

# Sustainable Mariculture Development in Tanzania

**T**HE purpose of this case study series is to familiarize Missions and Regional Bureaus with practical approaches to integrated water resources management (IWRM) that have proven to be successful in USAID field programs.

## Acknowledgments

This report was produced by the USAID Water Team with information provided by Jim Tobey and Chip Young of the University of Rhode Island Coastal Resources Center. Photographs were taken by Gratian Luhikula.

## Keywords

Coastal zone management; mariculture; Tanzania

## Introduction

Mariculture and freshwater aquaculture are growing rapidly throughout the world, and are expected to increase in Tanzania as well. The country's need for alternative sources of protein and livelihoods is great, particularly in coastal areas, which are among the poorest regions in the country. Village-based seaweed farming has emerged as a viable means of economic development in some communities, and the number of investor proposals for large shrimp farm operations is increasing. Unregulated mariculture production can threaten water quality, however, and concerns have been raised about how to face the challenge of promoting coastal development to improve the human quality of life without compromising the long-term health of ecosystems and watersheds. The proposals for large-scale production activities brought to the political forefront the realization that Tanzania lacks the necessary guidelines and institutional mechanisms to effectively



A seaweed salesman inspects the product in a local market.

manage the complex challenges of coastal watershed development activities.

USAID and the Government of Tanzania agreed to address these concerns through the implementation of a national coastal management initiative, the Tanzania Coastal Management Partnership (TCMP). The TCMP is a working example of how a management plan implemented at the national level can address a wide range of coastal resource issues, minimize stakeholder conflict, and provide optimum allocation of land and water resources for multi-sectoral development.

## Approach

Without appropriate interaction mechanisms among coordinating agencies, decision makers, and implementing authorities at all levels, both the economic viability of the mariculture industry and the coastal environment that sustains these income activities are at risk. The TCMP was

designed to manage sustainable mariculture development at the national level in order to demonstrate effective techniques of integrated coastal water management and show positive results on a priority coastal topic as early as possible. The Partnership formed a multidisciplinary and inter-sectoral Mariculture Working Group (MWG), drawing on members from both the public and private sectors, to undertake two tasks:

- identify mariculture issues of concern; and
- formulate the means to address priority issues.

After one year of consultation among managers, scientists, and community stakeholders, an issue profile was presented to the Government of

---

USAID Water Team  
U.S. Agency for International Development

Ronald Reagan Building  
Room 3.08

Washington, DC 20523-3800





The Tanzania Coastal Management Partnership addresses the challenge of promoting coastal development to protect and improve the human quality of life without compromising the long-term health of ecosystems and watersheds.

Tanzania containing specific information on the following factors:

- composition and structure of the mariculture sector;
- development context (natural and human resources and economy) and mariculture development options;
- existing knowledge base and information gaps;
- public awareness and interests;
- land tenure rules;
- legal, procedural, and institutional frameworks and planning means/mechanisms; and
- policies, regulations, and guidelines on resource use.

Refinement and formulation of government development guidelines and approval processes emerged as high-priority items in the profile and became the next challenge of the MWG in the planning process. The goal of mariculture development guidelines was to establish clear project review and approval procedures that are consultative, multi-sectoral, and interdisciplinary, and to design monitoring, reporting, evaluation, and response procedures. Guidelines are intended to increase the likelihood that projects simultaneously encourage wise investment in mariculture and proceed

in a manner that safeguards the environment and coastal population. The MWG recommended procedures that build on the current responsibilities and procedures of existing institutions, while enhancing communication and coordination among institutions, within different levels of government, and between the public and private sector.

Drawing from worldwide experience, it was recognized early on that to be successful, guidelines must be practical, encourage a balance between conservation and development, have broad government ownership, and be acceptable to the private sector. Therefore, the strategies included expanding the MWG to include participants from all relevant agencies, continuous consultation and consensus building with relevant public and private stakeholders, and harvesting the practical lessons learned from on-the-ground studies of cases of mariculture development.

## Results

The product of issue identification and analysis was a “profile” of mariculture issues that was reviewed and endorsed by the Government of Tanzania in January 1999. The profile

not only represented a baseline of relevant management information on mariculture for future use in Tanzania, but also has been made available worldwide and is being used as an example of how to construct a mariculture profile in other nations.

The key result of the profile for the TCMP was that the interagency MWG was empowered to continue working on mariculture planning and development. The MWG was also given high-level government guidance on priority planning and management needs identified as mariculture development guidelines.

Development guidelines were created with broad stakeholder support over a 1½-year period. The guidelines include crucial elements, such as:

- siting, design, technology, and management at the farm level;
- location and spatial distribution of the sector as a whole;
- water supply;
- project appraisal, permit and environmental impact assessment procedures, and institutional roles and responsibilities;
- monitoring protocols;
- fish health management, including disease and stock control;
- communication and information exchange;
- access to markets and trade opportunities; and
- research and extension activities.

The TCMP laid new groundwork for the development of mariculture guidelines in Tanzania; the participatory, interagency methods used by the MWG were nearly unheard of at the national level as means to address a complex, inter-sectoral issue. They proved successful and created a high level of trust, cooperation, and cohesion all critical elements to building long-term capacity for coastal watershed management.

The integrated approach has increased communication and created a greater understanding among sectors. A planned approach to mariculture development, as is outlined in the guidelines documents of the MWG, is

unlikely to be achieved without effective integration of planning and management among sectors and with the public sector. The TCMP is working hard to formalize the planning and management process developed in the guidelines.

By bringing together a wide range of knowledge and differing points of view, the participatory and consultative process of the MWG proved effective at consensus building and solving complex problems. The open process has created a constituency for the mariculture issue profile and guidelines, and national attention on the issue has increased public and commercial awareness of the viability of mariculture and the necessity of environmental regulations.

### Outstanding Issues

The next challenge for Tanzania will be to build the capacity to successfully implement the guidelines.

Implementation involves deployment of specific planning instruments and development actions, and the promotion, facilitation, and, if necessary, enforcement of policies and regulations. The three years of work of the MWG has greatly increased capacity for implementation, but this stage in the planning process invariably brings new challenges.

### Additional Information

For e-mail inquiries, please contact:

- Jeremiah Daffa, TCMP Support Unit Leader (jdaffa@epiq.or.tz)
- Jim Tobey, TCMP Project Manager (jtobey@gso.sun1.gso.uri.edu)

The following Web sites provide useful information.

The Secretariat for Eastern African Coastal Area Management (<http://www.seacam.mz>)

The University of Rhode Island Coastal Resources Center (<http://www.crc.uri.edu>)

### References

- Hambrey, J, M. Phillips, M. Chowdhury, and R. Shivappa. 2000. Guidelines for the Environmental Assessment of Coastal Aquaculture Development, report prepared for the Secretariat for Eastern African Coastal Area Management. Maputo, Mozambique. Available at <http://www.seacam.mz>.
- Tanzania Coastal Management Partnership (TCMP). 1999. Mariculture Issue Profile, Working Document Number 500. Available at <http://www.crc.uri.edu>.
- Tanzania Coastal Management Partnership (TCMP). 2000. Draft Mariculture Guidelines. Available at <http://www.crc.uri.edu>.
- Tanzania Coastal Management Partnership (TCMP). Socio-Economic Assessment of Tanzania's Coastal Resources, TCMP Working Document 5006. Available at <http://www.crc.uri.edu>.
- Tanzania Coastal Management Partnership (TCMP). Mariculture Executive Summary and Action Strategy, TCMP Working Document 5013. Available at <http://www.crc.uri.edu>.
- United Nations Food and Agriculture Organization (FAO). In press Planning and Management for Sustainable Coastal Aquaculture Development. Rome, Italy.



Women harvesting seaweed.

## Lessons Learned

The work of the MWG was undertaken to test and demonstrate how integrated coastal management can make tangible progress on an important coastal issue. Mariculture in Tanzania exemplifies other activities relevant to economic growth in coastal areas, including tourism, agriculture, industry, and oil and gas development. Application of harvesting lessons from TCMP experiences to other sectors is therefore an important feature of the initiative.

- In two annual self-assessment retreats and one learning workshop, the MWG has identified four key areas of lessons learned that are relevant to similar work on other complex coastal issues: 1) representation by all stakeholders is critical to gain support for the plan and 2) compliance with its provisions. Representation means not only consultation and information exchange, but also direct participation in the decision-making process. The MWG found that this required conscious investment of effort in continual contact with all key stakeholder groups.
- Visible incentives for stakeholders are important. Most members of the MWG valued the opportunities that the group work provided in terms of expanding their expertise, experience, and professional development. Modest financial incentives to undertake additional work and responsibility are also important.
- Mariculture development plans must be flexible. Procedures are adapted and modified in the light of experience and changes in the overall development context. Building new institutional capacity means sectoral policies are in a continual state of modification and evolution. The implication for sustainable mariculture development in Tanzania is that mariculture guidelines will need to be reviewed and amended over time as the whole policy context evolves.
- Continual outreach and public education through newspapers and other news media are critical to inform the public and decision makers of the importance of the issues, and to enhance understanding of coastal management efforts and their goals. The MWG found that stakeholders in local communities often have unrealistically high expectations for immediate results of inter-agency work. Local stakeholders look for immediate and concrete individual benefits of government management efforts, not “only” policy and guidelines.