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Multiple Use of the Coastal Zone with Reference to Indian Conditions

by

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MULTIPLE USE OF THE COASTAL ZONE WITH REFERENCE TO INDIAN CONDITIONS

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ABSTRACT

Ten years ago, not many persons would have realized that the sea would be put to a wide variety of uses, and today almost all nations of the world are awaiting for the legal rights to be established, before the race for the exploration of resources from the seabed could begin in real earnest. India, with a coastline of about 5,600 km and an operational advantage over a very wide marine sector, is in a commanding position as regards the utilization of its coastal seas.

Almost all the territorial areas are going to be included in the coastal zone, and these will collectively form the main region for the exploitation of different forms of marine resources. The coastal zone, in a strict sense, is hard to define because its boundary is largely based on a geographical concept. Its predominant physical characteristic is the shoreline where land, sea and air, or in geological terms, the lithosphere, hydrosphere and atmosphere, join to form a triple interface. Thus the coastal zone can be characterised by its own economic, social and political activities related to the distribution and availability of resources. The many and diverse human activities involved in the use of coastal zone will therefore impose an excessive and competitive stress on a rather limited area. Such a demand cannot be achieved without critically affecting the ecological balance of this zone.

Resources of the coastal zone include such consumables as minerals and seafoods and involve such non-extractive uses as swimming, boating, surfing, waste dumping, sun bathing and enjoyment of the aesthetic qualities of nature. Some of the significant uses and nearshore activities are commercial fishing, aquaculture, surf fishing, harvesting of marine algae, sports fishing, desalination, mineral exploitation, petroleum production, sand/gravel exploitation and power generation from tides and waves. Some of the non-extractive uses or activities are coast guarding, prevention of smuggling, commercial shipping, allowing the right of way, reservation of strategic areas, development of underwater parks and recreational boating.

Since ancient times, the coastal zone is being used as a reservoir of food and today the world's annual food harvest of about

68 million tonnes largely comes from the coastal zone. The seafood production in India, of approximately one million tonnes, almost exclusively comes from a narrow coastal belt.

It is estimated that more than one million hectares of backwaters, estuaries, shallow water lagoons, creeks, bays and marshy swamps are found adjoining the coastline of India. These are of considerable importance for stepping up seafood production by aquaculture. In the light of the knowledge gained during the last few years, aquaculture has become an integral part of the fishery development in India; and Government sponsored marine and brackish water fish farms are being established in several states.

From the coastal zone, common salt, iodine, magnesium salts and several other minerals are being obtained more or less as a traditional activity. The recent energy crisis has accelerated the pace of oil exploration throughout the world and today more than 80 countries are engaged in the exploration of offshore oil. In India, the Bombay High, where oil has been struck recently in commercial quantities, is a good example of the existence of fossil fuel in the coastal zone. Drilling operations and utilization of offshore oil are going to create new problems for the management of coastal zone. The demand for non-hydrocarbon minerals is also increasing all over the world and it is expected to double by 1985. Many of the non-hydrocarbon minerals such as tin, manganese, monazite and ilmenite are being mined from the coastal zone by many countries including India and these are adding new stresses to the coastal zone.

A visit to a large coastal town will convince anyone of the tremendous pressure that exists on land for numerous expanding human activities. The result is that more and more submerged land is being reclaimed from the sea. In some cities like Bombay, the reclamation of shallow areas is going on at a very fast rate. Population growth and industrialization tend to get more and more concentrated in coastal areas. These in turn lead to a greater pressure on harbours and power supply and make the coastal zone a large reservoir of sewage and industrial wastes including the dumpings from the ships and oil tankers.

In many thickly populated regions of the coast where there is an acute shortage of freshwater even for meeting the barest domestic needs, desalination of seawater will perhaps provide the only answer. Therefore, in many countries including India, researches are being carried out on the development of cheaper and efficient methods of desalination of seawater.

For all the littoral countries and particularly for those with a long coastline, it is very necessary to know the waters adjoining the coast in order to defend the territory effectively in the event of any foreign aggression. The knowledge, which is of utmost importance, is the bottom topography, thermal structure of the water column, underwater light and sound propagation, currents and circulation pattern in the coastal areas and the methods of detection of underwater objects.

The multiple use of the coastal zone calls for a greater need for its protection so that it could continue to provide, for the benefit of man, a source of exploitation of different types of resources without depleting the most important and perhaps the most sensitive of all — the living resources. Thus, in India, a fairly high priority is being given to the study of coastal zone management. At the National Institute of Oceanography, a number of projects are in progress on the coastal zone and its resources. All these studies will give us a proper guideline for the formulation of management programmes.

There is an urgent need in almost all coastal areas of India to look at the overall picture of their multiple use and to develop proper plans for the judicious utilization of coastal resources. Our goal should be to develop an administrative structure needed to execute a proper management policy so as to ensure that the coastal zone remains an area of considerable interest to us. We must also take into account the economic problems of sharing the coastal zone by competing interests, so that this vital zone continues to perform its multiple function.