



CORAL REEF TARGETED RESEARCH & CAPACITY BUILDING FOR MANAGEMENT CENTRE OF EXCELLENCE: EAST AFRICA

University of Dar Es Salaam, Institute of Marine Sciences (IMS), Zanzibar, Tanzania

The Institute of Marine Sciences in Zanzibar is one of four Coral Reef Targeted Research & Capacity Building for Management (CRTR) Program **Centres of Excellence** throughout the world.

Partnerships have been formed to enable these Centres of Excellence to convene the CRTR Program **Working Groups**. This ensures that collaborative research can be discussed and implemented with regional and local scientists, managers, NGOs and stakeholders.

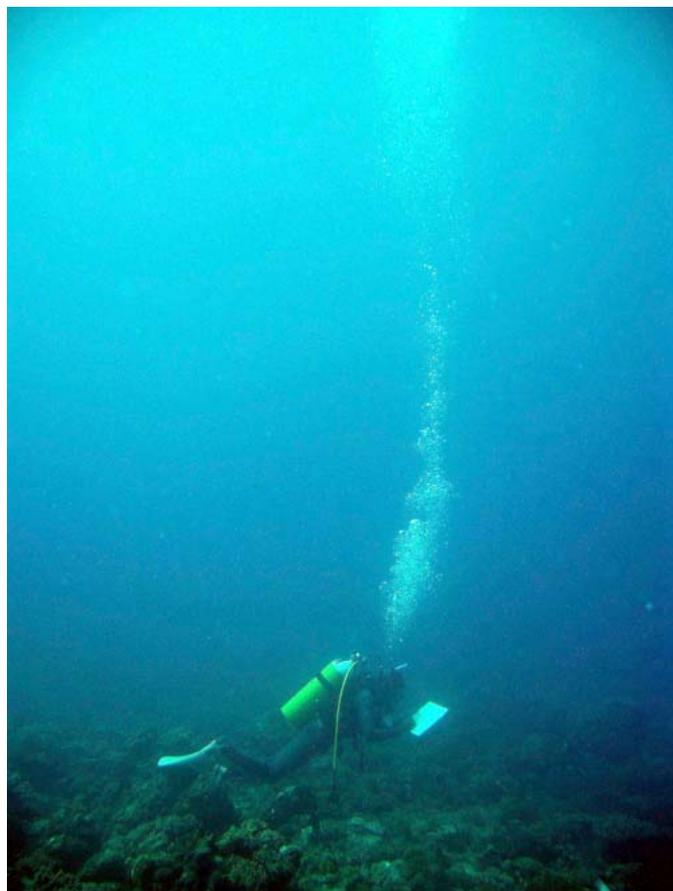
The Program supports annual workshops at the Centres of Excellence, bringing researchers from the various Working Groups together to orient field research, provide briefings on key findings and engage in training opportunities.

GOAL

Build scientific capacity to inform management and policy, so that coral reef ecosystems under threat from climate change and multiple human stressors can be sustained for current and future generations.

OBJECTIVES

1. To provide technical support to Working Groups' research and training activities.
2. To build regional capacity through:
 - graduate scholarships
 - training workshops on regionally emerging issues, and
 - access to new expertise.
3. To undertake regionally relevant coral reef research such as the impacts of coral bleaching, fisheries, and various environmental factors (nutrients, sedimentation, primary productivity) to coral recovery processes, and also facilitating information outreach and uptake in the East Africa region.



Scientist from the IMS recording habitat variables (S Yahya)

Turning Knowledge into Practice

Currently, most reef research is based in universities and research institutions in the developed world, whereas most coral reefs are located in developing countries. Rectifying this global imbalance in knowledge and capacity is a key mission of the CRTR Program.

To accomplish this, the first phase of the Program is building and enhancing the capacity of institutions in East Africa (Zanzibar, Tanzania), Meso-America (Puerto Morelos, Mexico) and South-east Asia (Bolinao, Philippines) with a fourth centre based in Australia, so that they can function as regional Centres of Excellence.

These Centres of Excellence provide facilities and technical support for the various CRTR Working Groups and also support training for local and regional students and scientists. The Centres are an important bridge in communicating research results to management and policy communities, and consulting with stakeholders such as organisations of fishers, coastal managers and local government.

The CRTR Program **Working Groups** form the scientific basis for the Program and are major areas in which additional knowledge is essential. The Groups, with members from both developed and developing countries, are informing coral reef management through research on:

- Bleaching and local ecological factors
- Connectivity and large-scale ecological processes
- Coral diseases
- Restoration and remediation
- Remote sensing
- Modelling and decision support.

The Institute of Marine Sciences, the focus for coral reef research in Eastern Africa, is collaborating with the CRTR Working Groups to build regional capacity through graduate scholarships, training workshops and strengthening expertise and information outreach.

The Institute, located in the heart of Stone Town, Zanzibar, provides laboratory facilities and office space for over 25 faculty and staff.



Most fisheries in Tanzania are artisanal on near-shore reefs (S Yahya)

The IMS plays a role in policy setting at a national level, central in the formulation of various policies related to utilisation, conservation and management of coastal and marine resources. It has coordinated and facilitated a variety of local, national and regional workshops, meetings and initiatives aimed at developing and implementing Integrated Coastal Zone Management.



**University of Dar es Salaam
Institute of Marine Sciences**

Local Research Priorities

Key research activities at the IMS focus on:

Investigations on coral replenishment processes (settlement, recruitment, restoration), fisheries and associated environmental factors (nutrients, sedimentation, primary productivity, ocean currents) and isotope studies.

- Researchers are collecting and analysing data on temporal and spatial coral settlement, recruitment and complexity patterns.
- Researchers are collecting data on seawater temperature (using loggers).
- Nutrient levels have been measured along transects from Zanzibar town to and beyond coral study sites at Chumbe and Bawe. Detailed analysis of pollutants is planned.
- Sedimentation rates are being determined with data from sediment traps.
- Ocean current profiling is being undertaken at Chumbe reef.
- Sedimentation rates are being determined and coral chips for isotope studies have been collected for analysis.
- Reef fish are being counted and fish-catch landing statistics are being collected and analysed.
- Researchers are collecting data on primary productivity (chlorophyll).

Mapping and characterisation of coral reefs and associated threats.

- Data on coastal threats to coral reef ecosystems is being collected and summarised. Mapping of the distribution of threats and determination of vulnerability indices to Tanzania coral is ongoing.

Information dissemination on coral reefs and indigenous knowledge.

- Posters, brochures, and folders on CRTR and East Africa CoE are in production.
- A booklet on the contribution of indigenous knowledge to coral reef management is in preparation.

The CRTR Project is a partnership of the Global Environment Facility, The World Bank, The University of Queensland (UQ), US National Oceanic and Atmospheric Administration, and approximately 40 research organisations around the world. The CoEs are East Africa (Institute of Marine Sciences, Zanzibar, Tanzania); South-east Asia (Marine Science Institute, University of the Philippines); Meso-America/Western Caribbean (Unidad Academica, Puerto Morelos, Universidad Nacional Autonoma de Mexico); and Australasia/South Pacific (Centre for Marine Studies, UQ, Australia)