

UNITED NATIONS ENVIRONMENT PROGRAMME

*Environmental problems of
the marine and coastal area
of Bangladesh: National Report*

UNEP Regional Seas Reports and Studies No. 75

PREFACE

The Regional Seas Programme was initiated by UNEP in 1974. Since then the Governing Council of UNEP has repeatedly endorsed a regional approach to the control of marine pollution and the management of marine and coastal resources and has requested the development of regional action plans.

The Regional Seas Programme at present includes ten regions^{1/} and has over 120 coastal States participating in it. It is conceived as an action-oriented programme having concern not only for the consequences but also for the causes of environmental degradation and encompassing a comprehensive approach to controlling environmental problems through the management of marine and coastal areas. Each regional action plan is formulated according to the needs of the region as perceived by the Governments concerned. It is designed to link assessment of the quality of the marine environment and the causes of its deterioration with activities for the management and development of the marine and coastal environment. The action plans promote the parallel development of regional legal agreements and of action-oriented programme activities^{2/}.

In May 1982 the UNEP Governing Council adopted decision 10/20 requesting the Executive Director of UNEP "to enter into consultations with the concerned States of the South Asia Co-operative Environment Programme (SACEP) to ascertain their views regarding the conduct of a regional seas programme in the South Asian Seas".

In response to that request the Executive Director appointed a high level consultant to undertake a mission to the coastal States of SACEP in October/November 1982 and February 1983. The report of the consultant on his mission was transmitted to the Governments of the South Asian Seas region in May 1983, and the recommendations of the Executive Director were submitted to the Governing Council at its eleventh session.

By decision 11/7 of 24 May 1983, the UNEP Governing Council noted "the consultations carried out in accordance with Council decision 10/20 of 31 May 1982" and requested "the Executive Director to designate the South Asian Seas as a region to be included in the regional seas programme, in close collaboration with the South Asia Co-operative Environment Programme and Governments in the region, and to assist in the formulation of a plan of action for the environmental protection of the South Asian Seas".

^{1/} Mediterranean Region, Kuwait Action Plan Region, West and Central African Region, Wider Caribbean Region, East Asian Seas Region, South-East Pacific Region, South Pacific Region, Red Sea and Gulf of Aden Region, Eastern African Region and South Asian Seas Region.

^{2/} UNEP: Achievements and planned development of UNEP's Regional Seas Programme and comparable programmes sponsored by other bodies: UNEP Regional Seas Reports and Studies No. 1. UNEP, 1982.

As a first follow-up activity to decision 11/7 of the Governing Council, the Executive Director convened, in co-operation with the South Asia Co-operative Environment Programme (SACEP), a meeting of national focal points of the States of the region in order to seek their views on how to proceed in developing a comprehensive action plan for the protection and management of the marine and coastal environment of the South Asian Seas region (Bangkok, Thailand, 19-21 March 1984).

The meeting discussed the steps leading to the adoption of an action plan and reached a consensus on the items to be considered for further development of the action plan^{3/}.

The meeting recommended that the Governments, with the assistance of UNEP and other organizations as appropriate, should initiate the preparation of country reports reviewing their:

- national environmental problems defined as priority areas of regional concern;
- activities which may usefully be carried out under the action plan to resolve or mitigate these problems; and
- national institutional and manpower resources which are, or may be, involved in dealing with these problems, including the identification of the need to strengthen their capabilities.

It was also recommended that UNEP prepare in cooperation with SACEP, and other organizations as appropriate:

- a draft overview report, based on the country reports, reviewing the environmental problems of the region defined as priority areas;
- a document addressing the essential legislative aspects relevant to the action plan; and
- a draft action plan reflecting the conclusions of the country and regional reports.

The present document is the country report on environmental problems in Bangladesh prepared by experts designated by the Government of Bangladesh. The assistance of a consultant, A.H.V. Sarma, was provided to the Government of Bangladesh to facilitate the preparation of this report. The authors' contributions are gratefully acknowledged.

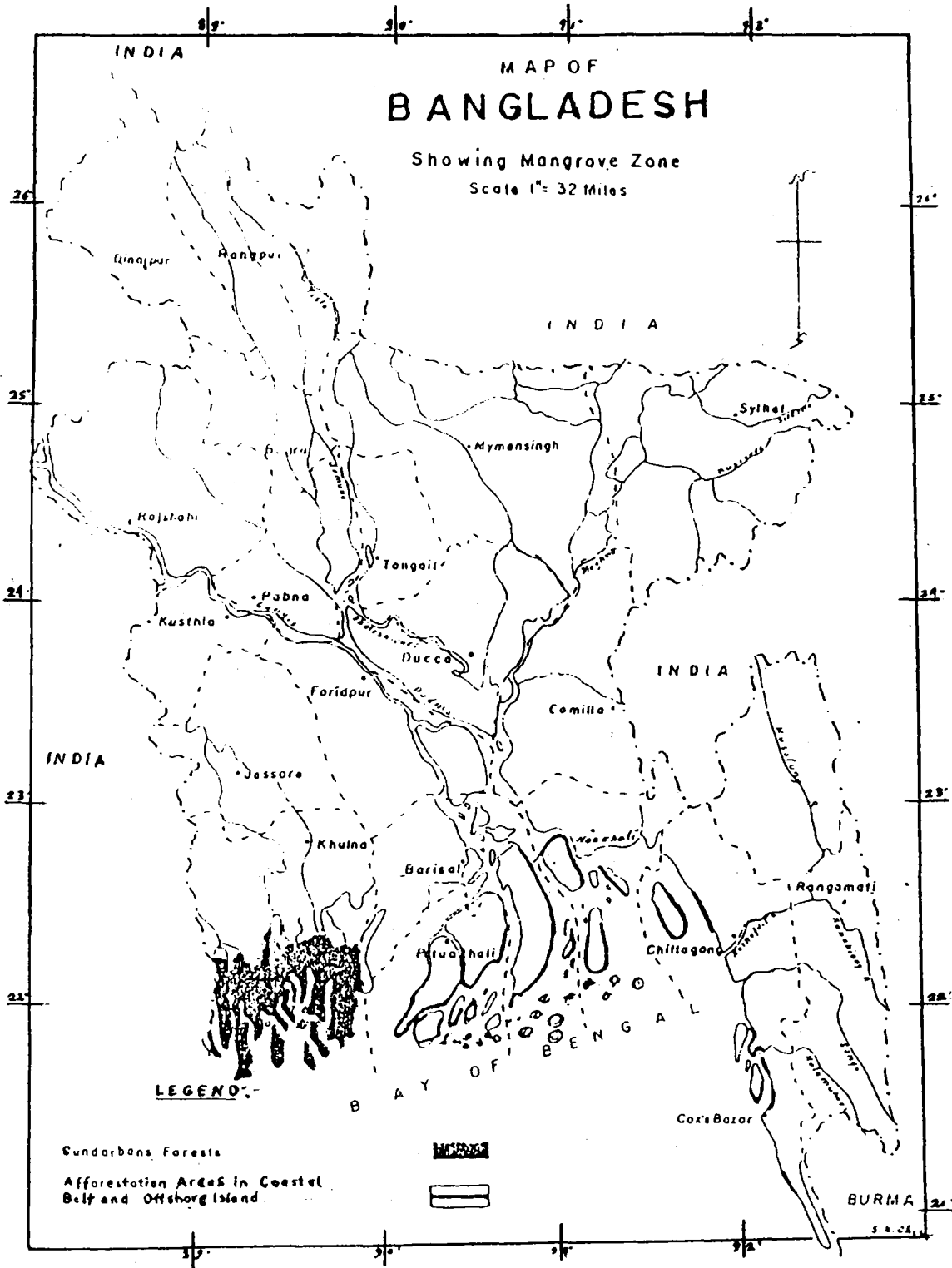
^{3/} Report of the meeting of national focal points on the development of an action plan for the protection and management of the South Asian Seas region, Bangkok, 19-21 March 1984 (UNEP/WG.105/5).

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Map showing distribution of mangroves and coastal afforestation areas in Bangladesh (FAO, 1982)

INTRODUCTION

With a population of over 80 million, Bangladesh is the most densely populated country in the world. The population density, according to the most recent estimates, is 615 persons per km² for the country as a whole and 1,063 persons per km² of arable land. The country is predominantly rural and the bulk of the population still live in some 71,000 villages with fewer than 7,000 people in each. The urban population constitutes less than 10 per cent of the total. Over half of the population suffers from malnutrition, while intestinal diseases and parasitic maladies such as malaria are commonly prevalent. Over-population is a major problem in the country and the need to control population growth (estimated at about 2.9 per cent per year) is urgent. Large and growing numbers of people exert increasing pressure on the limited resources of the country. Most of the arable land is under cultivation; forests are fast dwindling because of large agricultural expansion and the need for a fuelwood supply. Wildlife numbers have decreased considerably because of a shrinking habitat due to human encroachment. The country also suffers from harsh weather; heavy monsoon rains periodically cause floods and bring cyclones resulting in devastation to human settlements in the low-lying coastal areas and deltaic plains.

Geographically, Bangladesh can be divided into two principal areas: the low-lying deltaic alluvial plains which comprise the bulk of the country and the much smaller area of Chittagong hill tracks to the south-east. Bangladesh is a land of rivers which dominate the landscape, and most of the country is comprised of a triangular, nearly-level alluvial plain, much of it deltaic in nature and reputedly the largest delta in the world. The delta is cut up by three great river systems viz., the Ganges-Padma, the Brahmaputra-Jamuna and the Meghna. The rivers play a dominant role in both the economic and social life of the country.

The Bangladesh Plain, also called the Lower Gangetic Plain, lies between the Indian Foothills of Himalayas to the north and the Bay of Bengal to the south. In its lower reaches the deltaic area is composed of a large number of temporary, semi-permanent and permanent islands, locally called chars, formed by the network of rivers.

The land characteristics of the Bangladesh Plain, running from north to south, have been concisely described as 'old mud, new mud and marsh' (Nyrop, 1975). The Plain is also sometimes classified into old alluvium and new alluvium. The new alluvium, which occupies about three times the area of the old alluvium is economically more productive because it receives deposits of fertile soils carried by the rivers. The old alluvium consists of older alluvial deposits and is generally higher in elevation and less fertile than the new alluvium (Ahmed, 1976). The extreme southern reaches of the Plains, extending from the Indian border eastward to the Padma-Meghna estuary, consist of a forested, tidal-washed salt marsh region known as the Sunderbans, which is overgrown with mangrove forests, reputedly the largest single mangrove forest block in the world. No less than one-third of the total population of the country is, in one way or another, dependant upon the mangroves for their livelihood. The inland waterways constitute the most important means of navigation and communication throughout the country.

THE PHYSICAL ENVIRONMENT

Climate and seasons

The tropical monsoon climate of Bangladesh is characterised by high temperatures (about 8 months of the year), high summer rainfall, high humidity and relatively small temperature ranges. The three major seasons are: (a) hot humid summer season (March to June); (b) humid but cooler monsoon season with heavy rains (June to early October); and (c) winter season (October to March). Maximum temperatures during the summer range between 32-37°C with a daily temperature range not exceeding 12°C; the hottest month being April - May. The winter months are characterised by minimum temperatures of not less than 10°C and a daily temperature range of not more than 18°C. Humidity is high throughout the country for most of the year, the lower deltaic and the coastal regions being the most humid (Nyrop, 1975).

Rainfall is generally heavy but varies from about 1200 mm in the West to over 2500 mm in the south-eastern and northern regions. About two-third of this rainfall comes during the southwest Monsoon period. Variations in mean annual rainfall from year to year are only moderate. Excessive rains invariably cause flooding in the low-lying deltaic and coastal regions of Bangladesh, causing immeasurable hardships to the human settlements in those areas.

Wind patterns and cyclonic disturbances

Winds exercise an important influence on the weather in the country. The most destructive of the storm systems are the cyclones, often associated with the retreating monsoon winds in September-October, but which may also occur during November-December or in the premonsoon season, April-May. The cyclones strike mostly from the Bay of Bengal bringing torrential rains, and are frequently followed by tidal waves, which are particularly destructive in the coastal regions of the country. The worst cyclone of modern times occurred in November 1970, which was accompanied by a huge tidal flood taking a toll of over half a million human lives in addition to untold damage to property in the coastal region.

Waves, tides and ocean current regimes

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