Adaptation to Climate Change in Coastal Areas of the Philippines and Viet Nam

Climate Change in South East Asia

South East Asia is home to 653 million people, many of whom live below the poverty line. It is characterised by long coastlines, high population densities and intensive economic activity in the coastal areas. Fisheries, aquaculture and agriculture provide food and income for the majority of its coastal communities. The region is considered highly vulnerable to the impacts of climate change. The Philippines and Viet Nam are among the most vulnerable countries in the region.

The predicted impacts of climate change include a rise in sea-level of up to 0.6 m by 2100, a mean rise in sea surface temperature of up to 3°C, more intense and more frequent tropical cyclones, larger extreme waves and increased storm surges, altered precipitation and run-off patterns, ocean acidification leading to coastal erosion, the loss of fertile lands, droughts, flooding and saltwater intrusion.

Climate change impacts are already beginning to alter the nature of coastal and ocean ecosystems, threatening the livelihoods of hundreds of thousands of people living in the coastal areas. The rise in marine and coastal water surface temperatures is causing coral bleaching and the widespread death of coral reefs. Saltwater intrusion is leading to the spread of brackish estuarine systems, which has severe consequences on agriculture and aquaculture. Coastal erosion is worsening due to the gradual disappearance of the mangrove belts and sea grass beds. The decline of coastal and marine ecosystems, such as the coral reefs and mangrove wetlands, have a potentially severe impact on marine biodiversity and fisheries production.

There is an urgent need to strengthen the adaptive capacity of coastal communities in South East Asia to help them cope with the impacts of climate change, as that capacity is currently limited by their poverty and lack of relevant skills.

Adaptation to Climate Change in Coastal Areas

Adapting to climate change requires knowledge of the anticipated climate impacts so that the vulnerability of societies and ecosystems can be assessed. The impacts must then be compared with the vulnerabilities in order to derive possible adaptation measures. The financial and economic costs of the measures need to be estimated, using cost-benefit analyses to identify priority measures. Aspects of governance must also be considered. For instance: who could most appropriately tackle which areas, and what risk management interventions should be used?

In responding to climate change, the specific nature of coastal areas calls for special approaches. On the one hand, these areas are highly vulnerable to climate change impacts; on the other, healthy coastal wetland ecosystems, such as mangrove forests, can reduce that vulnerability as they provide protection from climate impacts like storms or sea level rise. Climate change is not only bringing new challenges, it is also exacerbating human-induced pressures that already existed. For this reason, GTZ is implementing its coastal adaptation measures in the broader context of integrated coastal area planning and management (ICAM), which has a wider set of objectives.

GTZ's approach in the Philippines and Viet Nam

GTZ currently supports four projects on integrated coastal area management in the Philippines and in Viet Nam:

- Environment and Rural Development Programme Philippines
- Adaptation to Climate Change and Protection of Biodiversity in the Philippines
- Management of Natural Resources in the Coastal Zone of Soc Trang Province
- Integrated Conservation and Development of the Biosphere Reserve in Kien Giang Province
- Sustainable Management of Forest Ecosystems for Coastal Protection in Bac Lieu Province

gtz

In addition, GTZ is implementing a pilot project on integrating climate change risk assessment into local development planning as part of a broader poverty reduction project in the Mekong Delta of Viet Nam.

GTZ provides process-oriented advice to its partner countries, and supports stakeholders in the development and implementation of sustainable strategies and policies for ICAM, as well as for ecologically and socioeconomically responsible fisheries and aquaculture. The ICAM approach, which promotes the sustainable management of coastal areas, while taking ecological, socioeconomic and demographic factors into account, is at the heart of GTZ's work in the Philippines and the Mekong Delta of Viet Nam. ICAM involves:

- diversifying and rehabilitating coastal forests to increase biodiversity and enhance the protection of the coasts from climate change impacts such as storms and erosion
- establishing co-management in mangrove forests to improve the incomes of the poor and reduce the conflict of interests between economic development, sustainable management and the protection of natural resources
- improving the management of protected areas and coastal forest
- identifying the most effective means to stabilise eroding coastal shorelines
- establishing marine protected areas (MPAs), including mangrove forests, coral reefs and sea grass beds
- disaster risk management (community-based flood early warning systems).

By focusing on different aspects and using pilot testing sites at several locations with unique characteristics, the various projects allow GTZ to gather and contrast a wide range of experiences, and based on this, to draw general lessons learned. These are then used to support the successful implementation of integrated coastal area management and coastal adaptation in GTZ partner countries.

An example: Erosion control in Soc Trang

The flow regime of the Mekong River, the tidal regime of the South China Sea, and the coastal long-shore currents driven by monsoon winds, together produce a dynamic process of accretion and erosion along the coast of Soc Trang Province. Erosion can be very severe in some areas, so the project is testing ways to protect the coast. One approach has been to combine appropriate dyke designs with designs for wave-breaking barriers based on a numerical current model, designed to limit erosion and increase sedimentation, with the rehabilitation of mangrove forests in the relatively sheltered conditions behind the barrier.

An example: Marine protected areas in the Visayas

In the Philippines GTZ has supported 37 cities and municipalities in the Visayas Region in the establishment of 40.000 hectares of marine protected areas. Additional protected areas are being planned. Support is also rendered to national initiatives such as the Marine Protected Area Network and inter-regional initiatives like the Coral Triangle Initiative which covers 6 countries and their waters that are known to possess the highest marine biodiversity in the world.

Contact us

Marc Nolting
E marc.nolting@gtz.de
T +49 6196 79-1450
I http://www.gtz.de/en/weltweit/asien-pazifik/18540.htm

Published by:
Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH
German Technical Cooperation
Sector Network Rural Development (SNRD) Asia

Dag-Hammarskjöld-Weg 1-5
65760 Eschborn/Germany
T +49 61 96 79-0
E info@gtz.de
I www.gtz.de

Author: Britta Heine; November 2009
The projects mentioned above are financed by the German Federal Ministry for Economic Cooperation and Development