



Tanzania Coastal Management Partnership

**Summary of Issues and Approved Action Strategy for
Mariculture Management in Tanzania**

Prepared by:
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Mariculture Working Group

Summary of:
Mariculture Technical Meeting for Directors
White Sands Hotel, 15 January 1999

Working Document: 5013 TCMP

*A joint initiative between the National Environment Management Council,
the University of Rhode Island/Coastal Resources Center and the
United States Agency for International Development*

Preface

This document includes:

- ❑ A summary record of the Directors' Meeting on Mariculture held at White Sands Hotel, Dar es Salaam, 15th January 1999.
- ❑ The *Action Strategy* adopted by Directors' at the Mariculture Meeting
- ❑ The Executive Summary of the *Mariculture Issue Profile* prepared by the TCMP Mariculture Working Group

Members of the Mariculture Working Group include representatives from: The University of Dar es Salaam; Kunduchi Fisheries Training Institute; Division of Fisheries; Division of Forestry and Beekeeping; National Environmental Management Council; Institute of Marine Sciences; Tanzania Fisheries Research Institute; and, Prawntan Limited. Assistance was provided to the Mariculture Working Group by the University of Rhode Island's Coastal Resources Center.

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Summary Record of the Directors' Meeting on Mariculture

White Sands Hotel, 15th January 1999

BACKGROUND

Directors from national directorates and departments key to sustainable mariculture development in Tanzania attended the half-day meeting. Institutions represented at the meeting included: Division of Fisheries, National Environment Management Council, Division of Environment, Tourism Division, Transport, Water, Lands, Wildlife Division, and Industries

The Directors' meeting was convened by the Division of Fisheries. It was organized by the Mariculture Working Group of the Tanzania Coastal Management Partnership (TCMP). The Mariculture Working Group (MWG) is an intersectoral group whose members are drawn from relevant government, private and public institutions. The Tanzania Coastal Management Partnership is a collaborative effort between the National Environment Management Council, University of Rhode Island/Coastal Resources Center and the United States Agency for International Development. The TCMP seeks to develop and implement a national ICM policy that address problems at both the national and local level.

Since March, 1998 the Mariculture Working Group has undertaken a series of issue identification activities that resulted in the completion of a *Mariculture Issue Profile* and *Draft Action Strategy*. The Profile was developed through a consultative, participatory process with stakeholders from local, district, regional and national levels. The Executive Summary of the Profile and the Action Strategy were the focus of the meeting's deliberations.

PURPOSE

The objectives of the Mariculture Meeting were to:

- Describe the status and trends of mariculture development in Tanzania
- Review the statements describing key mariculture issues
- Recommend a strategy for moving from issue identification to adoption of mariculture policy and guidelines

ACTIONS

The Mariculture Meeting reviewed the *Mariculture Issue Profile* Executive Summary and further:

Considered the presentations, remarks and views at the meeting;
Endorsed the summary of mariculture issues presented to the meeting delegates; and
Recommended that the Mariculture Working Group finalize the draft *Mariculture Issue Profile* and distribute the report

The Mariculture Meeting further reviewed the *Proposed Mariculture Action Strategy* and:

Adopted the Proposed Action Strategy;

Recommended that the Mariculture Working Group be expanded and initiate activities to implement the *Action Strategy*; and,

Agreed to continue to provide guidance to the intersectoral Mariculture Working Group and to contribute to the work of the Group as necessary.

Executive Summary: Mariculture Issue Profile

INTRODUCTION AND METHODS

The *Mariculture Issue Profile* report was prepared by members of the Mariculture Working Group of the Tanzania Coastal Management Partnership (TCMP). The Mariculture Working Group (MWG) is intersectoral and inter-disciplinary; its members are experts drawn from relevant government, private and public institutions, including individuals having a stake in coastal and marine areas of the United Republic of Tanzania.

The purpose of the TCMP mariculture issue profiling process is to identify and characterize the environmental management and governance issues associated with mariculture development in Tanzania. This is the first step in policy development and implementation of a sectoral topic linked to integrated coastal management (ICM). Mariculture was chosen as a leading issue to test ICM approaches because it typifies the challenges presented in planning for and managing coast-related economic opportunities in a sustainable manner. Lessons learned in applying the tools and concepts of ICM to mariculture can be used to address other intersectoral issues along the coast.

Preparation of the report started in March 1998 when the Mariculture Working Group was formed by TCMP. The report preparation process then included the following key events:

- *Collection, review and synthesis of available information.* The Working Group members consulted multiple sources of information in and outside the country.
- *Working Group meetings and workshops.* Through meetings, workshops and retreats, the Working Group shared experiences and assessed the prevailing issues.
- *Consultations* with relevant individuals and institutions at local, national and international levels.
- *Field observations.* Members of the Working Group visited all coastal districts for ground-truthing of the identified issues.
- Initial findings of this work were presented at the Integrated Coastal Management *Policy Meeting* in October 1998.

POTENTIAL AND CHALLENGES

Tanzania, with its rich natural heritage, high biodiversity and relatively unspoiled coastal environment, holds great potential for mariculture. Tanzania already has an emerging, village-based seaweed farming industry, and is just entering into other forms of mariculture. Continued growth and diversification of the mariculture industry is expected at both scales. At the village level, mariculture can alleviate poverty by providing an alternative form of crop production and provide income and protein. At the national level mariculture can be a leading sector in economic development and generate foreign exchange.

Mariculture encompasses the cultivation of a wide variety of plants and animal species in a wide range of habitats. The scale of mariculture can range from small-scale, family-run operations to large-scale, industrial projects. Experience with mariculture to date is largely limited to seaweed farming in Zanzibar. The demonstrated success of seaweed farming in registering appreciable socio-economic benefits in coastal communities has led to its spread to Mtwara, Lindi and Tanga.

Large expanses of unspoiled coastal habitats in Tanzania offer potentially suitable sites for mariculture development, if care is taken not to reduce the ecological or economic value of

critical habitats. As Tanzania confronts the growing number of opportunities and challenges presented by mariculture development, care must be taken that development proceeds in a manner that safeguards the nation's vital natural resources and maximizes social benefits. The basis of sustainable mariculture development is careful planning and intersectoral integration to avoid potentially irreversible damage to ecologically critical areas and unintentional, but costly conflicts with other economic activities such as fisheries, agriculture and forestry.

The ability to develop sustainable mariculture activities along the coast will depend on establishing the necessary institutional and technical preconditions needed to support sustainable development. Public sector institutions play an important role in each stage of mariculture project development. From the initial stages of project planning, through project approval, to the construction and operation stages, public institutions play key roles in guiding and regulating industry, while promoting its growth.

ENVIRONMENTAL MANAGEMENT AND GOVERNANCE ISSUES

Through the process outlined above, the Mariculture Working Group identified the following priority issues:

1. Detailed mariculture guidelines that guide the appropriate institutions and other stakeholders during the approval process need to be developed.

Mariculture guidelines that direct mariculture development procedures and related environmental and financial aspects are essential to promote development of mariculture while ensuring sustainability.

Key management tools need to be further developed as part of the guidelines and integrated into the approval process. These include: environmental impact assessment (EIA) requirements, monitoring, licensing, siting criteria, zoning and environmental quality standards. Integration and use of these tools in mariculture project planning and approval should be specified as part of the guidelines and supported by policy.

EIAs should be a key component of the approval process. General EIA guidelines need to be reviewed and adapted for the purposes of mariculture development. It is important that they include social as well as environmental factors, recommended mitigation measures and that they are linked to subsequent monitoring. Also needed is a national monitoring framework that includes collection of baseline data and specific procedures for monitoring of operations. Environmental quality standards need to be developed and integrated into monitoring scheme and EIA requirements.

Guidelines need to address management and oversight of mariculture facility construction and operation.

Oversight of construction and operation of projects is not provided for under the current regulatory system due to the lack of regulations covering operating procedures, monitoring requirements, environmental quality standards, best management practices, and enforcement capacity. Many of the potential environmental impacts related to siting and construction can be prevented by establishment of siting criteria and implementation of land use planning methods such as zoning. Potential impacts related to operations can be prevented or lessened by development and use of best management practices and creating a system of monitoring and regulatory oversight.

2. Clear articulation and integration of policy and procedures is a critical precondition to successful mariculture planning. This includes procedures for obtaining permits, licenses, land titles, evaluation of feasibility, and other approvals for projects.

Among the principle findings of the issue identification exercise carried out by the MWG is that the most critical policy and institutional issues lie in the area of the mariculture approval process.

The project approval process provides a good example of why integrated coastal management is urgently needed to guide mariculture development. From a governance perspective, managing mariculture development requires close intersectoral coordination and cross-sectoral policy development.

There is currently no comprehensive mariculture policy statement that adequately specifies the legal and institutional frameworks governing all aspects of project approval. The approval process for mariculture projects involves many sectors and institutions, each of which has its own policies, procedures and regulations governing its role and responsibilities in the overall process. The lack of comprehensive mariculture policy guidelines that specifies coordination mechanisms for the approval process has resulted in considerable uncertainty among the responsible institutions and the public as to their respective and joint roles in the process, and how these can be most effectively coordinated. Clear approval guidelines specifying approval procedures and institutional roles and responsibilities will help public organizations carry out their functions more effectively.

3. Objectives and strategies to guide mariculture planning and development in Tanzania need to be carefully formulated, recognizing the different issues and opportunities associated with small, village-based and large-scale commercial operations. A National mariculture development plan that identifies goals, opportunities, and challenges could be the vehicle to guide strategic planning and development initiatives, and provide a framework to make better use of existing capacity and resources.

The ability of individuals, companies, government and development agencies to plan for mariculture projects that are financially and environmentally sustainable is handicapped by a lack of technical capacity and scarce resources. There has been relatively little mariculture experience on which to build, with the exception of seaweed farming. Although seaweed farming has produced economic and social benefits, there are limited resources for systematic technology transfer, applied research and extension that would promote replication of this successful experience. There is a need to promote mechanisms to transfer information and experience from both within and from outside Tanzania to assist in more rapid development of sustainable mariculture practice.

Planning and development of projects is also complicated by a lack of financial support since the feasibility and environmental sustainability of mariculture remains to be demonstrated to the satisfaction of private sources of capital and funding agencies. Demonstrating the economic feasibility of sustainable forms of mariculture will help encourage lenders and donors to provide credit or grants. There is a need to identify and test pilot scale mariculture activities that could be conducted sustainably in appropriate sites. Biological, environmental, technological and economic requirements should be taken into consideration. Best management practices and sustainable mariculture models need to be developed and tested for Tanzanian conditions to proactively shape the future of mariculture development.

- 4. Sustainable development of small-scale mariculture can be facilitated by increased coordination between national and local level authorities, and increased support to Local governments by Central government. Coordination and communication between the various levels of government in the land procurement and approval processes will help ensure that mariculture activities are appropriate and sustainable.**

The Mariculture Working Group identified a division of responsibility for mariculture development and project approval between Central level government institutions and those at the District and village level. One of the key steps in the current approval process is obtaining the right to use land for mariculture purposes, the responsibility for which lies mainly at the lower levels of government. However, procurement of land is not tightly linked to, nor conditional upon gaining approval at the National level for such key issues as assessment of environmental impacts and technical feasibility, granting of business and tax licenses, and stipulation of mitigation measures. Closer communication and integration of National and District level activities related to the approval process would help ensure that mariculture development is sustainable and provide increased clarity on procedures and requirements.

- 5. A mechanism is needed in which the various stakeholders have an opportunity to participate in mariculture project planning and decision-making.**

The participatory nature of the District and local level processes should be supported and strengthened. All resources used by mariculture (land, water, access rights, biological resources, etc.) should be subject to rigorously defined and clear permitting procedures that allow evaluation by stakeholders, researchers and policy makers. Extending the opportunities for public participation to the National level can be achieved by clarifying and making easily available information on the approval process. This information will help project planners move forward in the approval process in a timely and efficient manner. Increasing opportunities for stakeholder consultation and participation in granting approvals will help prevent and resolve resource use conflicts.

- 6. Mariculture growth is constrained by inadequate infrastructure, limited marketing experience and insufficient technical capacity.**

The ability to establish mariculture operations is constrained by limited infrastructure, poor communications, and lack of utilities in many locations that would otherwise be ideal mariculture sites. This is a generalized problem facing most forms of development in the nation. Choosing appropriate levels and types of mariculture technology can help avoid some of the constraints in this area. Small, village-level operations may be most appropriate in isolated and underdeveloped areas. In some cases, lack of infrastructure and supporting industry can be resolved through the coordinated efforts of the public and private sectors to support infrastructure development.

Constraints imposed by limited availability of technical capacity and other critical resources can be partially resolved through coordination and collaboration between institutions responsible for research, development, training and extension.

Although the technical capacity for mariculture development is insufficient to meet the current demand, there are many qualified professionals now working in Tanzania. They can act as catalysts for a well-planned development initiative that is part of coastal zone management, if brought together through an intersectoral approach. These professionals include researchers, resource managers, extension agents, development workers and members of the private sector. The limited resources available for research, development and extension can be most efficiently used if coordinated to achieve goals identified under a national mariculture development plan.

CONCLUSION

Mariculture holds great promise in Tanzania as a form of economic development and poverty alleviation, but weakness in intersectoral coordination and the absence of cross-sectoral policy development hinder sustainable development. Development can be promoted by strengthening the ability of institutions to act in a concerted fashion guided by intersectoral policy and formulation of clear regulations and procedures. Integration of policy, development of mariculture guidelines, and a mariculture development plan are strategies that can help resolve the most fundamental issues that now constrain sustainable mariculture development.

Action Strategy for Mariculture and ICM Policy Development

BACKGROUND

This Action Strategy was developed by the Tanzania Coastal Management Partnership and the Mariculture Working Group. It proposes immediate actions that can be taken to address the environmental management and governance issues associated with mariculture development in Tanzania. The Action Strategy has also been developed in response to a request—endorsed at the ICM Policy Meeting in October 1998—to initiate concrete and positive actions to address critical issues, such as mariculture, while the overall ICM policy is being formulated and adopted.

OBJECTIVES OF THE ACTION STRATEGY

- Make immediate and positive progress on addressing a number of critical management and governance issues associated with mariculture development in Tanzania
- Develop and test inter-sectoral mechanisms for managing mariculture over the short term
- Draw lessons from this experience and apply those lessons to the overall ICM policy process

ACTIONS

- Expand the existing Mariculture Working Group to include members representing the private sector and the institutions involved in the mariculture approval process that are not presently on the group.
- Produce a document detailing mariculture guidelines for both small and large-scale mariculture that can be used in the approval process by the appropriate sectors.
 - Develop a clear statement of existing procedures that can be used by developers, the public, and institutions as a reference and guide to facilitate efficient approval process
 - Use case studies (e.g. Tanga Coastal Programme; specific experience of private investors) to identify specific areas in the approval process where the institutional framework and inter-sectoral coordination can be improved, and make recommendations for doing so.
 - Use the lessons learned from the case studies to develop draft guidelines for the approval process that improve existing procedures by addressing gaps and needs.
 - Convene and facilitate Technical Focus Groups to write sections of the guideline document related to supporting technical components of the approval process including, but not limited to, EIA, monitoring, and siting criteria.
 - Submit specific recommendations for approval process procedural changes and specific technical guidelines to Directors for consideration and guidance.

- Building on the experience that will be gained while developing guidelines, seek to harmonize and integrate existing sectoral policies and institutional roles and responsibilities related to mariculture and link them to ICM policy. Make recommendations for modifications to policy, roles, and responsibilities where necessary.
 - Consult with the responsible institutions to identify existing sectoral policies that have relevance for mariculture
 - Identify and make recommendations to address specific gaps in existing policy that are relevant to mariculture
 - Identify existing institutional roles and responsibilities related to mariculture at the National and District level
 - Submit specific recommendations for policy enhancements and institutional roles and responsibilities to Directors for consideration and guidance on next steps.
- Prepare a learning report that documents and analyzes the experience and lessons learned in carrying out these actions that can be applied to the ICM policy development process.

PRODUCTS

- Draft guidelines for the approval process, including supporting technical components
- Mariculture policy statement within ICM policy and proposed enhancements for harmonization of sectoral policies
- Learning report