



IN BRIEF...

Research on marine resources in East Africa

Many of the world's most productive ecosystems are found along the coastlines of the tropics and in the adjacent sea, systems which are vital to the lives of many poor people. However, population growth and urbanisation has led to an overexploitation of coast and marine environments. The balance in these sensitive systems has been disturbed and productivity has decreased. It is essential to identify forms of sustainable management for marine ecosystems. Research is one important instrument to use for this purpose.

Many of Sida/SAREC's cooperating countries are located along the coast of the Indian Ocean. In the 1980s Sweden began supporting universities in Tanzania, Mozambique, Sri Lanka and other countries in their education of marine biologists.

Marine research network in East Africa

In 1989 SAREC initiated a special input, a research programme for the management of marine resources in the western Indian Ocean. This programme has resulted in increased

competence in marine biology at East African and Sri Lankan universities, publications and PhD theses. Political decision makers have increased their knowledge in environmental care and management of natural resources. Researchers in marine biology and allied subjects along the entire coast, from Somalia to South Africa and in the island nations have become involved in a regional network, "Western Indian Ocean Marine Science Association" (WIOMSA).

With financial support from SAREC, starting in 2000, WIOMSA coordinates a research programme with the aim to improve the utilisation of marine and coastal environments. The overall goal is to alleviate poverty and prevent environmental degradation in East Africa and the island nations.

The programme is mainly focused on providing grants for research projects dealing with marine ecosystems – for example mangrove swamps, seagrass meadows, coral reefs – and how these resources can be utilised in a sustainable fashion. This concerns, for example,

the environmental economics aspects of mangrove swamp fisheries, experiments with integrated pond culture of fish, shellfish and seaweed, and the potential for and effects of dolphin tourism and coral diving. During Phase II of the SAREC support, 2004–2006, activities were extended to include research on pollution – sources, dissemination routes, environmental and socio-economic impact – and sustainable management systems for marine resources.

Researchers are invited to submit applications, and projects are selected through a careful assessment process involving not only prominent researchers in the region but also the Swedish cooperating institution, Södertörn University College.

WIOMSA has also organised a number of seminars and courses and publishes a journal, "Western Indian Ocean Journal of Marine Science", twice annually.

An external evaluation noted that WIOMSA's research programme is "innovative and successful". WIOMSA has become established as a focal point for marine research in the region and serves as an excellent model for capacity development. However, it was also pointed out that it is necessary for WIOMSA to broaden its research base, which primarily consists of marine biology, to include social sciences. Cooperation with networks for research into environmental economics in East Africa is recommended.

In order to transform research results into practical management, a pilot project has been implemented in Tanzania, the "Kinondoni Integrated Coastal Area Management Programme". This project illustrates the links between research and planning/decision making. One of the positive results of this project is increased knowledge of local natural resources on the part of local authority decision makers and villagers.

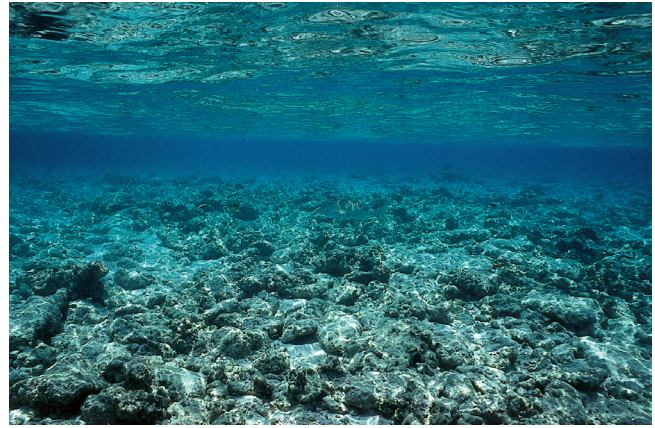
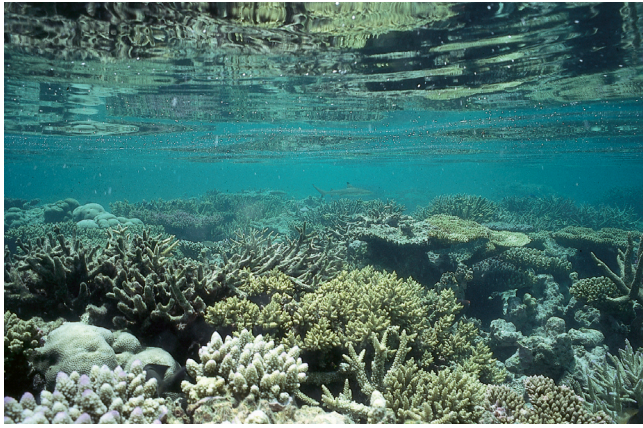


Photo: Ingrid Nordemar

Increased sea temperature may lead to death of the coral, as here in the Maldives.

Research on the coral reefs in the Indian Ocean

As a consequence of El Niño in 1998 an alarming amount of coral reefs all over the world bleached and died. The process was particularly severe in the Indian Ocean where seventy percent of the reefs were affected – in Tanzania, Kenya, Sri Lanka, the Maldives, the Seychelles, Madagascar and many other countries. In certain areas all the reefs died off. Researchers feared secondary spin-off effects on fishing and tourism.

The death of the coral in 1998 was a wakeup call and at a workshop in Sri Lanka the following year the “Coral Reef Degradation in the Indian Ocean” (CORDIO) was formed. The participants were researchers from twelve countries around the Indian Ocean, and project leaders and officials from national and regional organisations. The aim was to establish facts on the scope and effects of this phenomenon and to spread information about it. A number of multi-disciplinary research projects were identified, which later received support from Sida and other donors.

This research has primarily concentrated on studying the mecha-

nisms that lead to coral bleaching and following the recovery of the coral reefs through natural rehabilitation and special activities. Research results show a wide variation in reefs’ ability to recolonise. In cases where less than half of the reef had been damaged, repairs occurred very quickly as long as the area was protected from human interference, such as coral mining and destructive fishing methods. However, when eighty percent of the reef had died, rehabilitation took much longer. Traces of new colonies could only be observed after a period of three years.

SAREC’s support to CORDIO for research on coral reefs in the Indian Ocean has continued into a second phase, 2004–2006. The goal is to improve the management of the coral reefs and identify alternative income sources for coastal zone populations. Ecological and socioeconomic monitoring continues to be a central component of the programme. This is complemented by small-scale projects that demonstrate opportunities offered by sustainable fishing and tourism. Capacity development and dissemination of information are also vital components. Channels have

been established to forward the research results to decision making and executive agencies.

South-south cooperation

Global and regional cooperation are essential in order to manage the effects of climate change. Countries around the Indian Ocean all experience similar problems – due to dependency on sensitive coastal environments. Practical cooperation between them is essential in order to develop sustainable models for the management of marine natural resources.

Coral bleaching is a consequence of current climate change. The direct cause is increased water temperature. The reefs are covered by a myriad of minute coral polyps. These live in symbiosis with microscopic algae in their tissue. By the photosynthesis the algae produce nourishment which the coral polyps can utilise. The polyps are totally dependent on this symbiosis, which is extremely sensitive to temperature fluctuations. When water becomes slightly warmer the coral polyps expel the algae, which in turn leads to their tissue becoming transparent so their calcium skeletons begin to show. Coral polyps starve to death if temperature increases are maintained for longer periods (one to three weeks).

Halving poverty by 2015 is one of the greatest challenges of our time, requiring cooperation and sustainability. The partner countries are responsible for their own development. Sida provides resources and develops knowledge and expertise, making the world a richer place.



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