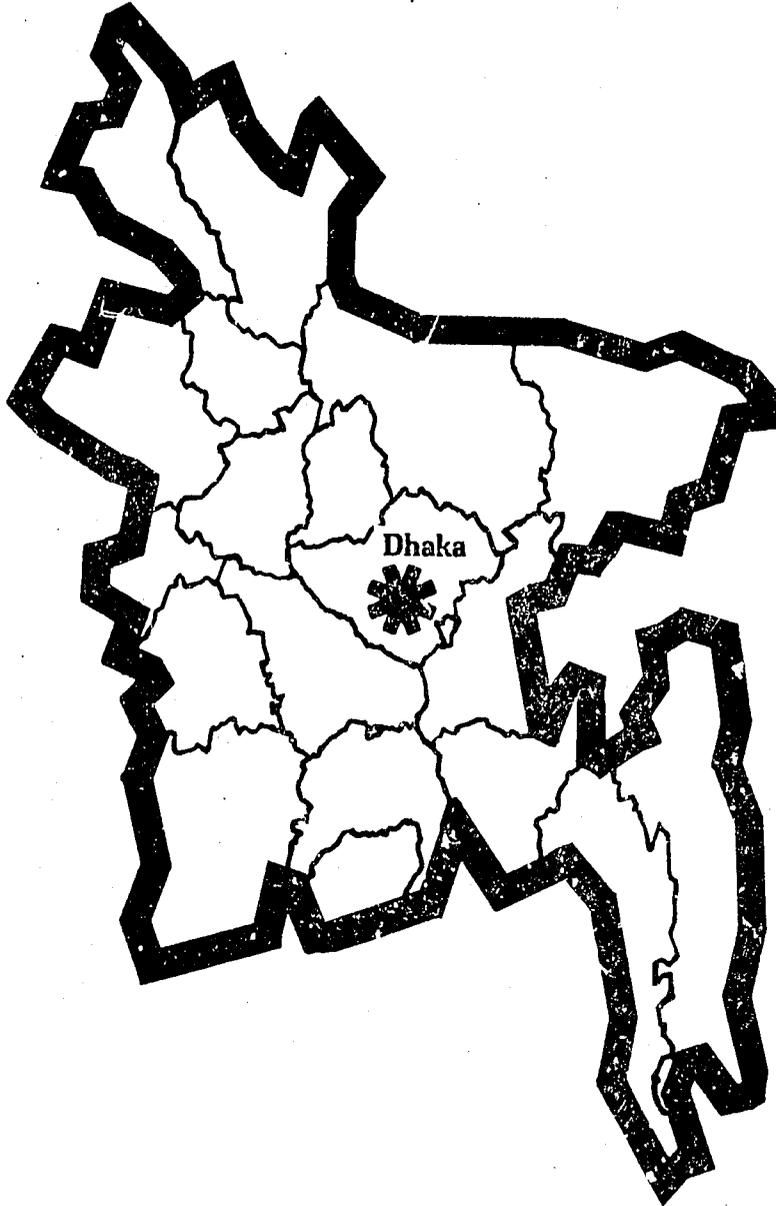


PN - AAN - 743

ISBN 01986

Bangladesh

A Country Profile



1983

Office of Foreign Disaster Assistance
Agency for International Development
Washington, D.C. 20523

BANGLADESH: A COUNTRY PROFILE

prepared for

The Office of U.S. Foreign Disaster Assistance
Agency for International Development
Department of State
Washington, D.C. 20523

by

Evaluation Technologies, Inc.
Arlington, Virginia
under contract AID/SOD/PDC-C-2112

The profile of Bangladesh is part of a series designed to provide country data on disaster vulnerability and preparedness in support of the planning and relief operations of the Office of U.S. Foreign Disaster Assistance (OFDA). Content, scope, and sources have evolved over the course of the last several years; the relatively narrow focus is intentional. To avoid redundancy, some topics one might expect to find in a "country profile" are not covered here.

We hope that the information provided will also be useful to others in the disaster assistance and development communities. Every effort is made to obtain current, reliable data; unfortunately it is not possible to issue updates as fast as changes would warrant. A cautionary note, therefore, to the reader: statistics are indicators at best, and if names and numbers matter, the bibliography will point to a current source.

We invite your comments and corrections. Address these and other queries to OFDA, A.I.D., as given above.

May 1983

ACKNOWLEDGMENTS

We gratefully acknowledge the assistance provided by a number of U.S. Government agencies in the preparation of this profile. We are especially appreciative of the information contributed by George G. Wood of the USAID Mission in Bangladesh.

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1. General Information

1.1 Geographic Codes

AID Standard	388
NAC Code Book	513
AID Region	ASIA/BI
State Region	NEA/PAB

1.2 Host Mission in U.S.

Embassy: 3421 Massachusetts Ave., N.W.
Washington, D.C. 20007
Tel: (202) 337-6644, 45, 46

For current information on the Bangladesh Embassy staff in the United States, refer to U.S. Department of State, Diplomatic List.

1.3 U.S. Mission in Bangladesh

Embassy: Adamjee Court Building (5th. floor)
Motijheel Commercial Area
GPO Box #323, Ramna
Dhaka
Tel: 235093/9 and 237161/3

For current information on the U.S. Embassy staff in Bangladesh, refer to U.S. Department of State, Key Officers of Foreign Service Posts.

1.4 Time Zones

EST +11
GMT +6

1.5 Currency

100 paisa = 1 taka
 24.4 taka = U.S.\$ 1.00
 (March 1983; for current exchange rates
 contact the U.S. Treasury Department or the
 Bangladesh Embassy)

1.6 Travel and Visa
InformationPassport and Visa
Requirements:

Passports are required. Visas are not required of U.S. citizens provided they intend to remain in the country for seven days or less and they are in possession of a ticket confirming their departure from Bangladesh within seven days of their arrival. Check specific requirements with the Embassy of the People's Republic of Bangladesh, Washington, D.C. 20007; or the Consulate, New York 10016.

Health Requirements:

Yellow fever inoculations are required for arrivals from endemic areas.

1.7 Calendar and Holidays

New Year's Day	Jan. 1
Eid-i-Milad-un-Nabi (Prophet's Birthday)	Jan.*
National Mourning Day	Feb. 21
Independence Day	Mar. 26
May Day	May 1
Buddha Purnima	May*
Jamat-ul-Wida	July*
Eid-ul-Fitr	July*
Sab-i-Bharat	Sept.*
Id-ul-Azha	Sept.*
Durga Puja	Oct.*
Muharram (Muslim New Year)	Oct.*
National Revolution Day	Nov. 7
Victory Day	Dec. 16
Christmas Day	Dec. 25

* Dates of certain religious holidays are subject to the sighting of the moon, and there are also optional holidays for different religious groups.

1.8 Treaties and Agreements

Agricultural Commodities
Economic and Technical Cooperation
Finance
Investment Guaranties
Peace Corps

**1.9 International Organization
Memberships**

ADB, Commonwealth, FAO, IAEA, IBRD,
IDA, ILO, IMF, Indo-Pacific Fisheries
Council, Intergovernmental Maritime
Consultative Organization, International
Finance Commission, International Fund for
Agricultural Development, NAM, OIC, South
Asia Forum, UN, UNCTAD, UNESCO, UPU, WHO,
WMO, WTO

1.10 Government

Political Status: Bangladesh is a democratic republic.

Government Structure: The President is elected by universal suffrage for a five-year term and appoints his Council of Ministers from a 330-member Parliament.

Regional Organization: The basic units of regional administration are, in descending order:

Divisions - 4 (Dhaka, Khulna, Chittagong,
Rajshahi)
Districts - 21
Subdivisions - 71
Thanas - 480
Union Parishads - 4,353
Villages - 71,291

1.11 Ethnic and Sociocultural Groups

Bangladesh is noted for the ethnic homogeneity of its population. Over 98% of the population is Bengali; the remaining two percent is Biharis and tribal groups.

1.12 Languages

Bengali is the official language of Bangladesh. English remains the language of the modern sector, but its use is declining.

1.13 Religions

Nearly 90% of the population is Muslim, the majority belonging to the Sunni sect. Approximately 10% is Hindu. Smaller minorities include Buddhists, Zoroastrians, Christians (mainly Roman Catholic), and tribal animists.

1.14 Geography

Area: 143,998 sq. km.

Geographic Type: Bangladesh can be divided into a vast alluvial plain (the Bengal plain, the largest delta in the world) and a series of parallel hill chains in the extreme southeast. Greatest elevation: Keokradong (1,229 m.)

Rivers: The three principal rivers, the Ganges-Padma, the Brahmaputra-Jamuna, and the Meghna, form a complex interlacing river network covering the entire country.

Climate: The climate is tropical monsoon with an average temperature of 19° C from October to March and 29° C from May to September. Three-quarters of the annual rainfall occurs between June and September. Average annual rainfall varies between 127 and 152 cm. in the west to over 254 cm. elsewhere.

1.15 Population

Demographic Characteristics:	Average annual growth rate (1975-81)	2.6%
	Density per sq. km. (1981)	624
	arable land	958
	Age structure 0-14	46%
	15-64	51%
	65+	3%

Population By District:	<u>Rajshahi</u>	<u>21,088</u>
(1981 census, in '000)	Dinajpur	3,198
	Rangpur	6,490
	Bogra	2,718
	Rajshahi	5,263
	Pabna	3,419

	<u>Khulna</u>	<u>17,150</u>
	Kushtia	2,273
	Jessore	4,016
	Khulna	4,353
	Barisal	4,668
	Patuakhali	1,840

	<u>Dhaka</u>	<u>26,249</u>
	Jamalpur	2,445
	Mymensingh	6,543
	Tangail	2,444
	Dhaka	10,049
	Faridpur	4,768

	<u>Chittagong</u>	<u>22,565</u>
	Sylhet	5,650
	Comilla	6,880
	Noakhali	3,813
	Chittagong	5,476
	Chittagong Hill Tracts	746

TOTAL* 87,052

* Data shown represent actual census results, not adjusted for probable undercounting. The adjusted 1981 Census estimate of total population is 89,940,000.

Source: Bangladesh Bureau of Statistics as cited in World Bank, Bangladesh: Recent Economic Developments and Selected Development Issues, March 3, 1982.

1.16 Health

Vital Statistics:	Births/1,000 population (1981)	42.0
	Deaths/1,000 population (1981)	17.0
	Infant mortality/1,000 live births (1979)	139
	Life expectancy at birth (1979)	49 years

Health Care System: Health services are centralized and administered by the districts under the supervision of a civil surgeon. There are also scattered private services such as community cooperative health insurance plans and individual physician care. Traditional services based on folk beliefs and herbal treatments still exist.

Facilities and Personnel: There are eight medical college hospitals. Each district has a 100-300 bed hospital. Subdivision towns have smaller hospitals, while at each thana there is a combined inpatient/outpatient facility with about 10 beds. Health facilities at the union level are under development. Many thanas have smaller health complexes and there are government dispensaries throughout the country. Doctors numbered 11,693 and nurses (of varying levels) 4,488 as of 1981.

Major Causes of Death: Infectious diseases (cholera, diarrheal diseases, tuberculosis, measles, diphtheria, and whooping cough), gastroenteritis, tetanus, and malnutrition. The inadequacy of both the potable water supply and sewerage system has been identified as a chief obstacle to improving the country's overall health status.

1.17 Economy

Overview: Economic growth has been reasonably strong since 1976, averaging a 5% increase annually. GDP increased by 7% in FY 1981, a reflection of growth in all economic sectors. Agriculture comprises 54% of the GDP, followed by trade (11%), manufacturing (8%), and construction (6%). Growth in FY 1982 is expected to be at a substantially lower rate than in 1981 as prolonged drought may limit foodgrain production.

- Balance of Payments:** Bangladesh's balance of payments is characterized by a massive trade deficit and heavy dependence on foreign aid. Currently export earnings represent less than 30% of the import bill.
- Exports:** Raw jute, jute goods, tea, leather, frozen shrimp and fish, and naptha and furnace oil. The United States, United Kingdom, other EEC countries, Pakistan, and the USSR comprise the principal export markets.
- Imports:** Foodgrains, edible oil, petroleum and petroleum products, fertilizers, raw cotton, cement, and textiles. The United States, Japan, West Germany, United Kingdom, other EEC countries, Saudi Arabia, and India are the main suppliers.
- Agriculture:** Agriculture employs nearly 80% of the labor force and accounts for more than half of GDP. Despite average sectoral growth of 4% per year since 1975, continued shortfalls in foodgrain production have resulted in the need for substantial grain imports. Major crops are foodgrains (aus, aman, and boro rice and wheat), pulses, jute, sugarcane, and potatoes. The livestock, forestry, and fishing industries contribute nearly one-quarter of the earnings of the agricultural sector.

1.18 Communications

- Radio Network:** The official broadcasting organization is Radio Bangladesh, which broadcasts throughout the country in the Bengali, English, Hindu, and Urdu languages. Radio Bangladesh operates eleven medium-wave transmitters and four short-wave transmitters. The radio audience is large, and ownership of radios is widespread. A new transmitter installed in Khulna broadcasts weather bulletins and storm warnings to fishermen and vessels in the Bay of Bengal.

Television: Bangladesh Television Corporation, the government-owned station, has its main transmitter in Dhaka, with additional stations located in Khulna, Chittagong, Sylhet, Natore, and Mymensingh. The Dhaka station broadcasts programs 13 hours daily. However, few people have access to television.

Telecommunications: Telegraph offices are located throughout the country in post offices. Direct international teletype and telephone communications are located in Dhaka and Chittagong.

1.19 Transportation

**Railway, Roads,
and Waterways:**

Inland water transport is the principal mode of transport (8,430 km. of navigable waterways on which five major river ports are located). The railroad is also of major significance with 2,858 km. of tracks. There is no national road system. Most roads break off at riverbanks and highways become submerged during the rainy season.

Ports:

The two main seaports are located at Chittagong (Port Chittagong) and Khulna (Port Chalna). A modern seaport is being developed at Mangla (near Khulna). Additionally, there are five major river ports located at Dhaka, Narayanganj, Chandpur, Barisal, and Khulna.

Shipping:

The Bangladesh Shipping Company operates a small fleet of oceangoing ships as well as a small merchant marine. As of 1980, the fleet consisted of 25 oceangoing ships. Seven of these are expected to be replaced and 15 additional vessels acquired by 1985. The Bangladesh Inland Water Transport Corporation has 633 vessels of various types.

Airports:

The major international airport is Zia International Airport in Kurmitola, 16 km. from Dhaka. There is also an international airport at Chittagong. The former airport serving Dhaka, at Tejgaon, is now used by the military. Twenty-two other airfields, most of which are usable with permanent-surface runways, are located throughout the country.

Airlines:

International - Aeroflot, Bangladesh Biman Airlines, British Airways, Kuwait Airways, Burma Airways, Air India, Indian Airlines, PIA, Saudia, and Thai Airways International all have flights to Bangladesh, through the Dhaka airport.

Domestic - The national airline is Bangladesh Biman Airlines, which operates regular flights between Dhaka and most major cities.

Please note - For a more detailed discussion of transportation in Bangladesh, see section 3.8, Transportation Resources.

2. Disaster Vulnerability

2.1 Overview of Physical Environment

Bangladesh is a low-lying riverine country on the northern edge of the Bay of Bengal. The country is a huge delta formed by three major river systems. The terrain is extremely flat and is interlaced with an intricate system of rivers and tidal channels which cut the land into numerous separate areas. These channels carry flood water from the main rivers as well as act as conveyor channels for rainfall and tidewater to the Bay of Bengal. Because of the flatness of the land and heavy rainfall, the surface drainage system is not well-defined. Many of the separate land areas created have saucerlike shapes with higher elevations on the natural banks adjacent to rivers. At places, the rivers change course and flow through the center of the saucers, creating floodplains. Elevation varies from below sea level to an extreme of 6 m. or more above sea level; however it seldom exceeds 3 m.

The influence of the Himalayan, the Assam, and the Burmese mountain ranges in the north and the northeast, and the Bay of Bengal in the south, results in the tropical monsoon climate of the country. In addition, the country's location along approximately 600 km. of coastline, leaves huge tracts of land open to the destructive effects of cyclones and storm surges.

2.2 Hazard Analysis

Cyclones and Storms: An average of twelve tropical depressions occur in the Bay of Bengal annually. Five of these may worsen and become cyclone storms, with winds in excess of 63 km. per hour. The more severe tropical cyclones occur at a rate of 1.3 a year in the coastal districts. These cyclones, which form over the Bay of Bengal, carry winds in excess of 240 km. per hour and create large storm surges (locally called tidal bores), which often crest at 9 meters. The storm surges are far more devastating to land, people, and buildings than are the wind and rain of the cyclone. Because crests of up to 4 m. between low and high tide are common in the northern Bay of Bengal, a storm of moderate intensity approaching the coast at high tide can be as, or even more dangerous than a severe storm which coincides with low tide.

Tropical cyclones typically form over the southern portion of the Bay of Bengal and move northwestward to the Indian coast, or gradually turn northeastward to Bangladesh. Though depressions are most numerous during mid-summer (June to September), severe cyclones have usually occurred in the months of May, October, and November.

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During the past 190 years, Bangladesh has experienced 34 severe cyclones, an average of one every five years; however, the distribution has not been even. A significant increase in cyclonic activity in the first part of this century was followed by a lull between 1930 and 1960, when only four severe storms occurred. Since 1960, there has been a further sharp rise, with an average of one cyclone a year. There is no generally accepted explanation for this increase, nor is it known whether it will continue.

Cyclones have been most frequent in the coastal districts of Khulna, Bakergunj and Noakhali, but they have also occurred away from the coast as far north as Rangpur, Dinajpur, Pabna, and Mymensingh. A map of cyclonic storm tracks is shown in Figure 1.

Devastating storms, called 'Kalbaishakhi', originate over land and move southward towards the coast, often causing heavy property damage or loss of life among the fishing community. This hazardous phenomenon is accompanied by violent squalls, heavy rain, hail, and isolated tornadoes, and occurs primarily during the pre-monsoon months of March to May.

Floods: Flooding is one of the most common types of natural disasters in Bangladesh, causing millions of dollars of destruction each year to agriculture, housing, and infrastructure as well as taking thousands of human lives. According to the Bangladesh Ministry of Relief and Rehabilitation, 151 thanas (out of a total of 480) in 13 districts covering an area of 48,000 sq. km. (approximately one-third of the country's total area) are prone to flooding. The population of these flood-prone regions totals nearly 30 million.

There are many causes of flooding in Bangladesh. They include: the general low elevation of the terrain; excessive rainfall in catchment areas and increased discharge through the rivers; siltation at the junction of distributaries and main rivers; the rising of river beds (through siltation) due to earthquakes; the effects of embankment construction along upper reaches of rivers outside of Bangladesh; deforestation; backwater effects of ocean tides; the rise of the sea level; and coincidental peak flooding along several river channels.

Drought: About two-thirds of the rainfall received in Bangladesh occurs during the period of the southwest monsoon (June to September). Variations in mean annual rainfall from year to year are only moderate, so that there is a high degree of reliability in mean annual amounts. However, failure of the monsoon may occur (as in 1972). During the dry season, river flows are drastically reduced. Water shortages during this season are felt most severely in the northeastern portion of the country and in the lower delta areas. Furthermore, the coastal regions of the country are regularly inundated by the sea; these areas have groundwater with high salinity levels during the dry season, making water unsuitable for irrigation. Diversions of the major rivers in India and Nepal also typically result in reductions in water levels in the Bangladesh sections of the rivers.

BANGLADESH

Seismicity: Geologically, most of Bangladesh lies on the Bengal Basin, a seismically active zone. The country is divided into four seismic zones. Zone I is a high seismicity zone covering the Mymensingh, Rangpur, and parts of Dhaka. Zone II is a moderate seismicity zone covering the Chittagong Hill Tracts, Comilla, Dhaka, Rangpur, Rajshahi, and Dinajpur. Zone III is a low seismicity zone covering the Noakhali, parts of Comilla, Faridpur, Jessore, Khulna, and Rajshahi. Zone IV has negligible seismicity and covers the southern part of the country comprising Barisal, Patuakhali, Pirojpur, and Bhola.

During the past 100 years, the country has experienced several major earthquakes (in 1887, 1918, 1976, and 1978). The largest was the Srimangal earthquake in 1918 and the earthquake in Bangladesh.

Civil Strife: Bangladesh has had a long history of political instability. The country's first constitution was suspended in 1971, which resulted in a major refugee crisis and the independence of Bangladesh. Since that time, political instability has continued with the Bangladesh's president's assassination. The current political situation appears to be under control, but the history of political strife indicates that political unrest could occur in the future.

Other: Other types of climate-related hazards in Bangladesh include river bank erosion, sea level rise, and cyclones.

Severe erosion and siltation of Bangladesh's river system is not dependent on flooding but on high discharge and sediment load. Excessive erosion during the rainy season further exacerbates river bank erosion, which causes hydraulic problems for the river system. These problems have a significant impact on human settlements, including loss of agricultural land, river and destruction of housing, and infrastructure.

Water degradation is also a serious problem in Bangladesh. A small portion of the population has access to safe drinking water due to contamination by human waste, agricultural runoff, and dumping of toxic industrial wastes.

Epidemics occur periodically in Bangladesh. Cholera outbreaks in the deltaic regions pose the major threat. The seasonal epidemics of cholera in different parts of the country is a recurrent phenomenon, beginning in September in the northern areas of the country, and spreading south to Dhaka in November and December and the south coast of Bangladesh in April, and May.

2.2 Disaster History

Bangladesh has been affected by 30 disasters since 1900, making it the second most disaster-prone country in the world in terms of disaster occurrences as recorded in the UNDA Disaster History. Of these disasters, seven have had their causes by cyclones, and 22 (as listed below) resulted in more than 100 deaths.

Selected Major Disasters

Year	Disaster Type	Location	Number Killed	Number Affected ('000)	Damage (\$ mil)
1904	Earthquake	Rajshahi	393,000	n.a.	n.a.
1907	Flood	Rajshahi	1,300,000	n.a.	n.a.
1914/15	Cyclone	Chittagong	500	n.a.	n.a.
1917/18	Cyclone	Bay of Bengal	14,000	n.a.	n.a.
1920	Flood	Chittagong	10,000	n.a.	n.a.
1921/22	Cyclone	Coastal areas	3,000	n.a.	n.a.
1923/24	Cyclone	Coastal areas	5,149	n.a.	n.a.
1924/25	Cyclone	Rajshahi	11,200	n.a.	11.9
1926/27	Cyclone	Coastal areas	11,466	n.a.	n.a.
1928/29	Cyclone	Chittagong	11,500	1,000	46.5
1930/31	Cyclone	Coastal areas	36,000	10,000	57.7
1931/32	Cyclone	Chittagong-Tandak	874	60	n.a.
1932/33	Cyclone	Chittagong-Tandak	850	500	22.4
1933/34	Cyclone	Chittagong-Tandak	849	160	n.a.
1934/35	Cyclone	Chittagong-Tandak	300,000	3,648	86.4
1935/36	Earthquake	Rajshahi	200,000	27,000	1,400.0
1936/37	Cyclone	Coastal areas	1,000	n.a.	n.a.
1938	Flood	Rajshahi	28,700	36,000	579.2
1939/40	Cyclone	Chittagong	600	n.a.	n.a.
1940	Earthquake	Chittagong-Tandak	6,150	200	n.a.
1941/42	Cyclone	Bay of Bengal	1,000	n.a.	n.a.
1942	Flood	Barisal	655	10,000	150.0

Source: UNDA Disaster History of file in Washington, D.C. Covers 1900 to the present.

2.3 Vulnerability of Infrastructure

In the event of severe flooding or a cyclone, the two most common destructive disaster types in Bangladesh, the country's infrastructure could be very vulnerable to damage from wind and water associated with these phenomena. The two major ports, Chalna (Khulna district) and Chittagong (Chittagong district) and one of the major airports, also at Chittagong, are located in two of the most cyclone-prone regions of the country. These facilities could more than likely be forced to close

during a cyclone, storm surge, or major flood, and would possibly suffer some degree of damage. Inland waterways would most likely be affected also. During the monsoon season, these waterways may be too swollen with flood waters for normal river traffic.

Additionally, numerous hospitals, electric power plants, natural gas plants, oil refineries, and steel mills are located throughout Bangladesh in disaster-prone regions, and would possibly be subject to shutdowns or damage from natural disasters.

Housing is also extremely vulnerable to disasters. The typical rural house in Bangladesh is a one-room structure of clay or rice straw and bamboo. In areas where flooding occurs regularly, earthen plinths 4 meters high are used to raise houses above the flood level. However, the houses are not often of permanent resistance and must be replaced every two to three years.

2.5 Vulnerability of Agriculture

Agriculture, the most important sector of the Bangladesh economy, is extremely vulnerable to natural disasters, principally floods, droughts, cyclones, and storm surges. Floods are perhaps the most frequent destructive force to agricultural lands. Seasonal flooding is normal over two-thirds of Bangladesh. Traditional land use and cropping patterns are closely adjusted to the seasonal flooding affecting particular types of land. Flood damage occurs when flooding is earlier, higher, or later than normal, thus drowning standing crops or preventing (or delaying) the sowing of a major crop. The time of occurrence of abnormal flooding is generally more critical than the absolute level of flooding. Droughts occur during the dry season (October to May) when river flow is sharply reduced. Crop damage by cyclones is only partly attributable to the strong winds. It is usually caused by associated heavy rains and consequent flooding. Storm surges are destructive when flood waters are highly saline. These disasters affect not only agricultural crops, but food reserves and live-stock as well.

Agricultural Crop Calendar for Bangladesh

<u>Crop</u>	<u>Planting</u>	<u>Harvesting</u>	<u>Transplanting</u>
Maize	April-May	July-August	
Rice-Aman	March-May	Nov.-Dec.	
Aus	March-May	July-Sept.	
Boro	Sept.-Dec.	March-May	Oct.-Dec.
Sugarcane	Feb.-March	Dec.-Jan.	
Wheat	Oct.-Nov.	Feb.-March	

Crops by Region

Coast: rice (aman, aus, boro), sugarcane

Highlands: maize, rice (aman, aus), sugarcane

Northeast: maize, rice (aman, aus, boro), sugarcane, wheat

Northwest: maize, rice (aman, aus), sugarcane, wheat

West: maize, rice (aman, aus, boro), sugarcane, wheat

2.6 Historical Vulnerability

The extreme vulnerability of Bangladesh's infrastructure and agriculture to natural disasters has been apparent throughout its history. In 1974 seasonal monsoon flooding of unusual proportions resulted in the country's worst natural disaster of the past decade. Over 89,000 hectares of land and 36 million people were affected by the flooding. The Government of Bangladesh estimated casualties and losses as follows:

Deaths - from flooding	1,200
Deaths - from disease and starvation	27,500
People affected	36,000,000
Houses destroyed/damaged (including temporary shelters)	425,000
Houses partially damaged (including temporary shelters)	868,000
Educational institutions affected	16,200
Submerged roads (kilometers)	1,290
Considerable damage to river embankments	
Crop losses:	
Hectares of rice	1,457,000
Tons of stored rice	1,100,000
Hectares of jute	69,600
Bales of stored jute	238,000
Hectares of miscellaneous crops	74,500
Tons of fertilizer	25,000
Dollar damage:	
Agriculture	\$325,900,000
Roads and embankments	75,900,000
Schools	19,600,000
Housing	157,800,000
	<u>\$579,200,000</u>

Additional detailed information on damages caused by specific disasters in Bangladesh can be found in OFDA Disaster Case Reports, on file in Washington, D.C.

3. Disaster Preparedness and Assistance3.1 Host Country Disaster Organization

Bangladesh has no national disaster plan, although legislation promulgating a plan has been under discussion since 1976. At the present time, relief operations are conducted on an ad hoc basis through executive orders. The bulk of disaster preparedness and relief activities comes under the auspices of two bodies, namely the Central Coordination Committee for Floods and the Ministry of Relief and Rehabilitation. The former, chaired by the Vice President, issues policy guidelines to agencies and departments responsible for flood protection measures.

The Ministry of Relief and Rehabilitation (MRR) of the Ministry of Food is the permanent disaster relief organization in Bangladesh. It is responsible for the coordination of all Government of Bangladesh activities related to disaster relief, as well as those of the international and voluntary agencies and bilateral donors. The disaster organization consists of six tiers, from the national to the union level. The organization at the thana, subdivision, district, and divisional levels consists of officers of various government service departments and civil administrators at each level. Union, thana, and subdivisional level officers are responsible for assessing relief needs, and mobilizing and overseeing relief efforts immediately after the disaster.

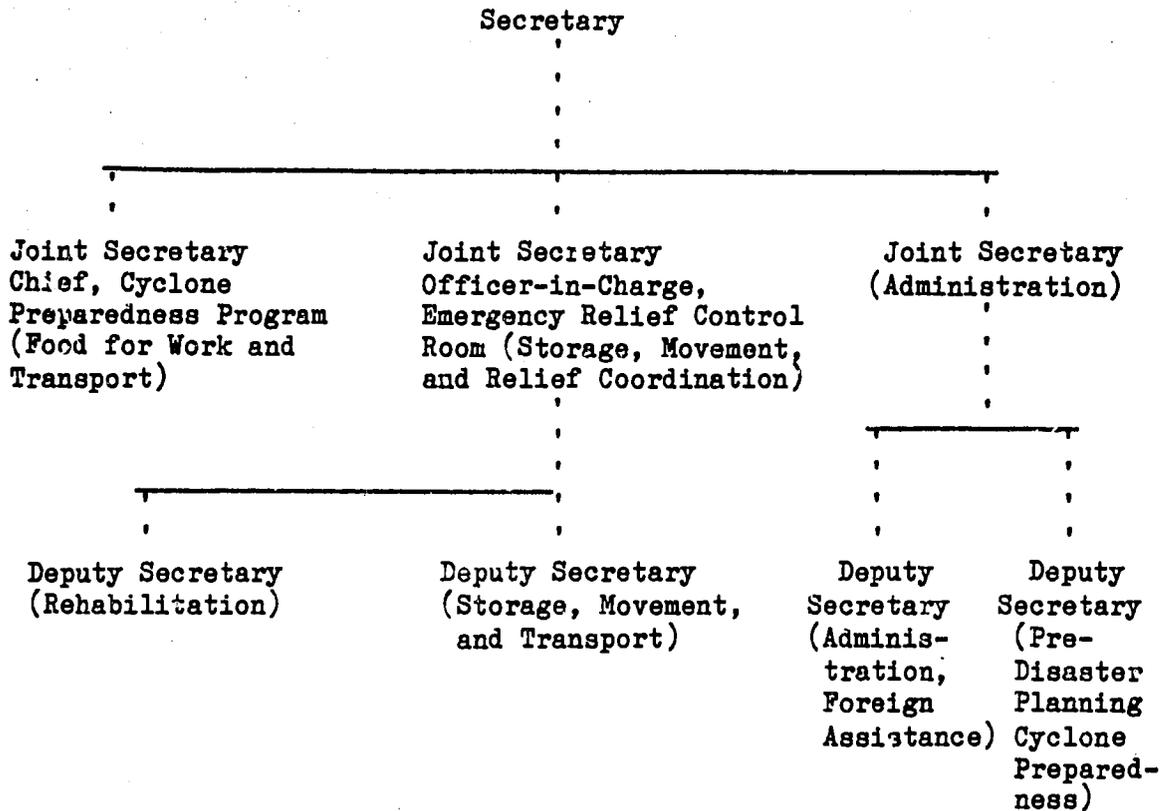
The MRR operates an emergency operations center located in Dhaka. A single sideband network connects the operations center with district and subdivisional headquarters throughout Bangladesh. This network, normally used for administrative purposes, doubles as a warning alert system. It complements that of the Bangladesh Cyclone Preparedness Program, a joint venture program with the Bangladesh Red Cross organized in the coastal areas to provide warning and relief in the event of a cyclone.

In the event of a disaster, the Bangladesh Red Cross, the International Center for Diarrheal Disease Research, Bangladesh (ICDDR/B), and other voluntary agencies operating in Bangladesh are directly linked with the MRR. The MRR coordinates the Cyclone Preparedness Program through the Policy Committee and Implementation Board, in which other Ministries, the Bangladesh Red Cross, and other voluntary agencies are represented.

Bangladesh Ministry of Relief and Rehabilitation (March 1983)
Second Nine Story Building
Second Floor
Bangladesh Secretariat
Dhaka, Bangladesh
Tel.: 406026 and 400285

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Organizational Structure



3.2 Assessment of Host Disaster Organization

The operational effectiveness of the Ministry of Relief and Rehabilitation, the Red Cross, and other government organizations during past disasters has been hampered by disputes over the responsibility between military and civilian authorities and between the government and the Red Cross. In 1977 and 1979-80, the Bangladesh army and navy were assigned the task of rescue and relief at a high cost of both funds and lingering resentment, especially from the Red Cross, which controlled relief supplies.

Disagreement over the roles of civilian versus military authorities and the Red Cross has been partly responsible for delaying the adoption of a national disaster plan.

3.3 Bangladesh Red Cross (BRC)

In terms of disaster alert and relief operations, the Bangladesh Red Cross is the single most important voluntary agency. In addition to its involvement with the MRR in the Cyclone Preparedness Program (CPP), the BRC operates 73 local Red Cross units and several central warehouses where relief supplies are stockpiled.

From a headquarters in Dhaka, the committee officials in charge of the CPP maintain contact with 22 full-time officers stationed in the thanas of the cyclone belt, via a single side-band radio network. These officers supervise the volunteer warning system, the training of volunteers, maintenance of all equipment, and various off-season development projects. Each thana is subdivided into village units of trained volunteers. These units are responsible for warning, first aid, evacuation, reporting, and shelter. Their equipment consists of megaphones, transistor radios, mechanical sirens, and first-aid kits. In 1982, there were a total of 18,808 volunteers.

The central staging area at Barisal, operated by the CPP, has 22 speedboats, two jeeps, five motorcycles, and one 125 ton LCT (landing craft with tanks). In Chittagong, there are 12 speedboats, four jeeps, 6 motorcycles, and one LCT assigned to the Red Cross. For further discussion of transportation resources in Bangladesh, see section 3.8, Transportation Resources.

The Bangladesh Red Cross also maintains and operates 200 cyclone shelters located at Barisal, Patuakhali, Noakhali, Chittagong, and Khulna, and 137 Killas (earth mound shelters).

Bangladesh Red Cross
684-686 Baro Mogbazar
Dhaka
Tel: 407908, 400188

Cyclone Preparedness Program Control Room
2/16 Babar Road
Mohammedpur (across from Sher-e-Bangla Hospital)
Dhaka-7
Tel: 315372, 312447

CPP Policy Committee

- | | |
|-----------------------------------------------------------------------|--------------------|
| 1. Minister for Food | - Chairman |
| 2. Minister for Local Government, Rural
Development & Cooperatives | - Vice-Chairman |
| 3. Chairman, Bangladesh Red Cross Society | - Vice-Chairman |
| 4. One Representative from Planning Commission | - Member |
| 5. Two Representatives from Bangladesh Red Cross | - Member |
| 6. Secretary, Relief & Rehabilitation Division,
Ministry of Food | - Member Secretary |

CPP Implementation Board

- | | |
|----------------------------------------------------------------------------------|--------------------|
| 1. Secretary, Relief & Rehabilitation Division,
Ministry of Food | - Chairman |
| 2. Secretary, Bangladesh Red Cross Society | - Member |
| 3. Two Representatives from Bangladesh
Red Cross Society | - Member |
| 4. One Representative from Local Government, Rural
Development & Cooperatives | - Member |
| 5. Five Other Members | - Member |
| 6. Director, Cyclone Preparedness Program | - Member Secretary |

Organization

Headquarters
Policy Committee
Implementation Board

Director
·
·

Field Inspector (2)
·
·

Thana Development Officer (2)
·
·

Union Team Leader (202)
·
·

Unit Team Leader
Ward Team Leader (1,849)
·
·

Volunteers (18,808)
·
·

Administrative Ministry
Ministry of Food
(Relief and Rehabilitation Division)

3.4 Storm Warning System

The National Storm Warning Center of the Bangladesh Meteorological Department in Dhaka is responsible for issuing warnings of tropical cyclones according to the Cyclone Preparedness Program. The Flood Forecasting Center of the Bangladesh Water Development Board is responsible for the issuance of flood warnings.

From the earliest stages of a cyclone, the Storm Warning Center in Dhaka keeps the nation informed of developments through radio and television broadcasts. After the storm matures and is likely to strike the coast, messages are issued under the code address "Hurricane" by telegram to all responsible administrative authorities. Special bulletins are also issued for television and radio broadcasts. Six special bulletins are normally issued although the number rises with the increasing intensity of the cyclone. The Storm Warning Center endeavors to issue cyclone information as soon as possible, often between 48 and 72 hours before the danger period. Danger warnings are issued when a tropical storm of light/moderate intensity with a maximum wind speed of 63 to 87 km. per hour is expected. Great Danger warnings are issued when a storm of a sustained maximum wind speed of 88 to 120 km. per hour or more is expected to strike the Bangladesh coast.

The Storm Warning Center also issues a set of warning messages under the code address "Typhoon" by land line telegram down to the subdivision/thana levels (approximately 120 locations in total). Authorities in these areas are responsible for publicizing the Danger or Great Danger warnings throughout the region by the use of drums, sirens, or any other means at their disposal.

All special bulletins are regularly broadcast by all of the stations of Radio Bangladesh. The broadcasts are repeated hourly, half-hourly, or at shorter intervals depending on what the situation demands. (See also section 1.16, Communications.)

Riverports are warned at the same time as the general public for the safety of rivercrafts using inland waterways. They are warned by inland riverport warnings, normally issued four times daily at fixed times on Radio Bangladesh. The same warning messages are transmitted again by land line telegrams to individual riverports and steamer authorities throughout the country. These messages are normally issued at least 24 to 48 hours ahead of the impending cyclone. There are also four flag signals for riverports, one of which is hoisted depending on the intensity of the situation.

The Storm Warning Center also issues warning messages to Bangladesh's seaports. Signals are also hoisted at seaports on signal masts which are visible to oceangoing vessels and other seacraft. There are eleven signals in use at the ports in Bangladesh.

Storm Warning Center
Sher-e-Bangla Nagar
Dhaka
Tel: 311545

3.5 Food Storage

Grains: In the event of an emergency, any of the grain stocks held by the Ministry of Food would be available for use. As of November 1982, the Government had a grain storage capacity of 1.9 million tons; 1.7 million tons are permanent facilities and 0.2 million tons are temporary or rented. The chart below is a partial listing of the location and capacity of storage facilities in each district in the country. As of December 1982, the stock level was 695,000 tons of which 354,000 tons were wheat. Most of the grain storage facilities can receive grains in bulk by way of either rail or water transport. While transport via truck is possible in some regions, there is a risk of pilferage in transit.

Storage Capacity of the Ministry of Food
(in long tons; as of November 1982)

<u>Division/District</u>	<u>Local Supply Depots</u>	<u>Central Storage Depots</u>	<u>Foodgrains Silos</u>
<u>Rajshahi</u>	<u>229,773</u>	<u>65,500</u>	<u>25,000</u>
Dinajpur	71,251	-	-
Rangpur	48,750	-	-
Bogra	26,050	31,000	25,000
Rajshahi	47,722	-	-
Pabna	36,000	34,500	-
<u>Khulna</u>	<u>139,836</u>	<u>155,447</u>	<u>-</u>
Kushtia	22,075	-	-
Jessore	33,456	-	-
Khulna	26,000	133,167	-
Barisal	36,805	22,280	-
Patuakhali	21,500	-	-
<u>Dhaka</u>	<u>197,920</u>	<u>84,165</u>	<u>50,500</u>
Jamalpur	28,000	-	-
Mymensingh	52,030	22,000	-
Tangail	26,050	-	-
Dhaka	45,340	62,165	50,500
Faridpur	46,500	-	-
<u>Chittagong</u>	<u>168,142</u>	<u>140,322</u>	<u>151,000</u>
Sylhet	46,675	-	-
Comilla	44,917	21,463	50,500
Noakhali	33,750	-	-
Chittagong	26,500	118,859	100,500
Chittagong Hill Tracts	16,300	-	-
<u>Total</u>	<u>735,671</u>	<u>445,434</u>	<u>226,500</u>

Source: Ministry of Food, Directorate of Storage and Logistics, Dhaka, November 1982.

3.6 Medical Resources

Bangladesh has numerous hospitals located throughout urban areas, and over 300 thana health centers (see section 1.16, Health). A map of health centers and hospitals throughout the country is shown in Figure 2.

The health institution which would be most prepared to provide emergency relief assistance is the International Center for Diarrheal Disease Research/Bangladesh. Its resources and capabilities include:

- 2 hospitals (Dhaka and Matlab) and a treatment center in Teknaf
- 6 expatriate/patriate physicians (including 1 epidemiologist from the Centers for Disease Control)
- 36 Bangladesh physicians (including 4 epidemiologists)
- 29 trained nurses and 33 nursing assistants
- a field staff of 23 people capable of conducting post-disaster health surveys and evaluations
- diagnostic laboratories with a staff of 83 people
- 40 outboard boats
- 57 multi-carrier motor vehicles
- 78 injectors for administering vaccines
- a limited stock of a wide variety of antibiotics, and certain other drugs for common medical problems
- a capability to produce 6,000 liters per month of intravenous fluid

3.7 Cold Storage

Cold storage for drugs is available at Zia International Airport (Dhaka/Kurmitola), at the International Center for Diarrheal Disease Research in Dhaka, and at some provincial health centers.

The following is a list of pharmaceutical companies located in Bangladesh, which may be able to provide medicaments in the event of a disaster:

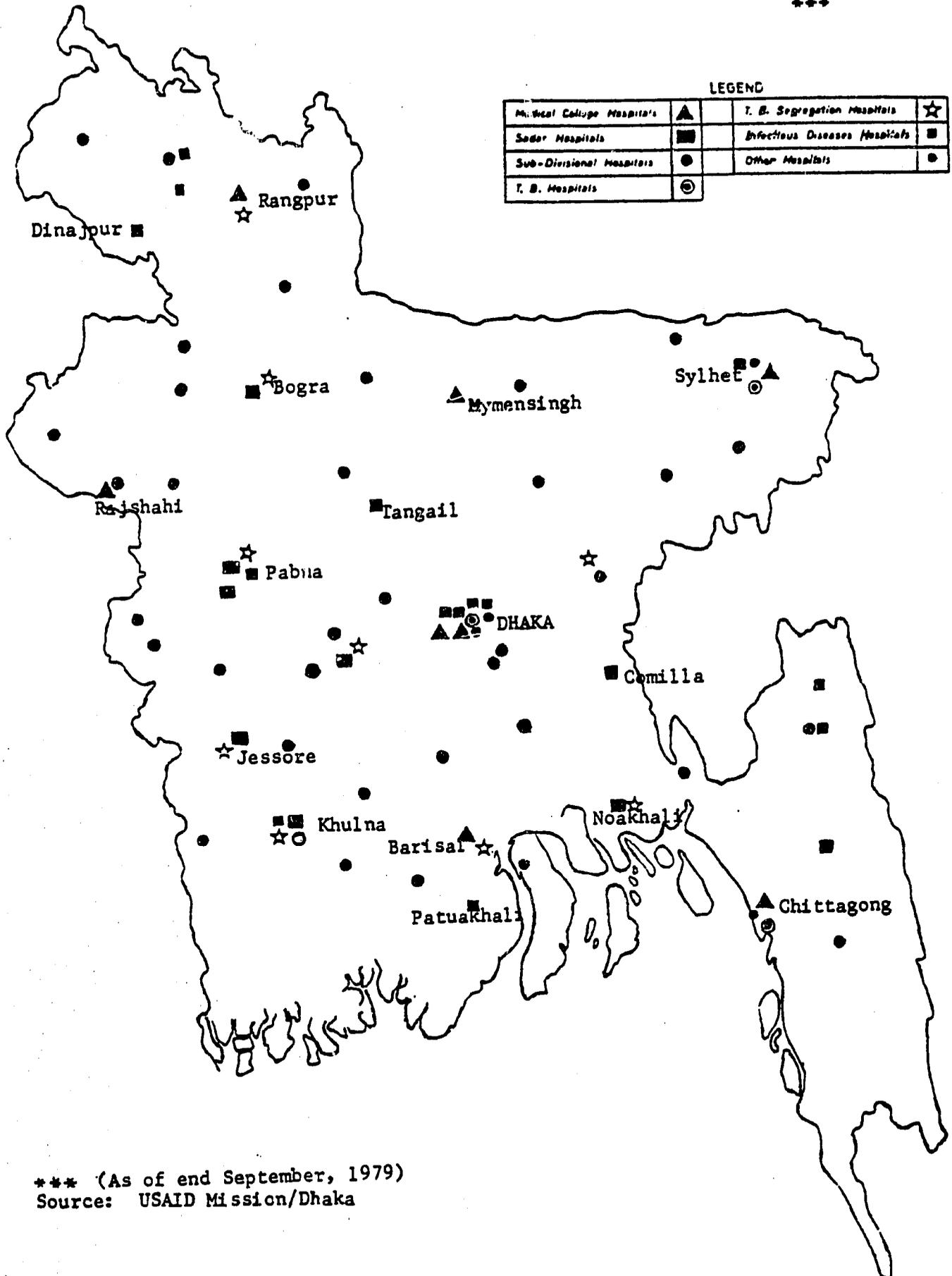
Pharmadesh Laboratories Ltd.
239, Tejgaon Industrial Area
Dhaka

K.D.H. Laboratories Ltd.
184, Sat Masjid Road
Dhaka

Figure 2

BANGLADESH

HEALTH CENTERS & HOSPITALS



*** (As of end September, 1979)
 Source: USAID Mission/Dhaka

Edruc Limited
Pabna

Jayson Pharmaceuticals Ltd.
Azizullah Road, Babu Bazar
Dhaka

Albert David (Bangladesh) Ltd.
41, Dilkusha Commercial Area
Dhaka

Imperial Chemical Industries
(Bangladesh) Ltd.
Motijheel Commercial Area
Dhaka

Hoechst Pharmaceuticals Co. Ltd.
64, Agrabad
Chittagong

Square Pharmaceuticals
34/1 Hatkhola Road
Dhaka

3.8 Transportation Resources

Bangladesh has a fairly well-developed railway and inland waterway system, both used principally for travel and transport within the country. The five major river ports are located at Dhaka, Narayanganj, Chandpur, Barisal, and Khulna. Travel by road is difficult as most roads break off at riverbanks, and highways become submerged during the rainy season.

Bangladesh's chief seaports are Chittagong and Chalna (located at Khulna). Chittagong Port is situated on the bank of the Karnaphuli River, near the shoreline of the Bay of Bengal. Access to the port is restricted to vessels of about 8.2 m. draught depending on the tide, and a maximum length of 184.4 m. Chittagong Port has 17 jetties, many with cranes, transit sheds, and railway connections. There are also specialized facilities for handling bulk cargo, including a grain silo with a storage capacity of 100,000 MT. Two major flat warehouses near the port have a total storage capacity of approximately 104,000 tons. Two additional facilities, with a total storage capacity of 51,000 MT, can store bulk quantities of vegetable oil.

Existing draught restrictions at Chittagong pose a major constraint to the bulk shipment of grains and other commodities. Only ships of less than 15,000 deadweight tonnage are able to enter the port under full load. Larger vessels, often used to carry foodgrains, must be lightered at the Outer Anchorage, often causing some loss of cargo and additional costs.

Chalna Port is situated 80 km. from the coast at the junction of the Puser and Mongla rivers. A new, modern port is under construction nearby. The permissible draught for passing the Outer Bar at high tide is 8.2 m., limiting the weight of loaded cargo vessels to 10,000 to 15,000 tons deadweight. All larger vessels require lighterage first at Chittagong Outer Anchorage. Most cargo handling at Chalna is done at the anchorage, which has six mooring buoys and can accommodate vessels up to

200 m. in length. The port has two major flat storage warehouses, one with a 70,500 long ton capacity, the other with a 55,000 long ton capacity.

Both ports together can handle about 250,000 MT of imported grain per month. However, during the 1979 drought in Bangladesh when all resources were mobilized, imports reached 350,000 MT per month.

For further details regarding approach, accommodation, storage facilities, crane capacity, and shiprepairs, consult the current edition of Lloyd's of London, Ports of the World.

The two major airports are located at Dhaka/Kurmitola and Chittagong. A third airport at Tejgaon is now used for military aircraft only.

For more detailed information, consult the latest issue of weekly International Notams, International Flight Information Manual, and/or ICAO's Air Navigation Plan for the appropriate region.

DHAKA/Kurmitola (RS)
Zia International Airport

Runway Characteristics

<u>Location</u> <u>Coordinates</u>	<u>Designation/</u> <u>Type</u>	<u>Class</u>	<u>Runway/</u> <u>Stopway</u> <u>Length (m)</u>	<u>Aircraft</u> <u>Capacity</u>	<u>Fuel/</u> <u>Octane</u>
23° 51' N	14/32	A	3200 x 46	B747	100,JA1
90° 24' E	PA1		275 x 46		

Remarks: alternate aerodromes - BANGKOK/Bangkok Intl., CALCUTTA/Calcutta, CHITTAGONG/Chittagong, RANGOON/Mingaladon

Aids: ILS, VOF, NDB/L, PA, VA, RWY, TE, B, DES, CLM, THR, TDZ, SST, FXD, TWY, H105, L6, L7, L9. No telex.

BANGLADESH

1. Name of the aerodrome and its location

CHITTAGONG/Chittagong (NS)

Runway Characteristics

Location	Designation	Length	Width	Surface
<u>Coordinates</u> 22° 16' N 91° 49' E	<u>Type</u> 04/23 1800	<u>ft</u> 1800	<u>ft</u> 100	<u>Material</u> Asphalt

Remarks: alternate aerodrome - ATIS system, 12000 Hz, 121.5 MHz
DHAKA/Tejgaon

Aids: VOR, SA, VA, RWY, TX, S, ILS, DME, RMI, FSS, etc. by telex. Fuel available on prior request.

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Abbreviations

INSTR	Instrument Approach Runway
N-INSTR	Non-Instrument Runway
PA1	Precision Approach Runway Category I
PA2	Precision Approach Runway Category II
PA3	Precision Approach Runway Category III
RS	International Scheduled for Instrument, Category I
RNS	International Non-Scheduled for Instrument, Category I
RG	International General Aviation, Instrument Runway
AS	International Scheduled for Instrument, Category II

Radio Aids

ILS	Instrument Landing System
DME	Distance Measuring Equipment
VOR	Very High Frequency Omnidirectional Station (VOR)
NDB/L	Non-Directional Station or Locator

Lighting Aids

PA	Precision Approach Lighting System
SA	Simple Approach Lighting System
VA	Visual Approach Slope Indicator System
AV	Abbreviated Visual Approach Slope Indicator System
RWY	Runway Edge, Threshold, and End Lights
CLL	Runway Center Line Lighting
TDZ	Runway Touchdown Line Lighting
TE	Taxiway Edge Lighting
TC	Taxiway Center Line Lighting
STB	Stop Bars
B	Aerodrome or Identification Beacon

Runway Aids

100	Runway Designation Marking
101	Runway Center Line Marking
102	Runway Threshold Marking
103	Runway Touchdown Marking
104	Runway Side Stripe Marking
105	Fixed Distance Marking
106	Runway Center Line Marking
107	Runway Holding Position Marking

Runway Surfaces and Length

1	Hard Surface (numbers - ft. in hundreds)
2	Soft-Hard Surface (numbers - ft. in hundreds)

Additional Lighting

11	Portable Runway Lights (electrical)
12	Boundary Lights
13	Runway Flood Lights
14	Low Intensity Runway Lights
15	Low Intensity Approach Lights
16	High Intensity Runway Lights
17	High Intensity Approach Lights
18	Sequenced Flashing Lights
19	Visual Approach Slope Indicator (VASI)

Bangladesh's major air carrier, Bangladesh Biman, operates a fleet of five F-27s and five B707-300s, and has two F-28s, two 727s, and two A-300s on order.

Bangladesh Biman
 Dhaka Airport
 Tel.: 155911 (Head Office)
 312111 (Dhaka Airport)
 Cable: AIRBANGLA

The other major air carrier in the country is the Bangladesh Air Force, which operates a fleet of 70 planes.

In 1981 the Government of Bangladesh received a grant from the United Nations Capital Development Fund for the local construction of 200 boats (100 rescue boats and 100 shallow-draught landing craft, the latter with all-steel hulls). At least 50 of the boats were completed by late 1981. Maintenance and distribution of the boats come under the jurisdiction of the Ministry of Relief and Rehabilitation.

Specifications of Rescue Boats/Landing Craft,
and Boat Distribution Status (July 31, 1981)

<u>Rescue Boat</u>	<u>Landing Craft</u>
Length: 30 feet	Length: 50 feet
Capacity: 30 persons	Capacity: 50 persons

Boat Distribution

<u>Location</u>	<u>Rescue Boat</u>	<u>Landing Craft</u>
Barisal	2	2
Patuakhali	1	1
Comilla	2	2
Dhaka	3	2
Noakhali	1	2
Tangail	2	2
Mymensingh	3	2
Pabna	1	2
Faridpur	2	2
Rangpur	3	2
Rajshahi	2	2
Sylhet	2	2
Bogra	<u>1</u>	<u>2</u>
Total	25	25

Source: Disaster Preparedness Plan for United States Mission to Bangladesh, November 1981.

3.9 Disaster Assessment:

In the event of a major disaster, the Government of Bangladesh will look to a large number of governmental and private foreign donors for assistance; however, it is reluctant to have foreign involvement in the distribution or monitoring phases of the relief effort.

Food Requirements: Although natural or man-made disasters can be attributed to a wide variety of causes, one common denominator is that most disasters in Bangladesh will result in food shortages. Wheat and

rice would be the food commodities most needed by the country. These two grains constitute nearly 80% of the typical Bangladesh diet. Other food staples are listed below:

Fat: rapeseed, mustardseed, soybean oils

Vegetables: spinach, rapeseed/mustard greens, cauliflower, eggplant, okra, onion, chillies, unripe tropical fruits used in curries

Fruits: mangoes, jackfruit, bananas, pineapples, coconut

Dairy: cow and goat milk (fresh, boiled, or sweetened), buttermilk, yogurt, some eggs

Fish: fresh, cured

Meat: mutton, beef (although rarely available)

Note: pork and shellfish are prohibited by the Islamic faith; preserved meat is also unacceptable

In the event of a wide spread or longer-term shortage, food stocks would first have to be transported to areas of need from storage sites throughout the country, for subsequent replacement by imported donated foodgrains. (See section 3.5, Food Storage.) In the event of wide-spread crop failure, there may be a need for up to three million tons of imported foodgrains in a year.

Transport Requirements: The amount of grain that can be received in Bangladesh in a given time period is a function of the throughput capacity of the two ports. Under normal conditions, the two ports of Chittagong and Chalna can receive approximately 250,000 tons of grain per month. Up to 350,000 tons per month have been received when extraordinary measures have been resorted to, such as the use of military assistance and the requisitioning of berths not generally assigned to foodgrains.

A whole series of infrastructure limitations constrain and hamper the flow of foodgrains. Small bulk handlers called Vacuators are positioned on large mother vessels at the outer anchorage, for the purpose of pumping the grain into the lighters. These diesel-driven machines are expensive to operate (being fuel intensive) and are generally inefficient, particularly during poor weather or after dark. While the Government of Bangladesh owns about 60 Vacuators, they are old and overworked. In the event of large-scale crop failure requiring large foodgrain imports, donors may have to provide the Government with a large number of new Vacuators.

Lighters also pose a constraint. Decrepit former oceangoing vessels of from 10,000-12,000 tons capacity, and smaller (700-1,000 tons) coasters

may be pressed into service for lighterage duties at the outer anchorage. The latter vessels, however, are few in number, ancient, and subject to frequent breakdowns. In the event of large-scale emergencies, additional lighters would have to be chartered. Minibulkers (1,800 to 3,500 tons), as well as larger vessels, can be chartered for this purpose.

Foodgrain berths and temporary port storage sheds for foodgrain must also be increased in time of emergency via the reallocation of facilities normally used for general cargo.

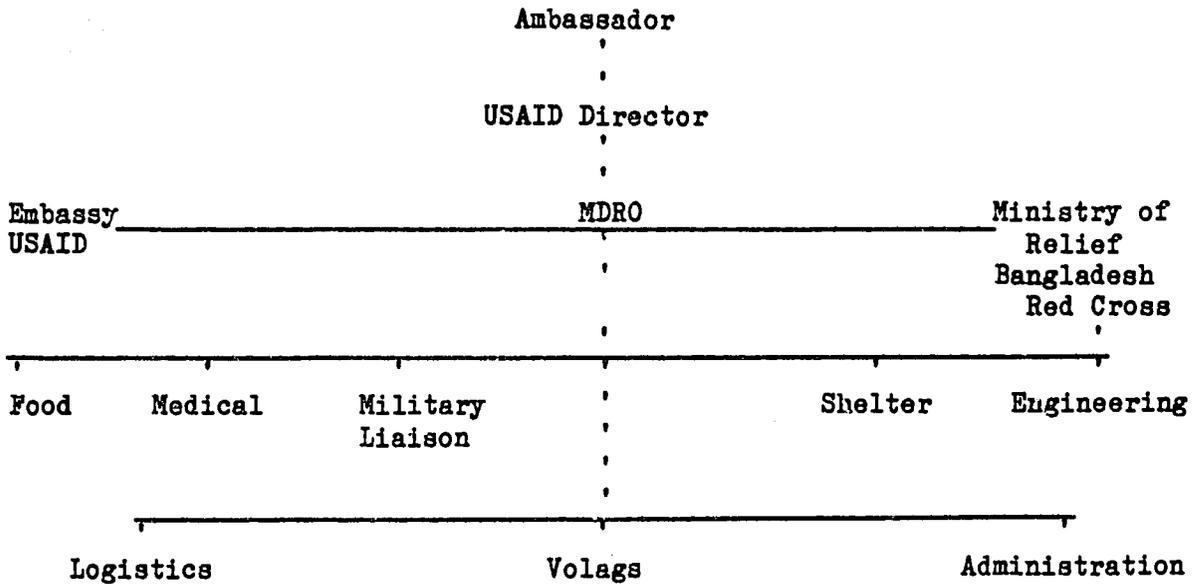
Commodities can be cleared from the two ports by truck, rail, and water. Additional contracts with truckers can be let, and additional rail-cars or unit trains can be assigned. The Government-owned coaster fleet, however, is old and cannot carry substantially increased quantities of foodgrains. Use of the waterways is most important. Normally, about 65% of the foodgrains cleared from Chittagong is cleared on the waterways. The tonnage carried on the waterways can be expanded quickly through the use of chartered coasters and minibulkers. Commodities can be moved on the waterways to the Khulna Central Storage Depot (CSD), the Barisal CSD, the Chandpur CSD, the Dhaka CSD, the Narayanganj CSD and Silo, and to the Ashuganj Silo (provided the latter's receiving facility is repaired). Waterways can also be used to reach a large number of the Local-Supply Depots scattered around the country. Barges and country boats may provide still another resource, depending on the location involved. (See also section 3.5, Food Storage, for location and capacity of grain storage facilities.)

3.10 U.S. Mission Plan

In the event of a disaster, the U.S. Mission in Dhaka operates a Special Disaster Relief Team, under the overall direction of the Ambassador. The Director, USAID will coordinate the operation of the team with all other Mission elements. The team will be headed by the Mission Disaster Relief Officer (MDRO) and will contain one officer for each of the following functions: food distribution, medical supplies and services, shelter and survival supplies, engineering, voluntary agency liaison, logistics, and administration.

Should a disaster strike and assistance be requested, the Special Disaster Relief Team is likely to require the following types of TDY assistance: a disaster relief officer and an epidemiologist.

U.S. Mission Special Disaster Relief Team



3.11 U.S. Resources

In the event of a major disaster, the U.S. Mission in Bangladesh may authorize the distribution of any of the available stocks of P.L. 480 Title II wheat. This wheat is normally utilized by the CARE Food-for-Work program, but not all is distributed in a given work season. Although the carry-over of wheat available to Food-for-Work but not utilized varies from year to year, levels in stock are often between 40,000 and 60,000 metric tons.

Stocks at these levels represent an eight to twelve million dollar resource at hand (including value of the commodity and ocean freight).

Additional information on U.S. resources in Bangladesh is not available.

3.12 U.S. Disaster Alert Project

In 1980, OFDA provided funds for a High Resolution Picture Transmission receiving capability, to improve Bangladesh's forecasting accuracy for cyclones, flooding, and storm surges. The project is primarily intended as a disaster prediction and preparedness measure.

3.13 International and U.S. Voluntary Agencies and ResourcesInternational Organizations (January 1983)

UNICEF

Uffe Konig, Representative
House No. 73, Road No. 5A
Dhanmandi R/A, Dhaka
Tel: 301575, 310183/5

UNDP

Walter Holzhausen, Resident Representative
House No. 43, Road No. 6-A
Dhanmandi, Dhaka
Tel: 317028, 317181/5
Other Telephones: 315336 (Admin. Director)
311511 (Program Office)

WHO

Dr. Zvonko J. Sestak, Representative
13, Road No. 7
Dhanmandi R/A, Dhaka
Tel: 313713, 314622

WFP

Peter Jobber
89, Road No. 11A
Dhanmandi R/A, Dhaka
Tel: 315887

Food and Agriculture Organization

L.I.J. Silva, Representative
House No. 37, Road No. 8
Dhanmandi R/A, Dhaka
Tel: 311796, 311998, 317633

CARITAS

Jeffrey Pereira, Director
2, Outer Circular Road
Santibag, Dhaka-17
Tel.: 402409, 402408, 403706

U.S. Voluntary Agencies (February 1982)

Bangladesh has the world's largest private voluntary agency community. More than 120 agencies are currently registered with the Government of Bangladesh, twenty of which are U.S. voluntary agencies.

CARE
P.O. Box 226
Dhaka 2, Bangladesh
Tel: 315164/68, 317364

CARE operates numerous projects including community development projects, housing and construction in conjunction with food-for-work, agricultural production projects, and training in medical and public health.

Christian Reformed World Relief Committee
P.O. Box 2164
Dhaka 2, Bangladesh
Tel: 316921

CRWRC operates programs in community development, irrigation, agricultural extension, and crop research in the Bogra District.

Concern, America
P.O. Box 650
Dhaka 5, Bangladesh
Tel: 317237, 312491

Concern, America supports food-for-work projects and agricultural training programs, and operates extensive health care programs and clinics.

Food for the Hungry International
International Coordination Center
7729 East Greenway Road
Scottsdale, Arizona 85260
Tel: (602) 941-0307

Operates a resettlement program in the outskirts of Dhaka, which includes medical care, clinics, supplemental feeding, and nutrition and literacy education.

Lutheran World Relief
360 Park Avenue South
New York, NY 10010
Tel: (212) 532-6350

Provides support to the Rangpur/Dinajpur Rehabilitation Service Program of the Lutheran World Federation through community development, construction and housing, agricultural, and public health projects.

Mennonite Central Committee
Box 785
Dhaka 2, Bangladesh

Operates community development, education, agricultural, and public health programs. Also distributes supplies to orphanages and hospitals, and distributes tetanus toxoid.

National Rural Electric Cooperative Association
NRECA International, Ltd.
House 66, Road 11A, R/A
Dhaka, Bangladesh
Tel: 319635

Provides technical assistance, training, and consulting services to the Rural Electrification Board of the Government of Bangladesh. NRECA's personnel includes 10 rural electrification specialists.

The Pathfinder Fund
Dr. Subhan Chowdhuri,
Country Representative
House # 15, Road # 13 A
(New) Dhanmandi, Dhaka, Bangladesh

Operates five family planning clinics and maintains an extensive provision of medical supplies.

The Salvation Army World Service Office
P.O. Box 985
Dhaka 2, Bangladesh
Tel: 315930, 314996

The Salvation Army operates vocational training programs, as well as several clinics and nutrition rehabilitation centers in Dhaka and Jessore.

Save the Children Federation, Inc.
275-G Dhanmandi Residential Area
Road No. 27 (old)
P.O. Box 421
Dhaka 5, Bangladesh

Conducts rural development and self-help programs, a building materials program, a joint farming program, an agricultural cooperative program, and a family planning project.

Southern Baptist Convention
Foreign Mission Board
Richmond, VA 23230
Tel: (804) 353-0151

Supports vocational training for handicapped persons, provides food and monetary assistance to disaster victims, and supports various agricultural, silkworm production, and potable water projects.

World Vision Relief Organization, Inc.
919 West Huntington Drive
Monrovia, CA 91016
Tel: (213) 375-1111

World Vision Relief is currently providing funds for housing reconstruction in areas damaged by floods. Also provides preventive and curative health care for children in several districts near Dhaka.

3.14 Mitigation Efforts

Bangladesh's mitigation efforts have been primarily in the area of improved farming techniques to combat the destructiveness of cyclones, drought, and floods. Preventive measures to guard against cyclone damage include the cultivation of early and quick maturing varieties of rice so that damage from early and late cyclones may be minimized. Mitigation efforts against drought include the use of irrigation and improved cultivation techniques, and the introduction of more drought-tolerant varieties of crops.

Protection against floods combines changes in farming practices and technical improvements. Farmers are growing high yield varieties and quick maturing varieties of rice. They also maintain reserve stocks of seeds and seedlings should seedbeds be destroyed. These efforts are being combined with the building of river and coastal embankments, pump drainage systems, and tidal sluices.

3.15 Relationship With Development and Planning

For Bangladesh, the transition from a traditional to a modern society has been an ongoing and difficult process. Natural disasters have occurred almost annually, and the resulting damage is an added constraint to the development process. Many times, the losses incurred in these disasters have effectively negated any real economic growth.

A less-developed country such as Bangladesh tends to be more vulnerable to disaster than developed societies, and many factors have served to increase this vulnerability over the years. Rapid population growth

combined with limited resources have led to the undirected settlement of hazardous areas. Farmers have expanded their croplands into dangerous flood zones. Growing cities have spread out onto adjacent floodplains. Bangladesh has also been affected by poor land and water resource management, as well as by deforestation, which has heightened the land's vulnerability to flood and drought.

Past disasters, principally floods and cyclones which occur nearly every year, have had a devastating effect on agriculture. Although agriculture accounts for 54% of GDP and employs 80% of the population, Bangladesh has never been able to feed itself. Severe damage to rice crops has major ramifications in other areas. A reduction in foodgrain production, compounded by inadequate buffer stocks, may result in mass starvation. Bangladesh's foreign exchange problems limit the country's ability to purchase food, thereby forcing it to rely on food aid. Per capita income declines, levels of unemployment rise, and the inflation rate often soars when prices of essential commodities in short supply escalate.

Beyond these effects, it is difficult to distinguish economic trends directly relatable to natural disasters from characteristics typical of the struggling Bangladesh economy. However, disasters invariably disrupt the economic and social life of a society and, in the case of Bangladesh, their effects serve to prolong a state of chronic deprivation and hinder any attempts at development.

Note: For a more in-depth discussion of this issue, see "Natural Disasters and the Development Process," available from the Office of U.S. Foreign Disaster Assistance, Washington, D.C.

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