

The Need for Mariculture Guidelines

Mariculture is the production of aquatic plants and animals in brackish or seawater where at least one part of the life cycle is under the control of man. Mariculture and freshwater aquaculture are growing rapidly throughout the world, and are predicted to grow rapidly in Tanzania. Tanzania is fortunate in offering a wide variety of coastal habitats and a clean environment that can host large-scale and small-scale mariculture activities as a viable means of economic development. Small-scale culture of seaweeds has been an outstanding example of how mariculture production can provide income and employment in rural areas with few negative consequences. However, like all productive activities, the potential for negative environmental, social and economic impacts exists, particularly with large-scale production.

The greatest threat to sustainable growth, however, may be internal. Tanzania lacks mechanisms and approaches to address the complex challenges of coastal and marine management. It also lacks feedback mechanisms between coordinating agencies, decision makers and implementing authorities at all levels, and the lack of management capacity of relevant agencies, particularly at district and village levels, is further frustrating effective governance and development of the coastal resources.

This document proposes a re-structured permit and review process that provide the essential coordinating and feedback mechanisms that Tanzania is currently lacking. Also proposed are mechanisms to strengthen the capacity to manage and promote sustainable mariculture. This document is the executive summary of the Draft TCMP Mariculture Guidelines.

Process of Developing Guidelines

The document was developed with the support of Tanzania Coastal Management Partnership and its Mariculture Working Group. The latter is a multi-disciplinary and inter-sectoral group whose members are drawn from various public and private sectors including individuals having a stake in coastal and marine development in the United Republic of Tanzania. The Mariculture Working Group members have experience in areas related to mariculture development such as fisheries, forestry, environmental management, water resources and land management. The Mariculture Working Group was tasked with two broad mandates:

- 1. Identify issues of concern for mariculture as a multisectoral coastal development issue; and*
- 2. Formulate means to address critical issues for mariculture focusing on policy and institutional arrangements to serve as a model for the ICZM policy development process.*

The group prepared the Mariculture Issue Profile in 1998. This document characterized the issues related to mariculture management and development and made preliminary recommendations to address issues of concern. These guidelines are based on the issue profile.

For both documents, the Mariculture Working Group researched, compiled and reviewed primary and secondary information relevant to the development of mariculture in Tanzania, and other nations. The working group also consulted lessons learned from case studies from mariculture development in Bagamoyo and Tanga. Additional input was extracted from regional experience through a Mariculture Environmental Assessment Course conducted in Dar es Salaam. Regular consultations with institutional and individual stakeholders from the National and District levels were also held. The routine working group meetings enabled members exchange experience and helped improve the guidelines. As major benchmarks

were reached, the output was reviewed by invited experts from public institutions at all levels of government, NGO's, and the private sector.

In the process of researching and writing both the Mariculture Issue Profile and the Mariculture Guidelines, the Mariculture Working Group was in close communication as information was exchanged with the other TCMP Working Groups. Input from the Socioeconomic Team, Legal Advisory Team and the Science and Technical Working Group provided critical information to the Mariculture Issue Profile and the Guidelines. The output from the research and analysis of the Mariculture Working Group was provided on a continuous basis to the TCMP Core Policy Working Group. As intended, the lessons learned by the Mariculture Working Group's experience and the results of their research and analysis provided valuable input for the formulation of the proposed National ICM Policy.

The approach to strengthening governance processes for this test issue is designed to shift the focus away from individual proposals to looking at the national situation and putting quickly into place mechanisms to guide future mariculture development. The process encourages participants to consider mariculture activities outside of shrimp farming, taking a broader view by considering what type and scale of mariculture is appropriate for Tanzania.

Mariculture Guidelines and the proposed ICM Policy

The Mariculture Guidelines, and the changes it proposes, builds on the recent advances the nation has taken to manage its coast in an integrated way. Tanzania is making rapid progress towards approving and implementing a National Integrated Coastal Management Policy. The National Integrated Coastal Management (ICM) Policy is now at the white paper stage and will be formally submitted to government in March 2000.

This Policy is the result of an open, transparent and participatory process that extended over two years reflecting the collective views and interest of numerous stakeholders. The Policy demonstrates that sectors can work together, and that central government can work with local authorities and resource users to identify and develop solutions to urgent coastal problems. By applying the principles and practice of ICM, sustainable coastal development can become a reality on the Tanzania coast. The Mariculture Guidelines are the first step in applying these principals within the framework of the Policy to a real and present intersectoral challenge now facing the Nation.

Policy Statement two of the proposed ICM Policy calls for the:

Promotion of integrated and sustainable approaches to the development of major economic uses of the coast to optimize benefits and minimizes negative impacts.

In support of this major policy statement, two sub-policies are offered:

Policy 2A. Ensure that coastal activities and opportunities are developed according to the national and local needs and plans.

Policy 2B. Establish project review procedures that are consultative, multi-sectoral and inter-disciplinary in order to promote efficiency and transparency in the decision-making process.

The Mariculture Guidelines achieve the intent of these policy statements. The Guidelines have been developed in reference to existing national and local plans related to mariculture development and propose amended project review procedures that are consultative, multi-

sectoral and inter-disciplinary in order to promote efficiency and transparency in the decision-making process.

Mariculture exemplifies issues that will be typical of most economic development activities within the coastal area such as tourism, agriculture, industry and oil and gas development. Given the relatively new arrival of this industry upon the national scene, and the possibility for both negative and positive impacts, it is particularly apt for the first application of the ICM policy.

These guidelines were developed co-currently with the ICM Policy as a “practical exercise.” This is a common method used while developing national policy in the field of ICM. A practical exercise makes tangible progress by applying general principals of ICM to a specific issue to testing new approaches and mechanisms. The practical exercise needs to be “issue-based” rather than sectoral, as all crucial coastal development activities affect multiple sectors.

Mariculture was well suited for as use as a practical exercise. Mariculture was selected as the initial area of focus because of its rapid emergence as a coastal issue and economic opportunity and the recognized need to consider mariculture development within a broader ICM context. Mariculture is also appropriate for this purpose since it is a inter-sectoral activity, takes place where land and water meet, is of current national interest, and offers the possibility to make rapid, positive progress.

The current approval procedure for mariculture projects is fragmented between institutions, contains gaps that may lead to environmentally damaging projects and is cumbersome for the investor. The guidelines establish a modified project review procedure that is consultative, multisectoral and interdisciplinary to increase the likelihood that projects can be reviewed in an efficient manner that safeguards the environment and coastal population, while encouraging investment in mariculture. The modified review procedures build upon the current responsibilities and procedures of existing institutions. Communication and coordination between institutions, levels of government, and between the public and private sector are enhanced.

The Guidelines also present recommendations and strategies that support the ability to plan and develop mariculture harmoniously with other activities, local needs, and the protection of sensitive environment. Most rural coastal communities are poor, yet the Tanzanian coast offers tremendous opportunities for sustainable development of natural resources. Development and use of the coastal area is expected to increase, creating economic opportunities as well as putting unprecedented pressure on both the people and the resources of the coast. To maximize benefits of current and future development, careful shoreline planning guided by clear principles and backed by enforceable practices is necessary. Shorefront planning seeks to balance competing uses for land and natural resources, resolve conflicts among users, and balance national and local interests. It guides development as it is happening, promoting development in suitable areas and away from sensitive areas as well as mitigating the impacts of existing activities. It does not replace the sectoral responsibilities for reviewing and approving development. Instead, it seeks to coordinate among the sectors and fill gaps that exist between them.

Development of implementation mechanisms

Pursuant to the mandate of the TCMP to develop ICM policy and make positive progress toward addressing coastal issues, the Mariculture Guidelines contain a number of policy recommendations. Implementation mechanisms supporting the policy recommendations are also outlined. The general areas of policy and implementation addressed by the Mariculture Guidelines falls under the following categories:

Coastal Activity (Mariculture) Guidelines

The TCMP Mariculture Working Group has researched and drafted guidelines to facilitate the development and regulation of mariculture activities. These guidelines include characterization of economic activities in the sector, siting requirements, permit procedures, good operational practices, adaptation of EIA for mariculture and monitoring protocols. The guidelines include sections on whether and how such economic development activities should occur within marine protected areas¹. The Mariculture Guidelines can serve as a model for guidelines for other coastal activities.

The proposed TICMO² will continue and expand this process by convening and facilitating interagency Issue Specific Working Groups³ to develop similar guidelines for other major coastal economic development activities. New guidelines will consider previously established guidelines to avoid repetition and conflicting instructions. The IMCIC⁴ will review and endorse guidelines. Endorsement means that the national agencies agree to carry out their activities in a manner that is consistent with the guidelines. Guidelines will be implemented through:

- Sectoral agencies, assisted by TICMO and an Issue Specific Working Group, collaborating with the private sector to voluntarily adopt good management practices; and
- Sectoral agencies, assisted by TICMO, incorporating recommended guidelines directly into their relevant regulations (e.g., Environmental Impact Assessment procedures and permit approval processes).

Coordinated Permit Review for Major Economic Uses of the Coast

Mariculture activities are relatively new to the nation, particularly large-scale projects that may be sited in ecologically sensitive areas with the potential to affect neighboring populations. The Mariculture Working Group has reviewed the existing policies and permitting procedures. The current approval procedure is an *ad hoc* amalgamation of sectoral procedures of different institutions (Figure 1). There are a number of gaps in the procedure. Increased coordination, communication and transparency are needed between the various institutions, private sector and the public. The Mariculture Working Group has proposed modified permitting procedures for large-scale and small-scale projects that build upon the current procedures and capacities of existing institutions. The modified procedures emphasize an open, transparent and coordinated review process with provisions for public input and strengthened ties between National and District Level institutions.

¹ This is a generic term meant to include all protected areas along the coast. These include marine parks, protected mangrove areas, terrestrial game parks, etc. (see policy 4)

² Tanzania Integrated Coastal Management Office (TICMO) is an institutional structure proposed in the National Integrated Coastal Management Policy. Pending approval of the Policy, the TICMO would serve as the Secretariat to the Inter-ministerial Coastal Integration Committee (IMCIC) to execute coastal management decisions.

³ Issue Specific Working Group-intersectoral group of experts from the private and public sector under the proposed National Integrated Coastal Management Policy, such groups would develop issue specific guidelines. Analogous to the current Working Groups serving as part of the TCMP, e.g. the Mariculture Working Group.

⁴ Inter-ministerial Coastal Integration Committee is an institutional structure proposed in the National Integrated Coastal Management Policy. Pending approval of the Policy, the IMCIC would serve under the ministry responsible for the environment.

The TICMO, when requested by the responsible sector, will facilitate similar coordinated permit review processes within and between central and local government. It is expected that the new Mariculture approval procedures and the institutional arrangements developed to facilitate permitting will provide a model and an institutional basis for permitting other economic activities.

Promoting and Facilitating Sustainable Economic Development in Coastal Areas

Managing economic development in coastal areas is a two-fold process. Not only must sensitive coastal habitats and populations be protected from potential impacts, but economic opportunities must not be lost. Mariculture is a good example of an economic development opportunity for coastal communities that is not being taken full advantage of. The Mariculture Working Group has analyzed the current means of promoting and facilitating development of mariculture businesses and devised new mechanisms to strengthen the ability of responsible institutions to assist the public to establish viable and profitable businesses that present minimal or no impacts. Different approaches are suggested where needed to support large- and small-scale development.

Summary of the Mariculture Guidelines and required actions for implementation

The Mariculture Guidelines encompass five major topics:

Chapter 1 Coordinated permit review procedures

Modifications to the current approval procedures are suggested to increase efficiency, protect the environment and encourage appropriate development.

Chapter 2 Use of Coastal Resources (Land and Water) for mariculture

The procedures for obtaining land and water use rights are clarified and linkages with EIA and other review processes are suggested.

Chapter 3 Environmental Impact Assessment (EIA) and Monitoring

The role of EIA in the approval process is enhanced and recommendations made to modify general EIA guidelines for application to mariculture. Recommendations to address the lack of monitoring are made.

Chapter 4 Species and Site Selection

Criteria for selecting good sites, appropriate use of coastal habitats and feasible culture species and technologies are detailed.

Chapter 5 Mariculture Development, Promotion and Funding

Mechanisms for strengthening the capacity and strategies of public and private institutions in promoting sustainable forms of mariculture are elaborated.

The major recommendations and needs for action are summarized below. The reader is urged to consult the full document for the complete details for each topic.

1. Coordinated permit review procedures (Chapter 1)

The Guidelines make recommendations to modify the current approval process to develop a coordinated permit review procedure for approval of mariculture projects. Currently, mariculture projects are subject to different approval processes depending on the scale of investment. Projects backed by large-scale investment follow the one-stop permitting procedure at the National level overseen by TIC in coordination with other institutions. Projects defined as small-scale are subject to District and Village level approval, although this route is even less well-defined. Both large-scale and small-scale projects must seek approval

for land and water use at the local and District level, and these procedures are only weakly linked with the review processes at the National level. Coordination and communication between the many different institutions and levels of government involved is inadequate. A number of gaps also exist for areas over which no one institution has jurisdiction.

It should be noted that the recommendations for the modified approval processes are based on the current procedures and build on the existing roles and capacities of the major institutions involved.

1A. Differentiation of approval procedures according based on project scale and degree of impacts.

Large-scale and small-scale projects will be subjected to different approval procedures based on the level of investment and the degree of potential impacts

The current investment threshold established by the TIC Act and EIA will be used to distinguish between large-scale and small-scale projects and the approval procedure to be followed (Figure 2). Large-scale projects are defined as those backed by \$300,000 in the case of foreign investment and \$100,000 for Tanzanian investors. All projects backed by these levels of investment will follow the National Level Approval Process (3). For projects falling below this investment threshold, the District Level Approval Process will be followed (4) unless the PEA determines otherwise.

“Small-scale” projects that present potential impacts, are contentious or are of National Interest, may be re-routed to follow the National Level Approval Process. This will be determined by a requirement that all projects be subjected to a Preliminary Environmental Assessment (PEA).

It is recognized that the level of investment does not necessarily correlate with the degree of environmental or social impacts potentially presented by a proposed project. Projects falling below the investment threshold imposed by TIC may still be of significant size and/or present significant potential impacts. Therefore, it is recommended that all projects, regardless of scale, be reviewed by conducting a Preliminary Environmental Assessment. If the PEA determines that significant potential environmental, social or economic impacts exist, the project will be required to follow the stricter National Level Approval Process. If the PEA findings reveal little or no potential for negative impacts, then the Small-scale District Level Approval Procedure may be followed.

Action needed: The scheme presented in Figure 2 employs the Preliminary Environmental Assessment to determine which review and approval procedure a project will follow. In order for this to serve as an effective mechanism to detect projects with potential impacts, the requirement for PEA must be legally enforceable. Additionally, if the results of the PEA indict that potential impacts are present, then it must be made mandatory for the project to follow the National Level Approval Procedure.

1B. Modified National Level Approval Procedure for Large-Scale Projects (Figure 3)

The overall scheme of the Modified National Level Approval Procedure for Large-Scale Projects is presented in Figure 3. This procedure is based on current institutional roles and capacities. The following outlines the recommended modifications in the Large-Scale Approval Procedure that need to be reviewed and approved in order to implement this modified procedure.

1B1. The investor will conduct preliminary, informal consultations with local authorities and sectors while developing the Feasibility Study Report (project proposal). The objectives of these consultations are:

- Evaluate and arrange the basic characteristics of the project proposal
- Identify and evaluate the tentative project site
- Obtain provisional land and water use rights

Action needed: local authorities and sectors are made responsible for assisting the investor in this process and issuing written evaluations and provisional approvals where necessary. These must be submitted by the investor as part of the Feasibility Study Report (project proposal) to TIC.

1B2. The requirements for a project proposal must be clearly stipulated so that the investor can adequately prepare for the review. The review criteria used by each institution involved must be clearly stated and publicized. The review criteria should be harmonized with the requirements for the project proposal and with the review criteria used by other institutions.

Action needed: As a preliminary step to establishment of the Modified Approval Procedure, the relevant institutions must harmonize their review criteria and jointly publish the requirements for preparation of project proposals.

1B3. TIC will convene a Preliminary Screening Meeting of the relevant sectors and local government representatives to conduct an initial review of the proposal.

The purpose of this meeting is to determine whether the proposal is sufficient to conduct the full-scale assessments required by each institution (e.g. EIA by NEMC, Technical Feasibility Study by Fisheries, and review for Certificate of Incentives by TIC). This meeting also serves as a forum for the sectors, local government and the investors to exchange views and comment.

Action needed: The Preliminary Screening Meeting is to consist of representatives from relevant technical sectors: TIC, Fisheries, NEMC, with other sectors being included as necessary.

Action needed: Representatives of local government, the District Commissioner and District Executive Officer, are included in the Preliminary Screening Forum to represent the local input.

Action needed: Representatives from the Ministry of Water and the Ministry of Lands and Human Settlement Development are included so that obtaining land and water rights will be both facilitated and informed by the input of the intersectoral forum.

Action needed: The decision of the Preliminary Screening Forum must be accorded legal standing. The results of the Preliminary Screening Meeting are to be considered as the first determination of whether a project proposal is sufficiently complete and adequate to be submitted to full assessment by individual institutions. If judged adequate, the proposal may then continue with the approval process. If the proposal is insufficient, it may be returned to the investor for revision. If the proposal is absolutely unacceptable because of violations of National Law or obvious flaws, it will be returned to the investor and can only be re-submitted with major revision.

1B4. Fisheries Division will conduct a modified Technical Feasibility Study of the project and consult with other institutions that have an interest in the approval of the project.

The Technical Feasibility Study will be modified so that a written set of criteria and procedures will exist to guide the Study. This will serve to inform the investor as to the basis of the evaluation and to assist the responsible personnel. It is recommended that serious consideration be given to using the Mariculture Guidelines as the basis for the Technical Feasibility Study where applicable. Fisheries will liaise with other institutions and their opinions on the project should be delivered in the form of letters detailing precise reasons for acceptance or rejection of the project.

Action needed: The Fisheries Division will prepare, publish, and disseminate guidelines and criteria for the Technical Feasibility Study.

Action needed: The Fisheries Division is to play an enhanced role, consulting with other sectors as needed for input to the Technical Feasibility Study and to assist the investor to modify the proposal as needed to meet the requirement of the various sectors.

Action needed: Other sectors consulted on the project shall submit their assessment in the form of letters to Fisheries stating explicitly the criteria for their evaluation and the reason for acceptance or rejection.

1B5. TIC will convene the Final Approval Forum consisting of the same representatives present in the Preliminary Approval Forum to review the assessments of the various institutions.

The Final Approval Forum will review the findings of the Technical Feasibility Study (Fisheries), EIA (NEMC), evaluation for granting the Certificate of Incentives (TIC) and assessments provided by other institutions. Where necessary, the investor may be required to modify the proposal to address concerns of the institutions. Final approvals issuing from this process will include:

- Provisional letter of project approval issued during the meeting between TIC, Fisheries Division and NEMC
- Fisheries: Completed Technical Feasibility Study signed by the Director
- TIC: Certificate of Incentives
- NEMC: Completed Mariculture-specific EIA report and the Environmental Permit (see below)
- Minutes of Village council meeting that accept the project proposal and intention of allocating land
- Minutes of District Development Committee meeting that confirm acceptance of project proposal and intention of allocating land.

Action needed: The authority of the Final Approval Forum to approve or deny projects needs to be recognized.

Action needed: If the investor fails to obtain all the approvals listed above, then the Certificate of Incentives should not be issued, nor should land and water rights be made final.

1B6. Obtaining land and water rights should be contingent on the investor obtaining the various approvals listed in (1B5) to prevent the allocation of these resources to projects whose status is uncertain or are not viable.

Action needed: It is recommended that the Ministry of Land and Human Settlement Development and the Ministry of Water modify their procedures such that submission of the positive results of the Final Approval Forum and the completion of the approvals from all concerned institutions is a requirement for granting final land or water rights.

Completion of the review procedure would then proceed as currently conducted with the Division of Fisheries collecting and compiling all approvals with subsequent submission of these along with a letter of approval from the Director of Fisheries to the Ministry of Natural Resources. The documents are reviewed at the Ministry level where any deficiencies are addressed. Once completed, the Permanent Secretary shall issue the final letter of approval in the name of the Minister.

1C. New District Level Approval Procedure for Small-scale Projects (Figure 4)

Projects which fall below the investment threshold established by TIC and which have been determined by the PEA not to present significant potential impacts will follow the District Level Approval Procedure for Small-Scale Projects.

This approval procedure is entirely new, but is based upon the current governance and institutional arrangements at the District Level.

Action needed: District level government may take the responsibility of reviewing and approving small-scale projects. This can be accommodated in some cases by existing by-laws, and in other cases, new by-laws may be needed.

1C1. The Village Development Committee, will preliminarily review the proposal and if suitable, present it to the Village Assembly for preliminary approval.

If preliminarily approved, then land and water rights may be sought on a provisional basis.

Action needed: Approval criteria developed by the District should be disseminated to the Villages.

1C2. The District Technical Committee (DTC), formed by the District Management Team, will serve as the intersectoral forum for review and approval of proposals.

The DTC will be comprised of representatives of Fisheries, Agriculture, Forestry, Water and Land and other relevant sectors. The DTC will conduct project reviews and assessments and function as the approval forum for small-scale mariculture projects.

Action needed: The District Management Committee may agree to adopt the new procedures and form District Technical Committees as needed.

Action needed: The District Technical Committee may establish approval criteria, and it is recommended that these closely follow those used by the National Level institutions (e.g. Fisheries with Technical Feasibility Study and NEMC with EIA).

1C3. A strong linkage between central and local government at the District level is proposed through inclusion of the District Commissioner in the approval process at the District level. The precise role and position of the DC in the approval process will be determined locally.

Action needed: The role and position of the DC in the approval process can be determined through mutual agreement locally.

1C4. The responsible sector (e.g. Fisheries) will approve or reject the proposal for the DED. If approved, the approval will be forwarded to the Director of Fisheries for subsequent submission to the Ministry of Natural Resources.

Action needed: The DED must have the legal backing to approve projects. The DED should act as the contact with the National Level.

1D. Role of Public Consultation in the Approval Process

Mariculture projects may have potential environmental and social impacts that can often be best determined through public consultation. Public consultation involves all interested stakeholders and provides a means to exchange information and views to the benefit of the public and to the investor. When public consultation is well-conducted and its findings respected, it helps prevent controversies and impacts. Thus, mechanisms for public consultation are built into the Large- and Small-Scale Approval Procedures and are considered key to success of the procedures.

1D1. For large-scale projects, public consultation is required in the following steps:

Preliminary consultation between the investor and local authorities for provisional water and land rights
Requirement for public consultation as part of the EIA
Input to the Technical Feasibility Study prepared by Fisheries
Consultation with Village and Local authorities during the final application for land and water rights

1D2. For small-scale projects, public consultation is required in the following steps:

Consultation between the investor and the Village Development Committee and Village Council
Consultation during application for land and water rights

Action needed: The requirements for public consultation and the recording of the results in written form during these steps must be strictly adhered to and made part of the public record represented by the archiving of the collected approvals by the Ministry of Natural Resources.

1E. Role of Mariculture-Specific EIA in the Approval Procedures

Further discussion of the status of EIA and needs associated with its use is provided in (2).

1E1. It is recommended that TIC, Fisheries, Land, Water and other Technical Sectors require successful completion of a mariculture-specific EIA before issuing their approvals, and that the findings and recommendations of the EIA be accorded due consideration.

Further discussion of the role of EIA and modification of the general EIA guidelines is provided below.

Action needed: support and agreement by the sectoral institutions and the District Technical Committee that approval of projects will be contingent upon successful completion of mariculture-specific EIA.

2. Use of coastal resources (land and water) for mariculture (Chapter 2)

The ability to regulate and plan for land and water usage is central to ICM and harmonious integration of economic development activities. Additionally, an investor must be able to easily understand the process of obtaining land and water, and where appropriate, be granted such rights in an efficient and cost-effective manner.

The Mariculture Working Group reviewed the procedures for obtaining land and water rights with reference to mariculture development. Currently, obtaining land and water rights is not linked to the rest of the approval process with the outcome that use of these resources may be obtained for projects that present potential impacts. The process is also less than optimally efficient and not well understood by the public.

Mariculture can occur in almost any type of terrestrial or aquatic habitat. Projects can also be sited in coastal areas where land and water overlap, such as intertidal zones. Jurisdiction over what are often sensitive habitat areas is not well harmonized; some areas may be regulated by more than one institution, while other may not fall under the jurisdiction of any institution. The outcome of this situation can either be the inability to conduct economic activities in areas well-suited for these purposes, or the absence of a concerned institution could result in use without oversight.

Some of the key implementation issues associated with land and water rights are as follows:

2A. *Recommendations are made to more closely link the processes for obtaining land and water rights to the overall approval procedures.*

Closer linkages increase communication and coordination so that land and water rights are not granted where environmental or social impacts may occur. Increased communication will also help expedite the overall approval processes since NEMC, Fisheries and other institutions cannot perform their respective assessments until at least provisional approval for land and water is given since their assessments depend on knowledge of the specific conditions of the project. Linkages are strengthened by:

- Requirement for investor to conduct preliminary consultations at the local level with Land and Water authorities with their written response being presented as part of the project proposal to the Approval Forum.
- Inclusion of representatives from the Ministry of Water and the Ministry of Land in the Large-scale Approval forum and the District Technical Committee.
- For the small-scale procedure, the approach to obtain Land and Water is made through liaising with the Village Development Committee.
- Representatives of Fisheries and other relevant sectors should sit on the Regional/River Basin Boards.

Action required: The Ministry of Land and the Ministry of Water need to agree to send representatives to the Approval Forum and facilitate communication with other sectors during the process. These Ministries might also agree not to issue final rights to use land and water without the positive result of the Large-Scale approval Forum or the District Technical Committee. Additionally, inclusion of Fisheries Representatives on the Regional/River Boards needs to be authorized.

2B. *It is recommended that final land and water rights not be granted without successful completion of a mariculture-specific EIA, nor should a deed of variation for changing the use of the land be issued without this step.*

Granting land and water rights without completion of an EIA runs the risk of establishing projects that degrade the environment or present social impacts. Where land and water rights are already in hand, a change in the use of these resources should also be subjected to EIA procedures.

Action needed: a commitment from the Ministry of Land and the Ministry of Water to require completion of a mariculture-specific EIA or in the case of small-scale projects, the PEA before approving the use of land or water.

- 2C. *Lack of jurisdiction over water use (including occupancy of aquatic areas) for brackish water and seawater can be addressed through modification in the Water Policy and Acts. Additionally, the water uses specific to mariculture (see guidelines) should be addressed.***

Currently, the use of brackish and seawater for industrial purposes including mariculture is not sufficiently addressed by the Water Policy and Acts. There are also a number of specific types of water usage and abstraction that require more attention.

Action needed: The Water Policy may be revised to cover use and occupancy of brackish water and seawater.

- 2D. *For coastal habitats (e.g. intertidal areas, wetlands) that lack the legal basis for regulation and use, intersectoral coordination guided by Fisheries should be used as a management approach in considering use while policy and regulation are developed.***

Action needed: If adopted, the proposed National Integrated Coastal Management Policy contains recommendations for District Integrated Coastal Management Action Plans that can help protect and manage coastal habitats. Meanwhile, Fisheries can take the lead in facilitating the intersectoral management of these habitats.

3. Environmental Impact Assessment and Monitoring (Chapter 3)

Environmental Impact Assessment⁵ (EIA) is still a relatively new management tool in Tanzania. To effectively implement EIA for management, legal approval is required, the role of EIA in review and permit procedures must be defined, and sector-specific EIA guidelines are needed. Increased institutional and human capacity will also be required in order for the wide-spread use of EIA to be made possible.

- 3A. *The National EIA Guidelines must be legally approved if the requirement for EIA is to be accepted uniformly throughout the Nation.***

Action needed: Adoption of the National EIA Guidelines by Cabinet.

- 3B. *Pending national approval of the EIA guidelines, the key institutions, TIC and Fisheries, can agree to continue to give due weight to the need for successful completion of EIA before projects are given approval. The Ministry of Land, Ministry of Water and other sectors also need to consider EIA in their approval procedures.***

TIC is required by its Act (1997) to require and take into account EIA. Fisheries also takes EIA into consideration, although the Act does not specifically mention EIA. The Ministry of Land, Ministry of Water and other relevant sectors do not currently require EIA before granting land and water rights.

Action needed: TIC, Fisheries and other relevant sectors can make the decision to require EIA before granting their respective approvals and amend their Acts where required.

Action needed: The Ministry of Land and the Ministry of Water can require EIA and use this tool to determine if land and water rights should be granted. Consultation with NEMC or Fisheries can provide the required information and technical expertise.

- 3C. *District level governments may consider making the requirement for successful completion of EIA mandatory for approvals granted at this level.***

The modified procedures recommend that PEA should first be conducted to determine which approval process will be followed. PEA or EIA could in this case be conducted by NEMC, or could be conducted by the District Technical Committee.

Action needed: District Technical Committee can adopt EIA as part of their approval procedure. Where necessary, an appropriate by-law can be passed.

3D. *EIA should be adapted to mariculture-specific needs.*

The General EIA guidelines provide a good general framework. However, to be more effective as a management tool, the general EIA guidelines will require modifications for each sector. A precedent for sectoral requirement of EIA exists as the Ministry of Mining and the Wildlife Division currently require and use EIA as a management tool. The Mariculture Guidelines include recommendation on how the general EIA can be adapted specifically to mariculture.

Action needed: The institution responsible for conducting the EIA (Fisheries, NEMC or District Technical Committee) may wish to consider adopting and implementing the modifications contained within the Mariculture Guidelines to develop mariculture-specific EIA guidelines.

3E. *Increased capacity to conduct and use EIA is necessary at all levels. This must be accompanied by authorization for trained personnel outside NEMC to conduct EIA.*

EIA will increasingly be required for all sectoral development, but as yet, capacity is limited to NEMC. Extensive training and resources for this will be required for sectoral personnel outside of NEMC and at the District Level. The District Technical Committee must be able and authorized to conduct EIA at the local level.

Action needed: NEMC and relevant sectors and levels of government should consider a joint strategy to train personnel in EIA.

Action needed: Legal backing is required for non-NEMC personnel to conduct EIA. NEMC should have agreement with other institutions where other institutions conduct EIA.

3F. *Incorporation of public consultation into EIA development and decision-making.*

Public consultation is critical to conducting an EIA that accurately reflects the potential for environmental, social and economic impacts. Recommendations to incorporate requirements and mechanisms for public consultation during EIA are made in the guidelines.

Action needed: adoption of the mariculture-specific modifications for EIA should include the provisions made for inclusion of public consultation.

3G. *Baseline environmental data collection is critical*

Assessing and monitoring projects depends on the availability of baseline environmental data. Currently there is no database for existing data and no strategy to begin a comprehensive program of environmental monitoring. However, limited baseline data collection for specific needs may be possible; how this can be conducted remains to be decided.

Action needed: As no institution is currently charged with overall responsibility for collecting baseline data, Fisheries can take responsibility for mariculture monitoring, liaising with other institutions to implement this where necessary.

3H. *Need monitoring of environment and projects*

Post-construction monitoring of mariculture projects is a key aspect of protecting the environment. Currently, there is no plan to institute monitoring for such projects. Means to begin monitoring proposed projects needs to be found. How the results will be used by the responsible institution must also be decided.

Action needed: As no institution is currently charged with overall responsibility for monitoring, Fisheries can take responsibility for mariculture monitoring, liaising with other institutions to implement this where necessary.

4. Species and Site selection (Chapter 4)

Selection of appropriate sites and choosing feasible culture species to be farmed at the appropriate level of technology helps assure that mariculture projects will be low-impact and economically viable. The Guidelines identify priority species for culture in Tanzania and outline the appropriate technology and siting criteria. Improved management of coastal habitats is emphasized. The contents of this chapter can provide the informational basis to plan development and evaluate proposed projects. These guidelines can also guide investors looking for investment opportunities.

4A. *Incorporation of species and site selection guidelines into evaluation criteria.*

The Mariculture Guidelines include criteria for species and site selection for a range of project scales, types of technology and species. These will be useful only if incorporated into the review procedures of the major institutions involved in the review process. They can also be useful for District level planning purposes.

Action needed: the criteria in the guidelines can be incorporated into the Fisheries Technical Feasibility Study and the review conducted by the District Technical Committee.

5. Mariculture Development, Promotion and Funding (Chapter 5)

Numerous opportunities exist to establish large- and small-scale mariculture businesses, but constraints and challenges to delivering technical assistance exist. Seaweed culture has been a good example of small-scale development that improves the standard of life for coastal communities, but has matured to the point at which more attention is needed if it is to continue expanding and improving. The Guidelines suggest mechanisms to enhance existing capacity through intersectoral coordination and planning.

5A. *Institutional collaboration in cooperative research and extension program to more effectively deliver technical assistance.*

The potential for mariculture as a means of economic development is great, but is partially inhibited by the limited human and institutional capacity to deliver technical assistance. However, existing capacity is sufficient to position mariculture as an important economic activity if government, private sector and research work collaboratively and strategically. A model for development of a cooperative research and extension program that links existing institutions and the private sector and builds on their current roles and responsibilities is presented in the guidelines.

Action needed: a decision by the institutions involved to work together to develop a collaborative research and extension program spearheaded by Fisheries.

5B. *Strengthening of existing seaweed industry through joint delivery of technical assistance and planning.*

The seaweed industry has been a model of how mariculture can provide benefits in the form of income and employment for coastal villagers. This activity is poised to continue growing, but the industry faces several obstacles if it is to be sustainable: need for basic technical assistance, environmental management, post-harvest

technology, economic analysis and marketing assistance. Additionally, a planned approach that combines the efforts of National and District Level will improve efficiency. This can be done through a Mariculture Development Plan with special attention to seaweed culture.

Action needed: development of a collaborative research and extension program backed by a Mariculture Development Plan can expand the capacity of the sectoral institutions to deliver technical assistance, particularly for areas of processing, economics and marketing needed for the seaweed industry.