pakistan Council of Research in Water Resources, Islamabad

Editor: Syed Naseer Gillani

A newsletter reporting on the activities and work of the PCRWR.

### RNP Newsletter

Published by the RNP, Islamabad  
Coordinator : Khatidja Hussein

Provides information on activities of institutions which come under the umbrella of the Regional Network Programme (RNP).

### Sahil (no fixed frequency - 3 issues have appeared in the past 3 years)

Published by the NIO, Karachi  
Editorial Board: Dr. G.S. Quraishee, Abul Farah, Sulman Hashmi.

Sahil is the journal of the NIO and publishes research papers and news related to oceanography.

### SANGO (quarterly)

Published by SANGO (South Asian Association of NGOs), Islamabad

This publication provides information on SANGO's member countries and NGOs and highlights their activities. It also contains news on NGO activity and related issues from foreign journals. Also see NGO profiles.

### SHADAB (bi-monthly)

Published by the Rural Development Foundation, Islamabad

A compilation of activities of RDF and news related to rural development.

### Space Horizons (quarterly)

Published by SUPARCO, Karachi  
Editor: Ch. Ahmed Nasim Sandilvi

Contains research reports by the scientists of SUPARCO and news about space related issues.

### SUPARCO Times (quarterly)

Published by SUPARCO, Karachi  
Editor: Ch. Ahmed Nasim Sandilvi

Reports on the activities and special projects of SUPARCO.

### Weekly Environment

Published by the Pollution Control Society of Sindh, Karachi  
Editor: Mansoor Zaidi

This is the newsletter of the PCSS and contains news related to activity in this field.

## 3. AUDIO-VISUAL MATERIALS

There is very little audio-visual material available on environmental issues. The following list contains two types of documentation. The first is videos or other films produced for

general public viewing. The second category is of films or other material produced by or for NGOs describing their work, for presentation to selected viewers.

### 3.1 Films for general public viewing

Guardians of the coast: produced by Shirkat Gah, Karachi.

A 45 minute video film on the mangroves off Karachi's coast, describing their ecology and the effect of mangrove depletion on the fish population. Available with the IUCN.

Wildlife of Sind: produced by Sind Wildlife Management Board.

This video film describes the life and habitat of some of the endangered wildlife species of Sind, including sea turtles. It also deals with the wildlife in Kirthar National Park near Karachi. Available with the WWF, Pakistan.

Wildlife of Pakistan: produced by Pakistan Television (PTV):

A 45 minute video film on Pakistan's wildlife and its habitat.

Katchi abadis: produced by David Hover and Hafeez Arain

This video describes why and how squatter settlements develop in Karachi and the problems that their residents face. It also examines the HDA's Incremental Housing Scheme as an alternative strategy to the development of informal settlements. Available with David Hover, 131 Rue de Clignancourt, 75018, Paris

Crane hunters of Pakistan: produced by Public Broadcasting Service, USA

A 16 mm film on the hunting of the Siberian Crane in the NWFP.

### 3.2 Audio-visual material on NGO work

Valleys in Transition: produced by the AKF

This video film describes the philosophy of the AKRSP and the problems of agricultural production in the Northern Areas of Pakistan. Available with the AKF.

First Harvest: produced by the Aga Khan Foundation.

This video film describes the location and some of the results of the work done by the Aga Khan Rural Support Programme in the Northern Areas. Available with the AKF.

The Low-Cost Sanitation Programme of the OPP: produced by the Orangi Pilot Project. It describes the Low-Cost Sanitation Programme of the OPP. Available with the OPP.

The Orangi Pilot Project: produced by the Economic Policy Research Unit (EPRU) of the World Bank.

This video film describes the work of the OPP and its effect on the communities living in Orangi. Available with the OPP and the EPRU.

Women of Orangi: Video film produced by OPP for UNESCAP.

This video film deals with the role of women in the economic life

and development of the squatter settlements in Orangi. Available with the OPP.

**Pakistan's environment:** produced by the SRWCO

This video consists of a lecture in Urdu on various aspects of Pakistan's environment. The lecture was delivered at a workshop on training for trainers in Karachi arranged by the SRWCO. Available with the SRWCO.

#### **4. SOURCES OF STATISTICAL INFORMATION**

##### **4.1 Federal Bureau of Statistics**

Statistics Division, Government of Pakistan

##### **a) Regular publications**

- Pakistan Statistical Year Book: This year book is published annually and contains data on climate, population, labour force, agriculture, manufacturing, energy, mining, communications, various aspects of finance and financial institutions, cooperatives, health, education, trade, foreign economic and technical assistance and development planning. The statistics are presented province-wise and are also given as urban/rural breakups.
- Statistical Pocket Book of Pakistan: published annually, it contains statistical data on physical, economic and social sector aspects of the country.
- Monthly Statistical Bulletin
- Pakistan's Key Economic Indicators (monthly)
- Census of Manufacturing Industries (annually)
- Census of Mining Industries (annually)
- Census of Electricity Undertakings (annually)

##### **b) Ad hoc publications**

A short list of:

- Survey of Mechanised Road Transport
- Environmental Statistics of Pakistan
- Social Indicators of Pakistan
- National Health Survey
- Labour Force Survey
- Population Growth Survey

- Survey on Use of Fertilisers

#### **4.2 Provincial Bureaus of Statistics**

Located with the Planning and Development Departments of the Provincial Governments at Peshawar, Lahore, Quetta and Karachi.

##### **a) Regular publications**

- Development Statistics: published annually, this book is similar to the Pakistan Statistical Year Book produced by the FBS but at a provincial level.
- Statistical Pocket Book: published annually, this book is similar to the Statistical Pocket Book of Pakistan produced by the FBS but at a provincial level.
- Agricultural Statistics (annually)
- Crop Acreage Statistics (annually)
- Census of Manufacturing Industries: published annually, this census also reproduces a monthly survey of industrial production and employment in the provinces.
- Educational Statistics (annually)

##### **b) Ad hoc publications**

A short list of:

- Statistics of Hospitals and Dispensaries
- Agricultural Financing
- Motor Vehicles Statistics
- Population Statistics
- Surveys of Urban Settlements
- Basic Facts (regarding the provinces)
- Comparative Statistics (provincial and federal)
- Statistical Handbook on Development
- Surveys of Human Rural Settlements

#### **4.3 Population Census Organisation**

last census took place in 1981. The census reports contain complete demographic data for different age groups including literacy, migration, labour force, languages etc. The reports are produced for three levels: national, provincial and district.

#### b) Housing Census

The housing census is also supposed to take place once in 10 years. The last census took place in 1980. In addition to house types and construction categories it also deals with tenure and infrastructure statistics.

#### 4.4 Agriculture Census Organisation

Ministry of Agriculture and Works, Government of Pakistan

The organisation carries out and publishes the Pakistan Census of Agriculture once a decade, as well as periodic ad-hoc surveys related to agriculture, such as the Pakistan Census of Livestock.

#### 4.5 Department of Stationery and Forms

Federal Publication Branch, Cabinet Division, Islamabad

The department publishes all statistical information available with the government of Pakistan along with new legislation, notifications and procedural changes. A list of its publications is published annually.

### 5. SOURCES OF INFORMATION AND EXPERTISE: ORGANISATIONAL PROFILES

#### 5.1 University-based research organisations

##### APPLIED ECONOMICS RESEARCH CENTRE (AERC)

University of Karachi

Karachi

Year of formation: 1973

Nature of organisation: Semi-government

Funding sources: University Grants Commission and through contracts for research.

Objectives:

Research, teaching, faculty training.

Activities:

- Teaching M.Phil. candidates
- Contract research for international agencies and government departments.
- Core research: projects concerned with issues in the areas of human resources, agriculture, public finance, develop-



ment, planning, industry etc.

**Resource persons:**

Dr. Hafeez Pasha, Director  
Research staff specialising in various areas of economics

**Publications:**

- Pakistan Journal of Applied Economics, bi-monthly journal
- List of research work is provided in brochure.

**Seminars/workshops/conferences:**

Regular research seminars where the methodology and results of research being undertaken in the Centre are presented and discussed.

**CENTRE OF EXCELLENCE IN MARINE BIOLOGY**

University of Karachi  
Karachi

**Year of formation :** 1973

**Nature of organisation:** Government academic institution

**Funding:** Government of Pakistan and international agencies (through UGC).

**Objectives:**

- To arrange goal-oriented high-level teaching and research
- To train research workers
- To establish M. Phil., Ph.D. and other programmes in marine biology

**Activities:**

Research on marine organisms, including the effects of pesticide and heavy metal pollution on the marine environment.  
Linkages with Pakistan Research Council, Pakistan Science Foundation, Karachi Nuclear Power Plant and Port Qasim Authority on research projects.

**Resource persons:**

Dr. Nasima H. Tirmizi	D. Phil (Oxon) and D. Sc. (Karachi)	Marine Zoology
Dr. Muzammil Ahmed	Ph. D (Wash)	Marine Fisheries
Dr. S.H. Shamul Hoda	Ph. D (Japan)	Fisheries Science
Dr. Sardar Alam Siddiqui	Ph. D (UK)	Chemical Oceanography

**Publications:**

- Quarterly news bulletin started in Jan. 1990
- List of research papers, reports available.

**Seminars/workshops/conferences:**

- 1978: A Training Course in Biological Oceanography sponsored by UNESCO
- 1982: In-Service orientation course in Marine Biology
- 1986: Co-sponsored an international conference on Marine Science of the Arabian Sea at Karachi

**DEPARTMENT OF ARCHITECTURE AND PLANNING**

Dawood College of Engineering and Technology  
H.A. Jinnah Road, Karachi

**Year of formation:** Department of Architecture was formed in 1972 and upgraded to a faculty in 1986

**Nature of organisation:** Semi-government academic institution

**Funding:** Government of Pakistan, Aga Khan Trust for Culture (project-based)

**Objectives:**

- To produce socially responsive architects and planners
- To create an awareness in future professionals of the linkages between architecture and social, political, economic and cultural issues

**Activities:**

- Formal education for professionals
- Social and development research related to the built environment

**Resource persons:**

Prof. Kausar Bashir Ahmad, Dean  
Prof. Amin Sheikh, Chairman  
Prof. Asif Nawaz, Co-chairman

**Publications:**

- Ammar - student magazine (annual)
- Intermittent newsletters
- Comprehensive Environmental Design course reports and theses by students (available on request from DCET)

**Seminars, workshops, conferences:**

1984: Images - an exhibition of students work during IAP-Expo

1990: Architectural Conservation Workshop supported by AKTC and Getty Grant programme

**Future plan:**

To set up an Urban Design master's programme under the DC-AKF with the advice of the Aga Khan visiting professor. With the DC-AKF resources, enhance the library and encourage independent research programmes.

**DEPARTMENT OF COMMUNITY HEALTH SCIENCES**

Aga Khan University, Stadium Road, Karachi

**Nature of organisation:** Private academic institution

**Funding sources:** Project-based donor funds

**Objectives:**

To train young people for leadership in addressing the health problems of the people of Pakistan, particularly those of the more deprived population through primary health approach.

To contribute to improvements in the health services of Pakistan particularly the development of prototypes of health services that are effective and affordable.

**Activities:**

Major activities of the CHS which relate to the above objectives:

Faculty career development  
Community health services  
Review of medical curriculum  
Urban primary health-care field sites  
Community-led primary health care  
Improving health services in a rural district  
Northern Areas primary health care programmes  
Community health centre  
Front line hospitals  
Data management and information systems  
Health policy related programmes  
Community relationships  
Interactions: AKU partners - School of Nursing; departments of paediatrics and medicine; Aga Khan Health Service of Pakistan  
Research

**Resource persons:**

Kauser S.K. Senior Instructor, Sociologist, Development Specialist. Has been with the AKU-CHS for the past five years.

**Publications:**

- RNP (Regional Network Programme) Newsletter
- AKHS (Aga Khan Health Services) International newsletter - Quarterly
- Monthly field reports
- Annual reports

**Seminars/workshops/conferences:**

Regular seminars by field-related people. List of presentations and publications are given in the annual report.

**DEPARTMENT OF FORESTRY, RANGE MANAGEMENT AND WILDLIFE**

Agricultural University, Faisalabad

**Nature of organisation:** Semi-government academic institution

**Funding:** University Grants Commission

**Activities:**

As a teaching and research department at the Agricultural University, the Department of Forestry has conducted a number of applied projects in forestry, and some in range management and conservation of birds in Punjab.

**Resource persons:**

Dr. Masood Akhtar Qureshi Chairman, Department of Forestry

**HUMAN ENVIRONMENT CELL (HEC)**

Agricultural University, Faisalabad, Punjab

**Nature of organisation:** Semi-government academic institution

**Funding:** University Grants Commission.

**Objectives:**

To promote agricultural education and research.

**Activities:**

Research on food, water and air pollution in Faisalabad city and surrounding areas.

**Resource persons:**

Dr. Afzal Illahi  
Dean, Faculty of Basic Sciences

**Publications:**

List of publications available, mostly dealing with incidence and effects of agro-chemical residues.

**Future plan:** Evaluation of air pollution in Faisalabad

**INSTITUTE OF ENVIRONMENTAL ENGINEERING AND RESEARCH**  
NED University of Engineering and Technology, Karachi

**Year of formation:** 1986

**Nature of organisation:** Semi-government, academic institution

**Funding:** NED University, Government of Pakistan

**Objectives:**

- To study environment, pollution and ecosystems.
- To produce trained environmental engineers and scientists.
- To advise agencies in charge of environmental management.

**Activities:**

Post-graduate programme leading to M.Sc. in Environmental Engineering Field projects

**Resource persons:**

Prof. Dr. Iqbal Ali  
Associate Prof. Dr. Waseem Akhtar  
Assistant Prof. Javed Aziz Khan

**Publications:**

List of M.Sc. thesis/research studies available from the Institute on request.

**Seminars, workshops, conferences:**

1987: Seminar on Pollution, Karachi

**Future plans:**

- To run refresher courses for practising engineers.
- To tackle environmental problems through indigenous research
- To have its own administrative and academic buildings and well-equipped labs on the NED Campus.
- In addition to present engineering programme, to start full-time day programme in M.Sc. environmental engineering.

## PUBLIC HEALTH ENGINEERING DEPARTMENT (PHED)

University of Engineering and Technology, Lahore

Year of formation: 1963

Nature of organisation: Semi-government academic institution

Funding: University Grants Commission

Objectives:

- To impart education in engineering fields.
- To engage in high-level teaching and applied research.

Activities:

Some applied research is carried out but the main emphasis is on teaching.

Resource persons:

Dr. Nawaz Tariq

Prof. K.H. Zia

Publications: Not available

## 5.2 Government research organisations

### ARID ZONE RESEARCH INSTITUTE (AZRI)

Regional Directorates at Sehwan, Khairpur, Mirpurkhas and a hydrogeological wing at Hyderabad

Nature of organisation: Government research organisation

Funding: Government

Objectives:

The Arid Zone Research Institute was established

- to create a national research capability with a network of four research stations (Arid Zone Research Institute at Quetta, and three sub-stations at D.I. Khan, Bahawalpur and Umarnot) to tackle the problems of the arid areas and develop techniques for the best land-use in the arid regions of Pakistan;
- to identify problems in the management of crops, livestock, rangeland and in the socio-economic sector in arid zones;
- to collect and analyse the statistical data for arid areas;
- to conduct research aimed at finding solutions to those problems.

**Activities:**

- The Institute undertakes research on problems peculiar to arid and semi-arid regions. This research relates to crop production, rangeland development, development of water resources and animal production. The findings of this research are to be disseminated for the benefit of farmers in the arid region through relevant provincial organisations.
- The Institute functions from its headquarters in Quetta and three other research stations. These are in D.I. Khan (NWFP), Bahawalpur (Punjab) and Umarnot (Sindh).

**ENERCON (NATIONAL ENERGY CONSERVATION CENTRE)**

5th Floor, Buland Markaz, 33 Blue Area, Islamabad

**Year of formation:** 1986

**Nature of organisation:** Semi-government, established under the Ministry of Planning & Development, Government of Pakistan in association with USAID. Other collaborating organisations: FPCCI, KCCI, LCCI, WAPDA, KESC, PEC.

**Funding:** Government of Pakistan and USAID

**Objectives:**

To provide training and information on energy conservation.  
To carry out special studies and demonstration projects to promote a better understanding of energy conservation practices.

**Activities:**

Creating awareness of the need for energy conservation  
Technical services  
Information and outreach services  
Education and training  
Promotion campaigns

**Resource persons:**

Dr. Sabir Mahmud, Chief, Programme Implementation.  
Expertise in petrochemicals. Has vast experience of teaching and working in industry. Prior to joining ENERCON, he worked for the Attock Refinery.

**Publications:**

Quarterly Newsletter  
Information and publicity brochures  
Manuals from workshop proceedings  
Technical and evaluative reports  
Guide books (details available at ENERCON)

**Seminars, workshops, conferences:**

- 1986: Industrial Energy Survey
- 1987: Improving Boiler Operating Efficiency
- 1987: Energy Efficiency in Steam Distribution Systems
- 1988: Energy Measurement and Instrumentation
- 1988: Improving Energy Efficiency in Electrical Systems
- 1988: Waste Heat Recovery
- 1989: Boiler Water Treatment
- 1989: Co-generation
- 1989: Energy Conservation Management

**Future plans:**

To draw up nationwide codes and standards for efficient use of energy.

**NATIONAL INSTITUTE OF OCEANOGRAPHY (NIO)**

65-A, Seaview Township, Defence Housing Society, Karachi  
Sub office: 37-K, Block 6, P.E.C.H.S. Karachi

**Year of formation:** 1981

**Nature of organisation:** Government research and development institution established under the Ministry of Science and Technology.

**Funding:** Government, and international sources for collaborative research.

**Objectives:**

NIO was established to conduct research in marine sciences and in areas relating to commercial and naval shipping. Its aim is also to conduct oceanographic studies for exploitation of resources and their conservation.

**Activities:**

- Research on physical, chemical and biological oceanography and on marine geology and geophysics
- Coastal hydraulics, marine technology and coastal zone management

**Resource persons:**

Mr. Niaz Rizvi, Principal Scientific Officer.  
Has done Post-graduate study in marine pollution chemistry and M. Phil. in Marine Biology. He has been associated with NIO since 1981. He has supervised and undertaken many research projects related to the marine environment.



**Publications:**

- Sahil - a journal
- NIO News Bulletin

**Seminars, workshops, conferences:**

- 1982: Workshop on Marine Sciences in Pakistan, Karachi
- 1985: US-Pakistan Oceanographic Training Programme, Karachi
- 1985: Symposium on Marine Resources of Pakistan and their economic potential
- 1986: Symposium on Ocean Engineering, Karachi
- 1986: ECO (Economic Cooperation Organisation, Pakistan, Iran, Turkey) meeting, Karachi

International Symposium on Geology and Geophysics of North Arabian Sea, Karachi

- 1987: International Symposium on Living Resources of the Arabian Sea, Karachi
- 1990: Ocean Resources Conference, Karachi

**PAKISTAN ACADEMY OF RURAL DEVELOPMENT (PARD)**

Peshawar

Year of formation: 1957

Nature of organisation: Government of Pakistan, administered by the Establishment Division

**Objectives:**

- In-service training in rural development for government administrators
- Research in rural development

**Activities:**

- Training programmes in various subjects related to agriculture
- Research studies and social surveys
- Organizing conventions, workshops, seminars, conferences
- Collaborative ventures with international organisations: UNESCO, UNICEF, FAO, AIT (Bangkok), CIRDAP (Dhaka)

**Publications:**

- Quarterly journal
- Monthly newsletter, "News and Views"
- Research monographs and reports

Seminars/workshops/conferences: Several held; details available from PARD

## PAKISTAN AGRICULTURAL RESEARCH COUNCIL (PARC)

Plot No. 20, G-5/1, Islamabad

**Year of formation:** 1981

**Nature of organisation:** Administered by the Agricultural Research Division of the Federal Ministry of Food, Agriculture and Cooperatives.

**Funding:** Government of Pakistan and international funding including CIDA, World Bank, USAID, ADB, IDRC, Swiss government and Italian government (project-based).

### **Objectives:**

To strengthen Pakistan's agricultural research system by setting up its own research establishments in order to promote agricultural development.

### **Activities:**

The major centre for agricultural research in Pakistan, it has access to considerable expertise in a number of areas, including agriculture, forestry and fisheries and is active in pure and applied research. Concern for environmental issues at the policy-making level has yet to be incorporated into the implementation of PARC programmes.

PARC is responsible for a number of research stations around the country conducting specialized research, as well as for the National Agricultural Research Centre in Islamabad.

### **Resource persons:**

Dr. Hanif Qazi, Member Crop Sciences, has demonstrated interest in environmental issues; has expertise in plant genetics, particularly, and in fodder crops and grasses.

Mr. Mirza Ashraf, Director Forestry and Environment, has worked for Punjab Forestry Department since the 1960s, and for the past 5 years has been deputed to PARC.

### **Publications:**

- Pakistan Journal of Agricultural Research - quarterly
- Pakistan Journal of Agricultural Social Sciences: bi-monthly
- Progressive Farming: bi-monthly
- PARC News - monthly
- PARC Annual Reports
- PARC Activities Bulletin - weekly
- Proceedings of seminars and workshops
- Brochures
- Leaflets and manuals in English and Urdu
- Bulletins

**Seminars, workshops, conference:**

PARC frequently holds seminars etc. The workshops and seminars of each year are listed in the annual reports.

**Future plans:** PARC is developing mechanisms to link extension with research.

**PAKISTAN COUNCIL FOR RESEARCH IN WATER RESOURCES (PCRWR)**

House No. 4, Street 41, F-6/1, Islamabad

**Year of formation:** 1964

**Nature of organisation:** Initially the Irrigation, Drainage and Flood Control Research Council, later reorganised to grant it a more autonomous character under the Ministry of Science and Technology.

**Funding:** Government of Pakistan, UNESCO, UNEP, WHO, US-NCF on collaborative research.

**Objectives:**

To undertake and promote research activities in fields related to water resources and set up national research establishments.

To give financial and technical support to universities and other research institutions.

To collect, disseminate and utilize information and research results.

To establish scientific liaison with other related national and international organisations.

**Activities:**

Main area of study includes many issues closely related to the environment:

Waterlogging and salinity

Deforestation and desertification

Policy planning for water resources management

Drainage and reclamation

Major project activities include: participation in the Irrigation Systems Management Research Project, with the responsibility for conducting research on management of the irrigation system. The Council has an environmental division which has a programme for monitoring the quality of water supplies, both irrigation and domestic, throughout Pakistan. The desertification unit monitors desertification resulting from over-grazing, soil erosion, waterlogging and salinity. As a research organisation, PCRWR has conducted studies on the social aspects of water use for irrigation and small dams. However, it does not appear to have any extension activities linking it to farmers and other water

users.

**Resource persons:**

Syed Naseer Ahmed Gillani, Secretary PCRWR

**Publications:**

- A quarterly newsletter
- A half-yearly periodical
- A bi-annual bulletin

Monographs, manuals, bibliographies and brochures related to water resources. (Details available from PCRWR Public Relations Department).

**Seminars, workshops, conferences:**

**Workshops:**

- 1975: Tile and Ditch Drainage with Dutch System
- 1976: Methodology of Transit Drain Spacing Determination
- 1977: Field studies in Tile Drainage
- 1986: Arid Land Development and Desertification Control with PARC and USAID

**Seminars and Conferences:**

- 1975: Waterlogging and Salinity (with University of Engineering and Technology, Lahore)
- 1983: Water Management (with Centre of Excellence in Water Resource Engineering, Lahore)
- 1984: Regional Hydrological Mapping Conference (with UNESCO and WAPDA)

**Courses:**

- 1976: Methods of Stream Flow forecasting
- 1983: Field Irrigation Practices

**Future plans:**

**Projects in the following fields:**

- Water and salinity programme
- Water resources management
- Drainage systems
- Socio-economic and institutional projects
- Water resources development and management outside the Indus plains
- Environmental projects
- Hydrological analysis

**PAKISTAN COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH (PCSIR)**  
Press Centre, 2nd Floor, Shahrah-e-Attaturk, Karachi

**Year of formation:** 1953

**Nature of organisation:** Government, under Ministry of Science and Technology

**Funding:** Government of Pakistan

**Objectives:**

The largest non-academic research organisation in Pakistan dealing with the applied resources and development of industrial technologies.

**Activities:**

A wide range of activities including research in rural technology, solar energy, fuel science and technology, environment and pollution. It is also responsible for developing standards for measurement of quality in water and food for human consumption.

**Resource persons:**

Dr. Mirza Arshad Ali Beg, Director-General. His specialisation is inorganic chemistry, environmental pollution assessment and control, ageing and plant processes, appropriate technologies development.

Dr. Mohammad Hanif Chaudhry, Principal Scientific Officer, environmental pollution group, PCSIR (Lahore).

**Publications and seminars, workshops, conferences:**

Numerous publications and seminars etc. List of publications and seminars etc. available from PCSIR on request

**Future plan:** Trend of research is shifting towards environmental problems.

**PAKISTAN SPACE & UPPER ATMOSPHERE RESEARCH COMMISSION (SUPARCO)**  
43/1-P/6, P.E.C.H. Society, Karachi

**Year of formation:** 1961

**Nature of organisation:** Research organisation under Government of Pakistan

**Funding sources:** Government of Pakistan

**Objectives:**

Broadly involved in atmosphere and atmospheric research, SUPARCO works in the field of:

- Neutral atmosphere research
- Spheric and radiowave propagation research
- Remote sensing applications for survey of natural resources and environment
- Fabrication of scientific rockets and their payloads
- Development of instrumentation for reception of satellite data
- Operation of satellite ground stations
- Position mapping of ground locations
- Atmospheric pollution monitoring
- Geomagnetic field measurements
- Domestic communication satellite systems

**Activities:**

Research and field projects related to above objectives; linkage with University of Karachi, University of Punjab, International Council of Scientific Unions, International Astronautical Federation and International Union for Conservation of Nature and Natural Resources.

**Publications:**

- Space Horizons - Quarterly
- SUPARCO Times - Quarterly

**Seminars/workshops/conferences:**

- 1989: - UN/IOMAC workshop on Oceanographic/Marine Space Information System hosted by SUPARCO at Karachi
- Symposium on Remote Sensing Applications for Resource Development and Environmental Management; at SUPARCO, Karachi, cosponsored by ESCAP/UNDP

**Future plans: Atmospheric pollution studies**

Measurements of ozone and total suspended particles for:

- identification of emission sources
- understanding of atmospheric chemistry
- understanding of diurnal and seasonal variations
- assessing effects on regional meteorology
- devising air pollution control techniques

Pollution monitoring using Lidar (laser radar) techniques; SUPARCO is in the process of acquiring a laser radar to determine the presence as well as relative magnitude of the atmospheric pollutants.

### **5.3 Government departments**

#### **AGRICULTURE CENSUS ORGANISATION**

Statistics Division, Government of Pakistan  
Lahore

**Year of formation:** 1958

**Nature of organisation:** Government of Pakistan

**Funding:** Government of Pakistan, sale of reports

#### **Objectives:**

- To develop basic information on the structure of agriculture in the country
- To provide detailed basic information about the agricultural resources of the country, state of their utilization, and the degree of acceptability of modern farming practices among the farming community, for the purpose of regional, provincial and national development planning and research in the field of agriculture.
- To fulfil data needs of international agencies like FAO in order to enable formulation of international policies on food and raw materials.

#### **Activities:**

Carries out census of agriculture; conducts surveys on use of farm machinery, livestock etc.

#### **Publications:**

- Census of agriculture every 10 years
- Farm machinery survey report
- Livestock census

#### **ENVIRONMENTAL PROTECTION AGENCY (EPA)**

Government of Punjab  
Lahore

**Year of formation:** 1987

**Nature of organisation:** Government of Punjab

#### **Funding:**

Government of Pakistan; international agencies like World Bank, ADB, WHO, USAID have also been approached for providing financial and technical assistance.

**Activities:**

The EPA is working on establishing a system to survey pollution and pollution generators, creating an inventory of pollution sources, and developing a system for monitoring and surveillance of pollution. It is helping the federal government in preparing national pollution control standards, and advising the Pakistan Environmental Protection Agency (PEPA) on environmental legislation. The EPA also places stress on public education and awareness of environmental issues.

Basic data on about 17,000 industrial units has been collected for analysis. Public education and awareness on environmental issues is given priority. EPA Punjab has recommended environmental quality standards for industrial gaseous emission and liquid industrial effluents.

**Resource persons:**

Mr. Ashraf Shaikh, Director General  
Mr. Hussarat Beg, Director Coordination

**Publications:**

- Brief on Environmental Protection Agency, Punjab
- Pamphlet in Urdu 'Mahol ki Aalodgy' (Environmental Pollution)

**Seminars, workshops, conferences:**

Seminar/lectures on pollution in January 1990 at Environmental Protection Agency, Punjab.

**Future plan:**

Subject to the approval and arrangements for technical and financial assistance, the following projects are planned for future execution:

- Public education and awareness programme for environmental protection with World Bank assistance for a period of five years.
- Environmental pollution survey and control programme in Punjab for a period of three years.

**ENVIRONMENT AND URBAN AFFAIRS DIVISION (EUAD)**

"B" Block, Pakistan Secretariat and Shaheed-i-Millat Secretariat  
Islamabad

Phone: 81 33 73

**Nature of organisation:** Federal government

**Funding:** Government of Pakistan



**Objectives:**

To formulate and supervise government policy on urban and environmental issues and to carry out necessary research for this purpose.

**Activities:**

Research into urban and environmental issues, formulation of policies such as NCS, housing policy, coastal management plan etc and the holding of conferences and workshops and the framing of legislation. For fulfilling these objectives the division coordinates with various international agencies such as the UNEP, UNCHS, SACEP and the World Bank.

**Resource persons:**

Iftikhar Ahmed, Project Manager, Human Settlements Wing  
Ayub Qutub, Coordinator for the NCS

**Publications:**

A large number of publications on the environment have been produced by the EUAD.

**MASTER PLAN DEPARTMENT (MPD)**

Karachi Development Authority (KDA)  
Civic Centre, Gulshan-e-Iqbal, Karachi

Year of formation: 1957

**Nature of organisation:**

Government of Sindh under the Physical Planning and Housing Department

**Funding:**

Grant-in-aid from World Bank and federal and provincial governments, service charges, deposits from government and other agencies, sale of developed land.

**Objectives:**

Planning and development of Karachi

**Activities:**

- Preparation of Karachi master plan and monitoring its implementation
- Preparation of detailed plans for all development schemes

**Resource persons:**

Islamuddin Siddiqui, Deputy Director, MP&EC  
Shahab Afroze Alvi, Asstt. Director

**Publications:**

- Annual reports
- Special brochures to commemorate significant events
- Publications on historic buildings
- Project documents  
(List available on request)

**Seminars, workshops, conferences:**

Many seminars and symposia organised by the various departments related to land management, housing, traffic engineering and management, urban infrastructure and planning, and related issues.

**NATIONAL CONSERVATION STRATEGY (NCS)**

Room 405, NCS Secretariat  
Shaheed-e-Millat Secretariat, Blue Area  
Islamabad

Year of formation: 1988

**Nature of organisation:**

Secretariat set up under an agreement between Government of Pakistan and the International Union for Conservation of Nature and Natural Resources (IUCN) in the Environment and Urban Affairs Division of the Ministry of Housing and Works.

Funding: CIDA (through IUCN) and Government of Pakistan

**Objectives:**

- Maintaining essential ecological processes
- Preserving bio-diversity
- Ensuring sustainable utilisation of species
- Approaching sustainable economic development
- Enhancing yields
- Reducing population growth
- Approaching the sustainable city

**Activities:**

The NCS has taken final shape after a process of identification and analysis of the major environmental issues in Pakistan. The NCS process has gone through the following stages:

- A process of economic activities and their collective impact on the environment.

- Preparation of draft sector reports.
- Review of sector reports in 4 provincial workshops attended by planners, administrators, NGOs and citizens groups.
- Preparation of prescriptive reports, leading to a second draft of the strategy.
- Testing of selected aspects of the prescriptive reports at village meetings and through demonstration projects.
- Preparation of final draft for presentation to government for implementation.

It is now in the process of implementation.

**NATIONAL COUNCIL FOR THE CONSERVATION OF WILDLIFE**

Bungalow No. 485, Street 84, G-6/4  
Islamabad

**Year of formation:** 1975

**Nature of organisation:** Government, under Ministry of Food and Agriculture

**Funding:** Government of Pakistan

**Objectives:**

- To formulate appropriate policies for the conservation of wildlife
- To coordinate the implementation of these policies by the provincial and local governments
- To liaise with relevant agencies and NGOs for conservation of wildlife.
- To advise ministries and government departments

**PAKISTAN FOREST INSTITUTE (PFI)**

Peshawar

**Nature of organisation:** Government

**Funding:** Government and international donor agencies for special projects

**Objectives:**

To promote afforestation through research and extension

**Activities:**

- Research
- Extension
- Training of government officials, community activists and NGO staff
- Special pilot projects related to field research, watershed management and social forestry

PFI's activities are supervised by a director-general and directors for the following divisions:

- Biological Sciences Research
- Forestry Research
- Education
- Forest Product
- Forest Management and Range Research
- Watershed Management

**Resource persons:**

Dr. Bashir Shah, Director Watershed Management

Dr. A.R. Baig, Forest Botanist and Ecologist

**Publications:**

- Forestry journal
- Annual progress reports
- Research publications: a comprehensive list is available with the PFI

**Seminars/workshops/conferences:**

PFI has held numerous seminars, workshops and conferences. The proceedings of these have been published by the Institute and are available from its office.

**SIND ARID ZONE DEVELOPMENT AUTHORITY (SAZDA)**

2nd Floor, Shafi Court, Herewether Road, Karachi

**Year of formation:** 1983

**Funding:** Government and international agencies for special projects

**Objectives:**

- To meet the basic minimum needs of the maximum number of people in the Sind Arid Zones
- To provide income generating activities
- To raise the human and animal capacity of the region

**Activities:**

**Research, extension, training and community involvement for:**

- preparation of master plan and carrying out of various studies in different fields;
- exploration of ground water resources;
- construction of check dams and small dams for conservation of rain water for irrigation purposes;
- promotion of crops on saline water;
- development of livestock farms;

- establishment of veterinary services;
- creation of health service network;
- construction of network of roads;
- provision of electricity through grid stations and solar energy plants;
- setting up of cottage industry;
- development of forests on saline water;
- training of personnel in different disciplines;
- visits of senior officials of SAZDA to the developed Arid Zones of the world e.g. in USA, Australia, Kenya, India and China, etc.

#### SIND WILDLIFE MANAGEMENT BOARD

Sind Centre, Strachan Road, Karachi

**Nature of organisation:** Government of Sind, under Wildlife and Forest Department

#### **Objectives:**

To undertake the management and control of wildlife in Sind, including the Kirthar National Park, game services and wildlife sanctuaries.

#### **Activities:**

- Wildlife conservation project in Kirthar National Park
- Ecological study of Indus dolphin
- Research and development of wetlands and wildlife sanctuaries
- Introduction of pheasants, crocodile and gaviel in Sind
- Collaborative projects like IUCN/WWF for protection of marine turtle and Indus dolphin

**Resource persons:** Ibrar Mirza, Conservator

#### **Publications:**

SWMB has produced brochures, information material, posters, calendars and TV films. It also has some research publications. Details available from SWMB

#### **Seminars/workshops/conferences:**

Participation in numerous events.

### **5.4 Government/community projects**

#### KALAM INTEGRATED DEVELOPMENT PROJECT (KIDP)

P.O. Box 2, Saidu Sharif, NWFP

**Year of formation:** 1981 - 1982

**Nature of organisation:** Project under the Government of Pakistan

**Funding:** Government of Pakistan and Government of Switzerland

**Objectives:**

To improve the socio-economic condition of the population through forestry, agriculture and local infrastructure, taking into consideration the ecological sustainability of all measures and activities.

**Activities:**

**Forestry Development Programme:**

Introduces and promotes improved forest management practices; increases awareness of the local people with regard to the multiple use of forests and the necessity to adopt forest protection measures.

**Agriculture Programme:**

Propagates crop rotation, contributes to the improvement of seed, plants and treatment of crops, mediates input supply, supports in marketing. It backs these by research and extension services.

**Village Development Programme:**

Strengthening people's organisational ability to engage in commercial sector without foreign assistance.

**Resource persons:**

Dr. Hermann Warth, Chief Technical Advisor

**Seminars/workshops/conferences:**

- Village meetings.
- Formal meetings involving local leaders and government representatives.

**HALAKAND SOCIAL FORESTRY PROJECT**

Post Box No. 9, Saidu Sharif, Swat, NWFP

**Year of formation:** 1987

**Nature of organisation:** Project of Forest Department, Government of NWFP

**Funding:** Government of Netherlands and Government of Pakistan through Special Development Programme.

**Objectives:**

Improvement of productivity of hillsides in the Malakand Agency through active involvement of local communities.

**Resource persons:**

Mohammad Rafiq, Project Director  
R.P. Mulder, Chief Technical Advisor

**Publications:**

- Quarterly progress reports
- Technical papers
- Working papers

**Seminars/workshops/conferences:**

Dec. 1989: Social Forestry Seminar, Peshawar

**PAK-GERMAN IRDP**

P.O. Box 61, Charsadda Road  
Mardan (NWFP)

Year of formation: 1984

Nature of organisation: Community-based governmental organisation

**Funding:**

Government of Federal Republic of Germany through GTZ and Government of NWFP through LG & RDD.

**Objectives:**

To improve the socio-economic condition of barani areas in Mardan district.

**Activities:**

Encourage community participation and self-help organisation.

**Resource persons:**

Nisar Mohammad Khan, Senior Programme Officer

**Publications:**

- Paigham (Urdu) bi-monthly publication
- Manuals
- Activity reports of village institutes supported by this organisation.

#### **Seminars/workshops/conferences:**

- Planning workshops
- Regular bi-monthly conference, Mardan

#### **Future plans:**

Village/local development planning and implementation in '72 villages.

### **5.5 Environmental NGOS**

#### **CITIZENS FOR A BETTER ENVIRONMENT 'SHEHRI'**

206-G, Block II, P.E.C.H.S., Karachi

Year of formation: 1988

Nature of organisation: NGO

Funding: Fredrich Naumann Stiftung, West Germany

#### **Objectives:**

- To work as a public pressure and lobbying group.
- To raise awareness amongst the public and the policy-makers about these issues through various media.
- To actively fight the process of the destruction of our environment through all available channels.

#### **Activities:**

No research project undertaken as yet but Shehri is keen to participate in, as well as conduct research work on environmental issues especially given that it is well-endowed with committees and concerned research specialists and professionals.

#### **ENVIRONMENT CONSERVATION FORUM (ECF)**

# 39, Khan Street, Hujahidabad  
Lahore

Contact person: Shahid Hameed Khan.

#### **ENVIRONMENTAL MANAGEMENT SOCIETY (EMS)**

141, Sindhi Muslim Housing Society, Karachi

Year of formation: 1971

Nature of organisation:

NGO, registered under Cooperative Societies Act (1860)



**Funding:** Membership fees, donations, publication sales

**Objectives:**

To create environmental awareness

**Activities:**

Has carried out environmental impact assessments; linkages with rural development.

**Resource persons:**

Mohammad Arif, engineer

Dr. M. N. Gazdar, environmental planner

**Publications:**

- PAK ENVIRON - Quarterly
- 4 books on environment and development

**Seminars/workshops/conferences:**

22 April 1990 "Earthday" held at Silawate School, Karachi

**ENVIRONMENTAL PROTECTION SOCIETY OF PAKISTAN (EPSP)**

C/o, Hassan & Hassan (Advocates)

PAAF Building, 7-D, Kashmir Egerton Road, Lahore

**Year of formation:** 1989

**Nature of organisation:** NGO

**Funding:** Membership fees

**Objectives:**

- To promote awareness of environmental issues through the media and educational institutes
- To coordinate environmental policies and programmes nationally and internationally
- To participate in all activities which advocate the protection of environment

**Activities:**

EPSP is filing a writ petition on behalf of the Margallah Hills Society regarding the degradation and the illegal use of the Margallah Hills National Park, Islamabad.

**Resource persons:**

Dr. Parvez Hassan, Advocate

**Seminars/workshops/conferences:**

Co-sponsored "Earth Day Seminar", Lahore, 22 April 1990  
Held a seminar on "Environment Day 1990"

**INTERNATIONAL IRRIGATION MANAGEMENT INSTITUTE (IIMI)**

1-B, Danapur Road, GOR 1, Lahore

**Year of formation:** 1986

**Nature of organisation:**

International NGO, with headquarters in Colombo, Sri Lanka

**Funding:** IFAD, AKF, USAID, Government of Netherlands

**Objectives:**

To enhance national capability and improve performance of irrigation system through improved management. This includes the study of problems; training and special tools and programmes for irrigation management.

**Activities:**

Largely research; action-oriented, applied and operational demonstration and trials. Linkages with government through provincial Irrigation Departments; also with NGOs, Water Users Associations, public and private research institutions.

**Resource persons:**

Dr. Vandervelde - Geographer specialising in farmer-managed irrigation systems  
Dr. J.W. Kijne - specialising in waterlogging and salinity; management solutions

**Publications:**

Annual reports  
Research reports (List available at IIMI)

**Seminars/workshops/conferences:**

1986 : Social Science Perspectives on Managing Agricultural Technology (with Rockefeller Foundation)  
1986 : Workshop on Irrigation and Vector-borne Disease Transmission (with FAO,WHO,UNDP)  
(Proceedings available from IIMI)

**Future plans:**

Studies on secondary distributaries; ground and surface water interactions; management interventions to minimise waterlogging

and salinity.

**INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL  
RESOURCES (IUCN)**

1, Bath Island Road, Karachi - 75530

**Year of formation:** 1987

**Nature of organisation:** NGO, (country office of IUCN Geneva)

**Funding:**

Project based: NORAD, World Bank, Dutch, CIDA, PANOS, AKF, USA-NPS, SDC.

**Objectives:**

- To assist government and NGOs in developing, funding and monitoring environmental and development projects.
- Identify areas of environmental stress/critical importance to the country and suggest concerned agency or NGO to preempt a crisis or rehabilitate a degraded environment.
- Establish networks for the conservation of the environment.

**Activities:**

- Policy:  
National Conservation Strategy
- Area Strategies:  
Korangi/Phitti Creek Coastal Zone Management, Sind;  
Integrated Management of Ziarat Juniper Forest, Baluchistan;  
Improved Management of Khunjerab National Park, Northern Areas  
Village and community level conservation:
  - AKRSP - IUCN Forestry Programme, Northern Areas
  - OPP Social Forestry, Karachi
- Training and Institution Building:
  - Pak Wildlife Institute (prospective)
  - National Environmental Institute (prospective)
  - EIA workshops
  - Training course for women foresters

**Environmental awareness:**

- Journalists Resource Centre for the Environment
- Pakistan Environmental Education Programme

**Resource persons:**

Aban Marker Kabraji, Country Representative

**JOURNALISTS RESOURCE CENTRE FOR THE ENVIRONMENT (JRC)**

1, Bath Island Road, Karachi - 75530

**Year of formation:** 1988

**Nature of organisation:** NGO (documentation centre)

**Funding:** CIDA through IUCN.

**Objectives:**

To collect and disseminate environmental data/information to local and foreign media and to the public at large.

**Activities:**

- Communications outlet for the NCS.
- Maintains a library of books, journals and reports on environment and development
- News clipping service
- Slides, video films and educational material.

**Resource persons:**

Saneeya Hussain, Director

**Publications:**

NCS Bulletin, a bi-monthly newsletter.

**Seminars/workshops/conferences:**

Participation in workshops as listed for IUCN and NCS.

**Future plans:**

To expand its facilities and services, as the first documentation centre specifically in the area of environment and development.

**KARACHI GREEN SOCIETY**

C/o, Mahmood Fateh Ali  
Gulshan-i-Iqbal, Karachi

**Activities:**

Tree plantations and water pumping through wind mills.

**KARACHI ADMINISTRATIVE WOMENS WELFARE SOCIETY**

C-32, Block 2, K.E.C.H. Society, Karachi-75350

**Resource prson:**

Mr. Safina Siddique

**MARGALLA HILLS SOCIETY**

C/o, Mr. Roedad Khan  
House No. 7, Street 2, F-7/2  
Islamabad

The Margalla Hills Society is a community-based lobbying group which aims to protect and conserve the habitat and wildlife of the Margalla National Park near Islamabad.

**PAKISTAN ENVIRONMENTAL PROTECTION FOUNDATION (PEPF)**

House No. 63, Street 2, Defence Officer's Colony  
Khyber Road, Peshawar Cantt., Peshawar

**Year of formation:**

1989 (Registered as public limited company with Government of Pakistan, Peshawar in 1990)

**Nature of organisation:**

NGO with government functionaries as technical members and associate members from the communities.

**Objectives:**

Create mass awareness of environmental problems and arrange for protective measures in coordination with concerned agencies.

**Activities:**

- Research and field projects in determining air and water pollution conducted by members of the foundation who are scientists from the department of Chemistry, Peshawar University and PCSIR, Peshawar, and Centre of Applied Economics Studies.  
Reforestation by local societies associated with PEPF and active collaboration of Forest Department.

**Resource persons:**

Engineer Shah Narung Khan (Ex. Chairman WAPDA)  
Dr. G.M. Khattak (Ex. D.G. Forest Institute and  
Vice Chancellor Agricultural University)

**Publications:** Under process.

**Seminars/workshops/conferences:**

- May 1990: PEPF conference under chairmanship of Chief Minister, NWFP
- June 1990: "World Environment Day" under chairmanship of Governor NWFP

**Future plans:**

- Mass recruitment at grassroot levels to establish branches / chapters to protect the environment
- Deputing members to study abroad in this field
- Identify experts to study, plan and execute projects to counter pollution
- Coordinate with agencies at home and abroad to join in the world-wide crusade in exploring the prospects for sustainable human development without adversely affecting the environment.

**PAKISTAN FORUM OF ENVIRONMENTAL JOURNALISTS**

5, Temple Road, Lahore

Year of formation: 1987

Nature of organisation:

NGO (set up in response to ESCAP regional initiative, as member of Asian Forum of Environmental Journalists)

Funding: Self-generated from members

Objectives:

To promote awareness of environmental issues among policy-makers and public, through the media.

Activities:

- Investigation of urban environmental issues
- Highlighting natural resource depletion
- Maintaining files of clippings on environment

Resource persons: I.A. Rahman

**SOCIETY FOR THE CONSERVATION AND PROTECTION OF ENVIRONMENT**

17/7 (Office Towers) Rimpa Plaza

M.A. Jinnah Road, Karachi

Year of formation: 1986

Nature of organisation: NGO, Registered under the Societies Act 1860

Funding: Contribution of members

Objectives:

- To generate general awareness about environment among the public
- To provide clean drinking water to poor communities through

- water purification units
- Cooperation with governmental agencies in implementation of pollution control projects
- To establish an environmental research institute

**Activities:**

- Research: Pollution impact on air and water quality.
- Field projects: Installation of drinking water treatment plants for community, solid waste management, water and air pollution monitoring.

**Resource persons:**

Tanveer Arif, President

**Publications:** Under process

**Seminars/workshops/conferences:**

March 26, 1990 : Environmental problems and remedies.

April 22, 1990 : Causes and effects of air pollution in Karachi.  
Drinking water and health problems.

**Future plans:** To seek funding sources to implement projects.

**WORLD WILDLIFE FUND, PAKISTAN (WWF)**

P.O. Box 5180, Model Town  
Lahore

The WWF(P) is the Pakistan branch of the international wildlife NGO. It acts mainly as a fund-raising, information-dissemination and awareness-raising organisation in Pakistan. It works alongside its sister organisation, IUCN, on many projects.

**5.6 Consultants**

A comprehensive list of consultants, along with their field of expertise, is given in Natural Resources Expertise profile 1988 published by the IUCN, Pakistan.

**5.7 NGOs working on related issues**

**ADULT BASIC EDUCATION SOCIETY (ABES)**

P.O. Box 18, Civil Lines, Daska Road  
Gujranwala

**Year of formation:** 1947 (but officially registered in 1972)

**Nature of organisation:** NGO

**Funding:**

- Membership fees
- Sale of reading and teaching materials
- Project-based aid from international donors
- NGO Coordinating Council, Karachi
- PVNHA, Karachi
- Community participation and contributions

**Objectives:**

- To promote adult education through implementation of pilot projects and creation of centres for illiterates and neo-literates; teaching basic literacy and functional subjects through non-formal education.
- To develop methods, teaching materials and literature for adult education.
- To train suitable persons to engage in the leadership of adult education activities and to supervise them in their work.
- To do research in significant areas of adult education and to evaluate projects according to their objectives and results.
- To assist other agencies concerned with the development of adult education as requested and within the limitations of budget and staff provisions.

**Activities:**

- 95% of the Society's work for adult illiterates (66% women and 34% male) is in rural areas.
- Under the community development programme, an agriculture extension programme has been established which arranges demonstrations of new techniques, seed and materials with the participation of local farmers. Last year ABES introduced celery seed with the cooperation of ADB.
- Income-generating programmes for women.
- Adult functional literacy projects.
- Ethnic non-formal education programme.
- Family planning programmes.
- Follow up literacy programmes.

**Resource persons:**

Vincent David, Director Adult Basic Education Society

**Publications:**

Educational material. List available with ABES



**AGA KHAN FOUNDATION (AKF) PAKISTAN**  
2nd Floor, Jubilee Insurance House  
I.I. Chundrigar Road, P.O. Box 10104  
Karachi

**Year of formation:** 1969

**Nature of organisation:** Funding agency

**Funding:**

CIDA, AAID, SAP, OXFAM, ODA, USAID, Dutch government, CEC, AKF (Canada, USA and UK) and local assistance.

**Objectives:**

To promote social development in low-income countries by funding programmes in health, education and rural development which are innovative in their approach and address selected generic problems.

**Activities:**

**Health:**

- Health manpower reorientation programme
- Northern Areas primary health care programme
- Iodized salt project
- Iodinated oil programme

**Education:**

- Teachers Resource Centre (Karachi)
- Orangi Education Unit (Karachi)
- Field-based teacher development programme (Northern Areas and Chitral, NWFP)
- Self Help School Construction Programme (Northern Areas and Chitral, NWFP)
- School Improvement Programme
- Rural Development and Income Generation:
- Aga Khan Rural Support Programme (Northern Areas and Chitral, NWFP)
- Community Basic Services Programme (Northern Areas and Chitral, NWFP)
- Living Conditions Improvement Programme (Northern Areas and Chitral, NWFP)
- Orangi Pilot Project, Karachi (funding and technical support)

#### **AGA KHAN NGO SUPPORT PROJECT**

involved in giving support to urban communities in Karachi's low income settlements for environmental sanitation.

**Resource person:** Qadeer Baig

**AGA KHAN RURAL SUPPORT PROGRAMME (AKRSP)**

Babar Road, Gilgit (Northern Areas)

Year of formation: 1982

Nature of organisation: Non-profit private limited company

**Funding:**

AKF, CIDA, Government of Netherlands, ODA, Konrad Adenauer Foundation, NORAD (through IUCN), Government of Pakistan

**Activities:**

- Motivation and support for village-level social organisation
- Training of village activists
- Extension of new agricultural inputs and technologies to farmers
- Credit programme
- Training of rural development practitioners from government and non-government organisations
- On-farm research and trials in agriculture and forestry
- Grants and technical support for construction of village-level physical infrastructure

**Resource persons:**

Shoaib Sultan Khan : General Manager  
Hussain Wali Khan : Dy. General Manager  
Management Group : specialists in various fields

Shoaib Sultan Khan is an internationally-recognized practitioner of rural development, with experience in Bangladesh, Sri Lanka and NWFP (Pakistan). His expertise is in institutional development and social organisation. He is also a member of the Pakistan Civil Service.

**Publications:**

Quarterly Progress Reports and Annual Reviews are produced. The Monitoring, Evaluation and Research (MER) section supplies a list of research and other publications on request.

**ANJUMAN BEHBOOD-I-NAUJAWANAN GUNYAR**

P.O. Gunyar Via Thana, Malakand Division, NWFP

Year of formation: 1985

Nature of organisation: Community-based NGO

**Funding:**

Membership fees, donations, occasional government and donor grants

**Objectives:**

- To organise the youth of Gunyar
- To provide welfare services to the community of Gunyar
- To protect and conserve the environmental resources of Gunyar

**Activities:**

Planting of saplings on mountain slopes above village, protection against grazing by livestock and felling.

**Resource persons:**

Dr. Hanif Qazi, Member Crop Science, PARC

**Publications:**

No publications by the Anjuman. A booklet describing the project has been produced by PARC: "Mountain Range Management: An integrated landuse model at Gunyar, Malakand"

**ANJUMAN-E-ITTEHAD NAUJAWANAN**

Nawa Killi, Quetta  
Balochistan

**Year of formation:** 1984

**Nature of organisation:** NGO

**Funding sources:**

Donations, membership fees, social welfare department etc.

**Objectives:**

Adult education, library, typing centre

**Activities:**

Construction of drainage channel

**Resource persons:**

Mohammad Hashim, advocate  
Mohammad Azam, student  
Raza Mohammad, teacher

**Seminars/workshops/conferences:**

Dec. 1988: 'Rural development' at Nasirabad

**ANJUMAN-E-ITTEHAD NAUJAWANAN-E-BANDAT**

Ziarat (Baluchistan)

No response to questionnaire. No information available.

**AURAT PUBLICATION AND INFORMATION SERVICE FOUNDATION**

4-A, LDA Garden View Apartments  
Lawrence Road, Lahore - 54000

**Contact person:**

Ms. Nigar Ahmad

**BABA ISLAND FISHERMEN'S WELFARE ASSOCIATION**

Baba Island, Karachi

A community organisation which has constructed a sanitation system, water supply system and a school; also lobbies for fishermen's rights.

**Contact person:** Mohammad Yousef Ismail

**BAANH BELI**

48/B, Block 6, P.E.C.H.S.  
Karachi

A rural development NGO working in Tharparkar, Sindh. Technical and funding support for community development and resource management projects.

**Contact persons:** Yunus Bandhani

**THE BOOK GROUP**

43/S, Block 6, P.E.C.H.S., Karachi

**Year of formation:** 1989

**Nature of organisation:** NGO

**Funding:** Canadian High Commission (for one year)

**Objectives:**

To produce good quality children's books along with teachers' training manuals.

**Activities:**

- Weekly meetings of the members
- Workshops for teachers on the usage of the books in schools

- as supplementary text material
- Upgrading of schools in low income areas

**Resource persons:**

Sami Mustafa

**Publications:** Over 15 books of children.

**Seminars/workshops/conferences:**

20 Oct. 1990: "Use of Story Books as Supplementary Text Material", 7 workshops at different schools in Karachi

**Future plans:**

To develop text books for various subjects along with publications of approximately 10 story books each year.

**FAMILY WELFARE COOPERATIVE SOCIETY (FWCS)**

Habiba Road, Islampura, Lahore

**CATHOLIC SOCIAL SERVICES (CSS)**

Above Limton Watch Co.  
Zaibunissa Street, Saddar  
Karachi

The CSS is involved in operating a loans programme for housing to low income communities in Karachi.

**PAKISTAN VOLUNTARY HEALTH AND NUTRITION ASSOCIATION (PVHNA)**

179-E, Block 2, P.E.C.H.S., Karachi  
Phone: 446709

PVHNA arranges the training of community workers in the field of health, nutrition and family planning.

**PAKISTAN INSTITUTE OF LABOUR EDUCATION AND RESEARCH (PILER)**

P.O. Box No. 8032, Karachi - 75400  
Bano Manzil, 765-C, Block 2, P.E.C.H.S., Karachi-75400

**Year of formation:** 1982

**Nature of organisation:** NGO

**Funding:** Various international agencies on a project basis

**Objectives:**

To increase the awareness and skills of the working class in Pakistan, especially with regard to their working conditions.

**Activities:**

- Research into the social, economic and legal problems of the working class in Pakistan.
- Running training workshops for trade union members and leadership on various aspects of the social, economic, political and physical environment in which they live and work.

**Resource persons:** Karamat Ali

**Publications:**

Small booklets on labour education and proceeding of training and awareness raising workshops.

**Seminars/workshops/conferences:**

PILER holds regular workshops for training and awareness raising. These are attended by trade unionists from all over Pakistan. The instructors are leading professionals, educationists or NGO leaders from various parts of the country.

**PAK-CANADIAN SMALL PROJECTS OFFICE (SPO)**

Rashid Plaza, 24-D, Blue Area, First Floor, Islamabad  
Phone: 820983

**Objectives:**

- SPO's objective is to support Pakistan's social sector, particularly with respect to education, health and population welfare, with special emphasis on women in development and development of rural areas.
- Aspects of the social sector targetted for assistance (emphasising projects that support women in development and/or rural areas) are:
  - Community health
  - Education and training
  - Population welfare
  - Water supply
  - Sanitation
  - Roads
  - Agricultural production and irrigation
  - Small enterprises for income generation
  - Technical assistance for credit and banking

**Activities:**

- The various functions of SPO are designed to assist both the

development of projects and the strengthening of the agencies that plan and run them. SPO's functions include: training programmes, processing funding requests, assistance in proposal preparation and planning, and conducting project follow-through activities.

SPO's training activity is aimed at developing skills and resources needed for effective management of NGO's and the successful implementation of projects.

Through workshops sponsored directly by SPO, or sponsored by other organisations with SPO participation, management training focuses on such topics as:

- Goal setting
- Fund raising
- Communication
- Organisational design
- Personnel management
- Financial administration

Topics which relate to project management include:

- Project planning
- Budget preparation
- Proposal writing
- Resource development
- Monitoring and evaluation
- Community relations

SPO's assistance to NGO projects can include technical training provided by external resources and may focus on, for example:

- Water supply
- Family planning
- Midwifery
- Nutrition
- Sanitation
- Irrigation

#### NATIONAL FARM GUIDE COUNCIL OF PAKISTAN

-C, 24, Jail Road, Lahore

Year of formation: 1966

Nature of organisation: NGO

Funding: Self-financing

Objectives:

Training and mobilization of rural youth for productive and purposeful activities.

Activities:

Research

Field projects

Linkage through field work camps and at individual level

**Resource persons:**

Dr. A. Rahim Chawdhry, Managing Director, Pakistan Seed Corporation Ltd. and Chairman of the National Farm Guide Council for Pakistan. He has experience in the field of agriculture and agro-technology.

**Publications:**

- Dehi Razakar - Urdu, fortnightly
- Farm Guide - Quarterly

**Seminars/workshops/conferences:**

Annual national rallies.

**ORANGI PILOT PROJECT (OPP)**

1-D/26 Daulat House, Orangi Town  
Karachi

**Year of formation:** 1980

**Nature of organisation:** NGO

**Funding:**

BCCI Foundation, NGOCC, Aga Khan Foundation, CEBEMO, SAAR Foundation, Government of Pakistan, IUCN, Swiss Development Corporation, Federal Bank of Cooperatives, Canadian Mission Fund

**Objectives:**

- Develop community organisations to undertake construction of physical infrastructure (e.g. sanitation) and respond to social sector projects initiated by the OPP, Government of Pakistan or other agencies.
- Develop alternative, replicable models for the physical and social upgrading of low income settlements through research and extension.
- Transform OPP into a training institution to disseminate the model to other agencies and organisations.

**Activities:**

- Research on the social and physical dynamics of low-income groups and settlements.
- Motivation and social organisation at the community level.
- Research and development of appropriate technology, and extension of this technology to community groups.
- Establishment of and support to small-scale family-based enterprises, including credit.
- Primary health care programme.
- Social forestry project.
- Training of professionals from organisations and academic



- institutions, national and international.
- Training of community activists in Orangi and other low income settlements in Pakistan.
  - Research into and development of environmental management techniques for urban villages.
  - Linkages with DCET, AKUH, AKRSP, Citi-net (UNESCAP), HIC, ACHR, and several community groups and NGOs in Pakistan.

#### Resource persons:

Akhtar Hameed Khan, secretary OPP Society and founder-director of OPP: an internationally-renowned development practitioner and academic with extensive rural development experience in Bangladesh and Pakistan, and teaching experience in India, Bangladesh, Pakistan and USA. Also a member of the Indian Civil Service.

#### Contact persons:

Arif Hasan: consultant to OPP

Perveen Rahman: architect and director of RTI

Ramzan Qureshi and Hafeez Arain: social organisers, Orangi-based, responsible for the development of numerous community groups in Orangi.

#### Publications:

1983-87: "Orangi", a monthly newsletter

1980-89: Director's Quarterly Progress Report, including financial details

1989- : Quarterly reports produced by each component of OPP Society

Bi-monthly newsletters produced by each component of the OPP Society

Numerous monographs, case studies, profiles of organisations and activists, extension materials, and maps of Orangi.

A list of publications is provided on request.

#### Future plan:

- Further replication of the OPP model to other low income settlements in Pakistan and Asia. Replication has been initiated in other areas of Karachi and in Quetta, Baluchistan.
- Incorporation of the OPP's approach into the government's planning mechanism for low-income settlements.

#### RURAL DEVELOPMENT FOUNDATION (RDF)

RDF Centre, Hauve Area, G-9/1

P.O. Box 1170, Islamabad

Year of formation: 1978

**Nature of organisation:** NGO (Societies Act XXI of 1860).

**Funding:**

Government of Pakistan, CIDA, UNHCR, Friedrich Naumann Foundation

**Objectives:**

To stimulate and promote activities aimed at improving the quality of life of rural people through training, research, organisation and development of human and material resources.

**Activities:**

RDF works as a facilitator and catalyst. It operates at both the micro and the macro levels. Some of its projects are:

- Women integrated training centre
- Saving scheme in focal villages
- Revolving fund for credit needs of small entrepreneurs
- Village 5-year plan

**Resource persons:**

Dr. M. Sadiq Malik, founder and executive president; graduate of Agricultural University, Faisalabad; served in the army for 25 years and then in the federal Ministry for Local Government and Rural Development for 10 years.

**Publications:**

Shadab, a bi-monthly publication

**Seminars/workshops/conferences:**

Village level meetings

**Seminars and Conferences:**

- Role of NGOs in Rural Development (with UNICEF and ILO)
- Cooperation in Rural Development to Alleviate Poverty (with FAO)
- Management Development of NGOs in South Asia
- Cooperation for Rural Development (with FNP, West Germany)

**SANGI DEVELOPMENT FOUNDATION (SDF)**

House No. 19-B, Street 69, F-8/4  
Islamabad

**Year of formation:** 1989

**Nature of organisation:** NGO non-profit development foundation

**Funding:**

Presently financed by Sangi's founding members and development committees

**Objectives:**

To meet the needs of the community as stated by it and involving the community directly in the preparation and implementation of policies and projects to mobilize collective strength and develop self-sustaining institutional structures.

**Activities**

- Community-based development projects
- Informal and adult education
- Income-generation opportunities for women and youth
- Basic health facilities
- Legal aid
- Gathering and dissemination of information
- Networking
- Prevention of environmental degradation
- Preparation of project proposals, organised by Sangi and sponsored by Small Project Office.

**Resource persons:**

Omer Asghar Khan, Chairperson, Economist

**Publications:**

- Half yearly activity report
- Research papers and reports

**SOUTH ASIA PARTNERSHIP (SAP)**

72-B, New Muslim Town, Lahore

Contact person: Mohammad Tahseen

**SUSTAINABLE DEVELOPMENT POLICY INSTITUTE**

C/o, IUCN, 1 Bath Island, Karachi

**SANGO (South Asian Association of NGOs)**

G-9/1, P.O. Box 1170

Islamabad

Year of formation: 1989

Nature of organisation: Non-profit association of NGOs from South Asia

**Funding:**

Membership fee, grants and donations, service charges and sale of publications

**Objectives:**

Provide forum for NGOs, inter-governmental agencies and governments of SAARC countries to exchange views and information.

**Activities:**

- Networking and information sharing
- Organizing workshops, seminars and technical exchange programmes
- Supporting member NGOs technically and financially

**Resource persons:**

Dr. M. Sadiq Malik, founder and executive president.

**Publications:**

SANGO, a quarterly publication

**SHEWA EDUCATIONAL SOCIAL WORKERS ASSOCIATION (SESWA)**

Village MPO Shewa, District Swabi, NWFP

Year of formation: 1986

Nature of organisation: NGO

**Funding:**

Membership fees, contributions, government and non-government agencies assistance

**Objectives:**

Overall social change, preparing new generation for new challenges.

**Activities:**

- Improving physical infrastructure and communication.
- Seeking the help of government and non-government organisations to improve the lot of farmers.
- Providing training to unskilled people.
- Library to provide literature and information.
- Educating people in the enhancement of environment and ecology.

**Publications:**

Future Strategy for Youth Development Organizations - a report.

**Seminars/workshops/conferences:**

- Participation in numerous local seminars held by various organisations
- SESWA workers have acted as master trainers in training workshops organised by Pak-German IRDP, Mardan

**Future plans:**

Extending services to the neighbouring areas, spreading education, development and environmental consciousness.

**SHIRKATGAH**

1, Bath Island Road

Karachi 75530

Branch office: 18-A, Mian Mir Road

P.O. Moghulpura, Lahore-15

**Year of formation:** 1976

**Nature of organisation:** NGO registered under the Societies Act XXI 1860.

**Funding:**

Funding is project based: NOVIB, CODE, UNICEF, IUCN, Salvation Army Canada, CIDA.

**Objectives:**

A women's collective that works to encourage, support and programme the participation of women in national development.

**Activities:**

- Promotes the development of women through economic and social programmes.
- Undertakes research activities, produces publications and runs a documentation centre in the form of a library.
- Acts as a pressure group on issues related to women.

**Publications:**

- Subha, a newsletter in Urdu.
- News sheet on Women Living Under Muslim Laws (WLUML) in Pakistan.
- Bibliography on "Women in Pakistan and Other Islamic Countries"
- Rehnumah Book Project
- Research papers

**Seminars/workshops/conferences:**

- 1985: NGO grassroots workshop (SAP/Canada)
- 1986: Health and Education
- 1986: Struggle for Food, Justice and Freedom (CAA)
- 1988: Women & Media Video workshop
- Regional workshop on Ethnic Conflict (PRIO)

**SINDH RURAL WORKERS COOPERATIVE ORGANISATION (SRWCO)**

**Year of formation:** 1978

**Nature of organisation:** Community-based NGO

**Funding sources:** Self-help from villagers

**Objectives:**

To eliminate deprivation of rural people.

**Activities:**

- Organising rural communities for development
- Organising workshops for awareness raising
- Small-scale village level infrastructure
- Promoting handpumps, smokeless stoves, latrines, and tree plantations in villages

**Resource persons:**

Munir Chandio

**Publications:**

Souvenirs and workshop reports, mostly published in Sindhi.

**Workshops/seminars/conferences:**

Several workshops have been held in rural areas (details available from SRWCO).

**TRUST FOR VOLUNTARY ORGANISATION**

Islamabad

**TEACHERS RESOURCE CENTRE**

Karachi

**URBAN RESOURCE CENTRE (URC)**

21, Darul Hana, Tayyabji Road, Karachi

**Year of formation:** 1990

**Nature of organisation:** NGO

**Funding:**

Foundation Van Der Rest, Belgium through Fr. Jorge Anzorena of SELAVIP.

**Objectives:**

- To promote interaction among professionals, communities, institutions and all concerned people.
- Develop awareness for individual and group action and initiatives with a view to promoting appropriate development models and policies.
- Promote research, documentation and monitoring of major urban areas.
- To provide a platform for information sharing and emphasis the value of information as a means to achieve the above objectives.

**Activities:**

URC arranges regular discussions on current urban issues. It is in the process of cataloguing books, reports and journals available on the development of Karachi.

**Resource persons:**

Kenneth Fernandes, Co-ordinator

**Future plans:**

- Collection, compiling and publishing of data pertinent to Karachi's urban environment, development and housing.
- Organise activities to meet the objectives of URC.

**5.8 Private sector commercial organisations**

**MARINE LIMITED**

2nd Floor, Dada Chambers, M.A. Jinnah Road, Karachi

**Activities:**

The organisation has been involved in manufacturing wind mills.

**SOLAR UTILITY NETWORK (SUN)**

43, Shahrah-i-Quaid-i-Azam, Lahore

**Activities:**

Marketing and manufacture of solar panels.