

Integrated Coastal Zone Management In tropical areas

The target area for coastal zones is concerned with the pollution and resource problems related to the way developing countries manage their coastal regions, ranging from marine coastal areas to the border between land and sea and - if relevant - the hinterland of coastal zones with urban areas, farming and forestry activities.

Tropical and subtropical coastal zones have ecological systems that are highly vulnerable to environmental impacts. In-shore waters are essential sources of food, particularly for the poorest population. Mangroves, coastal forest swamps and coral reefs have a high rate of biodiversity. Frequently, coral reefs perform an indispensable function in protecting the coast, and mangroves play an important role in collecting sediments, in addition to being breeding grounds for commercial species of fish and shellfish.

Many coastal areas are subject to heavy environmental impacts because of population density, intensive economic activity and exploitation of natural resources. Large cities are situated along the coasts because of the favourable harbour sites they provide, and the economic and physical infrastructures of the countries have developed around them. On many coasts, urban development has encroached on areas that were previously an important part of the natural basis of the zone. If left uncontrolled, the expansion of urban settlement can reinforce this pattern, impairing the subsistence base and quality of life for the coastal population.

Many coastal regions, especially mangrove areas, have a great potential for aquaculture. With relatively modest investments, substantial gains can be made in a short time, and development has often been explosive. Many fish farms are not sustainable, however, because contamination and disease degrade the production potential, and production has frequently had to be abandoned entirely. If the mangrove areas with their vast productive potential are not carefully restored, they can end up as wasteland.

Tourism is a rapidly expanding industry worldwide, and in recent years, the pressure on new, exotic tourist sites has mounted. This development has gone hand in hand with national decisions in several developing countries to use tourism as a lever to economic development. This, too, has put severe pressure on many precious coastal sites where the natural environment is vulnerable.

Wastewater drainage from housing, industry, tourist facilities (and not infrequently nutrients washed out from agriculture) create eutrophication and loss of oxygen and, in some cases, growth of harmful algae. Discharges from industries and seepage from waste dumps have inflicted highly visible damage on the environment. Bottom sediments may contain poisonous chemicals in heavy concentrations, especially from pesticides used in farming. Some regions are burdened with problems caused by mining and oil production in coastal zones, and some suffer from the consequences of overfishing.

Environmental technical assistance may consist of focused initiatives in specific areas such as:

Integrated planning and administration:

- Support for integrated physical planning in coastal zones based on a holistic approach and public involvement to ensure systematic and balanced handling of the numerous and frequently conflicting user and protection interests, on land as well as in the marine environment.

Capacity building:

- Support aimed at helping authorities and local inhabitants build up capacity and expertise in management of coastal zones.

Sources and effects of pollution:

- Support for measures to combat and prevent pollution. Efforts should mainly address the causes of pollution and include restoration of the natural state of coastal areas, in particular in aqua-cultural regions. Reduction and prevention of pollution from cities, settlements, industries, mining, waste dumps, river outlets, harbour districts, etc should be prioritised.

Sustainable nature management:

- Support for ensuring sustainable use and, if necessary, protection of nature areas and natural resources (including biodiversity) in coastal zones, on land and in the marine environment. Nature management should be an obvious element in integrated physical planning. However, separate initiatives can also be required for this target area.
- Support for restoration projects designed to recreate the natural state and the original ecological systems of a coastal zone, such as coastal erosion mitigation by utilising pressure equalisation modules.
- Support for sustainable fishing, centred on a protective approach, and initiatives to prevent and discontinue over-exploitation of resources. Special priority will be given to environmental problems of aquaculture and to supporting local non-industrial fishing.

The major challenge here is often the lack of a firm policy to reconcile the conflicting uses of resources in the coastal zone. There is a need to ensure the sustainability of coastal resources such as the mangrove forests and the peat swamp forests, on the one hand, and to prevent and control the impacts of development activities in the coastal zone, such as resort development, aquaculture and sand mining. A national coastal zone management policy will promote integrated coastal zone management, and provide clear principles and guidelines for conflict resolution with regard to the use of coastal resources.

Projects conducted by CoastCare should serve as a useful platform from which the many environmental and socio-economic issues related to the coastal zone and its resources, such as pollution, erosion, fisheries, and coastal development, can be addressed.

CoastCare can from its network of highly qualified institutions provide the necessary and multidisciplinary scientific staffs to perform state-of-the-art in technical assistance on ecological and sustainable integrated coastal zone management to public and private stakeholders within coastal management.