BANGLADESH

NATURAL RESOURCES EXPERTISE PROFILE

March 1988

Conservation for Development Centre
International Union for Conservation
of Nature and Natural Resources
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to CDC/IUCN
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NATURAL RESOURCES EXPERTISE PROFILES

Available:

1. Zimbabwe	(May 1984)
2. Kenya	(August 1984, revised January 1986)
3. Zambia	(August 1984)
4. Sri Lanka	(August 1985)
5. Tanzania	(December 1986)
6. Botswana	(June 1987)
7. Pakistan	(February 1988)
8. Bangladesh	(March 1988)

Forthcoming

- Caribbean
- Norway

March 1988
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The International Union for Conservation of Nature and Natural Resources (IUCN) is an independent, international conservation organisation. Its aim is to promote scientifically-based action directed towards the maintenance and sustainable use of living natural resources. Founded in 1940, it has 592 members in 126 countries, including 59 sovereign states, 125 government agencies, 357 national non-governmental organisations (NGOs), 30 international NGOs and 21 affiliates*. Its global network, in addition to the membership, comprises more than 3,000 scientists and other experts in all areas of conservation, participating in the work of IUCN Commissions and Centres.

March 1980 saw the launch of the **World Conservation Strategy**, prepared by IUCN with the advice, cooperation and financial assistance of the United Nations Environment Programme (UNEP) and the World Wide Fund for Nature (WWF), and in collaboration with the Food and Agriculture Organisation (FAO) and the United Nations Educational, Scientific and Cultural Organisation (Unesco).

IUCN's **Conservation for Development Centre (CDC)** was established in 1981 to address problems highlighted in the WCS on a project-by-project basis. It is an international independent non-profit centre, developing and implementing projects and providing managerial and technical skills to address critical problems of living natural resources management.

* based on December 1987 figures.

FOREWORD

This is the eighth in a series of country studies commissioned by the Conservation for Development Centre (CDC) of the International Union for Conservation of Nature and Natural Resources (IUCN). Its preparation has been made possible by funding from the Government of Norway.

The object of this study is to evaluate expertise available in Bangladesh for planning and implementing environmentally-sound development strategies, policies and projects. The report is intended for use as a practical tool by the sponsor, by the Government of Bangladesh and other agencies.

The World Conservation Strategy, launched in 1980, outlines a series of global priorities for action in the field of conservation. It recommends that every nation review the extent to which it is achieving conservation and sustainable development, and prepare a strategy to overcome the obstacles. In particular it draws attention to the need to solve a characteristic dilemma of developing countries: how to combine the short-term measures urgently needed to meet human needs, with the long-term measures necessary to safeguard the natural resource base on which development depends.

In the following year, IUCN established CDC as an integral part of its organisation. CDC was to develop and implement project designed to obtain tangible sustainable benefits for mankind, with concentration on the poorest communities, through the application of practical conservation principles. One part of CDC's work is to advise and assist countries in the preparation of national conservation strategies and environmentally-sound development projects. To assist with this, CDC developed a comprehensive register of experts which reflects the growing need for individuals who are particularly versed in the problems of sustainable development. It was recognised, however, that the register had not adequately identified the pools of expertise already available within developing countries, whether nationals, residents of the countries concerned, or nationals temporarily abroad.

In view of the need to develop a more broadly-based resource of potential expertise, CDC embarked on a series of country studies entitled Natural Resources Expertise Profiles. These studies present:

a brief overview of a country's environmental programmes and the supply of, and demand for, expertise in that particular country;

a survey of the capacities of local institutions, governmental and non-governmental, to meet the present and expected future demands for expertise; and

a review and analysis of the individual expertise available within the country, including biodata summaries.

It is intended that these country studies will be of use not only to the sponsor, but also to the governments of the countries concerned, development assistance agencies, development banks and others, in the preparation or implementation of national conservation strategies, programmes and projects planned within a framework of economic development. It is hoped that the reports will help identify national areas of need, strength and weakness in available environmental expertise, and ensure that this expertise is used to its best advantage. The expertise thus identified has been entered onto CDC's register of experts and thereby made available to agencies and governments seeking advice on experts available for conservation and development projects.

Although a number of other registers of expertise exist and are available for consultation, it was considered desirable to develop a single register that could be consulted to identify experts in the combined fields of conservation and development. It is CDC's hope that the service offered through its register and the country studies will facilitate and improve the selection of appropriate expertise, and particularly enable searches to be carried out to the specifications of the requesting agency.

CDC's computerised consultant register allows rapid searches for individuals with the required combinations of expertise and experience. The computer files are backed by comprehensive manual files containing regularly updated information and full curricula vitae. With the assistance of collaborating organisations CDC/IUCN is also able to draw on expertise and advice of individuals in fields not traditionally those of IUCN.

This Bangladesh study is the result of an initial brief survey over a period of a few weeks in 1986. It does not claim to be comprehensive or exhaustive, and the appearance of names in the list of consultants does not necessarily imply a recommendation by CDC. Such a service can be offered by CDC upon request. By demonstrating the value of country studies as a method of identifying a greater range of national expertise, it is hoped that this report will serve to stimulate further similar studies.

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1. INTRODUCTION

The purpose of the report is to present the results of a survey conducted in Bangladesh on the availability of professional expertise in the field of natural resources management and development. The report was commissioned by the Conservation for Development Centre (CDC) of the International Union for Conservation of Nature and Natural Resources (IUCN).

Since the United Nations Stockholm Conference on the Environment in 1972 and the introduction of the World Conservation Strategy by IUCN in 1980, the interest in environmental and conservation issues in all countries of the world has increased tremendously. In the less developed countries of the Third World, including Bangladesh, the issue of preserving the environment and conservation were regarded in the past as luxuries. It has, however, been increasingly recognised that preservation of the environment, conservation and resource management heve been necessary for sustainable and equitable development. The present report has tried to gather information about individual experts, government and non-governmental institutions which are related to natural resource management in Bangladesh. Circular letters and biodata forms were sent to institutions and individuals whose names and addresses had been obtained from published and unpublished directories, word of mouth, personal interviews and other contacts.

Over 1000 biodata forms were sent out and over 250 replies were received. Some of the people replying did not fulfil the condition of inclusion in the register, namely experience and expertise in some aspect of natural resource management and also availability to render expert, consultancy services.

The report gives a brief background of the country's geographical and environmental conditions followed by a discussion of the national development priorities and the government and non-governmental institutions which may play a role in the development of natural resources. The educational and manpower training programmes in the environmental sector are also touched upon.

The final section deals with the distribution of individual expertise by field of specialization and the abbreviated biodata of individual experts who responded to the survey.

The report does not claim to be comprehensive and there may be institutions and individuals who have not been covered. Efforts will be made to include other institutions and individuals later.

2. ENVIRONMENTAL BACKGROUND

2.1 Geographical Location

Bangladesh is located between 20° 34' and 26° 38' north latitude and 80° 1' and 92° 41' east longitude with an area of 143,998 sq. kilometres and a population of approximately 100 million. It is bordered on the west, north and east by India, in the south by the Bay of Bengal and in the southeast by Burma (see Figure).

2.2 Geology and Relief

Except for the hilly regions in the northeast and southeast, the whole country consists of low and flat land formed mainly by the great Ganges and Brahmaputra river systems. Physiographically the country can be divided into six main regions. A network of rivers with their tributaries and distributaries criss-cross the country. The major rivers are Padma, Jamuna, Teesta, Brahmaputra, Surma, Meghna and Modhumati.

2.3 Soils

Soils of Bangladesh can be divided into seven distinctive soil tracts which can be grouped under three broad physiographic divisions, namely (i) Hill Soils, (ii) Old Alluvial Soils, and(iii) Recent Alluvial Soils. The hill tracts, consist of the Hills of Sylhet, Garo Hills in Netrokona districts and Lalmai Hills of Comilla district. They are composed of Tertiary rocks and unconsolidated Tertiary and pleistocene sediments.

The Old Alluvial Soils include the tracts of Modhupur and Barind Areas which have been formed on the alluvium of the pleistocene period. They stand on the high land above the flood level and belong to the latosol group of genetic soils. They are clayey in texture, reddish to yellowish in colour, contain numerous ferruginous concentrations, are relatively rich in iron and aluminium, are highly aggregated and have a high phosphate fixing capacity.

The recent Alluvial Soils are found in the Gangetic alluvium, Teesta Silt, Brahmaputra alluvium and in the coastal saline tracts. Gangetic alluvium is rich in Calcium, Magnesium and Potassium. The Alluvial Soils contain free Calcium Carbonate and are characterized by nitrogen and Phosphate deficiency and locally by a strong to very strong alkalinity. Teesta Silt Tract Soils are sandy to sandy loam in texture, without any profile development. They are flooded every year and as a result they are replenished by fresh deposit every year.

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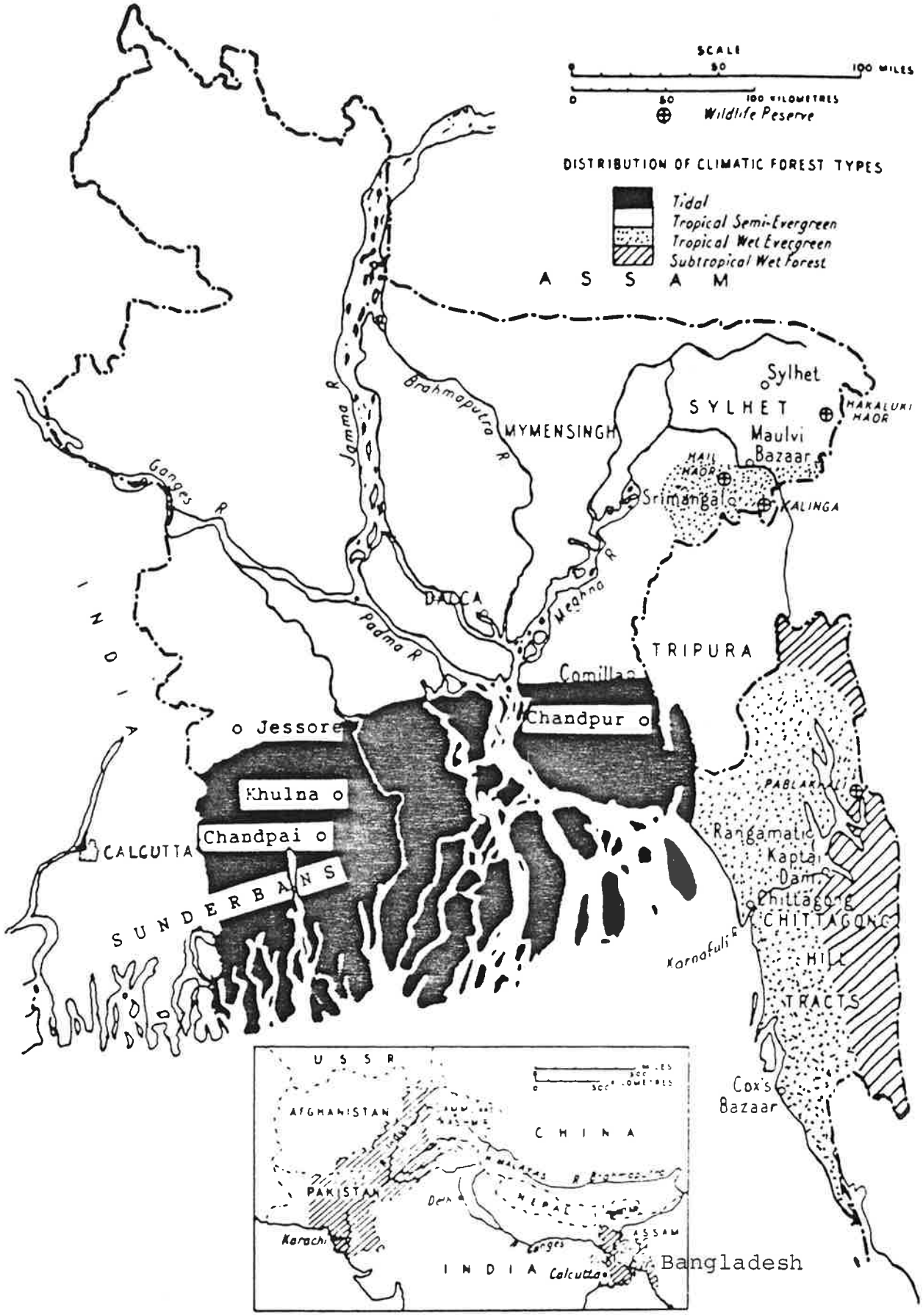
SCALE
50
100 MILES
0
50
100 KILOMETRES
Wildlife Peserve
DISTRIBUTION OF CLIMATIC FOREST TYPES
Tidal
Tropical Semi-Evergreen
Tropical Wet Evergreen
Subtropical Wet Forest
A S S A M
Sylhet
SYLHET
HARALUKI HAOR
Maulvi Bazaar
HAIL HAOR
Srimangal
KALINGA
MYMENSINGH
Brahmaputra R
Jamuna R
Ganges R
Meghna R
Padma R
DACCA
TRIPURA
Comilla
Chandpur
Jessore
Khulna
Chandpai
CALCUTTA
SUNDERBANS
PABLAKHALI
Rangamati
Kaptai Dam
Chittagong
CHITTAGONG HILL TRACTS
Karnafuli R
Cox's Bazaar
U S S R
AFGHANISTAN
C H I N A
PAKISTAN
NEPAL
ASSAM
Karachi
Ganges R
I N D I A
Calcutta
Bangladesh

The coastal saline tract is part of the active flood plain, but is subject to flooding by saline water at high tide. A large part of the tract is occupied by mangrove forest where some soils contain large amounts of sulphide in their profile, Saline soil is in general neutral but tends to be on the alkaline side.

2.4 Climate

There are three main sources of rainfall in Bangladesh (i) the western depression of winter, (ii) the early thunderstorms known as the Nor'westers (North-westerlies), and (iii) the summer rains from the south west trades known as the monsoons. The main period of rainfall due to western depression of winter is from 20th January to 25th February. During this period it rains from 0-35" at Cox's Bazar to 165" or more at Srimongol. There is a short break before the second rainy period begins around 10th March. The Nor'westers are due to a variety of reasons of which the main ones are the steady flow of cool, dry air above 6,000 feet from the northwest (anti trades), and the warm, moist current up to 6,000 feet from the south, intense evaporation in Bengal basin and Assam, and Katabatic Wind from the surrounding mountains. The main period of the Nor'westers lasts up to 5th May. The rainfall varies in this period from 35" (Dinjapur) to 164" (Srimongol). The main rainy period in Bangladesh begins with the coming of the moisture-leaden southwest trades which are drawn to the Indian subcontinent by the intense heat and consequent low pressure over Punjab and Upper Ganges Valleys, and the "filling up" of the equatorial lows by air masses from these very hot areas. The monsoons bring very heavy rainfall for five months from the end of May to mid October. The total rainfall in these months varies from 48" at Rajshahi and 58" at Narayanganj to 127" at Cox's Bazar and over 200" in the northern parts.

2.5 Natural Vegetation

The natural forests of Bangladesh occupy about 22,100 sq. km distributed in the following five divisions: i) The Sundarbans (6,152 sq. km), ii) The Chittagong-Cox's Bazar Forest (5,065 sq. km), iii) The Dhaka-Mymensingh Forest (1,154 sq. km) iv) Chittagong Hilltract Forest (8,980 sq. km) and v) Sylhet forest (749 sq. km).

The Sundarban Forest occupies the southern part of the country and stretches over the district of Khulna and Patuakhali. It is a mangrove forest with Sundari (Heritiera fomes) as the main species. Excoecaria agallocha, Carapa moluccensis (Pasur), Brugiera Cylindrica, Keoria, Ora, Nypa Fructicans (golpata) and Avicennia officinalis (Baen) are other important trees in this forest.

The outstanding features of Chittagong Hilltract and Cox's Bazar Forest are the frequent occurrence of different species of the genera dipterocarpus, Quercus, and Eugenia. The forest is so mixed that it is difficult to classify.

Tidal evergreen forests are found in the vicinity of rivers and tidal creeks which are of Sundarban type. Tropical evergreen types are found in deep valleys and in areas shaded by hills. Chaplish, Telsur, Nariel, Mainakat, Nagesar, Chickrass, Modon mosta, etc. are the main types of trees. Mixed evergreen forests cover the greater part of the Chittagong and the Chittagong-Cox's Bazar areas and they are found in both hills as well as on alluvial plains. The tallest trees are usually deciduous and are scattered. The principal species are Garjan, Civit, Tula, Karoi, Jarul, Bhaira, Gambar, etc. Open deciduous forests are seen on the comparatively drier slopes. The trees are usually scattered and the main species are Bhadi, Kanchan, Udal, Dillenia Dentagyna, Erythrina Indica and Spondias Magnifera.

The savannah types of vegetation, one of which covers extensive areas where trees have been felled; saccharum spontaneum (Sungrass) covers the ground in these forests. The other type, Imperata cylindrica, is found in swathes or along the bank of the streams. In addition to the types of vegetation mentioned above, there are some dune forests along sea-shore and widely scattered bamboo groves are found in the Chittagong Hilltract and Chittagong-Cox's Bazar Forest.

The Dhaka-Mymensingh Forest occupies parts of the district of Dhaka and Mymensingh. Shal (Shorea robusta) forms 95% of the crop. Albizza Procera are often seen.

The Sylhet Forests are of mixed evergreen-deciduous type and the flora is more or less the same as of the Chittagong-Cox's Bazar Forest. However, an important difference is the presence of sal in this forest.

Apart from the forest area mentioned above, the whole of Bangladesh abounds in different types of vegetation. The most common species are Magnifera indica, Areca Catechu (Bettlenutpalm), Erythrina Indica (Madar), Lammea grandis (Badi), Barringtonia acutangula, Artocarpus integriflora (Jak), Eugeniajambolana, Coconut, Banana, Rattan, Palm, Phoenix syslevestrisa, and Banyan (Ficus bengaleniseashot (F. religiosa).

In swamps, marshes and ditches species like Psitia stratoies, lemna minor, Lepidum stivium, Mymphaea stellata, etc. are common.

2.6 Fauna

2.6.1 Livestock and Poultry

Livestock contribute about 5% of the GDP of Bangladesh and are a very important resource, particularly for ploughing land. They also provide milk, meat, hides and skins. Leather making is an important industry and accounts for about 10% of the total exports of the country. In addition, cattle manure serves both as a fertilizer as well as for fuel.

Lack of pasture and fodder is a major problem in maintaining cattle health and breeding better varieties. Cattle are usually fed on chopped paddy straw or allowed to graze on communal land.

Poultry are a good source of protein for much of the population and are kept in most households in the rural areas - mainly by the women and children.

In recent years commercial scale battery farming using imported breeds and modern techniques has been developed, mainly to supply the urban markets.

2.6.2 Fisheries and Frogs

Bangladesh has both inland and coastal fisheries which provide protein for millions of people, particularly the poorer sections of society who cannot afford meat, eggs or poultry. The fishery also provides employment to thousands of people. There are 107 species of freshwater fish of which the most important are ruhi, katla, hilsa, prawn, lobster and shrimps. 120 species of marine fish have been identified of which the most important are catfish, sharks, rupchanda and bhetki.

Although fishing is a major economic activity (second only to agriculture), it is not done in a scientific manner with regard to protecting fish stocks, breeding and stocking. One important source of fish is from the thousands of ponds and tanks scattered around the country, either privately or communally owned.

In recent years the commercial catching of frogs (Rana) has increased rapidly, exclusively for the export market. This has given rise to a number of problems such as the cruelty involved in cutting off the legs and leaving the rest of the animal alive. The other problem which has been reported is an increase of insect pests due to the removal of their natural predators.

2.6.3 Wildlife

Bangladesh has a large number of wild animals, mainly in the forest areas of the Chittagong Hill Tracts, Sylhet and Mymensingh Hills and the Sundarban Forests. Many of the animals are endangered and are on the IUCN Red Data Book list of endangered species. The most famous amongst them are, of course, the Royal Bengal Tiger (Panthera tigris) along with other cats (eg Panthera pardus), primates (eg Rehsus, macaque, Langur and capped monkey), bears, civets, mongooses, reptiles, snakes, hoofed mammals and elephants (Elephas maximus), as well as birds and aquatic animals.

The Bangladesh Government has taken steps to protect some of the endangered species by declaring them as Protected Species by Law. There are also a number of Wildlife Sanctuaries.

2.7 Main Agricultural and Forest Cropping Systems

Climate is no bar to cultivation throughout the year in Bangladesh. On the basis of seasonal variation of rainfall three cropping seasons, namely Rabi (late October to March-April), Bhadoi or Kharif (March to the end of August) and Aghani or Haimatic (coincide with the monsoon), can be recognised in Bangladesh. Rotation of crops is particularly practised in multiple cropping areas, but in general it is widely found in areas with less than 75" rainfall.

Some of the typical cycles in Bangladesh are as follows:

- In Sugarcane growing areas

1st year Kharif	Aus rice
1st year Rabi	Sugarcane planted
2nd year Kharif	Sugarcane growing
2nd year Rabi	Sugarcane harvested
3rd year Kharif	Aus rice
3rd year Rabi	Sugarcane planted.

- In the alluvial land along Brahmaputra/Jamuna, Ganges and Old Brahmaputra:

Kharif	Aus rice
Kharif	Jute
Rabi	Pulses and melons(interculture)

- In the western Jamuna Plains:

1st year Kharif	Aus rice
Haimantik	Amon rice
Rabi	Pulse
2nd year Kharif	Jute
Haimantik	Shon hemp

The most common rotation practised in Bangladesh is to follow Amon rice by various pulses. In all rice double cropping area, the rotation is that Aus rice and Amon rice are often followed by pulses for fodder.

As to the forests, two methods - one afforestation and the other natural regeneration - are followed in Bangladesh. For the purpose of forest cropping a work plan for about 20 years is made. Mature trees are marked according to this plan and harvested each year and the vacant land is filled with new plantation or natural regeneration is allowed. Plantation is done during the rainy season and harvesting is done during the winter season.

2.8 Legislation

The laws of Bangladesh stem from the English Common Law which was bequeathed to the country by its colonial masters when the British left in 1947. Since then a number of laws and ordinances have been promulgated during the Pakistan era (1947 to 1972). Since 1972, Bangladesh has a Constitution of its own which has been modified in 1975 and again in 1979 and 1985. The main laws and ordinances relating to environmental issues are as follows:

- **The Environmental Pollution Control Ordinance, 1977**

  This ordinance covers the regulation of pollution of all kinds and it has established an Environment Pollution Control Board to formulate policy and guidelines. The Environment Pollution Control Ordinance is the agency through which the policies are implemented.

- **Forest Act, No 16, 1927**

  This act, promulgated under colonial rule, gives the guidelines on categories of forest and the types of activities permitted in each category of forest. It lays down the conditions for preserving the forest land and provides for penalties against spoiling or felling trees in forests.

- **Wildlife (Preservation) Order, 1973**

  This order established a Wildlife Advisory Board which prepares the guidelines and lists for preserving wildlife, endangered species and wildlife sanctuaries. It also provides for penalties against hunting, trapping or trading in animals or skins or other animal produce of protected species.

- **The Bangladesh Fisheries Development Corporation Ordinance, 1973**

  This ordinance established the Bangladesh Fisheries Development Corporation which has power to make policy decisions regarding protection of fish stock, both in inland waters as well as in marine fisheries. It provides for penalties against illegal fishing and for licensing of fisheries.

- **Territorial Waters and Maritime Zones Act, 1974**

  This act defined the territorial waters of Bangladesh including a contiguous zone extending up to 6 miles from the outer limits of the territorial waters and also the continental shelf. It provides for conservation and protection of the living and non-living resources within the zone and allows penalties against illegal resource extraction.

- **Bangladesh Water and Power Development Boards Order, 1972**

  This order established the Bangladesh Water Development Board (BWDB) and the Power Development Board (PDB). The BWDB has control over the water resources of Bangladesh, including surface waters (rivers) and underground water. It provides permission for use of such waters. The order also protect these water resources. It can penalize illegal use of water resources or pollution of water resources.

- **The Bengal Smoke Nuisances Act, 1905**

  This act controls the air pollution from industrial smoke and provides for penalties against offenders. In practice, however, it has been largely superseded by the Environment Pollution Control Ordinance of 1977 which also has provisions against air pollution.

- **The Petroleum Act, 1974**

  This Act provides for the exploration, production and protection of petroleum (as well as coal and gas) and other products from under the ground. It provides licences for exploitation of these resources.

3. NATIONAL DEVELOPMENT PRIORITIES

The Government of Bangladesh enunciates its development strategies through five-year plans. The current five-year plan spans from 1985 to 1990 and is the third five-year plan. The major objectives of the plan are:

- Reduction of population growth
- Expansion of productive employment
- Universal primary education and human resource development
- Development of technological base for bringing about a long-term structural change.
- Food self sufficiency
- Satisfaction of minimum basic needs of people
- Acceleration of economic growth
- Promotion of self reliance

The strategies of the third plan in relation to goals and objectives are as follows:

3.1 Population Control

The plan envisages stepping up of family planning programmes to bring down the population growth rate from the current level of 2.4% per annum to 1.8% per annum at the end of the plan period. This will be done by strengthening field services, particularly maternal and child care services, and through the participation of the community at the village and union level.

3.2 Employment Strategies

The rate of population growth put tremendous pressure on employment prospects. The employment generation strategies aim at upgrading and promoting cottage industries in the rural sector where the majority of the population lives. These will cover areas such as crop processing, fisheries, livestock, forestries and rural industries. Furthermore, all new development activities and modern industrial investment will be examined and designed to enhance the employment prospects.

3.3 Education

The development of the country and a productive use of manpower requires a skilled, trained and educated population. The focus of education policy will be to increase literacy from its extremely low level of about 20% through adult education programmes and development of universal primary education. Secondary and tertiary education will also be expanded and reoriented to meet the needs of the country in terms of skills and training.

3.4 Food, Nutrition and Basic Needs

The basic need requirements are defined as cereal food, fish, milk, edible oil, cotton textile, drinking water, housing and health services which at present are being met for only a tiny fraction of the population. These needs will be supplied basically by increasing overall food production and by increasing the purchasing power of the people through employment generation.

3.5 Employment and Growth

The overall strategy is to raise growth through productive employment of the labour force and land. The planned growth rate is 5.4% per annum. Emphasis will be made on development of small and rural industries, where improvement in technology and productivity can be achieved at a much lower level of investment than in the large and medium industries.

3.6 Self-Reliance and Resource Mobilization

Multilateral agencies like the World Bank and the Asian Development Bank, as well as bilateral agencies in the developed countries, are Bangladesh's main funding resources. However, it is envisaged that resource flow from sources will decrease and hence greater internal resource mobilization will be necessary.

The emphasis will be on promoting use of internally available raw materials, import substitution and export industries. A greater role for the private sector is also envisaged in the industrialization process.

4. SECTORAL DEVELOPMENT

4.1 Agriculture

Agriculture is the major contributor to the GDP of Bangladesh and is by far the largest employer of labour. The development strategy has been to increase productivity of food grains - primarily rice - by the use of high yielding varieties of seeds, irrigation, fertilizers and pesticides. This has resulted in an annual increase in food grain production of 3.8% over the second five year plan period. Much the same emphasis will be given during the third five-year plan period with perhaps greater attention to other crops such as pulses, oil seeds and jute which have tended to be neglected in the past.

4.2 Irrigation

Water for irrigation is a crucial resource for Bangladesh. Two thirds of the net cultivated land of 22.5 million acres are still cultivated by rain water irrigation only. This is normally sufficient to grow two crops of rice. In areas where irrigation water is available during the dry season a third crop of high yielding rice or wheat can be grown, which gives a much higher return than the traditional rain-fed crops. The strategy adopted to increase the area under irrigation is to use both surface water (through gravity flow, low lift pumps, canals etc.) and ground water (through deep and shallow tubewells). During the third five year plan period emphasis will be made on increasing the total area under irrigation from both surface as well as ground water.

4.3 Fisheries

Fish are an important source of protein in the diet of most of the people in Bangladesh. Fish supply has declined from 33 grams/day per capita in 1962, to 20 grams in 1980. Most of the fish are fresh water varieties caught by small fishermen in the innumerable rivers, streams and lakes of the country. However, a significant supply of fish also come from the marine fishing in the Bay of Bengal where large trawlers are the major source of fish. The development plans in this sector involve increasing the productivity of inland water fisheries and also increasing fish conservation in the marine fisheries which are in danger of being over fished. The possibility of growing fish in standing water in paddy fields during the monsoon period is also being studied.

4.4 Forestry

Officially the total forest area of Bangladesh is around 11% of the total land area, but this figure is generally regarded as an overestimate. The forests provide a major source of energy needs of both the urban as well as rural sectors of the country. Felling of trees is rampant and there are major afforestation schemes in several parts of the country including the newly accreted land in the Bay of Bengal. There are also plans to increase community forestry on government owned lands such as road sides and embankments. Emphasis is also being placed on the rural homestead where the villagers have traditionally grown trees for their own needs.

4.5 Industry

Industry provides only 9% of the GDP of the country. However, it provides essential consumer items such as yarn, cloth and key inputs for agriculture, for example fertilizer. The industrial sector is divided into the public and private sectors and most of the major capital industries are within the public sector. These include fertilisers, chemicals, textile, jute yarn and products, engineering and mineral processing. The private sector industries are generally smaller and concentrated in the fields of jute yarn, textiles, food processing, tanneries, tea processing and the small and cottage industry sector. The level of industrial efficiency is generally low and capacity utilisation is seldom achieved. The government, however, has emphasised industrial development in the third five year plan and has envisaged a greater role for the private sector.

4.6 Energy and Natural Resources

Per capita consumption of commercial energy in Bangladesh is one of the lowest in the world. The main source of energy for the rural population and for much of the urban population, as mentioned earlier, is fuelwood. The oil consumption is totally imported as the country has no oil resources of its own. However, Bangladesh is rich in natural gas resources and these are increasingly being harnessed for use. Several power stations are using natural gas as an energy source and piped natural gas is being supplied to industrial and domestic consumers in the major cities. The government plans to increase the coverage of piped natural gas to other parts of the country.

Bangladesh also has some underground resources of limestone and coal, but these have not been commercially mined yet.

4.7 Housing

The cities of Bangladesh have been growing in population at an extremely high rate. This has produced a tremendous pressure on housing and other urban facilities. In the rural areas 30% of the families do not have a homestead and about 80% of the houses are not made of brick. The government is planning to increase residential housing, office accommodation, water supply and sewerage services in the cities while at the same time trying to stem the migration to the cities by creating decentralised administrative centres in over 400 "Upozillas". These "Upozillas" will take the administrative machinery to the people and decrease their tendency to migrate to the major cities.

4.8 Education

In 1981, only 19.7% of the population was counted as literate. The rate in the rural areas was 17% compared to 35% in the urban areas. The female literacy rate (13%) was half the male literacy rate (26%). As the vast majority of the population live in the rural areas and half of them are women, the education system has tended to produce a male, urban based education with a heavy emphasis on liberal arts subjects which have not taken into account the needs of the country. The education system consists of primary schools, secondary schools, madrashas (religious schools), colleges (medical colleges, engineering colleges), and universities.

In 1984 there were 43,865 primary schools, 8,551 secondary, 2,805 madrashas, 671 colleges (out of which 10 medical colleges and 4 engineering colleges) and 6 universities. The percentage participation was 71% in primary schools (5-9 years), 22% in secondary schools (10-14 years) and only 2% in higher education (15-24 years).

The government has a plan to implement universal primary education within the third five year plan period. It also plans to decrease the urban-rural education gap by laying special emphasis on adult literacy in the rural areas through mass education programmes. (The manpower development of the universities is dealt with in a later section).

5. ENVIRONMENTAL ISSUES AND DEMAND FOR EXPERTISE

5.1 Environmental Issues

Environmental issues in the past have not been perceived by either policy planners or the general public as being of major concern. The view is however changing, albeit slowly, as people become more and more aware of some of the adverse effects of environmental degradation, both from natural as well as man made causes. The major natural environmental concerns of the country relate to its geography, topography and its climate. Lying in the delta of two of the world's major rivers with most of its land at a very low elevation it is subject to periodic flooding which affects vast numbers of people, cattle, houses, and agricultural land. The southern part of the country is also exposed to periodic cyclones from the Bay of Bengal which, together with tidal waves, often create havoc. Amongst the man made environmental concerns are the rapid deforestation by rampant cutting of trees which is not only affecting the forest area but also contributing to soil erosion and siltation. The building of dams, embankments and other such constructions on key river ways has in many cases affected the migratory pathway of fish and has definitely contributed to the depletion of fish in the country. The increasing use of both surface water as well as ground water for different purposes is putting a major strain on what used to be an abundant resource but is becoming increasingly scarce, particularly during certain seasons. The effects of widespread introduction of high yielding varieties of a few cereal crops such as rice and wheat with a narrow genetic base has led to the displacement to many traditional varieties of non-cereal crops as well as many local cultivars and varieties of rice which had adapted to local conditions over centuries. The pressure on the forest and natural habitat is also leading to a very fast depletion of certain exotic plant and animal species. The increasing use of chemical fertilisers and pesticides has brought out the possibility of these dangerous chemicals entering the food chain.

The lack of adequate pollution control measures has led to extremely high pollution in certain specific areas around industrial conurbations. One such place is the Hazaribagh area of Dhaka where a number of leather tanneries are situated and dump their effluents, which have an extremely high content of chromium, into the rivers.

The government has become increasingly aware of the need to incorporate environmental aspects into development strategies and in particular to carry out Environmental Impact Assessment of major development projects. However, there is still no policy directive to carry out such Environmental Impact Assessments of projects, although it may be done on a piece-meal basis.

5.2 Expertise Requirements

The government has expertise requirements in many different fields which it obtains by either employing experts, e.g. in the planning departments of selected ministries and public sector corporations and also the planning commission. It also has a repository of mainly technical experts in the various government industrial enterprises. However, for particular expert advice on specific projects or specific aspects of a project, the government usually engages the services of consultants. Since most of the major projects undertaken in the country are funded from international sources the consultants often come from developed countries and there is little or no transfer of know-how-to local counterparts. The local consultancy profession has not been able to build up a sufficient base of expertise - except for a few areas such as civil engineering and is not widely available within the country nor greatly used by the government.

6. GOVERNMENT INSTITUTIONS

Government institutions play a leading role in practically all the development activities of the country. Only some of the important ones related to environmental issues are briefly described below.

6.1 Ministry of Agriculture and Forests

Building No 4
Bangladesh Secretariat
Dhaka

The Ministry of Agriculture and Forests is the policy making and implementing ministry for agricultural and forestry programmes which receive very high priority. The goal of increasing food production has been one of the major ones of the government and the Ministry of Agriculture is the main agency for implementing this policy. It is headed by the Minister for Agriculture and Forests who is a member of the cabinet, and is the chief policy planner. The ministry has a permanent secretary as administrative head under whom there are various Joint Secretaries, Deputy Secretaries and Assistant Secretaries. There are also a number of departments under the Ministry, some of which are described below.

o Bangladesh Agricultural Development Corporation (BADC)

Krishi Bhaban
Dilkusha C/A
Dhaka

BADC is the largest Corporation in the country and is responsible for implementing the food production scheme by way of providing shallow and deep tubewells and low lift pumps for irrigation, fertilisers, pesticides, seeds, etc. It is the main agency for providing such inputs to all the farmers of the country. It is headed by a Chairman and has a number of Directors and Chief Engineers for the different sections.

o Department of Agricultural Extension

Khamarbari
Khamarbari Road
Farmgate
Dhaka

This Department is responsible for promoting improved agricultural methods to the country's farmers which it does through its network of agricultural extension workers throughout the country. The Directorate of Plant Protection is also within this department and is responsible for arranging large scale spraying of pesticides at the times of widespread pest infestation.

o Bangladesh Agricultural Research Council (BARC)

BARC Building
Farmgate
Dhaka

BARC is the apex body of all the agricultural research institutions in the country which include the following:

- Bangladesh Agricultural Research Institute (BARI)
- Bangladesh Rice Research Institute (BRRI)
- Bangladesh Jute Research Institute (BJRI)
- Bangladesh Tea Research Institute (BTRI)

6.2 Ministry of Industries

Shilpa Bhaban
Motijheel C/A
Dhaka

This ministry is responsible for setting and implementing the industrial policy of the country for both the public as well as the private sector. Its structure is the same as other ministries and the key corporations within this ministry are as follows:

o Bangladesh Chemical Industries Corporation (BCIC)

BCIC Building
Motijheel C/A
Dhaka
Telephone: 231954

This is the biggest corporation in the country in terms of assets and turnover. It comprises all the fertiliser industries of the country, the paper and pulp industries, the cement clinker industries, and the insecticide, pharmaceutical and cosmetic industries.

o Bangladesh Steel and Engineering Corporation (BSEC)

Steel House
Kawran Bazar
Dhaka
Telephone: 327521

This corporation is in charge of all the major engineering industries of the country, including the country's largest steel mill at Chittagong, truck manufacturing units, pipe manufacturing as well as numerous other engineering industries.

- o Bangladesh Sugar and Food Industries Corporation (BSFIC)

  BSFIC Bhaban
  Motijheel C/A
  Dhaka 2
  Telephone: 258084

This corporation is responsible mainly for the sugar mills of the country as well as some other industries producing food like cakes, biscuits, bread, fruit juices, etc.

- o Bangladesh Council for Scientific and Industrial Research(BCSIR)

  BCSIR Building
  Mirpur Road
  Dhaka
  Telephone: 315971

This is the main government scientific establishment with a large pool of scientists, engineers and laboratories around the country. Their main terms of reference are to produce applications of science and technology of use to local industry.

6.3 Ministry of Energy

Bangladesh Secretariat
Dhaka

This ministry is in charge of preparing and carrying out the energy policies of the government in different sectors and has the following main agencies:

- o Bangladesh Oil, Gas and Mineral Corporation (BOGMC)

  Chamber Building
  Motijheel C/A
  Dhaka 2
  Telephone: 253131

This corporation was formed recently by the merger of the petroleum and gas sector corporation and mineral corporation. It is responsible for developing the numerous natural gas fields of the country, ensuring that the gas is transported to the end users, and for implementing further developments in the energy and mineral sector.

- Bangladesh Atomic Energy Commission (BAEC)

  BAEC Building
  Ramna
  Dhaka 2
  Telephone: 505021

This agency is responsible for carrying out research in the use of atomic energy in Bangladesh. It has a 3 MW Research Reactor for carrying out experiments. It has a large pool of scientists working under it.

- Bangladesh Petroleum Corporation (BPC)

  BPC Building
  Motijheel C/A
  Dhaka

This corporation is responsible for the import and refining of petroleum and also for distribution of petroleum products throughout the country. The country's only refinery at Chittagong provides some refined petroleum products and two distribution companies, Meghna Petroleum and Jamuna petroleum, under BPC, are responsible for distribution of petroleum products.

6.4 Ministry of Local Government and Rural Development (LGRD)

Bangladesh Secretariat
Dhaka

This ministry is responsible for the local administration in the country's villages and local administrative units. It is also responsible for implementing rural development programmes.

One of the main departments involved in environmental issues under this minstry is:

- Department of Environmental Pollution Control (DEPC)

  Lalmatia
  Dhaka

This is the only government department with the word "Environment" in its title and hence has the responsibility of carrying out the government's environmental policies, in particular liaising with international agencies dealing with environmental issues, such as UNEP and IUCN. However, the department's terms of work are far more limited in scope, being concerned only with issues of pollution. Furthermore, the department is under staffed and under budgeted and is only a small component department under the LGRD ministry which is not the ideal ministry to deal with environmental issues in general. This department needs strengthening, increase in its importance, and widening of its activities if it is to continue to be the only government department dealing directly with environmental issues.

6.5 Ministry of Education

Shikhkha Bhaban
Bangladesh Secretariat
Dhaka

The main features of this ministry's activities have been discussed earlier. The role of the universities in training manpower in the environmentally related fields are discussed under university institutions.

o Science and Technology Division

Building No 6
Bangladesh Secretariat
Dhaka

This is a division under the Ministry of Education which is responsible for preparing the National Science and Technology Policy and for monitoring its implementation.

7. UNIVERSITY INSTITUTIONS

7.1 Dhaka University

Ramna
Dhaka
Telephone: 500010

This is the oldest and biggest of the universities of the country. There are no departments, faculties or courses run specifically on environmental studies. However, there are departments of soil science, botany, zoology, geography and geology which provide Bachelor and Masters degrees.

7.2 Jahangirnagar University

Savar
Dhaka
Telephone: 316071

This is a relatively new university situated about 20 miles from Dhaka. It does not have any department or faculty of environmental studies but does have a Masters level course on "Environmental Chemistry" at the Chemistry Department. It also has an Institute of Biological Sciences, Departments of Geography and Geology which offer BSc and MSc degrees.

7.3 Bangladesh University of Engineering and Technology (BUET)

Ramna
Dhaka
Telephone: 504000

This is the first engineering university of the country and it offers a Masters course in "Environmental Engineering" at the Department of Civil Engineering. It has other Engineering Departments and Faculties offering BSc and MSc degrees.

7.4 Chittagong University

University Post Office
Chittagong
Telephone: 210231

This university has no environmental studies departments or courses but has an Institute for Forest Resources and also an Institute for Marine Biology which offers courses. It also has departments of Botany and Zoology offering BSc and MSc degrees.

7.5 University of Rajshahi

Rajshahi
Telephone: 2441-9

This is the main university in the northern region of the country. It does not have any environmental studies programmes, but has departments of Botany and Zoology which offer BSc and MSc degrees.

8. INTER-GOVERNMENTAL INSTITUTIONS

A large number of inter-governmental institutions operate in the country. Only a few key institutions are described below.

8.1 World Bank

222 New Eskaton Road
Dhaka

The World Bank is one of the major donor agencies in Bangladesh and has a large number of projects in the country. It has a big local office to oversee the ongoing projects. Although it is currently the stated policy of World Bank headquarters in Washington to incorporate environmental considerations in its project feasibility and other reports, it has not been the practice so far in the context of Bangladesh. However, an initiative from the World Bank to incorporate such environmental considerations in its reports will have a very big impact.

8.2 Asian Development Bank (ADB)

Steel House
Kawran Bazar
Dhaka

The Asian Development Bank is also a major donor to Bangladesh and has a resident office to look after its on going programmes. Like the World Bank, it has a stated policy of requiring environmental impact assessments in its project facilities but these have not been implemented vigorously.

8.3 Others

Amongst the other institutions with an official presence in Bangladesh are the Norwegian Agency for International Development (NORAD), the Swedish International Development Authority (SIDA), the Canadian International Development Agency (CIDA), the Overseas Development Authority (ODA) and the US Agency for International Development (USAID). All of them, to greater or lesser extent, are involved in development projects in the country. However, again environmental concerns are not given great importance by most of these agencies.

- **International Centre for Diarrhoeal Disease Research (ICDDR)**

  Mohakhali
  Dhaka
  Telephone: 600171

This centre grew out of a local institute called the Cholera Research Laboratory and has now become the leading centre for research in diarrhoeal diseases in the world. It has major programmes of vaccinations, development of vaccines, oral rehydration therapy as well as other research and intervention programmes.

- **Centre for Integrated Rural Development in Asia and Pacific (CIRDAP)**

  Topkhana Road
  Dhaka

This institute grew out of the Bangladesh Academy for Rural Development set up in Comilla in the early sixties. It is now the focal point for research in rural development in the Asia-Pacific region and has a number of regional and national research programmes.

9. NON-GOVERNMENTAL ORGANISATIONS (NGOs)

There is a large number of NGOs operating in Bangladesh, mainly in the fields of family planning and development activities. Only a few selected organisations are described below.

9.1 Bangladesh Centre for Advanced Studies (BCAS)

626 Road No 20 (Old)
Dhanmondi
Dhaka

BCAS was set up in 1984 by a group of scientists with the intention to develop scientific research and expertise outside the government sector. It has focussed on environmental issues as an area of interest where it plays the role of bringing together scientists from different disciplines including the natural and social sciences to address particular environmentally related issues.

9.2 Society for the Conservation of Nature and the Environment (SCONE)

Maghbazar
Dhaka

SCONE produces a monthly newsletter to disseminate information and news of environmentally related issues both national and international. It is a voluntary agency comprising of scientists and people from various other disciplines whose main objective is to popularize environmental issues.

10. CONSULTANCY FIRMS

10.1 Technical Consultants Ltd (TECON)

Dilkusha C/A
Dhaka

TECON is one of the leading private consultancy companies of the country rendering consultancy services in the fields of agricultural development and energy resources development. They have a full time staff of experts in various disciplines.

10.2 Bangladesh Consultants Ltd (BCL)

BCL is another leading consultancy organisation with a particularly strong base in civil engineering and related projects. It has many years experience of rendering consultancy services in the fields of civil engineering, mineral extraction and bridge building.

10.3 Associated Resources Management Company (ARMCO)

9i Motijheel C/A
Dhaka

ARMCO is a leading private consultancy company mainly dealing in industrial, energy, technology transfer, agricultural and resource management issues.

11. INDIVIDUAL EXPERTS

Individual experts were sent biodata forms (Annex I) and summary sheets for completion. The full biodata forms and curricula vitae of the individual experts are appended. These experts are all based within the country. The full biodata forms and the CVs are available upon request from CDC/IUCN. As mentioned in the introduction to this report, continued efforts are being made to increase the representation of suitably qualified individuals.

This section contains three parts:

11.1 An index of experts by field of expertise;

11.2 A list of experts, in alphabetical order, indicating nationality and fields of expertise; and

11.3 The biodata summaries of the listed experts.

These lists represent information in the hands of the compiler at the time of production. The information will be periodically updated and revisions will be sent to recipients of the full report. Inclusion on this list does not, of course, guarantee that an individual is available for consultancy work. This applies particularly to cases where authority must be given.

PLEASE NOTE THAT THIS SECTION HAS A LIMITED CIRCULATION

11.1 INDEX OF EXPERTS BY FIELD OF EXPERTISE

The fields of expertise listed below are those categories supplied in CDC's biodata form (Annex I), as in use at the time of preparation of this report. An asterisk (*) following the name indicates that the respondent rated himself as highly experienced in that particular field.

A ENVIRONMENTAL PLANNING

Rahman, A; Shahjahan, M*; Ali, M.*

B ASSESSMENT TECHNIQUES

Rahman, A;

C ENVIRONMENTAL IMPACT ASSESSMENT

Islam, A K M N; Huq, S*; Rahman, A*; Shahjahan, M*

D ECONOMICS

Rahman, A*

E SOCIETY AND ENVIRONMENT

Ali, S I; Arefeen, H K; Huq, S

F COMMUNICATIONS/INFORMATION/AWARENESS

Huq, S

G HUMAN SETTLEMENTS AND POPULATION

Arfeen, H K

H HEALTH/NUTRITION/SANITATION

Ahmed, K*; Ahmed, M*; Ali, M; Khan, M R; Mannan, A*; Monsur, K A; Rabbani, G H*

I PHYSICAL SCIENCES

Khan, T H; Khuda, A R M M M*; Latif, A; Safiullah, S*

J ECOLOGY/BIOLOGY

Ahmed, M; Choudhury, S H*; Huq, S*; Islam, A K M N*; Khalequzzaman, M; Khan, A A*; Khan, M R; Rahman, M A; Rahman, S*; Shamsuddin, A K M

K PROTECTED AREAS

Sarker, S

L FORESTRY

Islam, A K M N; Latif, A; Shamsuddin, A K*

M WILDLIFE CONSERVATION

Ali, M A; Khalequzzaman, M; Sarker, S*

N MARINE AND FISHERIES

Ahmed, A T; Ali, M; Ali, M Y; Hussain L; Islam A K M N; Rahman, M M; Shafi, M*;

O AGRICULTURE/DOMESTIC LIVESTOCK

Ali, M S; Husain, L; Islam, A W M S; Khalequzzaman, M; Rahman, S

P RURAL DEVELOPMENT

Latif, A; Rahman, A; Rahman, M M*

Q INDUSTRY/ENGINEERING/TECHNOLOGY

Mortoza, A A*; Mustafa, A*; Shahjahan, M; Sharif, M I

R ENERGY

Ali, S; Ali, S I

S POLLUTION/WASTE

Ali, S*; Bhuiyan, S; Choudhury, S H*; Haider, S Z*; Islam, A K M N; Rahman, A; Safiullah, S

T DISASTERS, HUMAN/NATURAL

Rahman, A

11.2 LIST OF INDIVIDUAL EXPERTS (ALPHABETICAL)

The list to be found on the next page serves as an index to the individual summary sheets which will be found on section 11.3.

The letters under the heading "Areas of Expertise" correspond to the categories (fields of technical specialisations) found on the biodata form (Annex 1) and those listed on the biodata summaries to be found in the next section.

The categories are listed here for your easy reference:

A. Environmental planning
B. Assessment techniques
C. Environmental impact assessment
D. Economics
E. Society and environment
F. Communications/information/awareness
G. Human settlements and population
H. Health/nutrition/sanitation
I. Physical Sciences
J. Ecology/biology
K. Protected areas
L. Forestry
M. Wildlife conservation
N. Marine and fisheries
O. Agriculture/domestic livestock
P. Rural development
Q. Industry/engineering/technology
P. Rural development
R. Energy
S. Pollution and waste
T. Disasters, human/natural

Name	Nationality	Areas of expertise
Ahmad, M	BD	J
Ahmed, A T	BD	N
Ahmed, K	BD	H
Ahmed, M	BD	H
Ali, M	BD	A-H-N
Ali, M Y	BD	N
Ali, S	BD	R-S
Ali, S I	BD	E-R
Arefeen, H K	BD	E-G
Bhuiyan, S	BD	S
Choudhury, S H	BD	J-S
Haider, S Z	BD	S
Huq, S	BD	C-E-F-J
Hussain, L	BD	N
Islam, A K M N	BD	C-J-L
Islam, A K M N	BD	N-S
Islam, A W M S	BD	O
Khalequzzaman, M	BD	J-M-O
Khan, A A	BD	J
Khan, M R	BD	H-J
Khan, T H	BD	I
Khuda, A R M M M	BD	I
Latif, A	BD	L-P
Mannan, A	BD	H
Monsur, K A	BD	H
Mortoza, A	BD	Q
Rabbani, G H	BD	H
Rahman, A	BD	A-B-C
Rahman, A	BD	D-P-T
Rahman, M A	BD	J
Rahman, M M	BD	P
Rahman, S	BD	O
Rahman, S	BD	J
Safiullah, S	BD	I-S
Sarker, S	BD	K-M
Shafi, M	BD	N
Shahjahan, M	BD	A-C-Q
Sahmsuddin, A K	BD	L
Sharif, M I	BD	Q

11.3 INDEX OF EXPERTS

(alphabetical as per list in proceeding section)

1. NAME: Dr. Monawar AHMAD

2. DATE OF BIRTH: 25.07.1935

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

J Ecology/Biology

- entomology
- agricultural entomology

5. RECENT PROFESSIONAL HISTORY:

1973 - present	Professor of Entomology, Bangladesh Agricultural University
1973 - 1981	Head, Department of Entomology, Bangladesh Agricultural University

6. CONTACT & AVAILABILITY:

Work address: Department of Entomology, Bangladesh Agricultural University, Mymensingh

Available for both long-term consultancy and in advisory capacity

1. NAME: Mr. Abu Twed AHMED

2. DATE OF BIRTH: 19.10.1946

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

N **Marine and Fisheries**

- fisheries production techiques

5. RECENT PROFESSIONAL HISTORY:

1984 - present	Professor, Department of Zoology, Dhaka University
1983 - 1984	Visiting Professor, University of Hawaii, USA

6. CONTACT & AVAILABILITY:

Work address: Department of Zoology, Dhaka University, Dhaka

Available for both short-term and long-term consultancy

1. NAME: Dr. Kamaluddin AHMED

2. DATE OF BIRTH: 01.09.1923

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

H Health/Nutrition/Sanitation

- nutrition*

5. RECENT PROFESSIONAL HISTORY:

1982 - present	Director, Institute of Nutrition and Food Science, Dhaka University
1982 - Present	Professor, Dhaka University
1981 - 1982	Vice Cancellor, Bangladesh Agricultural University

6. CONTACT & AVAILABILITY:

Work address: Institute of Nutrition and Food Science, Dhaka University, Dhaka

Available for both short-term and long-term consultancy

1. NAME: Dr. Moniruddin AHMED

2. DATE OF BIRTH: 02.11.1952

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

H **Health/Nutrition/Sanitation**

- medical plants*
- pharmacy

5. RECENT PROFESSIONAL HISTORY:

1985 - present	Head, Department of Pharmacy, Dhaka University
1979 - 1985	Associate Professor, Department of Pharmacy, Dhaka University

6. CONTACT & AVAILABILITY:

Work address: Department of Pharmacy, Dhaka University, Dhaka

Available for both short-term and long-term consultancy

1. NAME: Dr. Md Mohsin ALI

2. DATE OF BIRTH: 01.01.1933

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

A **Environmental Planning***

- water projects

H **Health/Nutrition/Sanitation**

- nutrition

N **Marine and Fisheries**

- fisheries production

5. RECENT PROFESSIONAL HISTORY:

1984 - present	Director, Fisheries Section, Water Master Plan Organisation
1981 - 1984	Project Director, Marine Fisheries Research and Management Project
1980 - 1981	Chief, Planning Cell, Directorate of Fisheries

6. CONTACT & AVAILABILITY:

Work address: Fisheries Section, Master Plan Organisation, 96-A, Road No 23, Banani, Dhaka

Available for short-term consultancy work

1. NAME: Dr. Mohammed Youssouf ALI

2. DATE OF BIRTH: 01.12.1926

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

N **Marine and Fisheries**

- fisheries management and administration

5. RECENT PROFESSIONAL HISTORY:

1985 - present	Fisheries Specialist Consultant on open water fisheries, Dhaka
1982 - 1985	Fisheries Advisor, Water Master Plan Organisation, Government of Bangladesh, Dhaka
1973 - 1982	Secretary, Ministry of Fisheries, Government of Bangladesh, Dhaka
1966 - 1973	Director of Fisheries, Government of Bangladesh, Dhaka

6. CONTACT & AVAILABILITY:

Work address: 183 Boromogbazar, Dhaka-17

Available for short-term and long-term consultancy work

1. NAME: Dr. Md Shahjahan ALI

2. DATE OF BIRTH: 29.06.1942

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

R **Energy***

- energy from agricultural wastes

S **Pollution and Waste***

- agricultural waste

5. RECENT PROFESSIONAL HISTORY:

1985 - present	Head, Department of Agricultural Chemistry, Bangladesh Agricultural University, Mymensingh
1981 - 1985	Associate Professor, Department of Agricultural Chemistry, Bangladesh Agricultural University
1980 - 1981	Fellow, Rubber Research Institute, Malaysia

6. CONTACT & AVAILABILITY:

Work address: Department of Agricultural Chemistry, Bangladesh Agricultural University, Mymensingh

Available for short-term consultancy work or voluntary work

1. NAME: Mr Syed Iqhal ALI

2. DATE OF BIRTH: 05.10.1948

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

E Society and Environment

- geography
- land use patterns

R Energy

- rural energy studies

5. RECENT PROFESSIONAL HISTORY:

1982 - present	Assistant Professor, Department of Geography, Jahangirnagar University, Savar
1978 - 1982	Lecturer, Department of Geography, Jahangirnagar University, Savar

6. CONTACT & AVAILABILITY:

Work address: Department of Geography, Jahargirnagar University, Savar

Available for short-term and long-term consultancy work

1. NAME: Mr H.K. AREFEEN

2. DATE OF BIRTH: 01.02.1947

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

E **Society and Environment**

- cultural patterns

G **Human Settlement and Population**

- agrarian structure
- anthropology

5. RECENT PROFESSIONAL HISTORY:

1983 - present	Associate Professor, Department of Sociology, Dhaka University, Dhaka
1980 - 1983	Senior Research Fellow, Centre for Social Studies, Dhaka University, Dhaka
1978 - 1980	Consultant, WHO project

6. CONTACT & AVAILABILITY:

Work address: Department of Sociology, Dhaka University, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Dr S. BHUIYAN

2. DATE OF BIRTH: 01.05.1923

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

S **Pollution/Waste**

- chemical pollution

5. RECENT PROFESSIONAL HISTORY:

1984 - present	Professor, Department of Applied Chemistry, Dhaka University, Dhaka
1980 - 1983	Head, Department of Applied Chemistry, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Applied Chemistry, Dhaka University, Dhaka

Available for short-term consultancy work and in advisory capacity

1. NAME: Dr Shafique Haider CHOUDHURY

2. DATE OF BIRTH: 29.11.1939

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

J **Ecology/Biology***

- entomology
- biological control
- limnology

S **Pollution/Waste***

- water pollution biology

5. RECENT PROFESSIONAL HISTORY:

1979 - present	Professor of Zoology, Chittagong University, Chittagong
1972 - 1979	Associate Professor, Department of Zoology, Chittagong University, Chittagong
1964 - 1972	Assistant Professor, Department of Zoology, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Zoology, Chittagong University, Chittagong

Available for short-term and long-term consultancy work

1. NAME: Dr S.Z. HAIDER

2. DATE OF BIRTH: 01.09.1927

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

S Pollution/Waste*

- aquatic weeds
- natural products chemistry
- environmental chemistry

5. RECENT PROFESSIONAL HISTORY:

1983 - present	Director, Bose Centre for Advanced Study and Research, Dhaka University, Dhaka
1983 - present	Professor, Department of Chemistry, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Chemistry, Dhaka University, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Dr Saleemul HUQ

2. DATE OF BIRTH: 02.12.1952

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

C Environmental Impact Assessment*

- small scale environmental studies

E Society and Environment

- popular writing on environment

F Communications/Information/Awareness

- popular writing on environment

J Ecology/Biology*

- plant biochemistry and physiology

5. RECENT PROFESSIONAL HISTORY:

1986 - present	World Bank McNamara Fellow, Department of Pure and Applied Biology, Imperial College, London, United Kingdom
1984 - 1986	Director, Bangladesh Centre for Advanced Studies, Dhaka
1979 - 1984	Assistant Professor, Department of Botany, Dhaka University, Dhaka
1978 - 1979	Research Assistant, Department of Botany, Imperial College, London, United Kingdom

6. CONTACT & AVAILABILITY:

Work address: Department of Pure and Applied Biology, Imperial College, Prince Consort Road, London SW7, United Kingdom

Available for short-term consultancy work

1. NAME: Mr Lutfun HUSSAIN

2. DATE OF BIRTH: 04.07.1942

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

N Marine and Fisheries

- fish productivity*
- pond fisheries

5. RECENT PROFESSIONAL HISTORY:

1976 - present	Head, Department of Zoology, Bangladesh Agricultural University
1973 - 1976	Assistant Professor, Department of Zoology, Bangladesh Agricultural University

6. CONTACT & AVAILABILITY:

Work address: Department of Zoology, Bangladesh Agricultural University, Mymensingh

Available for short-term consultancy work

1. NAME: Dr A.K.M. Nazrul ISLAM

2. DATE OF BIRTH: 31.01.1948

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

C **Environmental Impact Assessment***

- impact of salinity on mangrove forests

J **Ecology/Biology**

- ecology of mangrove forests

L **Forestry**

- ecology of forests

5. RECENT PROFESSIONAL HISTORY:

1984 - present	Associate Professor, Department of Botany, Dhaka University, Dhaka
1979 - 1984	Assistant Professor, Department of Botany, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Botany, Dhaka University, Dhaka

Available for short-term and long-term consultancy work as well as in advisory capacity

1. NAME: Dr A.K.M. Nurul ISLAM

2. DATE OF BIRTH: 01.02.1930

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

N **Marine and Fisheries**

- seaweeds

S **Pollution/Waste**

- indicator species in aquatic ecosystems

5. RECENT PROFESSIONAL HISTORY:

1980 - present	Professor, Department of Botany, Dhaka University, Dhaka
1983 - 1986	Dean, Faculty of Biological Science, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Botany, Dhaka University, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Dr A.W.M. Shamsul ISLAM

2. DATE OF BIRTH: 04.01.1940

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

O Livestock

- veterinary science

5. RECENT PROFESSIONAL HISTORY:

1986 - present	Professor, Department of Parasitology, Bangladesh Agricultural University
1977 - 1986	Associate Professor
1980 - 1983	Helminthologist, Research Institute, Zambia

6. CONTACT & AVAILABILITY:

Work address: Department of Parasitology, Bangladesh Agricultural University, Mymensingh

Available for short-term consultancy work

1. NAME: Dr M. KHALEQUZZAMAN

2. DATE OF BIRTH: 16.09.1952

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

J **Ecology***

- insect ecology

O **Agriculture**

- pest management
- sericulture

M **Wildlife Conservation**

5. RECENT PROFESSIONAL HISTORY:

1986 - present	Associate Professor, Department of Zoology, Rajshahi University
1979 - 1986	Assistant Professor, Rajshahi University

6. CONTACT & AVAILABILITY:

Work address: Department of Zoology, Rajshahi University, Rajshahi

Available for short-term and long-term consultancy work

1. NAME: Dr Md Abdul Aziz KHAN

2. DATE OF BIRTH: 01.02.1931

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

J Ecology/Biology*

- horticulture

5. RECENT PROFESSIONAL HISTORY:

1981 - present	Professor, Department of Botany, Chittagong University
1981 - 1985	Vice Chancellor, Chittagong University

6. CONTACT & AVAILABILITY:

Work address: Department of Botany, Chittagong University, Chittagong

Available for short-term and long-term consultancy work

1. NAME: Dr Manbubur Rahman KHAN

2. DATE OF BIRTH: 01.09.1937

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

H **Health/Nutrition/Sanitation**

- microbial organisms

J **Ecology/Biology**

- microbial ecology

5. RECENT PROFESSIONAL HISTORY:

1985 - present	Chairman, Department of Microbiology, Dhaka University, Dhaka
1983 - preseent	Professor, Department of Microbiology, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Microbiology, Dhaka University, Dhaka

Available for short-term consultancy work

1. NAME: Mr Tofazzal Husain KHAN

2. DATE OF BIRTH: 04.04.1943

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

I **Physical Sciences**

- soil physics*
- soil and water conservation

5. RECENT PROFESSIONAL HISTORY:

1985 - present	Associate Professor, Department of Soil Science, Dhaka University, Dhaka
1980 - 1985	Senior Lecturer, Department of Soil Science, University of Maiduguri, Nigeria
1974 - 1980	Assistant Professor, Department of Soil Science, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Soil Science, Dhaka University, Dhaka

Available for advisory or voluntary work

1. NAME: Dr A.R.M.M. Manzur-i-KHUDA

2. DATE OF BIRTH: 01.10.1933

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

I **Physical Sciences***

- plant products chemistry
- jute and textile chemistry
- pharmaceutical and chemical industry

5. RECENT PROFESSIONAL HISTORY:

1979 - present	Member, National Council for Science and Technology
1978 - 1980	Director, Bangladesh Council for Scientific and Industrial Research
1967 - 1977	Director, Jute Research Institute

6. CONTACT & AVAILABILITY:

Work address: B.2/1, Humayun Road (East Side), College Gate, Mohammadpur, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Dr Md Abdul LATIF

2. DATE OF BIRTH: 01.03.1933

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

L Forestry

- wood science
- wood preservation

P Rural Development

- rural housing

5. RECENT PROFESSIONAL HISTORY:

1983 - present	Research Division, Forest Research Institute
1979 - 1983	Wood Science Division, Forest Research Institute

6. CONTACT & AVAILABILITY:

Work address: Forest Research Institute, Amin Jute Mills, Chittagong

Available for short-term and long-term consultancy work

1. NAME: Dr A. MANNAN

2. DATE OF BIRTH: 01.01.1932

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

H Health/Nutrition/Sanitation*

- pharmacy

5. RECENT PROFESSIONAL HISTORY:

1986 - present	Vice Chancellor, Dhaka University, Dhaka
1984 - 1986	Head, Department of Pharmacy, Dhaka University, Dhaka
1979 - 1984	Professor, Department of Pharmacy, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Dhaka University, Dhaka

Available for advisory work

1. NAME: Dr K.A. MONSUR

2. DATE OF BIRTH: 01.03.1920

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

H Health/Nutrition/Sanitation*

- communicable diseases*
- public health administration
- cholera

5. RECENT PROFESSIONAL HISTORY:

1982 - present	Consultant, International Centre for Diarrhoeal Disease Research
1975 - 1981	Consultant, WHO

6. CONTACT & AVAILABILITY:

Work address: House No 58, Road No 15 a (New), Dhanmondi, Dhaka

Available for short-term consultancy work or in advisory capacity

1. NAME: Mr Ahmed MORTOZA

2. DATE OF BIRTH: 03.01.1929

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

Q **Industry/Engineering/Technology***

- chemical engineering
- fertilizer technology

5. RECENT PROFESSIONAL HISTORY:

1980 - present	Managing Director, Monir Chemicals Limited
1975 - 1980	Director, Planning, Bangladesh Fertlizer and Chemical Corporation

6. CONTACT & AVAILABILITY:

Work address: SWG (8), Gulshan South, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Dr G.H. RABBANI

2. DATE OF BIRTH: 30.01.1952

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

H **Health/Nutrition/Sanitation***

- diarrhoeal diseases
- rural sanitation

5. RECENT PROFESSIONAL HISTORY:

1983 - present	Scientist, International Centre for Diarrhoeal Disease Research
1980 - 1983	Lecturer, Physiology Department, Dhaka Medical College

6. CONTACT & AVAILABILITY:

Work address: ICDDR, B, Mohakhali, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Dr Atiq RAHMAN

2. DATE OF BIRTH: 06.08.1950

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

A **Environmental Planning**

- planning and teaching

B **Assessment Techniques**

- environmental impact assessment

C **Environmental Impact Assessment***

- carrying out and teaching EIA

5. RECENT PROFESSIONAL HISTORY:

1987 - present	Executive Director, Bangladesh Centre for Advanced Studies, Dhaka
1980 - 1987	Senior Fellow, Centre for Environmental Management and Planning, University of Aberdeen, Scotland
1975 - 1980	Research Fellow, Oxford University, Oxford, United Kingdom

6. CONTACT & AVAILABILITY:

Work address: Bangladesh Centre for Advanced Studies, 6262 Road No 20, Dhanmondi, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Dr Atiur RAHMAN

2. DATE OF BIRTH: 25.04.1939

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

D Economics*

- rural development

P Rural Development

T Disaster

- socio-economic consequences

5. RECENT PROFESSIONAL HISTORY:

1983 - present	Senior Fellow, Bangladesh Institute for Development Studies
1979 - 1983	London School of Oriental and African Studies

6. CONTACT & AVAILABILITY:

Work address: BIDS, Agargaon, Sher-e-Bangla Nagar, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Dr M. Anisur RAHMAN

2. DATE OF BIRTH: 25.04.1939

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

J Ecology/Biology

- genetics
- microbiology
- sericulture

5. RECENT PROFESSIONAL HISTORY:

1980 - present	Associate Professor, Department of Botany, Rajshahi University
1974 - 1980	Assistant Professor, Department of Botany, Rajshahi University
1976 - 1978	Director, Bangladesh Sericulture Training and Research Institute

6. CONTACT & AVAILABILITY:

Work address: Department of Botany, Rajshahi University, Rajshahi

Available for short-term and long-term consultancy work

1. NAME: Dr M. Mahbubur RAHMAN

2. DATE OF BIRTH: 03.01.1952

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

P **Rural Development***

- rural leadership studies
- action research
- decentralisation and administration

5. RECENT PROFESSIONAL HISTORY:

1985 - present	Research Fellow, Centre for Integrated Rural Development for Asia and Pacific
1984 - 1985	Senior Research Sociologist, Bangladesh Rural Advancement Committee
1979 - 1984	Assistant Professor, Rajshahi University

6. CONTACT & AVAILABILITY:

Work address: CIRDAP, 17 Topkhana Road, GPO Box 2883, Dhaka

Available for short-term consultancy work

1. NAME: Mr Shafiur RAHMAN

2. DATE OF BIRTH: 20.02.1937

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

O Agriculture

- problem soils
- soil survey

5. RECENT PROFESSIONAL HISTORY:

1985 - present	Associate Professor, Department of Soil Science, Dhaka University, Dhaka
1978 - 1985	Associate Professor, Department of Soil Science, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Soil Science, Dhaka University, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Mr Shamsur RAHMAN

2. DATE OF BIRTH: 23.12.1941

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

J Ecology/Biology

- ecology of forests*
- plant ecology

5. RECENT PROFESSIONAL HISTORY:

1982 - present	Associate Professor, Department of Botany, Rajshahi University
1978 - 1982	Assistant Professor, Department of Botany, Rajshahi University

6. CONTACT & AVAILABILITY:

Work address: Department of Botany, Rajshahi University, Rajshahi

Available for short-term consultancy work and voluntary work with expenses paid

1. NAME: Dr Syed SAFIULLAH

2. DATE OF BIRTH: 05.07.1943

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

I **Physical Sciences***

- inorganic chemistry
- environmental chemistry

S **Pollution/Waste**

- pollution chemistry

5. RECENT PROFESSIONAL HISTORY:

1983 - present	Professor, Department of Chemistry, Jahangirnagar University, Jahangirnagar
1982 - 1983	Research Fellow, Department of Chemistry, University of Strathclyde, Glasgow, Scotland
1975 - 1982	Associate Professor, Department of Chemistry, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Chemistry, Jahangirnagar University, Jahangirnagar

Available for short-term consultancy work

1. NAME: Dr Md Sohrabuddin SARKER

2. DATE OF BIRTH: 01.03.1937

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

K **Protected Areas**

- conservation

M **Wildlife Conservation***

- conservation of birds

5. RECENT PROFESSIONAL HISTORY:

1983 - present	Associate Professor, Department of Zoology, Dhaka University, Dhaka
1979 - 1983	Assistant Professor, Department of Zoology, Dhaka University, Dhaka

6. CONTACT & AVAILABILITY:

Work address: Department of Zoology, Dhaka University, Dhaka

Available for short-term and long-term consultancy work

1. NAME: Mr Mohammad SHAFI

2. DATE OF BIRTH: 22.07.1939

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

N **Marine and Fisheries***

- fisheries population dynamics

5. RECENT PROFESSIONAL HISTORY:

1983 - present	Professor, Department of Zoology, Dhaka University, Dhaka
1983 - 1984	FAO Expert on Kaptai Lake Project
1978 - 1982	Professor, Department of Fisheries, Baghdad University

6. CONTACT & AVAILABILITY:

Work address: Department of Zoology, Dhaka University, Dhaka

Available for short-term consultancy work

1. NAME: Dr M. SHAHJAHAN

2. DATE OF BIRTH: 01.02.1939

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

A **Environmental Planning***

- water resources planning

C **Environmental Impact Assessment***

- water resources

Q **Industry/Engineering/Technology**

5. RECENT PROFESSIONAL HISTORY:

1986 - present	Dean, Faculty of Civil Engineering, Bangladesh University of Engineering and Technology
1973 - 1985	Professor, Department of Water Resources, BUET
1980 - 1981	Director, Institute of Flood Control and Drainage Research

6. CONTACT & AVAILABILITY:

Work address: Department of Water Resources Engineering, Bangladesh University of Engineering and Technology, Dhaka

Available for short-term consultancy work, advisory capacity and voluntary work with expenses paid

1. NAME: Mr Abdul Kalam Md SHAMSUDDIN

2. DATE OF BIRTH: 15.01.1952

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

L **Forestry***

- social forestry

5. RECENT PROFESSIONAL HISTORY:

1985 - present	Deputy Conservator of Forests
1984 - 1985	Divisional Forest Office
1979 - 1984	Assistant Conservator of Forest

6. CONTACT & AVAILABILITY:

Work address: 124, North Jatrabari, Dhaka-4

Available for voluntary work with expenses paid

1. NAME: Dr Moinul Islam SHARIF

2. DATE OF BIRTH: 29.01.1950

3. NATIONALITY: Bangladeshi

4. TECHNICAL SPECIALITIES:

Q Industry/Engineering/Technology

- chemical engineering

5. RECENT PROFESSIONAL HISTORY:

1984 - present	Executive Director, Monir Chemicals Limited
1980 - 1984	Designer Engineer, Sandwell Limited, Switzerland

6. CONTACT & AVAILABILITY:

Work address: S.W. (G) 8, Gulshan Avenue, Dhaka

Available for short-term consultancy work

Union internationale pour la conservation
de la nature et de ses ressources

International Union for Conservation
of Nature and Natural Resources

Secrétariat de l'UICN
IUCN Secretariat

CONSERVATION FOR DEVELOPMENT CONSULTANT REGISTER

The Conservation for Development Consultant Register (CDCR) was established by IUCN in 1983 and is managed by IUCN's Conservation for Development Centre. It ensures that worldwide demand for experts in the many different aspects of conservation and development is efficiently matched with the wealth of available international expertise and that the difficulty of identifying suitably qualified people ceases to be an obstacle to achieving conservation goals. The Register has been developed with the individual consultant in mind and is for use throughout the world. It is being promoted widely through multilateral and bilateral development assistance agencies, non-governmental organisations, major multi-national corporations and developing country governments.

Criteria for inclusion on the CDCR

Individuals selected for inclusion in the CDCR would generally have relevant developing country experience, and at least three years professional experience in disciplines appropriate to "conservation for development". We receive biodata forms from experts in the natural and social sciences, in particular specialists whose services would be available for project work in the fields of natural resources management, protected area management, environmental law, environmental education, range management, agriculture, environmental engineering and health, impact assessment and other conservation and development-related disciplines. The attached form provides an indication of the areas of expertise sought. Individuals are included in the CDCR free of charge, regardless of nationality, sex or creed.

Submission of an application form implies that the individual is willing to be recommended for consultancy work (short-, medium- or long-term) or to act in an advisory capacity. Submission of a form does not imply automatic inclusion on the CDCR nor a right to be offered consultancy work.

Instructions for completion of form

Please complete the attached form typed or in capitals and in English. Submit it together with your dated curriculum vitae and list of publications, to:

Conservation for Development Consultant Register
World Conservation Centre
Avenue du Mont-Blanc
1196 GLAND
Switzerland

Please ensure that all sections on pages 1-2 are completed.

In completing sections XII-XIV please ensure that your entries realistically reflect genuine areas of expertise, and not simply aspirations or casual experience.

If there is insufficient room on the form, supplementary information may be attached on a separate sheet, indicating clearly the section to which it refers.

Even if you find it difficult to translate your specific experience into the categories given please ensure that your selection includes the overall category (e.g. L= Forestry). Most preliminary searches are done at this level, and more refined shortlisting will be done by manual inspection of the documents on your file. Use only where absolutely necessary the "other" category. Exceptionally, you may attach a note drawing attention to those parts of the CV which reflect relevant experience, and which could not be entered on the form.

It is important that we are notified promptly of any changes in address (II) - particularly telephone or telex - and availability (V). Please make a copy of this form for your records. We shall ask you for periodic updates.

Use of biodata information

Information submitted to the Consultant Register is treated with discretion and access is limited to a small number of operators and professional staff in IUCN. Information is not published or disseminated indiscriminately. We may forward individual CVs to particular requesting agencies on a selective basis. We shall try to ensure that individuals are informed if their names are short-listed. Individuals will be accorded such additional confidentiality as they request in writing.

Further information concerning the CDCR and the services it has to offer may be obtained from IUCN, Switzerland. You may write for further forms, or make a copy of this one for colleagues you know whose expertise is appropriate for inclusion in the Register.

CONSERVATION FOR DEVELOPMENT: CONSULTANT REGISTER BIODATA FORM

Please complete this form and return it with your curriculum vitae and publications list as requested on the attached instruction sheet.

Consultant Number (official use only)

I NAME

Ms/Mr/Dr/ First name(s):

Family name:

II MAILING ADDRESS

Telephone:

Telex:

Country: Cable:

PERMANENT ADDRESS (if different)

Telephone:

Telex:

Country: Cable:

IIIa BIRTH DATE

dd mm yy

b female/male*

IV NATIONALITY(S)

V AVAILABILITY

Please indicate your normal availability for consultancies by checking the appropriate boxes below:

short term (1-4 weeks)	Work in an advisory capacity yes/no*
medium-term (1-6 months)	Voluntary work with expenses
long-term (6 months+)	paid? yes/no*

Comments:

(Note: this section to be updated at least annually)

VI PROFESSION

What is your profession? (35 characters maximum please)

VII LANGUAGES

Mother tongue(s): _____

Language & Proficiency**	Language & Proficiency**	Language & Proficiency**

** Indicate by number: (5) excellent written and spoken (4) excellent spoken (3) good (2) fair (1) survival

* Delete as appropriate

VIII EMPLOYMENT

(a) Current employer's name & address:

	Telephone:
	Telex:
	Cable:
May we contact them should your name be selected?	Yes/No*

(b) Previous employer's name & address:

	Telephone:
	Telex:
	Cable:
May we contact them should your name be selected?	Yes/No*

IX AFFILIATIONS

List other relevant organisations for which you have worked (most recent first), stating type of organisation (government, national or international NGO, multi-bilaterial aid organisation, university, professional society, etc.).

Organisation	Type	Capacity	Dates (approx)

X COUNTRY/REGIONAL EXPERIENCE

List countries/regions (other than your own country) in which you have had professional experience (minimum one month):

Country/Region	Capacity/Project	Dates (approx)

XI OTHER SKILLS

List other relevant skills or qualifications, e.g. cartography, photography, mountaineering, flying, SCUBA

XII GENERAL EXPERIENCE

Please indicate below those categories which best reflect the type of experience you have had. Parts 1 and 3 must be completed. Part 2 should be completed as appropriate, making sure that you indicate meaningful areas of experience and expertise, and not simply aspirations. Each of the categories listed below carries equal weight.

PART 1:

SCOPE

- A ☐ international/regional/comparative
- B ☐ national/country
- C ☐ subnational/local

other: (specify) _____

LEVEL

- a ☐ senior policy/management/academic/scientist
- b ☐ middle management/professional/academic

other: (specify) _____

PART 2:

☐ D **MANAGERIAL/ADMINISTRATIVE:**

- a ☐ project design
- b ☐ agency coordination and liaison
- c ☐ institutional/personnel management
- d ☐ financial management
- e ☐ evaluation/assessment
- f ☐ information storage/retrieval
- g ☐ project implementation/execution

☐ E **INSTITUTION BUILDING:**

- a ☐ governmental
- b ☐ academic
- c ☐ citizen based (NGOs)
- d ☐ international

☐ F **POLICY FORMULATION AND PLANNING**

☐ G **LAW AND ARBITRATION:**

- a ☐ drafting
- b ☐ lobbying
- c ☐ enforcement
- d ☐ litigation
- e ☐ negotiation/conflict
- f ☐ resource ownership rights
- g ☐ regulation and standards

☐ H **RESEARCH**

☐ I **EDUCATION/TRAINING/INTERPRETATION:**

- a ☐ university/college
- b ☐ school/informal sector
- c ☐ extension and training
- d ☐ curriculum development
- e ☐ personnel management
- f ☐ materials & aids

PART 3: HIGHEST EDUCATIONAL QUALIFICATION:

- J ☐ doctor's
- K ☐ master's
- L ☐ bachelor's
- M ☐ technical qualification/diploma: (specify)

Others: (specify) _____

_____

_____

XIII ENVIRONMENT OF EXPERTISE

Indicate those types of environment, using the letter codes below, which are representative of your expertise (maximum 6)

A	Tropical forest	H	River
B	Temperate forest	I	Lake
C	Tropical grassland	J	Marine
D	Temperate grassland	K	Islands
E	Tundra/Arctic/Antarctic	L	Shores and coastal zones
F	Warm deserts/arid regions	M	Wetlands
G	Mountains	N	Urban

XIV TECHNICAL FIELDS

Indicate in the boxes below, using the codes, a maximum of five fields which best describe your experience and a maximum of four specialisations within each field. Please see example below of a forester (L) with experience in agro-forestry (a), forest resources inventory (d), silviculture (g) and watershed management (j). Before making your choice, consult the detailed specialisations below to determine which fields are most appropriate.

	Field (A, B, C, etc.)	Specialisation (a, b, c, etc.)			
Example:	Field: L	a	d	g	j
	Field:				
	Field:				
	Field:				
	Field:				
	Field:				

A	Environmental planning	L	Forestry
B	Assessment techniques	M	Wildlife conservation
C	Environmental impact assessment	N	Marine and fisheries
D	Economics	O	Agriculture/domestic livestock
E	Society and environment	P	Rural development
F	Communications/info./awareness	Q	Industry/engineering/technology
G	Human settlements and population	R	Energy
H	Health/nutrition/sanitation	S	Pollution and waste
I	Physical sciences	T	Disasters, human/natural
J	Ecology/biology		
K	Protected areas		

A	ENVIRONMENTAL PLANNING
a	environmental standards
b	integrated strategies
c	land and water resources/use
d	landscape
e	sectoral strategies
f	tourism/recreation
g	urban/regional

other: (specify) _____

B	ASSESSMENT TECHNIQUES
a	baseline surveys/field methods
b	impact mitigation
c	laboratory methods
d	modelling/simulation
e	monitoring programmes
f	remote sensing

other: (specify) _____

C	ENVIRONMENTAL IMPACT ASSESSMENT
a	EIA methods
b	environmental health IA
c	risk analysis
d	social IA

sector: (specify) _____

D	ECONOMICS
a	development planning
b	financial management
c	infrastructure
d	macro
e	micro
f	project appraisal
g	public finance
h	sectoral analysis

other: (specify) _____

E	SOCIETY AND ENVIRONMENT
a	attitudes/values/beliefs
b	history/anthropology/ethnology
c	human ecology
d	needs assessment
e	socio-economic analysis micro
f	socio-economic analysis macro

other: (specify) _____

F	COMMUNICATIONS/INFORMATION/AWARENESS
a	TV/film
b	campaign planning
c	database management
d	library sciences
e	materials/graphics
f	photo/AV
g	press/radio
h	translation
i	writing/editing/production
j	public participation

other: (specify) _____

G	HUMAN SETTLEMENTS AND POPULATION
a	demography
b	family planning
c	housing and shelter
d	migration
e	population geography/land tenure
f	refugees
g	resettlement schemes

other: (specify) _____

H	HEALTH/NUTRITION/SANITATION
a	disease control strategies
b	environmental health
c	epidemiology
d	hygiene/sanitation
e	nutrition
f	primary health care/extension
g	traditional medicine
h	transmission/zoonoses/vectors
i	veterinary

other: (specify) _____

I	PHYSICAL SCIENCES
a	geology
b	geomorphology
c	hydrology
d	meteorology
e	pedology

other: (specify) _____

J	ECOLOGY/BIOLOGY
a	animal ecology
b	animal taxonomy
c	birds
d	mammals
e	reptiles & amphibians
f	aquatic invertebrates
g	terrestial invertebrates
h	fish
i	biochemistry
j	biogeochemical cycles
k	biogeography/evolution
l	biomass & productivity studies
m	conservation biology
n	energy budgets/pathways/foodwebs
o	genetics
p	physiological ecology
q	plant ecology
r	plants, lower
s	plants, vascular
t	plant taxonomy

other: (specify) _____

K	PROTECTED AREAS (parks/reserves - marine and terrestrial)
a	historic sites
b	management/administration
c	tourism/recreation

other: (specify) _____

L	FORESTRY
a	agro-forestry
b	entomology and pathology
c	forest genetics
d	forest resources inventory
e	harvesting and logging
f	mensuration/statistics
g	silviculture
h	utilisation/minor forest products
i	watershed management
	other: (specify) _____

M	WILDLIFE CONSERVATION
a	animal damage control
b	zoos/arborita/seed banks etc.
c	introductions/exotics
d	utilisation/harvest/trade
e	wildlife/wildlands management
	other: (specify) _____

N	MARINE AND FISHERIES (see also Protected Areas)
a	aquaculture
b	habitat and species conservation
c	inventory/census/survey
d	mineral exploitation
e	productivity/extraction
	other: (specify) _____

O	AGRICULTURE/DOMESTIC LIVESTOCK
a	adaptive planning
b	agronomy
c	crop pathology
d	crops
e	farming/grazing/ranching systems
f	horticulture & gardens
g	integrated pest control
h	irrigation
i	large stock (bovines etc)
j	organic farming
k	rangeland management
l	residue and waste use
m	shifting cultivation systems
n	small stock
o	tillage
	other: (specify) _____

P	RURAL DEVELOPMENT
a	appropriate technology
b	baseline studies
c	infrastructure
d	small-scale industries
e	societal aspects
	other: (specify) _____

Q	INDUSTRY/ENGINEERING & TECHNOLOGY
	Major type:
a	agricultural engineering
b	chemical (incl. petrochemical)
c	civil engineering/land reclamation
d	food processing
e	marine engineering
f	metallurgy
g	mineral extraction (incl. oil and gas)
h	pulp/paper
i	water engineering
	other: (specify) _____
	Aspect:
j	control
k	industrial ecology
l	pollution/waste/recycling
m	siting
n	technology choice
	other: (specify) _____

R	ENERGY
	Type:
a	fuelwood/other biomass
b	geothermal
c	human/animal power
d	hydro
e	nuclear
f	oil/gas/coal
g	solar/wind/tidal
	other: (specify) _____
	Aspect:
h	resource management
i	policy/pricing
j	forecasting/modelling
k	conservation/storage/end use
	other: (specify) _____

S	POLLUTION/WASTE: MONITORING/CONTROL
a	air
b	biocides
c	noise
d	radioactive waste
e	solid waste
f	water
	other: (specify) _____

T	DISASTERS (HUMAN & NATURAL)
a	droughts
b	earthquakes/tsunami/volcanoes
c	famines/hunger
d	floods
e	hurricanes
f	monitoring
g	prediction
h	relief/mitigation
	other: (specify) _____

Please check that the information is complete and correct, sign and date below and mail to IUCN at the address given on the cover page.

I confirm that I have completed this form to the best of my ability and that the information it contains and which accompanies it may be entered on IUCN's Consultant Register in accordance with the objectives specified in the covering letter.

Date: ..... Signature: .....

Thank you for completing this form.