

**Identification of System Requirements**  
**Report in preparation for the Guidelines Development Workshop**

**LEVELS 1 AND 2**  
**FISHER COMMUNITIES and DISTRICT LEVEL MANAGERS**  
**within the NATIONAL FRAMEWORK:**  
**TANGA REGION, TANZANIA**

**Report prepared as a contribution to DFID-FMSP project R8285:**  
**Data Collection and Sharing Mechanisms for Co-Management**

**April 2004**

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## Acronyms

SEMPP	Socio-Economic Monitoring Pilot Project
SRR	Systems Requirement Report
BMU	Beach Management Unit
CAS	Catch Assessment Survey
CBD	Convention on Biological Diversity
CCC	Central Co-ordinating Committee
CCRF	Code of Conduct for Responsible Fisheries
CITES	Convention for International Trade in Endangered Species
CMAP	Collaborative Management Area Plan
DC	District Council
DED	District Executive Director
DFID	Department for International Development
DFO	District Fisheries Office/r
DMT	District Management Team
DNRO	District Natural Resources Office/r
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organisation, United Nations
FD	Fisheries Division
FS	Frame Survey
GIS	Geographical Information System
IUCN	International Union for Conservation of Nature/World Conservation Union
LGRA	Local Government Reform Act
MACEMP	Marine and Coastal Environmental Management Project
MNRT	Ministry of Natural Resources and Tourism
MRALG	Ministry of Regional Administration and Local Government
NGO	Non-Government Organisation
PMS	Poverty Monitoring System
PRSP	Poverty Reduction Strategy Paper
PSU	Programme Support Unit [Tanga]
RAS	Regional Administrative Secretariat
RCC	Regional Consultative Committee
RFIS	Regional Fisheries Information Systems [Project]
SADC	Southern African Development Community
TAFIRI	Tanzanian Fisheries Research Institute
TCCF	Tanga Coastal Consultative Forum
TCZCDP	Tanga Coastal Zone Conservation and Development Project
UNDP	United Nations Development Programme
URT	United Republic of Tanzania
VeMC	Village Environmental Management Committee
VG	Village Government
VPO	Vice Presidents Office
WDC	Ward Development Committee
WIOMSA	Western Indian Ocean Marine Science Association
WWF	World Wide Fund for Nature

# **1. REPORT OUTLINE**

## **1.1 Report purpose**

The report describes and analyses the current systems of data and information collection in support of co-management with specific reference to the Tanga Coastal Zone Conservation and Development Project (TCZCDP), Tanzania. Providing lessons and experiences from Tanzania the report will provide an input into the Guidelines Development Workshop as one stage of Research Project R8285 which aims to produce “guidelines or a manual for designing, developing and implementing locally appropriate data collection and sharing mechanisms that satisfy information needs at each management level” (MRAG, 2003).

## **1.2 Report structure**

Sections 2 and 3 describe the broad macro level environment with specific reference to fisheries and Section 4 begins to consider the links from local to national level. Sections 5 and 6 detail the systems in practice in Tanga region of Tanzania. Section 7 includes the results of a workshop held in Tanga in March 2004 as an input to this document and Sections 8 and 9 further develop many of the issues raised. Section 11 summarises some of the main issues to come out of the research identifying some possible issues for examination in the upcoming workshop

## **1.3 Methodology**

The document represents a joint effort by stakeholders in Tanga and members of the Fisheries Division (Dar es Salaam) coordinated by the main author of this report. Although the research was conducted in a very limited period the report draws heavily on materials and outputs produced during the Regional Fisheries Information Systems (RFIS) project, the wealth of knowledge in the Tanga region and interviews with the Fisheries Division HQ in Dar es Salaam. A workshop was held in Tanga involving representatives from all districts, the regional authority, villagers and other stakeholders including the Fisheries Division.

## **1.4 Importance of macro-micro context**

Although the report roughly follows the requirements of the System Requirements Reports Table of Contents (MRAG, 2003) a number of changes were made to enable the incorporation of influences from the macro level environment. So in effect the report represents a combination of Level 1 and Level 2 in the Project outline. This approach has been followed for the following reasons:

- The links between local interventions and national objectives is an issue that Fisheries Division and donors are grappling with at present as roles and responsibilities change and this report may serve a purpose here
- Making and examining links between the levels has a chance to provide some insights for the preparation of Guidelines for co-managers

At a more technical level the importance of the macro-micro linkages are strong because:

- Often is very little linkages between the two levels resulting in poor decision-making at higher levels
- The decentralisation process in Tanzania has severed much of the link between the national and local efforts and effort and change is needed for these links to be re-established with a different nature and objective.
- In Tanzania we often see projects supported at local (district) level through foreign assistance (especially NGOs) and these interventions have very poor links to the national levels and this may mean that the full potential of these interventions is not being realised as the opportunity for scaling-up and learning lessons is lost.
- Some of the information flows from the local to the national level and vice versa are painfully slow, if they exist at all – and if effective flows of information are to be re-established then there must be clear links and responsibilities shared by the different levels – and a better understanding of what people need.

## **2. INTRODUCTION**

### **2.1 Overview**

The United Republic of Tanzania was formed out of the union of two sovereign states namely Tanganyika and Zanzibar in 1964 but the Government of the United Republic of Tanzania is a unitary republic consisting of the Union Government and the Zanzibar Revolutionary Government. Some issues are dealt with together (e.g. Defence and foreign policy) whilst others, so-called non-Union issues, are managed and co-ordinated separately. Fisheries is a non-Union issue and therefore there is a department with responsibility for fisheries on the Zanzibar islands (Fisheries Department of the Ministry of Agriculture, Natural Resources, Environment and Co-operatives – MANREC), and a department with responsibility for fisheries on the mainland (the Fisheries Division of the Ministry of Natural Resources and Tourism). This study was focused on the mainland and more specifically the Tanga region.

### **2.2 Overview of marine fisheries**

The approximately 800 kms of mainland Tanzania coastline provides an important resource for the people living in coastal areas. Recent estimates put the number of full-time fishers on the coast at between 15,000 and 20,000 using some 4000 – 5000 vessels largely outrigger canoes and dhow-type planked boats and mostly propelled by sail. There are also a small number of steel or wooden hulled vessels. It is variously estimated that 95% of the total marine catch is made is from the subsistence fishermen using traditional vessels. Best estimates put the harvest at between 40,000 and 50,000 tonnes per year. There is a small fleet of commercial shrimp trawlers working the coastal grounds also. The EEZ fishery is a growing sector and the future development of this fishery holds many hopes for the Tanzanian government.

### **2.3 Overview of the inland fisheries sector**

The inland resources of Tanzania are substantial containing large parts of the Great Lakes of Victoria, Tanganyika and Nyassa (85% of the country's inland waters are held in these three lakes), with numerous smaller lakes and rivers. Various estimates put the catch from these fisheries at between 200,000 and 400,000 tonnes per year, employing over 200,000 people using some 25,000 craft, although the source of these numbers suggests they should be treated with extreme caution. It is estimated that the inland fish catch accounts for between 80 and 90% of the total fish catch of the country.

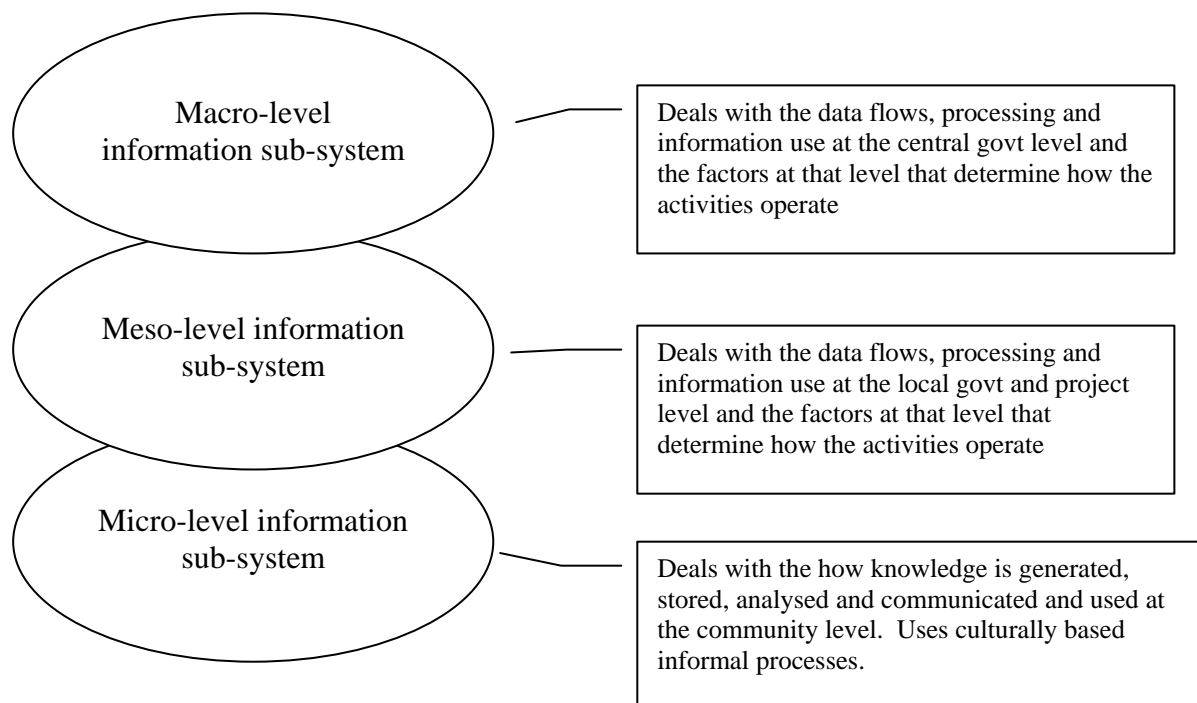
### 3. MACRO LEVEL (MULTI-SECTOR) ENVIRONMENT

#### 3.1 Macro level influences

An understanding of the fisheries information system from a macro-perspective is important to set the local/district systems in context. A local information system should integrate with the information and decisions-making systems at a higher level in order to facilitate evidence-based higher policy decision-making. From this macro perspective, the fisheries information (and the demands from the macro level which should be satisfied by the local level systems) system should assist with an assessment of the contributions of the sector in achieving national development goals. Similarly, to ensure that the cost-effectiveness of local initiatives is optimised, the local information systems should be able to provide inputs at the macro level.

This section outlines some of the components (and influencing factors) at the macro level with an influence at the lower levels.

Figure 1 Layered levels of information systems

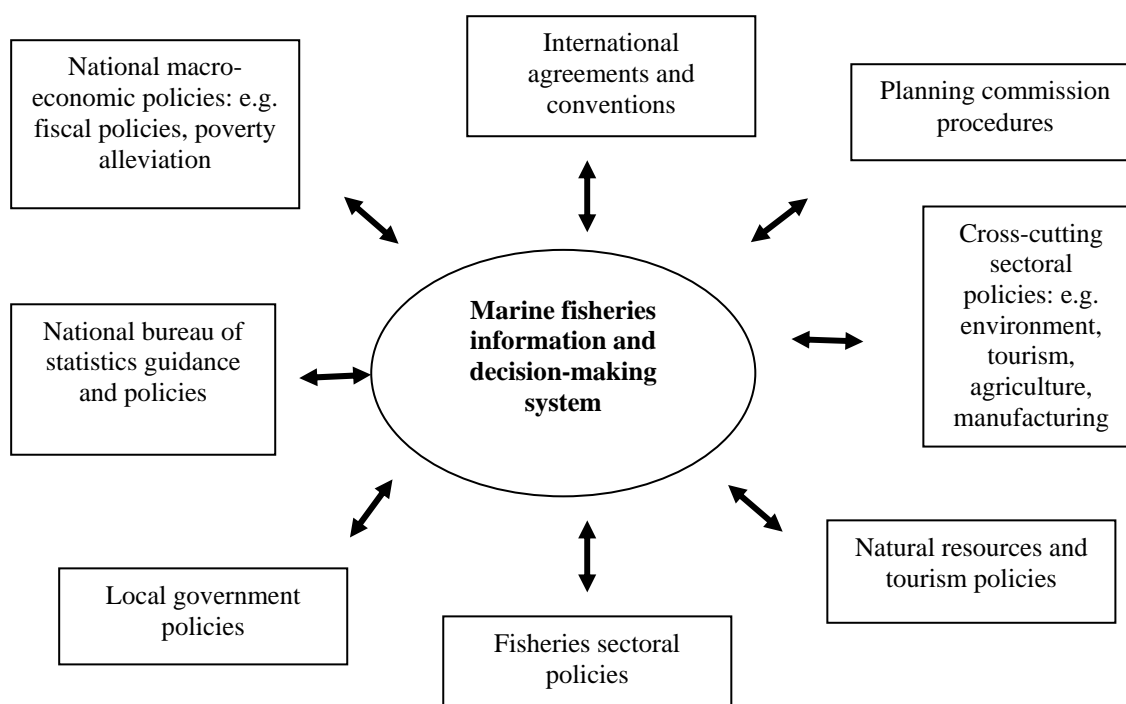


Source: Campbell (2003)

There is obviously considerable overlap between these sub-sectors and often it is the overlap and the flows of information between the sub-sectors which is crucial for fisheries management – i.e. how does information flow in both directions to ensure that local and national objectives are achieved. Even if they are not achieved at least recognition of what is happening at the other levels.

Campbell (2003) identifies a wide array of factors influencing the marine fisheries information system in Tanzania at the macro level even before we try to factor in the complexities of the who-needs-what approach at the lower levels of governance. In Tanzania the roles and responsibilities/functions of the different government offices, and others, is going through transition at the moment and there is some uncertainty how to deal holistically with the various fisheries sub-sectors in the country.

**Figure 2 Macro level environment**



Source: Campbell (2003)

### **3.2 Policy and legislative environment at the macro-level**

Some of the leading features of the macro level environment which will or should have a bearing on the local level information systems are outlined below. Principal are the national and international moves aligning all government expenditure to the plans and processes to meet the Millennium Development Goals. In Tanzania this policy focus is shown in the Poverty Reduction Strategy.

The following section outlines many of the macro influences non-specific to the fisheries sector whereas the next section provides more details on the fisheries sector legislation and policy environment. The government of Tanzania identifies the following as the key development policies/strategies: Tanzania Development Vision; Poverty Reduction Strategy Paper; National Poverty Eradication Strategy and the Tanzania Assistance Strategy.

#### **3.2.1 Tanzania Development Vision**

Whole number of detailed targets but in summary by 2025 Tanzania should have “five main attributes:

1. High quality livelihood
2. Peace, stability and unity
3. Good governance
4. A well educated and learning society
5. A competitive economy capable of producing sustainable growth and shared benefits.” (URT, 1999)

#### **3.2.2 Poverty Reduction Strategy**

The poverty reduction efforts in Tanzania are not new and are set out in a range of documents. In recent years (since 1999) the strategy has been pulled together into one overriding document: the Poverty Reduction Strategy Paper (URT, 2000) and further detailed in Progress Reports 1 (URT, 2002a) and 2 (URT, 2003a). Tanzania is believed by many to have a credible Poverty Reduction Strategy largely contained in the PRSP and the Progress reports (1 and 2). The PRS is in the third (and final year) year of implementation and the URT is rigorously undertaking a review of the strategy



in order to prepare a PRSP II for approval later in 2004. Part of the reason for the apparent credibility of the PRSP is that the budget allocation process at the macro level is increasingly being aligned with the priority sectors and programs as identified in the PRSP. Commitment from the URT also to the institutional changes necessary (such as establishing a section in the VPO to supervise the poverty alleviation efforts), and the development of a detailed Poverty Monitoring System (PMS) and its ongoing implementation, increased inclusion of non-government sectors in the PRS process and, channelling of donor funds through direct budget support in line with the PRSP priorities. These activities, among others, suggests a successful transition is ongoing to complete the following process below:

- Consult and research to identify the nature of poverty
- Discuss and consult to identify the best approach, strategies and programs to address the poverty
- Allocation of resources to the priority programmes identified above
- Monitoring and evaluation of impact of activities on reducing poverty
- Re-planning or re-aligning activities and budgetary allocations on the basis of monitoring

Despite these efforts, the URT is unlikely to meet any of the PRS targets or the wider MDG targets and the Tanzania Human Development Report (UNDP, 2002) states “The 1990s have not brought significant net gains in the reduction of income poverty for the majority of the population. Income poverty has only significantly declined in urban areas. While the proportion of people living below the poverty line has decreased, their number has increased”.

However the role and importance of the PRS as the strategic decision-making document for the entire governance structures is likely to remain and increase in the coming years.

The VPO in conjunction with other government departments and the UNDP has developed a Poverty Monitoring System (PMS) (URT, 2001) which is designed to cover all sectors relevant to the PRS and ensure that regular systems are in place, with skills and other resources, to collect information at the required degree of accuracy, so that progress towards meeting objectives agreed in the PRS, can be measured and reported on an annual basis. The first version of the PMS set out a wide set of indicators (48 plus) and later versions increased this number – but there are none specifically for fisheries.

### **3.2.3 National Poverty Eradication Strategy (NPES)**

The NPES (URT, 1998) was formulated to provide a co-ordinated framework for the implementation of strategies and achievement of objectives through implementing the Tanzanian Development Vision and largely adopts the same themes.

### **3.2.4 Tanzania Assistance Strategy**

Partly as a result of problems in the past of the co-ordination of donors, this document (URT, 2002b) is an attempt to build full consensus among stakeholders (not only foreign donors) as the direction in which the country hopes to develop. Main statements are:

1. Focus on poverty alleviation
2. Emphasis on promoting local ownership and leadership
3. The need to promote partnership
4. The need to increase the efficiency and effectiveness of aid
5. The need to promote good governance

### **3.2.5 Agricultural Development Strategy**

Essentially aims to increase the production from agriculture with the eventual goal of Tanzania being self sufficient in basic food requirements. A whole range of strategies are proposed to increase annual agricultural growth in general including livestock sector and the growth of export crops.

### **3.2.6 Rural Development Strategy**

The acceptance that the consistently high level of poverty and underdevelopment in the rural areas of Tanzania led to the production of the RDS. The Strategy makes the link between poverty and destruction of natural resources. Targets set out in the RDS are:

1. Revise legislation and regulations that hinder the participation of communities in management and utilisation of natural resources
2. Revise the licensing procedures related to the utilisation of natural resources
3. Introduce procedures for cost and benefit sharing of natural resources
4. Introduce Environmental Impact assessment as a pre-requisite for all project development
5. Develop procedures for all natural resources with regards to entitlement of the state, communities and individuals
6. Develop procedures for conflict resolution in relation to the utilisation of natural resources

### **3.2.7 National Integrated Coastal Management Strategy**

Through the Vice President's Office with technical support from the Tanzania Coastal Management Partnership (TCMP) the URT produced the National Integrated Coastal Management Strategy in April 2003 with the goal being "to implement the National Environment Policy and other related policies in conserving, protecting and developing the resources of Tanzania's coasts for use by present and future generations, to ensure food security and to support economic growth" (URT, 2003b).

The policy sets out 7 strategies to be implemented:

Strategy 1 – Support environmental planning and integrated management of coastal resources and activities at the local level and provide mechanisms to harmonise national interests with local needs.

Strategy 2 – promote integrated, sustainable and environmentally friendly approaches to the development of major economic uses of the coastal resources to optimise benefits

Strategy 3 – Conserve and restore critical habitats and areas of high biodiversity while ensuring that coastal people continue to benefit from the sustainable use of the resources

Strategy 4 – Establish an integrated planning and management mechanism for coastal areas of high economic interest and/or with substantial environmental vulnerability to natural hazards

Strategy 5 – develop and use an effective coastal ecosystem research, monitoring and assessment system that will allow available scientific and technical information to inform ICM decisions.

Strategy 6 – Provide meaningful opportunities for stakeholder involvement in the coastal development process and the implementation of coastal management policies

Strategy 7 – Build both human and institutional capacity for inter-disciplinary and intersectoral management of coastal environment

The coastal strategy specifically identifies problems from the lack of data and information by stating "inadequacy of data on coastal environment and lack of individual and institutional capacity is a hindrance to proper planning and management of resources" and that the strategy must "recognize the importance of local knowledge and ensure that it is incorporated in the management process". In terms of the solution the strategy states that they should "design a monitoring programme that nests local, national and international monitoring efforts that builds on and utilises existing research and monitoring institutions. This programme should seek to incorporate resource users in the effort".

### **3.2.8 Local Government Reform Act and Program**

The LGRP (URT, 1996) has five implementing strategies:

- Decentralisation of authority and responsibilities
- Strengthening accountability
- Increasing resources to local government authorities
- Clarify the framework for delivery of services
- Building capacity for effective resource management

### **3.2.9 National Environment Policy**

The National Environmental Policy of 1997 (URT, 1997) is broad in its coverage and Section 60 relates to fisheries stating “in order to preserve the environment and at the same time provide nutrition to the people and enhance the income from fish sales, the following policy objectives shall be pursued:

- Fisheries shall be developed in a sustainable manner, by using appropriate fishing gear and processing methods
- Destructive fishing and processing methods shall be controlled by regulations and support i.e. making available appropriate fishing gear at affordable prices for fishers; specifically dynamite fishing and the use of poisonous chemicals in fishing shall be severely combated
- Alternative fish processing methods shall be promoted to avoid deforestation due to fish smoking
- On the basis of stock assessment, fish stocks shall be conserved to maximise sustainable yield
- Introduction of non-indigenous species shall be controlled
- Post harvest losses will be reduced through improved processing and preservation techniques
- Fragile ecosystems and endangered species will be protected through proper fisheries management, mitigation/prevention of coastal and waterways degradation, an control of industrial pollution and
- Integrated fish farming methods and other environmentally beneficial means of tapping the productivity of the environment through fish farming shall be pursued.”

### **3.2.10 Potential to influence fisheries information systems**

All policies at this level stress the need for poverty alleviation and/or rural development within the setting of a very tight budgetary constraint. The framework shows potential issues that should be considered in designing information systems, and can also identify incentives to ensure higher level support for the necessary changes. Potential for impact includes:

- The Fisheries Division must continue its role as a net contributor to the national Treasury through license fees and export levies etc and there is pressure to increase the amount of money which can be submitted to the Treasury.
- With the move to decentralisation the ability of the fisheries sector to provide a revenue (or increased revenues) to the district funds is likely to gain a lot of support from the District councils themselves and other stakeholders
- The Fisheries Division is unlikely to see an injection of funds and resources (other than that provided by donors) in the short term to enable widespread staff recruitment so the staffing and capacity limitations must be considered. The FD is already swamped in terms of the information it is supposed to supply, and any future system must bear this in mind and aim to reduce workload.
- The all enveloping objective of poverty alleviation is the focus of government efforts and it means that the Fisheries Division has to engage in this process and perhaps the traditional components of information systems for fisheries will have to adapt. This modification could include a change in indicators so that the FD (and others) can measure the success and the role of fisheries in assisting to meet the national poverty alleviation objective. Not suggesting that FD must entirely change the systems and embark on a programme of collecting new variables etc but, that the information systems must collaborate with or be compatible with the establishment and development of the Poverty Monitoring System which will be nationwide and also based on district, ward and village administrative structure

## **3.3 International agreements to which the GRT is party.**

### **3.3.1 Code of Conduct for Responsible Fisheries (CCRF)**

The FAO International Code of Conduct For Responsible Fisheries “sets out principles and international standards of behavior for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity” (FAO, 1997). The CCRF addresses relationships with other international instruments; implementation, monitoring and updating; special requirements for developing countries; fisheries management; fishing operations; aquaculture development; integration of fisheries into coastal area management; post-harvest practices and trade; fisheries research.

### **3.3.2 Southern African Development Community (SADC) Protocol on Fisheries**

The Treaty of the Southern African Development Community aims to encourage the co-operation of member states on issues of mutual interest especially with regard to trade, investment and development. Protocols are the principal tool used by the SADC to enable or operationalise the treaty in specific sectors or areas of interest.

The SADC Protocol on Fisheries, to which Tanzania is a signatory, was signed in 2001 and “responsibility for the implementation of this Protocol is primarily national, but in the case of shared resources, State parties shall co-operate with one another to ensure that the objectives of this Protocol is achieved” (SADC, 2001). The objective of the Protocol is to “promote responsible and sustainable use of the living aquatic resources and aquatic systems of interest to State parties in order to: promote and enhance food security and human health, safeguard the livelihood of fishing communities, generate economic opportunities for nationals in the Region”

The Protocol addresses a wide range of issues, (marine and inland), including: management of shared resources, law enforcement, access agreements, high seas fishing, artisanal fisheries, aquaculture, protection of the environment, human resources development, trade and investment, science and technology and information exchange.

### **3.3.3 Other**

The 1982 United Nations Convention on the Law of the Sea (UNCLOS) covers a whole range of issues but perhaps the most important provision concerning data is set out in Article 61 (5), which deals with the conservation of the living resources:

*"Available scientific information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks shall be contributed and exchanged on a regular basis through competent international organizations, whether subregional, regional, or global, where appropriate and with participation by all States concerned, including States whose nationals are allowed to fish in the exclusive economic zone"*

(FAO, 1999)

Overall the section does not assign the primary responsibility to collect data in the EEZ, suggesting that the states should do this, collect the data, as a condition of fishing. The report (FAO, 1999) continues that there is a clear “obligation to exchange available information through competent international organizations, and that would imply the capacity on the part of such bodies to set data reporting standards for States to follow”.

The Straddling Stocks agreement and the Compliance Agreement relates only to specific stocks and fisheries and for further details see MRAG (2000). As do the requirements of the CITES and CBD Conventions.

### **3.3.4 Potential to influence the fisheries information systems**

Many of the above are only voluntary and therefore do not oblige the government to comply but, they have the potential to influence in a positive way as they stress the importance of data and information collection and exchange to varying degrees. For details of statutory requirements under these instruments see MRAG (2000).

For the SADC members the Protocol on Fisheries provides an important framework document for fisheries management. To some extent modelled on the CCRF, the Protocol and the SADC organisation itself will require sustained technical and financial assistance in order for them to support the implementation at national level, before practical impact will be felt in the fisheries management process on the ground.

## **3.4 Fisheries sector policy and legislative environment**

### **3.4.1 Fisheries Legislation/Act**

The new Fisheries Act is was signed in January 2003 (FD, 2003a) although will not be effective until the passing of the detailed Regulations directing the implementation of the Act. The Act repeals the

Fisheries Act No 6 of 1970, although commitments remain in force. The Act takes account of various issues in the fishing sector (and beyond) including the ongoing process of decentralisation, the exploitation of the EEZ fisheries, the establishment of a Fisheries Development Fund and to some extent provides a legal basis for co-management arrangements in fisheries. The 10 parts of the law are:

- Preliminary
- Administration
- Development of the fishing industry
- Aquaculture development
- Management and control of fishing industry
- Fish quality control and standards
- Financial provisions
- Enforcement
- Offences and penalties
- General provisions

Some more specific parts of the act are shown in later sections.

### **3.4.2 Marine Parks and Reserves Act**

The Marine Parks and Reserves Act No 29 of 1994 established the Marine Parks and Reserves Unit (MPRU) as a semi-autonomous body with a structure and financial mechanism separate to that of the Fisheries Division. The MPRU is responsible for the “management, rational utilisation and conservation of the Marine Reserves” and has developed a range of partnerships with a variety of stakeholders to build appropriate co-management structures in support of the management of the gazetted marine parks and reserves.

### **3.4.3 National Fisheries Sector Policy and Strategy Statement**

The overall goal of the National Fisheries Sector Policy and Strategy Statement is to “promote conservation, development and sustainable management of the Fisheries Resources for the benefit of present and future generations” (FD, 1997a). The policy identifies 18 strategic objectives:

- (1) To put into efficient use available resources in order to increase fish production so as to improve fish availability as well contribute to the growth of the economy
- (2) To enhance knowledge of the fisheries resource base
- (3) To establish national strategic research programmes that are responsive to the fisheries sector
- (4) Improving fisheries products utilisation and their marketability
- (5) Develop national training and education programmes based on assessed needs and the use of national and international training institutions optimised
- (6) To encourage and support all initiatives leading to the protection and sustainable use of the fish stock and aquatic resources
- (7) Protect productivity and biological diversity of coastal and aquatic ecosystems through prevention of habitat destruction, pollution and over exploitation
- (8) Promote small scale, semi-intensive aquaculture systems with simple technologies and low capital investment
- (9) Promote sound utilisation of the ecological capacity of water based areas as a means of generating income and diet
- (10) Promote effective farm and fish health management practices favouring hygienic measures and vaccines
- (11) Improve involvement of the fisher communities in the planning development and management of fishery resources
- (12) Improve availability, accessibility and exchange of fisheries information
- (13) Incorporate gender perspective in the development of the fisheries sector
- (14) Strengthen collaboration on cross-sectoral issues between the fisheries sector and other sectors

- (15) Develop and strengthen inter-sectoral co-operation in general fisheries development to minimise operational conflicts
- (16) Pursue a continuing fisheries integrated programme of effective management of coastal zone to meet the ecological and social economic needs of the present and future generation
- (17) To strengthen regional and international collaboration in the sustainable exploitation, management and conservation of resources in shared water bodies
- (18) Effective utilisation of the Exclusive Economic Zone promoted and achieved

Policy Statement 2 in the Policy is of particular relevance:

“To enhance knowledge of the fisheries resource base:

Strategies:

- Improve collection and processing of information for fisheries management purposes
- Facilitate availability of research findings on the resource base through publication and/or other measures
- Encourage the assessment of the fisheries resources
- Promote research of under-utilised fish stocks for possible exploitation
- Facilitate and promote acquisition and documentation of traditional fisheries knowledge”

#### **3.4.4 Fisheries Master Plan**

The Fisheries Master Plan was produced in 2002 by the Ministry of Natural Resources and Tourism with assistance from JICA, “aimed to operationalise the National Fisheries Sector Policy and Strategy Statement of 1997” (FD, 2002a). The Plan starts from a broad policy review and suggested 15 priority programs to achieve a set of objectives identified through a process involving consultations, research and literature review. The 15 priority programs are:

- (i) Marine fisheries sub-sector capacity building
- (ii) Dar es Salaam Fisheries Infrastructure Improvement Programme
- (iii) Lake Victoria fisheries sub sector capacity building programme
- (iv) Lake Victoria fish marketing improvement programme
- (v) Lake Tanganyika daga fisheries development programme
- (vi) Lake Nyasa planked canoe extension programme
- (vii) Aquaculture extension program
- (viii) Fisheries financial support programme
- (ix) Fisheries co-management programme
- (x) National fish export promotion programme
- (xi) Lake Victoria major landing beach improvement programme
- (xii) Fisheries communities development programme
- (xiii) Fisheries information systems improvement programme
- (xiv) Fishing training institute improvement programme
- (xv) Fisheries master plan implementation training programme

#### **3.4.5 Potential to influence the fisheries information systems**

- The process of decentralisation has seen much of the direct involvement of the FD in fisheries management reduced (except perhaps in the EEZ zone). This new role for the FD in fisheries management is slowly being adopted by the FD
- The FD and staff realise that they have to work differently in their approaches to districts and regions and communities and that it is no longer a command and control set-up
- Increasingly see donors involved especially at the local levels so the FD must find ways of dealing with them, but not attempting to control them
- To enable the implementation of national policy, the FD has a definite role to influence donor interventions at a national level.
- Further confirmation of the role and expectations of the FD as a contributor to the Treasury is found at this level.

## **4. FISHERY SECTOR MANAGEMENT SYSTEMS (MACRO TO MICRO)**

### **4.1 Overview**

The FAO are increasingly using the term fisheries governance to reflect the broader concepts, and the policy stakeholder framework of fisheries management, particularly the system nature of the management process dealing or working at all levels, and emphasise the political nature of the fisheries management problem. The definition can be useful to stress the importance of the links and the holistic nature of the fisheries information needs.

*“A continuing process through which governments, institutions and stakeholders of the fishery sector – administrators, politicians, fishers and those in affiliated sectors – elaborate, adopt and implement appropriate policies, plans and management strategies to ensure resources are utilized in a sustainable and responsible manner. It could be at global, regional, subregional, national or local levels. In the process, conflicting or diverse interests may be accommodated and cooperative action may be taken.”*

(FAO 2000a)

One of the principal causes of the changes in the fisheries governance systems in Tanzania is the decentralisation process and the influence on the fishery sector. Until 1994 the fisheries of Tanzania were largely managed under a central system with the central government making the laws and then by instructing the Ministry of Local Government, the Regional authorities would then order the lower levels to implement the directives and ensure compliance. The lawmaking was largely a one-way endeavour with little input from the communities, or the lower levels of government. The Local Government Reform Act of 1996/7 (URT, 1996) began the process of decentralising power, responsibilities and management decisions to lower levels of the government infrastructure.

### **4.2 Roles and responsibilities in fisheries governance in Tanzania**

Although as a result of the institutional changes the system is in transition, the roles and responsibilities of the main stakeholders are clearly set out in the National fisheries policy statement. The roles are further developed for the different levels of fisheries governance (and outside of direct fisheries sector).

#### **4.2.1 Vice-Presidents Office**

The mission of Vice-President's Office (VPO) is to formulate policies and strategies on poverty eradication, protection of environment and non-governmental organizations as well as coordinate all issues pertaining to the union of the Government of the United Republic of Tanzania and the Government of Zanzibar. The VPO is broken into three divisions: poverty eradication, environment and non-government organizations. As such will have a significant influence on the fisheries agenda.

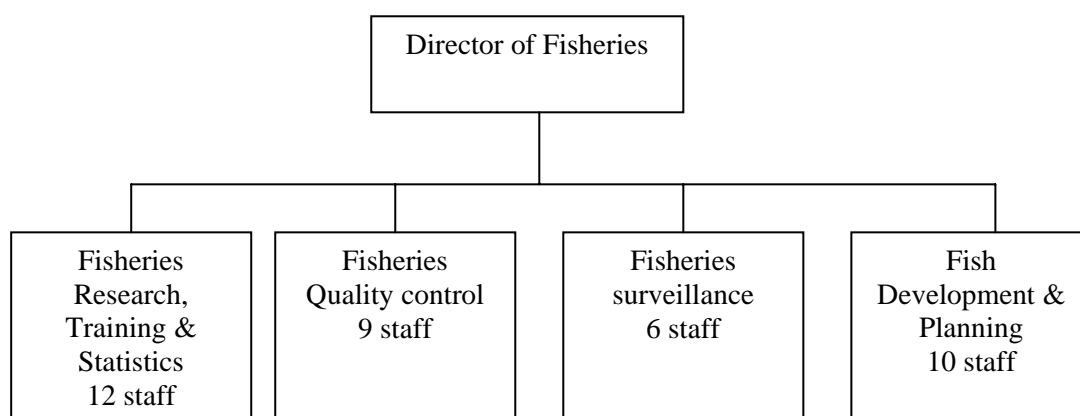
#### **4.2.2 Ministry of Natural Resources and Tourism**

The Ministry of Natural Resources and Tourism has the vision to ensure sustainable conservation of natural and cultural resources and tourism and ensure the full participation of local communities, NGOs and the private sector in conserving and managing natural resources for the benefit of the present and future generation. Forestry, fisheries, wildlife and tourism sectors all fall under this Ministry.

#### **4.2.3 Fisheries Division**

The Fisheries Division of the MNRT is in charge of administering the fisheries sector in Tanzania. The Division is divided into four sections with professional staffing as follows based in the FD Head Office in Dar es Salaam although there are a number of additional staff posted to regional offices (e.g. Quality Control staff in Tanga, and Surveillance staff in Mbegani):

**Figure 3 Structure/staffing of Fisheries Division**



Roles of the FD “being responsible for the fisheries management and administration as well as conservation” (FD, 1997a) are:

- (1) Formulation of the policy and oversee implementation
- (2) Sectoral planning and budgeting
- (3) Formulation and review legislation
- (4) Law enforcement and surveillance
- (5) Monitoring and evaluation of the sector performance
- (6) Management information system
- (7) Manpower planning and human resources development
- (8) Extension services
- (9) Research, training and curriculum development
- (10) Co-ordination of other stakeholders
- (11) Licensing
- (12) Revenue collection
- (13) International co-operation collaboration

#### **4.2.4 Tanzania Fisheries Research Institution (TAFIRI)**

The TAFIRI was established by the Tanzanian Fisheries Research Institutes Act (1980) and is responsible for fishing research activities in Tanzania. The TAFIRI is largely independent of the FD with its own budget (from the FD) and a Director appointed by the President. The HQ is near Dar es Salaam with stations in the main fishing areas: Kunduchi (near Dar es Salaam); Nyegezi (near Mwanza); Kyela (on Lake Nyassa) and Kigoma (on lake Tanganyika). Roles or objectives of the TAFIRI are:

1. Promote, supervise and co-ordinate fisheries related surveys in Tanzania
2. Develop and protect the fisheries industry by promoting and developing fish processing, aquaculture and fishing techniques
3. Cooperate with the domestic and international governments and other relevant personnel to implement fisheries surveys, management training and to provide educational facilities

(FD, 2002a)

An FAO review of the fisheries sector in Tanzania (FAO, 2000b) noted that the TAFIRI has a “serious shortage of human and financial resources” and as such is unable to fulfil many of its functions. Similarly the Master Plan lists a range of problems besetting the TAFIRI not least of which is “their researches are not appropriate for processor and artisanal’s requirement” and “they are not able to provide results of their researches such as resources research” (FD, 2002a).

#### **4.2.5 Private sector:**

The private sector will be responsible for (FD, 1997a):

- (1) Sustainable harvesting and utilisation of fisheries resources



- (2) Facilitate and/or finance of investments in the fisheries sector
- (3) Provision of employment and fisheries inputs and services
- (4) Production of food and by-products
- (5) Marketing of products
- (6) Application of biodiversity guidelines in fisheries management
- (7) Application of EIA in fisheries management
- (8) Involvement in the conservation areas, development and sustainable management
- (9) Provision of awareness and extension services
- (10) Investment in environmental sound production technologies
- (11) Eco-tourism development

Some of the key private sector players at the national level are the fishing companies, processing outfits (Sea Products Tanzania, TANPESCA – Mafia, Plant Fruits Delamer Ltd, Royal African Lobster Tropical and VIC Fish Ltd); seaweed companies (ZASCO and Kingsway International).

#### **4.2.6 Non-Government Organisations:**

NGOs are identified in the Fisheries Strategy (FD, 1997a) as being “vital as a catalytic means in the implementation of fisheries management decisions and policy making” and will be responsible for:

- (1) Awareness and extension services
- (2) Capacity building
- (3) Training and technical assistance
- (4) Financing of fisheries and environment activities
- (5) Promote gender roles, women and user community empowerment

There are large number of NGOs operating in Tanzania – WWF, CARE Tanzania and IUCN (marine and upland conservation) being some of the international NGOs with Programmes in Tanzania coastal zones.

#### **4.2.7 Local Government**

In the process of decentralising decision-making powers the responsibilities of local government have been “expanded both in scale and scope” (FD, 1997a) in fisheries management. The policy statement sets out the responsibilities of local government as:

1. Issuing licenses for artisanal and small-scale fisheries operations
2. Co-ordination of extension services
3. Law enforcement and surveillance
4. Issuing of bye-laws and participation in the formulation of regulations
5. Revenues collection emanating from various fees
6. Involvement in the conservation of aquatic and coastal areas
7. Proposition of areas with conservation and biodiversity values for subsequent gazettelement as protected areas
8. Involvement in the management of aquatic and coastal protected areas e.g. marine parks, marine reserves etc
9. Promotion of aquaculture and quality seed production

The Policy document does not set out the roles and responsibilities with regard to the different levels of local government (e.g. Regional to Village). The more detailed outline of the roles and functions of the different sections of local government are set out below, developed from different sources:

1. Regional Office
2. District Councils
3. Division
4. Ward
5. Village

### *REGIONAL SECRETARIAT*

With the LGRP the former Regional Council and administration was vastly scaled down and replaced with a Regional Secretariat. Headed by the Regional Administrative Secretary (RAS), the Secretary plays only a minimal role in local governance.. There is usually a contact person for natural resources (including fisheries) at the regional level but has little mandated power. At the time of the decentralisation, staff from the regional level were either retrenched or re-assigned to various tasks at the district level, which is one of the causes of low motivation among some district level staff. The reduction of the role for the regional authorities in governance is shown by the lack of a section on their roles and responsibilities as set out in the Fisheries Policy statement. In the past the Regional level authorities were the main link between the FD and the districts and communities but now they retain largely a capacity building and advisory role.

### *DISTRICT COUNCIL*

The District Council (12 elected officers) is headed by the District Commissioner (a political appointee) and is now the main lower-level decision-making authority for a range of services. The District Executive Director (a Civil servant) leads the executive arm of the Council and is assisted by Section heads, including the District Natural Resources Office/Officer (DNRO) with a District Fisheries Officer (DFO) in his/her department with responsibility for fisheries. The DFO (with the DNRO and DED) is responsible for the following tasks:

1. Collection of boat registration fees (one-off, under 11 m)
2. Collection of vessel licence fee (annual, under 11 m)
3. Collection of fish landing levy (all landings at 6% of value)
4. Preparation of development plans for the fishery for incorporation into the district-wide natural resources plan
5. Supervision of the Beach Recorders in their data collection tasks (CAS), and submitting the resulting data to the FD (or entering on the database)
6. Assist in the conduct of the periodic Frame Surveys
7. Liase with the fisheries representatives at the village levels
8. Application of bye-laws
9. Collection of annual fishing license
10. Supervises fisheries enforcement activities

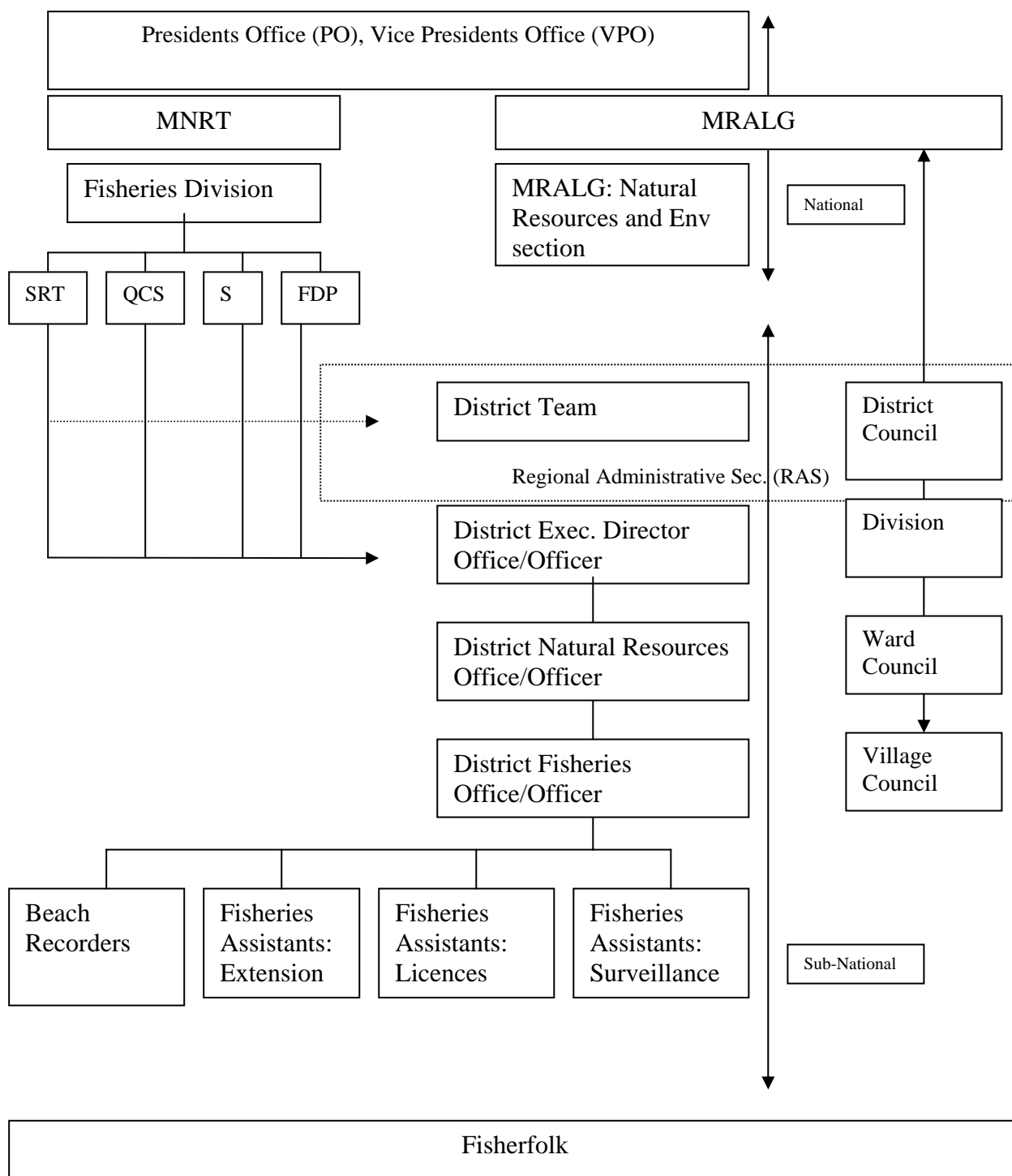
In practice the ability of the district level authorities and the DFO in particular to undertake these tasks is severely limited in most cases by lack of resources and facilities and in some cases skills, awareness and motivation. The FAO notes particular issues relating to the number of staff available to DFOs after the retrenchment exercise in the mid 1990s (FAO, 2000b). In some cases the FD can support the DFO directly with funds but this is open to abuse as the ability of the FD to monitor the use of funds transferred in such a way is limited. When the FD provides support to the district level fisheries activities through the DED and DC channels the funds are often diverted to priority programs of the DED and these may not necessarily be fisheries related.

The importance of the district level organisations in the process of fisheries management cannot be understated. A number of projects and coastal/fisheries management interventions have targeted this level of governance. The Fisheries Strategy (FD, 1997a) advises district authorities to forge partnerships with stakeholders for the successful management of resources and the District authorities have not been slow to adopt this process. When such partnerships have been established the district level authorities often receive funding, training, advice leading to capacity building and are able to achieve their mandated functions in serving communities. Often the FD is left out of such arrangements as they have failed to recognise their refined role in such partnerships.

### *DIVISION LEVEL*

There is a Division Secretary who largely works on his/her own. The level has little overall importance to fisheries issues and decision-making.

**Figure 4 Levels of governance in the fisheries sector**



*WARD LEVEL*

There is an elected Ward Development Council/Committee made up of representatives from the village councils and also contains non-voting members of the government that reside in the Ward area.

*VILLAGE LEVEL*

The Village Government is the main grass-roots decision-making body and the Village Development Council (VDC) is headed by the Village Executive Officer, who is in turn responsible to the District Offices and the District Executive Director. The VDC may establish a number of committees to

support their work, one of which maybe the Environmental Committee which has responsibility for fisheries management issues (may include: information flows, bye-law development, liaison with higher levels of governance). Civil servants are non-executive members of the Council. The Village Council is responsible for organising the Village Assembly which is made up of all residents over the age of 18 and this group has voting rights on issues of importance to the village.

**4.3 Fiscal arrangements for fisheries management**

The authorities responsible for fisheries management have three main ways of managing fisheries activities through the fiscal instruments available to them:

Collector/beneficiary	Revenue earning instrument
Fisheries Division (central government)	1. Vessel registration (over 11m) 2. Vessel license (annual) for industrial (EEZ) vessels (over 11m) 3. Fishing license (annual) 4. Licensing of shrimp trawlers 5. Royalties on exports
District authority	6. Licensing of artisanal vessels (under 11m) 7. Fish levy/sales tax 8. Fisher license 9. Vessel registration (under 11m)

**4.3.1 Central government**

1. Vessel registration (over 11 metres) is a one-off payment made to the Fisheries Division and rates vary depending on size, weight, activity, ownership, flag etc
2. Vessel licenses for industrial vessels (over 11 metres) – the FD has the authority to issue annual licences for vessels fishing in the EEZ. The licences are issued by the FD in Dar es Salaam and the fees are paid there also. The FD can attach conditions to the issue of these licenses such as the need to provide catch details, and exclusion of fishing activities from certain areas.
3. A fishing license for vessels (over 11 metres) must be purchased annually from the FD.
4. Fishing licenses for shrimp trawlers must be purchased from the FD
5. Levy/royalty on fisheries export – levied by the FD on ALL fisheries exports at 6% of the value and although the money is collected (or paid) to the central FD in DSM, it is subject to a retention scheme which is supposed to allow a proportion of the collected levies to be returned to the region from which it originated. Estimated that in 2002 this levy brought the government \$US 4 million (85% from Nile perch and c 10% from marine shrimp). Currently the export of marine fin-fish is prohibited although moves are underway to change this rule allowing export of fin-fish.

**4.3.2 Local government responsibility**

6. Vessel licenses (under 11m) are collected annually by the districts and seems that many district councils set the fee through their own local bye-laws.
7. Fish sales tax/ levy – charged by all districts on all fish landed into the landing sites and is set by the district concerned. Some districts charge this levy at 5% based on the value of the catch recorded at the landing site by the Beach Recorder/Data Collector. Some councils now contract the collection of this fee to private individuals: the individual promises to pay a certain amount to the District Council every month, he/she is responsible for the collection and any amount beyond the amount specified to be passed to the District, is kept by the contractor.
8. Fishing licenses (using vessels under 11 metres) for small-scale fishermen (both marine and freshwater) the licenses are issued by the district authorities.
9. Vessel registration (under 11metres) fee is paid to the district authorities.

**4.4 Direct fisheries management**

As shown in the previous sections the Fisheries Division of the MNRT has responsibility for fisheries in Tanzania. But given the decentralisation process the FD has really direct control over only the EEZ

fishery and the commercial shrimp fishery – where it issues licenses (currently largely unrestricted in number) and can attach conditions to those licenses. The management of the coastal subsistence fisheries and to a large extent the inland fisheries (where there is any management at all) is the responsibility of the resource users with district council assistance in collaboration with projects and with support from the FD.

#### **4.5 Description of (co) management arrangements**

##### **4.5.1 Co- management arrangements**

In the context of Tanzania – co-management of fisheries is interpreted as co-management arrangements where the responsibility for management and development of the resource is shared by resource users and the government. In the Tanzania context it refers to a range of initiatives on the coast (usually led by NGOs) and based at the district level, but with the ultimate target being village level organisations. On Lake Victoria the focus has been on Beach Management Units (BMUs) as the principal institutional vehicle to enable users effective participation in the management process.

##### **4.5.2 Framework for co-management in Tanzania**

In the absence of a specific policy or guidelines on fisheries co-management in Tanzania (it is being discussed) must look at other documented sources to find the official framework on the approach. It is understood that the FD has been preparing a set of Guidelines and an Operational Manual for the development and implementation of fisheries collaborative management systems but at the time of writing the paper was not available.

The approach to co-management by the FD is explained in the Policy (FD, 1997a) stating that “the user community who are in day to day contact with the resource have to be empowered to become aware of their own situation and support them to become responsible for their own destiny”. As such the role of local communities will be

1. Employment in fisheries management, utilisation and fisheries based industry
2. Production of the various fisheries products and services
3. Conservation and management of aquatic resources and aquaculture practice
4. Participation in joint management in aquatic and coastal protected areas
5. Formulation and enforcement of by-laws

The commitment to encourage communities to participate in fisheries management is further expanded through Policy Statement 12 in the Policy (FD, 1997a) “To improve the involvement of fisher communities in the planning, development and management of fishery resources” using the following strategies:

1. Encourage formation of fisher associations, co-operative and groups and support their activities
2. Sensitise decision-makers at all level on the importance of involving fisher communities in the development of the sector activities
3. Encourage the involvement of the fisher community in policy formulation and implementation through their relevant institutions i.e. village/councils, associations etc
4. Identify issues relevant to community participation in the sector and collaborate with other related sectors to enhance this participation
5. Encourage formulation of projects, which aim at promoting involvement of communities in the management of fisheries resource
6. Facilitate and promote sharing and exchange of skills and knowledge through extension services
7. Entrust the management responsibilities of landing sites or other facilities and utilities to fisher communities
8. Facilitate the formulation of village by-laws relevant to the fisheries sector to enhance sustainable exploitation and utilisation of the resources

The new Fisheries Act 2003 (FD, 2003a), similarly states that the Director in co-operation with other agencies/authorities can support sustainable fisheries management through, among other things: “encouraging the involvement of stakeholders in the planning, development and management of

fisheries resources” (Section 9 (f). Section 18 (i) further allows the Director to enter into a “management agreements with beach management units of the whole or part of or some specific fishery matter or activity within any water body or with any one or more local authorities having jurisdiction within the vicinity of any waterbody and deriving the whole or part of their livelihood from that waterbody” where beach management units are defined as “... a group of devoted stakeholders in a fishing community whose main function is management conservation and protection of fish in their locality in collaboration with the government” (Section 2).

The management agreements into which the above parties can enter should include:

- “statement of the objectives of the agreement
- description of the area covered by the agreement
- description of management activities to be undertaken
- rules governing the use of and access to other fishers
- duration of the agreement
- provision for review of the agreement and
- provision for the settlement of disagreement”

The Act also allows the Director to produce a variety of Regulations covering many aspects of the fisheries management functions.

Commitment to the approach by the national government is further shown in the development of two major programs for fisheries in Tanzania (Lake Victoria Fisheries Management Plan Implementation and the Lake Tanganyika Project) which both have the co-management concept as the key principal and vehicle for sustainable fisheries management. Similarly in the Rural Development Strategy and in the Progress Reports and the PRSP itself it is mentioned as a valid approach.

Discussion with the FD confirmed their vocal, if not financial or actual, commitment to the approach and the following list contains some of the areas where they maybe able to support locally led collaborative fisheries arrangements, although they will find implementation of these difficult without appropriate donor support:

1. Finalisation of the Guidelines/Manual for co-management initiatives in Tanzania
2. Joint evaluation and monitoring activities of the locally led (NGO) projects in co-ordination with funders.
3. Maintain a resource library of activities, projects, plans of the different projects
4. Identify a designated unit in the FD for such activities
5. Disseminate best practice in co-management from the different initiatives and between freshwater and marine
6. Establish supportive legislation (such as the new Fisheries Act), rights and authorities (often the legislation for these things lies outside of the specific fisheries legislation – is part of the broader framework of laws and policies governing local and national govt.
7. Ensure international responsibilities are taken account of
8. International liaison across borders (lakes and coastal)
9. Mechanisms for conflict resolution
10. Loan and banking assistance
11. Co-ordination, communications and roles and responsibilities becomes of crucial importance
12. Must address problems or issues beyond the scope of local arrangements (ecosystem approach, catchment management, transboundary issues)
13. Provide assistance and services (administrative, technical, financial) to encourage the sustainability of local efforts
14. Backstopping and regulatory standards particularly in the area of processing, trade and export
15. Fora for interaction

#### **4.5.3 Co-management arrangements in Tanzania**

The actual implementation of the fisheries co-management approach in Tanzania has taken essentially two forms:

#### *INLAND FISHERIES CO-MANAGEMENT ARRANGEMENTS*

Largely confined to activities on Lake Victoria these are based on Beach Management Units although similar efforts are planned for Lake Tanganyika and Lake Nyassa although for the latter two lakes, the interventions are at an early stage of development.

#### *COASTAL FISHERIES CO-MANAGEMENT SYSTEMS*

To date these have been almost entirely led by NGOs and implemented at or through the district level, and have developed a range of detailed arrangements to enable collaborative management. It is probably fair to say that these initiatives are largely based around conservation objectives (at least in the founding stages) but have seen a shift to equalise the livelihoods and conservation focus in recent years in line with international policies and priorities. Examples include:

- The Mafia Island Marine Park initiative based around a marine protected area
- The Rufiji Environmental management project based around the Rufiji river and estuary
- The newly established Mtwara project in the south of the country.
- The Tanga Coastal Zone Conservation and Development programme which is looked at in more detail in the following section.

## 5. THE FISHING COMMUNITIES AND MANAGEMENT STRUCTURES IN TANGA REGION

### 5.1 Introduction to Tanga region

The Tanga region is one of 26 regions in Tanzania (URT, 2002c) and is located in the far northeast corner of the country and shares a border with Kenya. Coastline is about 180 kms.

The region is divided into seven districts with Muheza, Pangani and Tanga Municipality having a coastline. There are a further 37 Divisions, 136 Wards and 557 villages within the administrative region.

**Table 1 Population in Tanga region**

District	Total population	Number of households	Ave household size
Muheza	279,423	62,183	4.5
Tanga	243,580	53,104	4.6
Pangani	44,107	11,283	3.9

Source: URT, 2002c

### 5.2 The Tanga Coastal Zone Conservation and Development Programme

The Tanga Coastal Zone Conservation and Development Programme (TCZCDP) started in 1994 and aims to enhance the well-being of the coastal communities in the Tanga Region by improving the health of the coastal/marine environment that they depend on, and by diversifying the options for the use of the coastal/marine resources. The Programme is working with coastal fishing villages to improve management of the coral reefs and mangroves, and the coastal resources that the villagers depend upon for their livelihoods. Districts and village level institutions are being strengthened so that they can undertake integrated management in a sustainable way (TCZCDP, 2004).

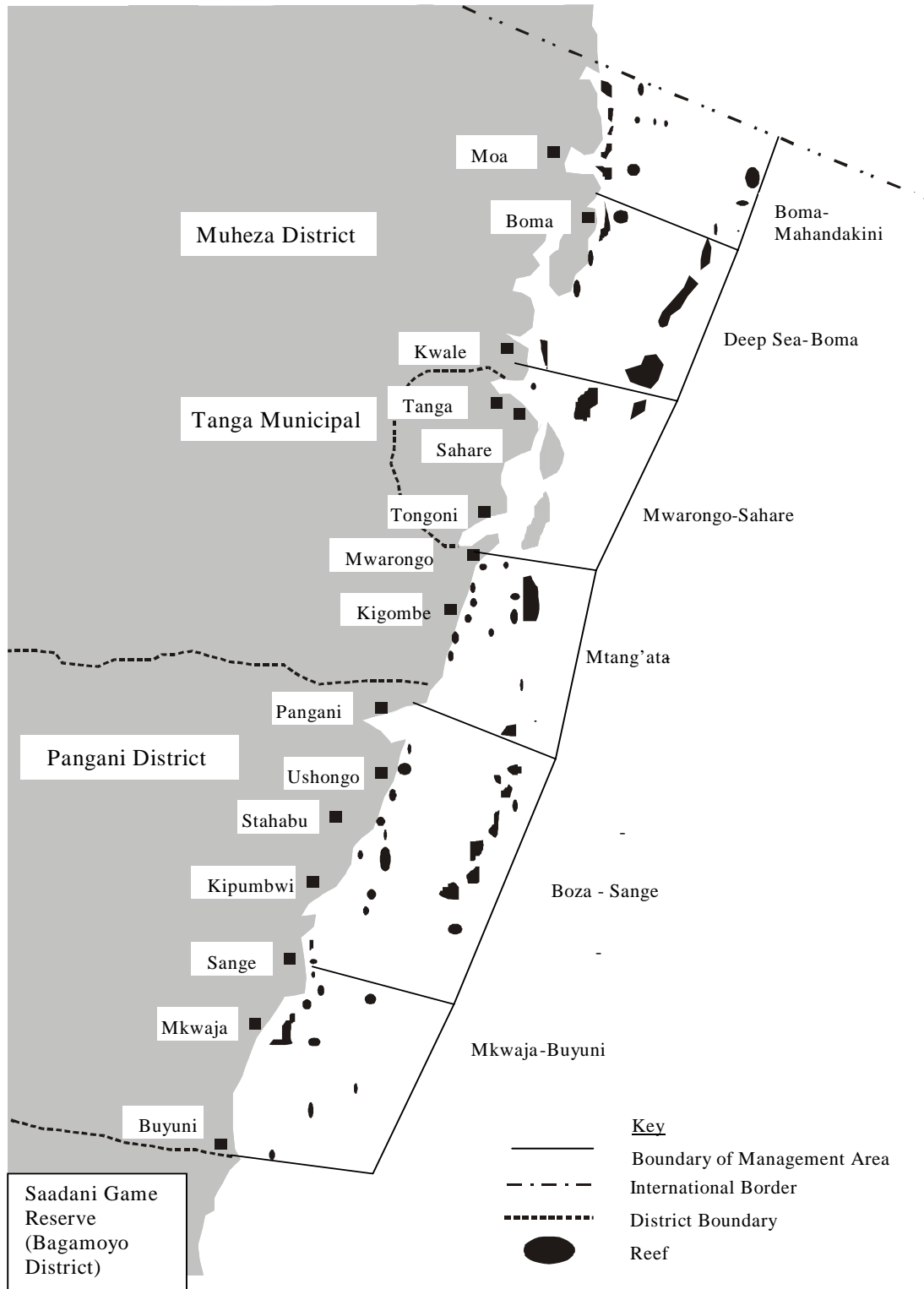
The three coastal districts of Tanga Region (Muheza and Pangani Districts and Tanga Municipality) in collaboration with the Regional Administrative Secretariat, The Ministry of Natural Resources and Tourism, and the Vice-Presidents Office (Environment), are implementing the Programme. The Eastern African Regional Office of IUCN – The World Conservation Union, based in Nairobi, Provides technical advice and manages the Programme on behalf of the donor agency, DCI. The Programme has been implemented in three phases, Phase 1 (1994-1997), Phase 2 (1997-2000), and Phase 3 (2001-2003). The Programme has recently entered a Phase IV (2004 – 2007).

The principal unit for the management is the Management Area and the tool for the development of the collaborative management system is the Coastal Management Area Plans (CMAPs) or Reef Fisheries Management Plans. These are developed by the various levels in the institutional structure and form the backbone of the programme supported activities (see later sections).

When the Programme started in 1994, and through Phases I and II to 2000, the activities were based in the Regional Office for Tanga, and then passed to the districts. However the implementation of the Local Government Reform Program (URT, 1996) firmly shifted the implementing responsibilities for service delivery to the District level authorities who then had autonomous responsibility for planning, managing and evaluating resource use in their area. This required some changes in the institutional structure of the Project to fully re-align processes to work within the new structures.



Figure 5 Map of Tanga region



Tanga Programme goal, purpose and result areas.

<p style="text-align: center;"><b>Goal</b></p> <p style="text-align: center;">Integrity of the Tanga coastal zone ecosystem improved, and its resources supporting sustainable development</p> <p style="text-align: center;"><b>Purpose</b></p> <p style="text-align: center;">Improved collaborative coastal and marine resources management by District administration, resource users and other stakeholders.</p> <p>Four results were identified by which the goal and purpose of Phase III would be achieved:</p> <p>Result 1 Improved capacity of key stakeholders and local institutions for collaborative coastal and marine resource management, conservation and monitoring</p> <p>Result 2 Collaborative coastal and marine resource management plans developed, implemented and monitored</p> <p>Result 3 Key stakeholders aware of coastal zone management issues and values and using information to improve management</p> <p>Result 4 Programme effectively managed, monitored and evaluated</p> <p>(TCZCDP, 2003)</p>
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### **5.3 Management institutions in Tanga Region and their roles and responsibilities**

#### **5.3.1 Institutional structures**

The current set-up (at the end of Phase III - 2003) of the institutional structures (project and statutory) is shown on the Figure 6 with regard to fisheries management and is described in some detail below which sets the scene for much of the later discussion.

Each of the CMAPs contains a section on the roles and responsibilities of different groups in the implementation of the plans and further consultations were undertaken to begin to clarify the issues. In effect the lists below contain the major roles of the key players in the collaborative system in Tanga. The Villagers, Village Assemblies, Village Environmental Management Council, Village Government, Ward Development Councils, Central Coordinating Committee (CCC), District Councils and Central Government.

#### **5.3.2 Villagers**

The villagers are the prime beneficiaries and the prime target for the management plans and the programme in general and roles include:

- (1) Adopt, comply with and implement the Management Area Plan
- (2) Recommend and propose changes/actions to the Village Government and the VeMC
- (3) Adhere to the rules and regulations from the CCC, District Council, Central Government and VeMC
- (4) Report crimes to Village Government especially over resource damage, and take action where appropriate
- (5) Attend meetings and receive reports from the Village Government and act accordingly
- (6) Elect the VeMC
- (7) Ensure proper use of village property

The Village Assembly is the gathering together of all the villagers over the age of 18 to decide on issues of critical importance to the village, by vote if necessary and hence the VG and the VeMC play a critical lobbying role with this group.

### **5.3.3 Village Environmental Management Committee (VeMC)**

The District Co-ordinators view this as the key institution in the collaborative fisheries management system – if they do not work, propose bye-laws etc – then nothing will happen above them. Roles include:

- (1) Link villagers with the Village Government
- (2) Propose village bye-laws to the Village Government
- (3) Prepare quarterly and annual workplans of environmental issues and present to Village Government
- (4) Facilitate, co-ordinate monitor and evaluate environmental activities in the village
- (5) Prepare and present monthly program reports to the Village Government and the CCC
- (6) Hold fortnightly committee meetings
- (7) Ensure proper use of village properties
- (8) Ensure women are involved in activities

### **5.3.4 Village Government**

The village government roles and functions include:

- (1) Enact village byelaws (on proposals from VeMC) and ensure enforcement
- (2) Co-operate with technicians in law enforcement (principal law and byelaws)
- (3) Overall in-charge of the patrols
- (4) Receive and act on VeMC reports and recommendations
- (5) Feedback environmental issues to villagers
- (6) Overall in charge of the election of the VeMC
- (7) Review environmental activities (annually)
- (8) Include environmental activities in the village plans
- (9) Conduct meetings in the village
- (10) Sit monthly and monitor the activities of the VeMC
- (11) Report environmental issues to the Ward Development Committee, the District Council, CCC.
- (12) Help raise awareness in the village of the management plan
- (13) Oversee and control revenue collection
- (14) Approve management plan at the village level and send to the WDC.

### **5.3.5 Ward Development Committee**

The WDC is a statutory authority although in practice the level is often by-passed in the local structures – perhaps as the members of this committee are usually representatives from other groups already covered. Identified roles include:

- (1) Approve village bye-laws and send to the District Council
- (2) Approve management plans and submit to the District Council
- (3) The Ward Council is the overall decision-maker for the management

### **5.3.6 Central Co-ordinating Committee**

The CCC was set-up by the TCZCDP as the responsible group for each of the Management Areas, they form the bridge between the villages in the Management Area and the higher levels. The CCC generally meets once every month. Roles include:

- (1) Receive (the Secretary of the Committee) progress reports from respective villages
- (2) Consolidate village management plans to produce a CMAP
- (3) Feedback issues to respective villages
- (4) Visit neighbouring villages to discuss issues
- (5) Co-ordinate activities of respective villages in management areas

- (6) Harmonise village management plans
- (7) Receive and review quarterly plans from the villages
- (8) Resolve conflicts in management areas
- (9) Monitor activities quarterly and evaluate annually
- (10) Ensure proper use of management area facilities
- (11) Ensure guidelines are followed by all villages
- (12) Seek technical and judiciary advice for management area
- (13) Overall decision-maker of all the issues in the management area
- (14) Present monthly reports to the District Council
- (15) Take action as reported by the Village Government
- (16) Feedback issues to the Village Government
- (17) Harmonise village bye-laws/environmental laws and submit to the Ward Development Council/Committee
- (18) Convene management meetings
- (19) Prepare budget estimates for running management
- (20) Raise and control a management fund and submit financial reports to the Village Government and the District Council

### **5.3.7 District Authorities**

The roles and responsibilities are:

- (1) Provide material that are outside the village capacities/material assistance
- (2) Provide technical advice and personnel to the villages
- (3) Receive and approve bye-laws and send back to the village for implementation
- (4) Receive and approve management plans
- (5) Link between village and central government
- (6) Ensure law enforcement
- (7) Send management plans to the central government (Directors of the FD and Forestry & Bees)
- (8) Provide judicial advice
- (9) Ensure proper use of the materials and equipment provided to the villages
- (10) Provide training to the villages as requested
- (11) Receive and comment on reports from villages and feedback issues for action/comment

### **5.3.8 District Management Team**

A district level technical team made up of the Heads of the various technical departments in the district.

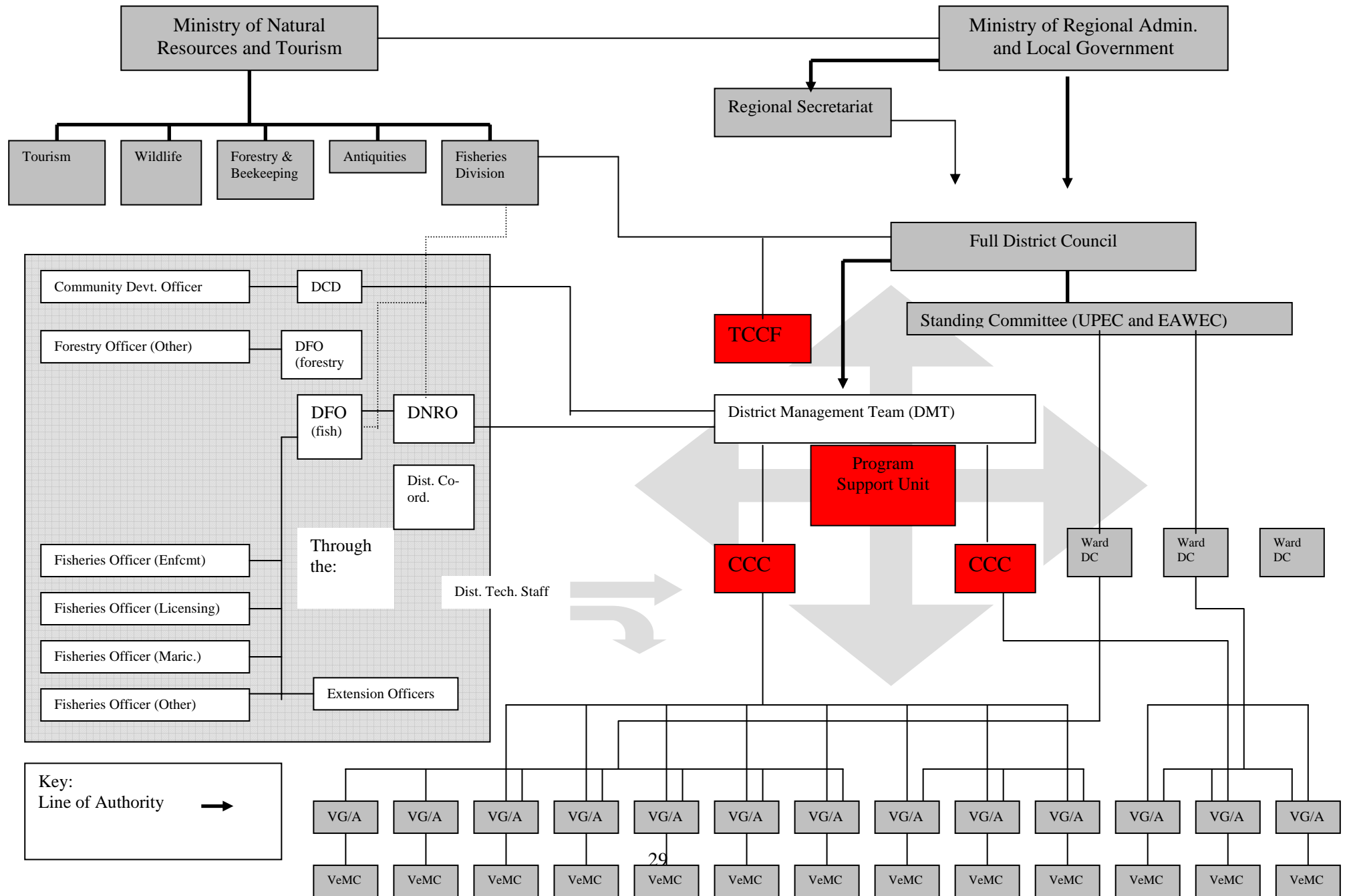
### **5.3.9 Regional Secretariat**

This is a statutory authority across Tanzania and in the Tanga programme area it is the Tanga Regional Secretariat supporting the Municipal District of Tanga and the District Councils of Pangani and Muheza. They are expected to support local authorities and others in the region to create an enabling environment for the local government particularly in relation to the improvement of service delivery. Usually made up of a RAS and a Secretariat, they have in fact lost a lot of their direct responsibility as a result of the decentralisation programmes and play an advisory role. In the Tanga case the Regional Coastal Management Facilitator is an employee of the Regional Secretariat, and in effect the co-leader of the programme.

Regional functions include:

- (1) Provide policy guidance on behalf of MRALG and Sector Ministries to local authorities
- (2) Facilitate the dissemination of information and provide technical backstopping during implementation of the LGRP and Sector reforms
- (3) Ensure law and order is maintained
- (4) Create enabling environment for local authorities to provide better service delivery

**Figure 6 Organogram of Institutional Players/Structures in Tanga Programme Area**



- (5) Build institutional capacity (technical and administrative) in the districts to help them in their tasks (planning, economic development, social development services)
- (6) Review and advise on plans and budgets of districts through quarterly plans and monitor implementation
- (7) Undertake surveys on behalf of the districts
- (8) Monitor trends in the region
- (9) Assist in collating Councils reports to one Regional level report sent to MRALG and others.

#### **5.3.10 Programme Support Unit**

Based at the regional level this unit is staffed by the RCMF, PAA, TA and two support staff.

#### **5.3.11 Tanga Coastal Consultative Forum (TCCF)**

Chaired by the Regional Administrative Secretary (RAS) the TCCF was established by the Programme (previously known as the Regional Steering Committee) to co-ordinate issues of regional and concern to the project implementation. They meet every six months or when called for. Part of this function is to support inter-district issues and provide advice and facilitations support. It was also established to facilitate co-ordination between districts, and liaison with central government and research and other inter-district national or international level based institutions. Membership is drawn from: the RAS, the RCMF, the DEDs and district co-ordinators from Tanga, Muheza and Pangani, one councillor from each district, two community representatives from each district, private sector representative, MNRT rep, NEMC rep, Technical advisers.

#### **5.3.12 Central Government (the Fisheries Division)**

The body with ultimate responsibility for fisheries and housed within the MNRT. Roles and responsibilities include:

- (1) Formulate, review and enforce laws
- (2) Approve/endorse management plans
- (3) Co-ordinate management area procedures (e.g. trawlers)
- (4) Return/feedback management plans to the districts
- (5) Provide policies, principles and guidelines to the districts/villages
- (6) Enact principal legislation and ensure its enforcement

#### **5.3.13 Decision making pathways/processes**

Figures 7 and 8 show the decision-making pathways in two of the principal tools of fisheries management in the areas: bye-law making and management plan preparation.

**Figure 7 Decision-making pathway for fishery management planning in Tanga**

[Note: the VMP is a statutory document which follows the route upwards for approval at the district council, and is then returned for implementation in the village. The VMPs are joined/collated (and added to) by the CCC to produce a CMAP for the management area which although not a statutory document follows a similar process/route to the VMP, except that it continues to the FD for endorsement.]

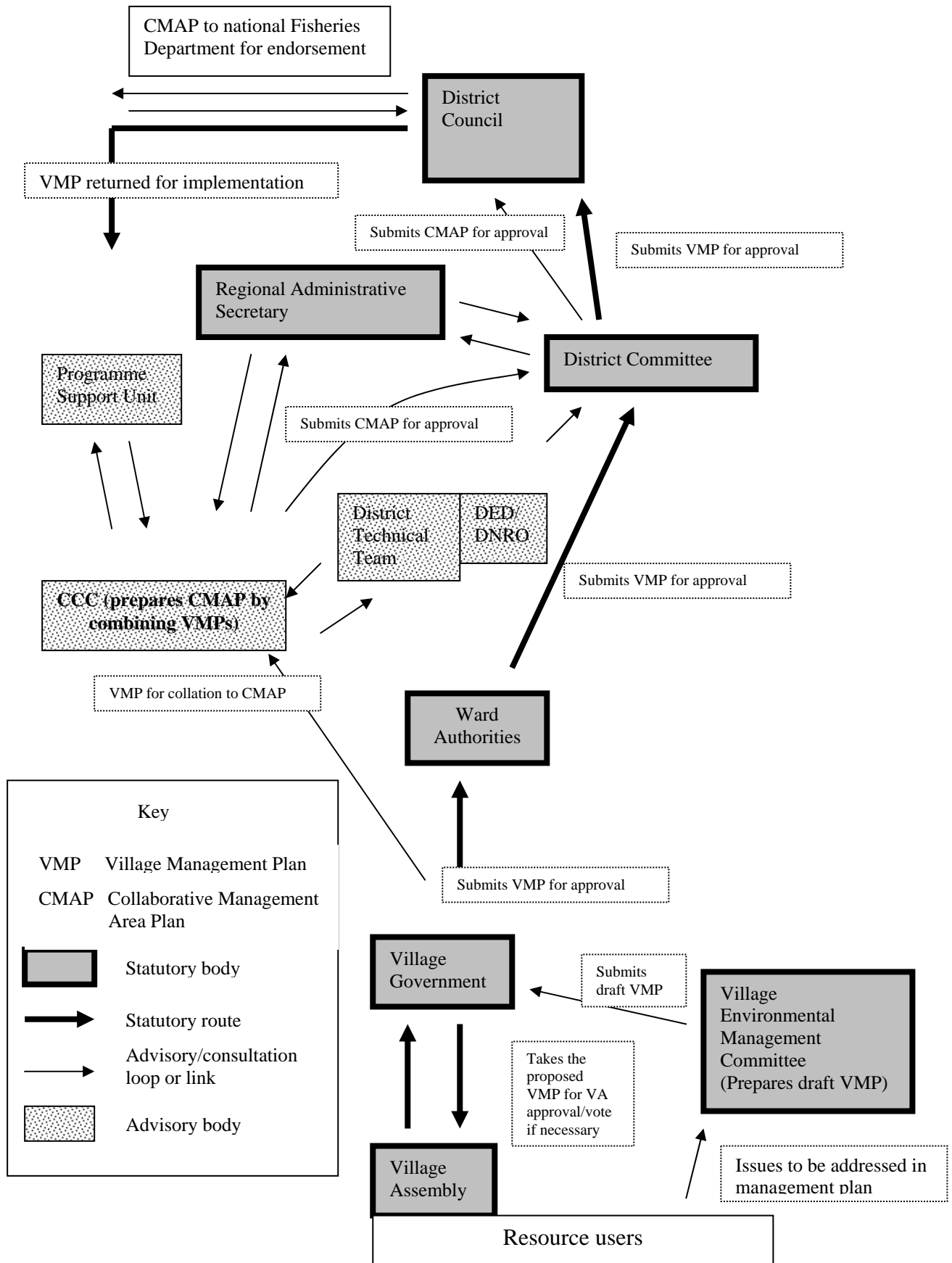
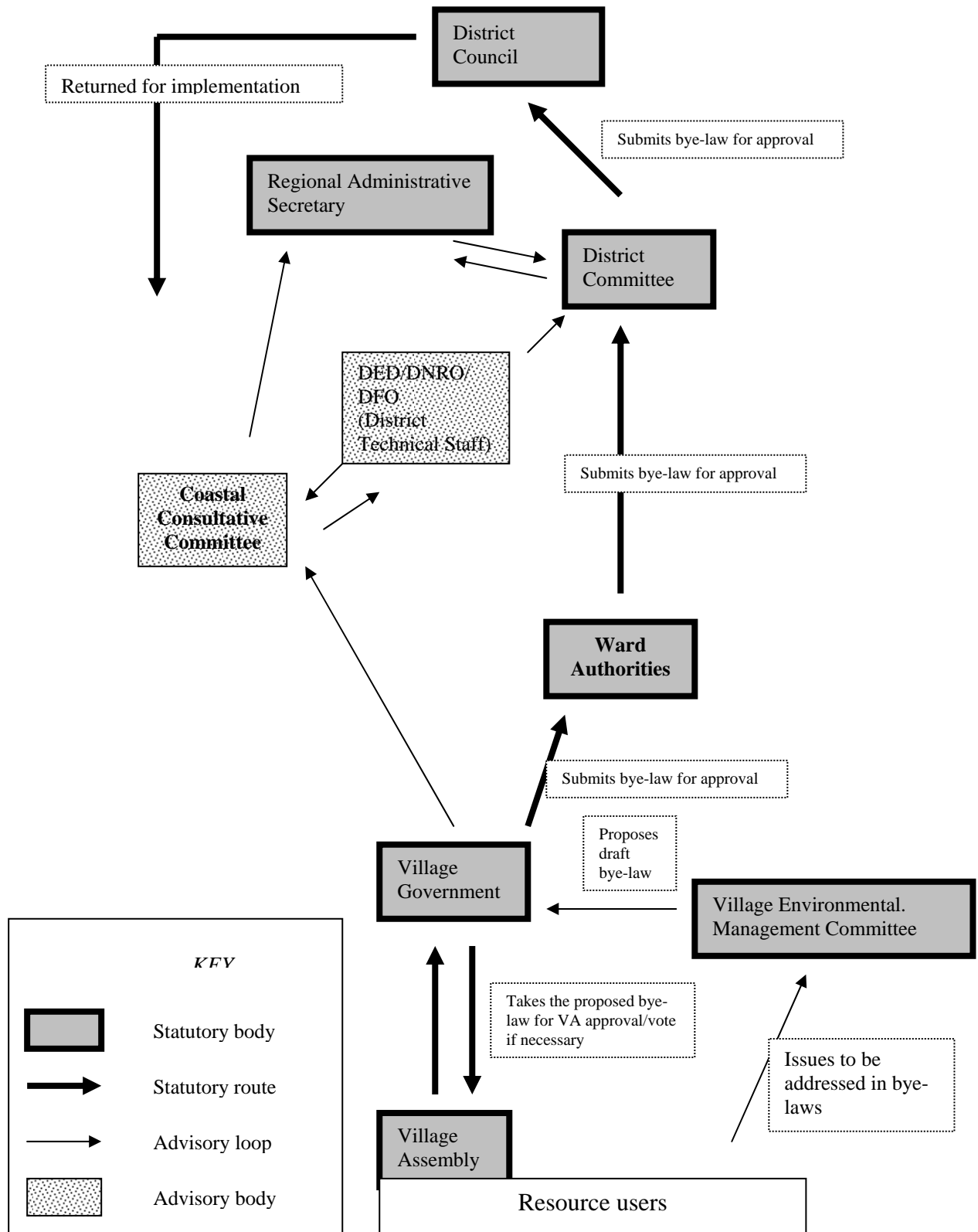


Figure 8 Decision-making pathway for fishery bye-laws in Tanga





## **6. THE FISHERIES IN TANGA REGION**

### **6.1 Resources and environment**

The 180 kms coastline supports a wide range of ecologically important and diverse habitats such as coastal forests, seagrass beds and coral reefs and is a recognised turtle nesting and breeding area. Horrill et al (2001) refer to a number of studies (although limited in coverage) that suggest the condition of the reefs declined markedly in the 1970s and 1980s. Two recent monitoring activities in Tanga waters (as part of the Reef Health Monitoring Programme) observed the following general trends and the results are largely consistent with results from 2001 and 2002. They emphasise the following:

- The health of reefs in the closed areas (measured by cover of live coral, fish densities and species composition, sea-urchin densities) is still better than that of the open reefs;
- Live coral cover is still at the same level or better than before the El Nino event;
- Fishing pressure on the reefs in the vicinity of Tanga is still very high, and the quality of the open reefs is still declining slightly. However, the quality of the closed reefs continues to improve;
- Numbers of triggerfish continue to increase in most management areas. At the same time sea-urchin densities continue to decline.

(Source: TCZCDP, 2004)

### **6.2 The fisheries in Tanga**

Studies of the fishery, especially the fin-fish sector, using official statistics show that the number of licensed fishers had more than doubled in number between 1970 and 1993. One of these studies concluded that the observed trends were “indicative of serious problems within the coastal fishery that can be related to the destruction of the most productive areas (reefs and mangroves) and over-fishing”. Horrill et al (2001) note the following:

- “stabilised or increased fish catch per gear (traps excepted) per trip, which seems to have altered the downward trend noted by earlier studies”
- increased mean catch (kgs) for nets
- increasing densities of commercially valuable reef fish especially on reefs closed to extractive use

Recent research results suggest the reversal of downwards trends identified above has continued in recent years. The early results from the fish catch data (TCZCDP, 2004) and the fish count (reef monitoring) “indicate that both fish catch and fish numbers are generally stable or increasing” but notes that the number of fishers is increasing. Although reported and observed incidents of illegal and destructive fishing practices are much reduced from previous years, they still occur (especially use of dynamite, poisons and beach seining).

Recent results of estimates of fish catch are shown in the table below and is related to efforts to establish a catch recording system in selected villages in the Programme area.

The fishery is conducted from a variety of vessels, mostly traditional styles and sail-powered. Trawlers fish in the inshore zone for shrimps. The smaller boats generally use a mix of traps, handlines, and gill nets combined with spear fishing. The larger boat may employ the larger mesh gill nets and seines. Gleaning is a common activity along the shore and mainly conducted by women.

**Table 2 Tanga Region fisheries overview**

<b>Item</b>	<b>Quantity</b>
<b>Fish catch</b>	
Total catch (Tanga Region, 2003) [1] [3]	8507.10 MT
- Muheza [1] [3]	639.63 MT
- Pangani [1] [3]	1416.90 MT
- Tanga [1] [3]	6450.58 MT
<b>Number of fishers [2]</b>	
Total fishers	3686
- owners	1088
- labourers	2514
- foot fishers	84
<b>Vessel types [2]</b>	
Total vessels	915
- boat	41
- dugout canoe	251
- Dhow	108
- Mashua	78
- Outrigger canoe	437
<b>Gear types [2]</b>	
- trap	2212
- seine net	481
- gill net	953
- hand-line	1988
- long-line	830
- beach seine	0
- trawl	0
- cast net	29
- spear	124
- foot fishers	99
- other	106

Source:

[1] Anderson, 2004

[2] FD, 2002b

[3] It should be noted that some refinements are still to be made before these results, and the catch recording system on the whole, is accepted – especially with regard to the use of the Frame Survey results used as a basis for scaling up results.

### **6.3 Post harvest flows**

The post-harvest system is characterised by basic landing facilities, dispersed landing sites, lack of infrastructure, few options for processing, unstable prices shown by gluts and shortages. Traders usually fall into one of the following categories: fish bought directly from the fisherman at the landing site and sold locally (on foot) in villages (mostly by women); bought directly from fishermen at the landing site and transported by bicycle for sale in villages (usually by men). Are some “commercial scale” operations which use cold storage containers based at a landing site and when they are full, are taken to Dar es Salaam but this appears to be an ad-hoc arrangement. Processing is almost exclusively sun drying or smoking, with some fish cooked before it is sold directly to consumers. High value products (such as lobster, crabs and octopus) may be transported directly to Dar es Salaam for sale but there is one buying station/company in Tanga that exports the produce.

#### **6.4 Management controls and existing MCS efforts**

The basis for fisheries management in the Tanga region are the Reef Fisheries Action Plans which are also known as Collaborative Management Area Plans (CMAPs). The plan cover each of the six management areas as shown on the earlier figure. The Management Areas themselves were identified on the basis of patterns of resource user by the main stakeholders/villagers and therefore do not necessarily follow the district administrative boundaries. The plans themselves are developed through a lengthy process of consultation and negotiation and follow an “adaptive management cycle” (Horrill, 2001) where particular effort is made to monitor and evaluate the impact of management actions and then used to review the management plan after an agreed period. The content of the management plans and the monitoring efforts are looked at in more detail in the following section.

## **7. DATA AND INFORMATION REQUIREMENTS OF THE LOCAL MANAGEMENT INSTITUTIONS**

### **7.1 Details of management plans**

By late 2003 three Management Areas have a final plan (endorsed by the FD), a fourth is currently in the final stages of production and the remaining two are in the process of development. The three completed plans are:

1. A Reef Fisheries Action Plan for Boza to Sange (Pangani District Council)
2. A Reef Fisheries Action Plan for Mkwaja - Sange management Area (Pangani District Council)
3. A Reef Fisheries Action Plan for Mkwang'ata Management Area (Muheza District Council and Tanga Municipal Council)

More details from these plans are included in the following table and details on the decision-making processes involved are shown in Figure 7 and 8.

These plans generally include the following components:

- Areas to be managed by stakeholders
- Principles to guide the Management decisions
- Objectives, indicators and assumptions
- Actions
- Regulations and penalties
- Monitoring and evaluation scheme
- Roles and responsibilities of institutions involved

#### **7.1.1 Management measures**

Although the district and village level organisations have the freedom to develop their own management measures based on local conditions and priorities, the following measures have been widely used in the management of fisheries in the coastal areas.

- Strict policing to enforce the existing prohibitions on use of poison and explosives for fishing
- Reef closures
- Village and district bye-laws to prevent the encroachment of shrimp trawlers in inshore grounds (incorporated by the FD into the conditions of license).
- Minimum mesh sizes for pull nets (beach seines) set at 2.5" which was then accompanied by a net exchange program.
- Encouragement and assistance in the establishment of alternative livelihood projects for fishers – especially FADs, mariculture which met with mixed success.

The following table shows the stated management objectives from three of the CMAPs from the Tanga programme area.

### **7.2 Information needs**

Table 6 shows the information needs that were identified as part of the management plan preparation process in Tanga, and it can be seen that these are largely confined to monitoring the degree of success towards the objectives stated. Other indicators which will be monitored are included in the Monitoring and Evaluation Plan for the TCZCDP (2002). For broader information needs see the following Tables 7 to 14 which provides the results from the consultation workshop in Tanga.

**Table 3 Contents of Management Plans**

<b>Boza - Sange</b>	<b>Mtang'ata</b>	<b>Mkwaja – Sange</b>
Pangani District Council A reef fisheries management plan (Village Boza to Sange) July 2000 to June 2005 (reviewed July 2001)	Muheza District Council and Tanga Municipal Council A reef fisheries action plan for Mtang'ata management area June 1996 to May 2004. (reviewed 1998 and 2002)	Pangani District Council A reef fisheries action plan for Mkwaja – Sange management area October 2001 to September 2007
<b>Principles of the management plan (guidelines for the implementation, monitoring and evaluation of the plan)</b>	<b>Management principles (basic guidelines that [provide] a broad framework for management)</b>	<b>Guidelines of the management area</b>
<ol style="list-style-type: none"> <li>1. All resource users in the villages within Boza – Sange should participate in all management activities of the management area.</li> <li>2. All visiting fishers (those who are not residents of Pangani District) should obtain a written permission from the respective village governments prior fishing in the management area.</li> <li>3. All illegal gears should not be used within the management area.</li> <li>4. All destructive practices are not allowed in the management area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Last decision for the execution of the management will be the responsibility of Central Coordinating committee (C.C.C.)</li> <li>2. All users residents in Mtang'ata should participate in management activities.</li> <li>3. Gears and techniques already prohibited by Government legislation shall not be used in the Management area.</li> <li>4. This Management will be for eight year term and will be reviewed annually.</li> <li>5. This closed reefs of Shengue and Makome will remain so for five years and will only be opened for use under abnormal catastrophic events like severe famine or bad weather.</li> <li>6. The overall vote for Management decisions will depend on the number of villages and not the villagers.</li> <li>7. Village environmental committees will be elected at every Two years.</li> <li>8. The Central Coordinating committee (CCC) will be for a Two year term and shall convene once in a month.</li> </ol>	<ol style="list-style-type: none"> <li>1. All decision made in the management area should depend on the number of resource users and not the no. of villagers of closure of reefs.</li> <li>2. All fishers who are not residents of Pangani district should obtain a written permit from the respective village governments prior fishing.</li> <li>3. All illegal practices are prohibited in MSAMI management area.</li> <li>4. All decisions made should conform with sustainable use of the present resources.</li> <li>5. Environmental committees election should be done after every two years from the date of first implementation.</li> </ol>

<b>Boza - Sange (continued)</b>	<b>Mtang'ata (continued)</b>	<b>Mkwaja – Sange (continued)</b>
<p><b>Overall objective:</b> Income of the resident of Boza, Pangani, East ,Pangani West, Ushongo, Stahabu, Kipumbwi and Sange increased through increased Fish catch.</p> <p><b>Results:</b> Reduced illegal fishing Reduced legal but destructive fishing activities High fishing pressure reduced by decreasing fishers and / or vessels. Water pollution from sisal wastes, human excreta and coconut husks reduced. Illegal cutting of mangrove reduced. Increased protection of turtles</p> <p><b>Variables identified in the plan to monitor progress include:</b> Fish catch per gear Income earned Patrol reports indicating types of illegal fishing practices and the measures taken Patrol reports (logs). Reports of incidences and actions taken. Records of number of visiting and local fisher / vessels Water quality testing reports. Increased area of cleaned beach. Patrol logs</p>	<p><b>Overall objective:</b> Income of fishers resident in Mtang'ata (Kigombe, Mwarongo, Geza, Tongoni and Maere) Increased through increased fish catch, seaweed production, and reliable fish market.</p> <p><b>Purpose</b> To increase fishers and seaweed farmers Income. To Increase No. and species of reef fish. To Increase production in seaweed farms.</p> <p><b>Results:</b> Destructive resource use reduced Fishing pressure reduced by decreased No. of visiting fisher Reduced No. of legal but destructive fishing Increased seaweed production Fish stocks increased Reliable market for fish. Guidelines for selling coastal areas Conflicts between users reduced.</p> <p><b>Variables identified in the plan to monitor progress include:</b> Monitor fish catch per fisher per gear, Income earned. Weight in kgm of seaweed harvested and sold per farmer. Price kg of fish sold Simple stock assessments of key spp from catch statistics which record, type + No. of gears, area fished, spp caught No. of fish per size class, weight of catch. Visual assessment of Conner coaly important species.</p>	<p><b>Overall objective:</b> Income of the residents of Sange, Mikocheni and Mkwaja Villages increased through increased and sustainable use of coastal resources</p> <p><b>Results:</b> Seaweed production increased. Increased fish catch High fishing pressure reduced by decreasing fishers/vessels Illegal cutting of mangroves reduced. Increased protection of turtles</p> <p><b>Variables identified in the plan to monitor progress include:</b> Fish statistic including type &amp; weight per gear per fisher. Seaweed production statistics – weight per farmer. Mangrove planting records Statistics of harvesting. Income records Reef monitoring reports. Fish statistics No. weight per gear. Records of number of visiting and local fishers/vessels Mangrove planting records. Assessment records. Patrol logs</p>

**Table 4 Roles and information needs: Resource users**

	<b>Aspects of collaborative fisheries management in Tanga</b>				
<b>Who?/What?</b>	Management plan preparation process	Policy development, strategic decision-making and fund/resource allocation	Control and regulation (bye-laws and/or national laws, or others)	Resource monitoring	Livelihood development and income generating activities
Resource users					
Roles	Accepting/participating in the management plan To know the availability of the resources Implementation of the management plan Formation of environmental committee To go through the village management plan and give views on the plan	As a user should go through village (plan?) and national policy and give their view	To participate effectively in surveillance To participate in the preparation of bye-laws To give information on the offenders breaking the laws – if see infringements must report it and deliver information to the relevant authority Should be among the witness in court for prosecutions	To ensure that the responsibilities are being implemented To participate in the evaluation of the different available resources To go through the village action plan To be involved in data collection	To design alternative activities for getting income, different to the current Look for support, technical know-how and equipment from different organisations
Information needs (to fulfil the above roles)	They need a draft management plan (showing resources, plans, schedules). They need proposed names of people who want to be in the VeMC. Need all the “technical” fisheries information to assist the VA to make the decisions. Experiences of other villages	Need a copy of the draft policy so that they can input their views	Need guidelines and guidance to help them in making bye-laws Need information on revenue improvement options, how to improve revenue collection. Need the rules and regulations from the district and national level.	Implementation report (showing the process and results from the resource monitoring)	Need info from the district on alternative income gen. activities to use it to create awareness

**NOTE:**

The group commented that they found it very difficult to separate the roles of the resource users, the village government and the Village Environmental Management Committee. They felt that this group was all in fact resource users, and their information needs are the same. “Village level” is perhaps a more appropriate group. The VeMC is an advisory committee (???) to assist the village government which is in turn just the implementing part of the Village Assembly (VA), which is the real decision-making body. The VA is made up of all the villagers over 18 and they have the decision-making power for example on by-laws (???) and in reef closures etc. The VG and the VeMC just provide information to the entire VA, which then votes on the issue. The VA ranges in size from 200 to 600 people in the different villages.

**Table 5 Roles and information needs: Village government**

<b>Aspects of collaborative fisheries management in Tanga</b>					
<b>Who?/What?</b>	Management plan preparation process	Policy development, strategic decision-making and fund/resource allocation	Control and regulation (bye-laws and/or national laws, or others)	Resource monitoring	Livelihood development and income generating activities
Village Govt. (VG)					
Roles	Call for and conduct the meeting for the purpose of developing the village management plan. Conduct final meeting and go through the plan and approve the plan To supervise the election of the VeMC The VG receive the proposal for the management plan from the Cttee and then the VG go through it and then they present it the Village Assembly.	Go through the national fisheries draft policy and give views. Village revenue collection.	To make bye-laws and implement them. Ensuring implementation of district bye laws and regulations from the government and local authorities. Alternative means of getting money so that they can implement these laws. Overall in charge of village level patrols. Raise awareness of rules and regulations on fisheries in the village.	To ensure implementation of the responsibilities of the Village Govt. To confirm/deny the names of the data collectors	Raising public awareness of the villagers as to alternative sources of income, for income generating activities. Oversee implementation of the setting up of alternative income generating activities
Information needs (to fulfil the above roles)	They need a draft management plan. They need proposed names of people who want to be in the VeMC Need broad information for advocacy, influencing and to support the case for the VMP to the VA.	Need a copy of the draft policy so that they can input their views	Guidelines to help them in making bye-laws Information on revenue improvement options, how to improve revenue collection Methods of information dissemination and education. Messages/training for participatory messages and facilitation of analysis (???)	Implementation report	Need info from the district on alternative income gen. activities to use it to create awareness



**Table 6 Roles and information needs: VeMC**

	<b>Aspects of collaborative fisheries management in Tanga</b>				
<b>Who?/What?</b>	Management plan preparation process	Policy development, strategic decision-making and fund/resource allocation	Control and regulation (bye-laws and/or national laws, or others)	Resource monitoring	Livelihood development and income generating activities
Village Env Committee or VeMC					
Roles	To plan and implement the environmental (inc. fisheries) activities in the villages. To plan activities for the preparation of the management plan Submission of the management plan to the village government.	To go through the policy plan and give their views.	Make timetable for surveillance Submission of the timetable to the village government To organise and participate in surveillance Ensuring the implementation of the government regulations on behalf of the village government. Propose bye-laws to VG and VA	Supervision of the data collection Arrangements of the timetable for follow-ups for data collection (fish catch, reef health) Propose the names of the people who will make the follow-ups for data collection.	The VeMC will link external technical people with the VG or the people in aspects for alternative livelihoods. The VeMC will be the entry point to the VG and village. Arrangement of the timetable for the implementation of the alternative livelihood systems Supervision of the implementation.
Information needs (to fulfil the above roles)	They need information from the district or TCZCDP regarding the available resources. They need to know the procedures for the preparation of the management plan. They need to gather information on how the resources has been used – by getting data from resource surveys.	They need to have a copy of the national policy in fisheries and other relevant sectors	They need to know the information regarding the use of the resources – how the resources have been used – where the illegal fishers are, what methods are used. Survey results from the fish catch data etc	They need training/information of (how to make) follow-ups and supervise data collection Need the interpreted results of the various surveys in their areas/villages	They need to have information from other areas and districts that have managed to find and implement alternatives uses/income generation. Exchanging ideas with people who have done this successfully.

**Table 7 Roles and information needs: Ward Authorities**

	<b>Aspects of collaborative fisheries management in Tanga</b>				
<b>Who?/What?</b>	Management plan preparation process	Policy development, strategic decision-making and fund/resource allocation	Control and regulation (bye-laws and/or national laws, or others)	Resource monitoring	Livelihood development and income generating activities
Ward Development Council/Cttee					
Roles	To approve village plans for that management areas Submission of the approved village plans to the district council. Submission of the requests/assistance needed from the villages to the council.	To discuss village govt reports (quarterly, and others) and see how progress, problems and make solutions from these reports Discuss the justification of resources (financial and others) needed by the village Submission of request for assistance to the council	To discuss and advise on village by-laws To advise amendments of the by-laws of the villages and district council Submission of proposed by-laws to the district council To establish Ward Tribunal	To discuss monitoring reports from the villages To advise different options of solving the problems	To receive data on quantities and values of exploited resources (e.g. fish) Sensitisation on income generating activities
Information needs (to fulfil the above roles)	Minutes of the proceedings during the prep of the management plans – for the users, and Village Governments Principal laws and bye-laws supporting management plans Status of the coastal resources	Progress reports either quarterly, monthly – from users, village governments etc Budgets from the villages List of equipment needed by the village Inventory of equipments from the villages	Information on destructive practices Bye-laws and principal laws. Policies Guidelines on the formation of Tribunals	Monitoring reports	Data on progress towards poverty reduction (fish catch data and values)/increase of income – how they are changing Technical reports on viable income generating activities in the area.

**Table 8 Roles and information needs: Central Coordinating Committee**

	<b>Aspects of collaborative fisheries management in Tanga</b>				
<b>Who?/What?</b>	Management plan preparation process	Policy development, strategic decision-making and fund/resource allocation	Control and regulation (bye-laws and/or national laws, or others)	Resource monitoring	Livelihood development and income generating activities
C.C. Cttee					
Roles	To receive the names of members from the villages who have been selected by the Env Cttee to join the CCC (these names should have been approved by the VGs) To know the area to be covered by the management. To combine the village management plans and formulate a combined co-management plan.	Develop meeting program for the CCC area including all villages. Identification of requirements for CMAP implementation. To receive info. from the VeMC, VG, and take action or advise (the VG) on the issues and give feedback to the village To develop strategies and obtain money for plan implementation.	They work to ensure that by-laws from the different villages are compatible or make sense together (CCC advise VeMC in prep. of the draft). Arrangements for the combined surveillance of the management area. Have a cmtee for the follow-ups of surveillance implementation (makes additional investigations on reports CCC – before the CCC takes action or makes advice).	There is a specific committee for resource monitoring (cttee for resource monitoring) – in the mangroves, reefs, beaches to see what is going on.	Raise awareness in seaweeds farming and beekeeping, need awareness campaign so that people participate in these activities. To solicit for investors so that they invest in the area. Selection of the areas for seaweed farming in collaboration with the Village Government.
Information needs (to fulfil the above roles)	Info. on the implementation of the village action plan. They need information from the district, the Village Govt and the VeMC regarding the area to be covered by CMAP Guidance on contents of management plans (tech, social, fin.) Views of the Regional and national authorities on important issues	Summaries of the village meetings. Info. on resource users Info on the costs of the project (e.g. fuel etc) [Ward Councils keep this information from the CCC]. Info from the regional and national groups on govt policies and opportunities, support available to districts and local levels – not only from FD.	They need information from the village governments if the regulations are there and being implemented or not. Guidance in bye-law preparation.	They need to know how to get the summary of implementation from the meetings conducted by the villages regarding resource monitoring (either weekly or monthly) Need the detailed resource monitoring information to assist in the review of CMAPs (the main entry point for the resource monitoring info.)	They need information from the Planning Cttee of the districts – what are the plans regarding district development? Info regarding the markets of their resources – should be available from districts via village governments. Higher level information on market opportunities.

**Table 9 Roles and information needs: District Authorities**

	<b>Aspects of collaborative fisheries management in Tanga</b>				
<b>Who?/What?</b>	Management plan preparation process	Policy development, strategic decision-making and fund/resource allocation	Control and regulation (bye-laws and/or national laws, or others)	Resource monitoring	Livelihood development and income generating activities
District Authorities					
Roles	<p>Collection of social and economic data, analysis and interpretation of the data</p> <p>Assess patterns of resource use and resource conditions.</p> <p>Dissemination and feedback of data to stakeholders.</p> <p>Facilitate participatory and technical analysis and possible solutions</p> <p>Facilitate the promotion of VeMC.</p> <p>Provide micro-planning training to the VeMC</p> <p>Facilitate annual and quarterly action plan</p> <p>Provide technical support</p> <p>Facilitate the formation of CCCs</p>	<p>Provide baseline information for the government policy</p> <p>Provide and solicit other sources of funding</p> <p>Provide technical support</p> <p>Provide technical information</p> <p>Revenue generation and collection from the sector</p>	<p>To facilitate the VG to formulate bye-laws</p> <p>To formulate district bye-laws</p> <p>To approve management plans from the village coming through the Ward</p> <p>Approve the bye-laws of the villages</p> <p>Enforcement of national and district laws</p> <p>Support village land and sea patrols.</p>	<p>Facilitate and assist monitoring of coral reefs, mangroves, seaweed, fish catch and socio-economic aspects.</p> <p>Facilitate the reviews of area management plans.</p>	<p>Identify income generation activities.</p>
Information needs (to fulfil the above roles)	<p>Management plan preparation process</p> <p>Availability of resources</p> <p>Demographic data</p> <p>Data of fishing effort and all “technical” fisheries info (catch, species, costs, value) to allow quality advice to villages and other agencies.</p>	<p>Resource status data, extent and the kind of problems to be addressed.</p> <p>Info.. on government policies towards fisheries (broader than just fisheries – but with an influence on fisheries)</p> <p>Opps. for external assistance in local interventions</p>	<p>Extent and the kind of problems to be addressed</p> <p>Bye-law information from other districts</p> <p>Guidance from the CCCs on other possible bye-laws</p>	<p>Baseline data status reports</p> <p>Information relating to best practices in reef and resource monitoring</p>	<p>Socio economic profile of villages and resources (skills, nature, extent) and linked to the opportunities for new enterprise development.</p> <p>Local constraints to new business development.</p> <p>Market opportunities and demands from Reg. &amp; Nat. level</p>

**Table 10 Roles and information needs: Regional authorities**

<b>Aspects of collaborative fisheries management in Tanga</b>					
<b>Who?/What?</b>	Management plan preparation process	Policy development, strategic decision-making and fund/resource allocation	Control and regulation (bye-laws and/or national laws, or others)	Resource monitoring	Livelihood development and income generating activities
Regional Authorities					
Roles	Advisory role to the districts in all aspects of fisheries management Linking national to district level Capacity building	Advisory role Screening District budgets prior to presentation at National Level	Advising Districts	Standardising data collection in the districts or Management Areas (???) Data storage Data analysis Feedback information to districts Pass information to higher, national level organisations Capacity building Reporting	Capacity building Advisory Reporting
Information needs (to fulfil the above roles)	Updated / reviewed CMAPS Guidelines from national level Advice	District budgets Resource data to be able to advise on aspects beyond the remit of the district authorities	Updates on new/revised legislation from the national level Draft village / District by-laws	Guidelines from national Fisheries Division Datashets from Districts Training needs investigations and reports	Training needs investigations and report Data from Fisheries Division regarding international practices related to the above

**Table 11 Roles and information needs: Division of Fisheries (national)**

<b>Aspects of collaborative fisheries management in Tanga</b>					
<b>Who?/What?</b>	Management plan preparation process	Policy development, strategic decision-making and fund/resource allocation	Control and regulation (bye-laws and/or national laws, or others)	Resource monitoring	Livelihood development and income generating activities
Division of Fisheries					
Roles	Standardisation of Collaborative Management Area Plans (CMAPs) Endorsement of CMAPs	Policy formulation Funding of District and Regional fisheries authorities Development of National Guidelines for all aspects of fisheries management.	Surveillance in territorial waters Regulations making and reviews Review of the 1970 Act where BMUs are now legally recognised. Co-ordinate the fisheries they license (shrimp) with locally licensed fisheries	Gathering data from Regional Authority Standardisation of data collection methodology (???) Monitoring of export of fish and other fisheries products	Promoting of alternative uses of marine resources (e.g. aquaculture, mariculture, seaweed farming) Promotion of market diversification Promote alternative target species Ensure sustainable utilisation of the resources Capacity building
Information needs (to fulfil the above roles)	Updated/reviewed CMAPS showing the process adopted and endorsed at the lower levels. Guidelines on contents of management plans and best practice from elsewhere	Linking with the Regional and District Authorities Budgets from districts/regions Consulting local/intl. groups Details on the various coll. Fish. Projects in country (inland and marine) – projects, progress, success, failures, M and E info. Copies of plans and reports District and Regional fishery plans (NR plans) if exist. Results and practice of international efforts in this field Post-harvest issues for consideration by national level and info on the constraints to private sector.	Receiving draft by-laws from districts/villages District surveillance requirements District level problems where the solution may lie at the national level. Surveillance issues form the districts Conflicts between locally and nationally managed or licensed fisheries	Regular updates from region on resource status and trends Best practice in resource monitoring techniques Catch and effort etc info summarised at district or regional level.	Linking with fisheries departments from other countries Co-operate with the BET from Min. of Ind. & Trade Participate in (inter) national fish days and or exhibitions Regular updates (data) from the regions. Local, national and international market information. Feedback from export customers. Reg/Dist assessment of enterprise capabilities in these area where maybe a distinct comparative advantage. Measure of the role of fisheries in l/hoods Socio econ fisheries info. Market problems faced by local private sector

## **8. EXISTING DATA COLLECTION TOOLS, METHODS AND SOURCES**

### **8.1 Existing data collection systems: national system as applied in Tanga**

The components of the artisanal fisheries statistical system for Tanzania mainland consists of the Frame Survey (FS) and the Catch Assessment Survey (CAS). The system was introduced in 1992 and became operational in 1993 under the Strengthening Fishery Statistics project (UNDP/FAO) (FAO, 2000b). Further details contained in TCZCP (2002), TCZCDP (2004) and Evison and Anderson (2001).

#### **8.1.1 Frame Survey**

Marine frame surveys have been undertaken on the Tanzania coastline in 1995, 1998 and then most recently in 2001 (FD, 2002b). These surveys provide the raising-factor for the catch assessment sample data. The Frame Survey seeks to attain 100% enumeration of all landing sites, fishermen, vessels and gears.

#### **8.1.2 Catch Assessment Survey**

Fisheries catch and effort data is collected at landing sites along the coast of Tanzania. The district-employed data enumerators at 22 landing sites along the coast work for 16 days per month and seek to obtain 100 per cent coverage of fish landed at their site on the days they work. The recording of catches is combined with the collection of revenue by the District and the enumerators are typically resident in the community adjacent to the landing sites. The data is collected at the level of a fishing unit (typically a single vessel/gear type combination). There appears to be few data on hand collections (i.e. gleaning of shellfish) made, typically, by women fishers. There are no data collected on social or economic aspects of the fisheries beyond the data on the value of the catch (by trip, species/family groups).

Data is collected on the following variables:

Effort data

- Date
- Vessel registration number
- Vessel type
- Gear type, number and size
- Number of crew
- Arrival time
- Time spent fishing

Catch data

- Weight by species (groupings)
- Number by species (groupings)

Financial data

- Value of catch (beach price) by species (groupings)

Field data is recorded into booklets (Form 21A) by the Beach Recorders and then transcribed onto Form 21B and passed to the DFO. The DFO passes the filled Form 21B to the FD for processing.

Although the system is nation-wide covering marine and inland fisheries the FAO (FAO, 2000) state that “current fisheries data collection has ceased in most districts”. The last annual report was produced in 1997 (FD, 1997). While this assessment is a little harsh, because data is still collected – the quality of the data is very weak, rarely reported through any channels and has not been collated into a national report since 1997 – so in effect there is no functioning data collection system.

#### *ANALYSIS, STORAGE, REPORTING AND USE*

The catch assessment survey/landing site work that is actually collected in this system is not collated at the national level (no resources) so no national statistical report has been produced since 1997. The Frame Survey undertaken in 2001/2 was analysed using an ACCESS database and been written up into a report (FD, 2002b).

### *STRENGTHS AND WEAKNESSES*

The principal reasons for the collapse of the system is the decentralisation process and associated retrenchment (FAO, 2000b and FD, 2003b) described above which has broken the links between the Beach Recorders, districts and the FD. There is also a resources issue with the FD being understaffed in many senses, and increasing demands made on their time, with limited capacity to be able to manage their responses. The Beach Recorders are now supervised by under-resourced DFO working within a structure that does not value (and consequently does not use, hence does not collect) the resources spent on collecting fisheries statistics (FD, 2003b). At the time of the decentralisation many of the Beach Recorders were retrenched, or replaced and their has been no training or awareness raising for the staff on the importance of fisheries statistics. Other reasons include the fact that the system was based on the data being entered at Regional level to the TANFIS programme based in DOS, and most users no longer have skills in such programmes even if the hardware is appropriate (FD, 2003b).

In summary the weaknesses of the system can be shown as:

- Resource intensive
- Extensive transcription from one form to another
- Is now largely outdated in terms of institutional structures with the decentralisation process
- With the increasing adoption of the co-management approach and the new roles being allocated to the FD, the Head Office does not have the manpower nor incentive to manage such a system.
- The statistics produced in the past are believed to under-represent the actual catch at many of the landing stations (Horrill, 2001) by as much as 25%.
- The FD is overwhelmed with other tasks related to statistics and without re-structure cannot hope to collate and report the results.
- Inaccurate data collection in the field because of low staff morale, supervision almost non-existent and the link to revenue collection

Perhaps a strength of the system and something that could be built on in the future is the network of Beach Recorders which exists (on paper) in the country although they are currently un-motivated, unsupported, unvalued etc.

### *POTENTIAL IMPROVEMENTS*

The failure of the past system is recognised by a number of stakeholders not least of which is the Fisheries Division itself (FD, 2003b). Rather than attempt to “revive the functioning system prior to 1996” or “re-centralise the collection of fishery data and statistics” (FAO, 2000b) the RFIS project attempted to re-orient and realign the fisheries statistics system to take account of the changing roles, and the changes in the macro policy environment outlined in elsewhere (decentralisation, poverty reduction, responsible fisheries, co-management). Some of the improvements (or new systems) which were being investigated by the FD and other stakeholders, with assistance from the RFIS-SADC project are shown below:

- Using a stratified sampling system in an attempt to reduce the number of days on which sampling was required and target the sampling so that representative samples of each gear/vessel combination were monitored for that particular landing site.
- Reducing the number of landing sites where records were taken
- Remove references to value (previously required as a basis for levy)
- Redesign of the forms to reduce transcription errors and reflect changes in sampling methodology above
- Data to be entered onto a Database in ACCESS 2000 which would allow the district to produce a report of estimated catches for the landing site and district.
- The database would then allow files to be created for submission to the FD
- The district level database matched by a national level database ready to accept the files from the district and collate on a national level thereby reducing the FD resources in collation and reporting.



- Combination/integration of the system with the nationwide Poverty Monitoring System, to which the districts are committed, in an effort to increase the incentives for the District organisations to support and apply resources to the data collection activity.

## **8.2 Existing data collection systems: Tanga project supported system**

The TCZCDP identified three priorities for monitoring (TCZCDP, 2002: TCZCDP, 2003) as being Fish Catch Monitoring, Reef Health Monitoring and Socio-economic monitoring and these are discussed in more detail below. Other monitoring activities are carried out with other stakeholders such as: Seaweed Monitoring with Smallholder Empowerment & Economic Growth through Agribusiness & Association Development (SEEGAAD) and Project and Mangrove Monitoring with the Mangrove Management Programme (MMP).

### **8.2.1 Fish Catch Monitoring**

#### *METHOD AND OBJECTIVES*

The system was started in 2002 and catch recording is undertaken in selected villages in Tanga (4 villages – Deepsea, Sahare/Kasera, Machui and Mwarongo ), Pangani (3 villages – Stahabu, Kipombwe and Mkwaja) and Muheza (3 villages – Moa and Kijiru, Kigombe, Kichalikani). The villages were selected by the Village Government, through the VeMC, and are not aligned with the Landing Sites as identified by the FD, but in some cases they are the same village. Two Data Collectors are selected from each identified village and these individuals were also selected through the Village Government. The Data Collectors are given one week of training at the start and it is intended they will receive refresher courses as the monitoring continues. The Data Collectors are expected to work 5 days in each month, and are currently paid about \$2/mth by the Programme although it is expected that the payment will become the responsibility of the District Council in future. The Data Collectors are supervised by the Fishery Officer in the District Council with responsibility for data collection (where there is one) and supported by the PSU staff.

The sampling system was designed to meet three main objectives

- To assist the District Council in the establishment of a permit system to replace the cumbersome efforts of the fish levy system in line with management plan policies
- Enable a comparison of the actual catch at present with catch figures from other sources such as the national catch monitoring system
- Provide information on the resource status itself as to whether improving or not – as outlined in the management plans, and feed into the reviews of the management plans as appropriate.

The sampling strategy was developed using the government Frame Survey data (FD, 2002b) to identify how many of the boat/gear combinations are stationed in that particular village and then a strategy is identified to ensure that sufficient number of each boat/gear combination is sampled (on the five days) to obtain a 90% coverage/accuracy. The Data Collector identifies the boat/gear unit to be recorded before the vessel lands in order to ensure the nil catch boat/gear combinations are recorded. The forms record the number and weight of fish landed (for selected species) and where possible length measurements are taken also. There is a second form which aims to identify bias so that if certain boat/gear combinations do not fish on the day for sampling then the reasons are noted.

#### *ANALYSIS, STORAGE, REPORTING AND USE*

The data from the forms are entered onto a database (the length/frequency data is not at present put into the database) built in ACCESS and analysed to produce, among other things, summaries for the districts based on the sampled fish catches and scaled up by the Frame Survey data estimating the total catch (weight and value) on the district coast. At present the Programme Support Unit houses the database, conducts the analysis and produces the district level reports submitted to the District Councils but in the long term this function will be handed over to the appropriate statutory authority. The decision as to when the database will be used directly in the local authority depends on how quickly capacity can be built to operate the system safely in these offices. It is planned that the system will be housed in the Regional Offices.

The District has the responsibility of ensuring that the results generated from the system are used in the decision-making regarding the permit system and also to ensure that the results are fed into the management plan reviews.

#### *STRENGTHS AND WEAKNESSES*

The system still depends on a central office (PSU in the short term, or the Regional/District Office in the long term) to receive the completed forms, process them and “feedback” the data to the relevant decision-making group (in this case the Village Government and VeMC). In this sense it is extractive and does not necessarily allow the community to collect, analyse and use the data collected. On the other hand the systems have been put in place to ensure the link to the community is strong (local data collectors, VeMC receives the information and feeds into the management plan process). The initial impetus for the catch monitoring system came from the communities (to measure the success or otherwise of the decision-making with regards to reef closures etc), the districts (to assist in the establishment of a permit system) and the Programme (to provide data to measure the effect of the programme efforts).

#### *POTENTIAL IMPROVEMENTS*

The fish catch monitoring system was initially started in 2002 and has since then been improved, fine-tuned and adapted so that by early 2004 the final pilot is ready for replication. The system was reviewed in 2003 and some changes were made in the villages selected for monitoring.

### **8.2.2 Reef Health Monitoring Systems**

#### *METHOD AND OBJECTIVES*

The Village Government, through the VeMC, selected the Reef Monitors to undertake the work and they come from the local area of the monitoring site. Two reefs were selected in each of the six Management Areas in the Programme area, one of the reefs was closed (through the management plans) and one of the reefs was unclosed. The survey are carried out twice a year. Benthic organisms and coral cover were recorded along transects of 10 metres. Fish counts were undertaken along 10 transects each of 50m by 5m.

#### *ANALYSIS, STORAGE, REPORTING AND USE*

The data from these forms are entered onto the Reef Health Database, housed in the PSU, and then analysed. The results from each survey are passed immediately back to the Districts, but the Districts pass the information to the Village Government at the time of the management plan review. A Reef Health Report was prepared following the March/April and September/October in 2003 and used by the District Councils to feed back to the VeMCs in readiness for the Management Plan reviews.

#### *STRENGTHS AND WEAKNESSES*

As above – although the systems are in place to ensure feedback of the results to the Village level decision-makers, the system is extractive in that it is reliant on the central unit to conduct analysis and produce summaries usable by the decision-makers. Is a strength in that the accuracy and validity of the results is almost assured, but possibly a weakness in the degree of dependency and the amount of analysis undertaken in the village level itself.

#### *POTENTIAL IMPROVEMENTS*

Although the system has been in operation for nine years there were some changes made recently to reduce the workload and ensure accuracy of the results to international standards. Further review of the methods were undertaken in December 2003 and as a result a number of the systems were changed: the number of fish count transects were increased (from 2 to 10), benthos, invertebrates and fish surveys were combined in the same transects, some additional indicator fish species were added to the lists. The review of the system was successful in reducing the time taken for the reef monitoring – a concern as the Programme is increasingly concerned about financial sustainability as phase out approaches.

### **8.2.3 Socio-economic monitoring (pilot) project (SEMP)**

#### *METHOD AND OBJECTIVES*

The socio-economic monitoring work in the Tanga Programme area only started the implementation in mid – 2003. The Tanga site was included in an east Africa initiative – the Socio-Economic

Monitoring [pilot] Programme (SEMPP) with other sites in southern Tanzania (Mtwara) and also two sites on the Kenyan coast. The overall effort is being co-ordinated by CORDIO East Africa.

The Socio Economic Monitoring Pilot Project (SEMPP) was set up to test the use of socio-economic monitoring to improve coastal and marine resource management. The main objectives are to:

- Develop a portfolio of indicators and methods to carry out socio-economic monitoring in east Africa
- Provide a forum to assess the monitoring process
- Establish data reporting at the regional level
- Develop materials to disseminate information

At this stage the monitoring focuses on three variables:

1. Occupational structure – reflects what people do for a living, it describes the livelihood strategies of the communities, indication of the level of dependence of communities on coastal and marine resources. Method: interviews.
2. Resource use patterns – relates the way in which people use coastal resources such as: what activities are being carried out? How many people and who doing it? What fishing methods are used and seasonal variation? Where are these activities done? What species are targeted? How much is harvested? Method: Focus Groups.
3. Relations, conflicts and attitudes – looks at the relationships between the different groups with a stake in the same management area. Method: Focus Groups.

The SEM co-ordinator for the entire area is the District Co-ordinator for Muheza and he works in close collaboration with other district co-ordinators and stakeholders as necessary. Currently 6 villages are covered by the programme – one in each Management Area. Each of the villages has a contact point (representative) for the monitoring effort. The first round of monitoring was carried out in mid-2003 with follow up in December 2003. At this stage a broad overview was conducted and initial activities related to the three variables above. A further round of training in research, processing and analysis is scheduled for 2004.

#### *ANALYSIS, STORAGE, REPORTING AND USE*

At present the data is not entered into a database, although the District co-ordinator for SEM and the Management Area Co-ordinator for SEM have the task of entering the data. The proposal is that the data will be used in the “soon-to-be-developed” Socio-Economic Database being prepared in Kenya which will cover the analysis of the information from the participating sites.

#### *STRENGTHS AND WEAKNESSES*

Too early to say – is a pilot project.

#### *POTENTIAL IMPROVEMENTS*

Too early to identify.

### **8.3 Attitudes to participatory data collection systems**

The TCZCDP has worked hard at all levels to ensure that communities are involved in the data collections systems established for the management of the fisheries and reefs, and many of these efforts are described above along with an indication of the level of community involvement.

The TCZCDP explains that the communities almost always express an interest to be involved, and usually have a positive attitude but, the reasons for this interest should not necessarily be naively seen as a heartfelt desire to improve the management of the fisheries, although in some cases it will be. Payment is usually made to the main participants based on the concept that they have been unable to conduct their usual activities to provide food (i.e. fishing) and hence are deserving of compensation. In addition training and workshops are provided to the collaborators.

The TCZCDP has been careful to follow the correct channels in identifying candidates to become data collectors and consequently the VeMC suggest candidates to the Village Government who then has the power to veto or support that individual. The degree of openness and competition in this process is unclear.

The amount of training and supervision necessary from the District and PSU levels should not be underestimated when trying to ensure community involvement and responsibility for data collection. Problems identified earlier, even when the Data Collectors are government employed may be able to creep in unless supervision and even punishments for poor performers are followed through.

#### **8.4 Attitudes of communities to formal information collection systems**

All the routine monitoring activities in data collection supported by the TCZCDP appear to have a degree of community participation, with external researchers providing support particularly in non-routine activities. So perhaps the formal system in this sense is the system implemented by the Fisheries Division which has been adequately described earlier. In terms of the attitudes of the communities to this system there seems to be very little concern and even knowledge of the system and as far as they are concerned the District salaried Data Collectors are collecting information (and money) for the purpose of generating revenue through the landing levy.

The District level staff, who are still supposed to be collecting data and submitting it to the Fisheries Division (FD 2003b) see almost no value in the current system, and although they still submit some records, the level of motivation is very low. The District staff are more concerned with the local systems (as supported by the TCZCDP) but whether that is because they see the system as more useful or rather that it is more explicitly part of their job function, or for other reasons is unclear.

## **9. POTENTIALLY APPROPRIATE DATA SHARING MECHANISMS INVOLVING THE TANGA AREA.**

The collection and sharing of data and information has been a central component of the TCZCDP since the inception. Some of the success can be gauged by the fact that in some cases people comment that the Tanga initiative is more well known outside of Tanzania than inside. This of course also highlights a difficulty of the Tanga Region in having the experience from their initiatives scaled-up at the national level and the lessons being transferred to other co-managed fisheries within Tanzania. Many of the initiatives (existing and planned) in terms of the information sharing have been described in earlier sections.

The creation of a Central Co-ordinating Committee for each of the Management Areas under the Program is seen as a critical mechanism for information sharing and exchange. The CCC brings together representatives from the different villages (and in some cases districts) and provides a valuable point for intervention or inputting new information into the local systems. The CCC is not just a “talking shop” but has a number of heavy responsibilities especially in terms of the consolidation of the management plans from the various villages (see earlier sections).

Village (exchange) visits have been regularly used as a way of raising awareness but also of bringing in new ideas to what may otherwise have remained a closed system. Representatives have been exposed to activities in neighbouring villages within a structure and with a focus that would not necessarily have been the framework. Similarly representatives have been to other parts of coastal Tanzania, and even to activities across the border in neighbouring Kenya.

One identified gap for the programme and which they will be tackling in the present phase, is the upward link to the Fisheries Division. Mechanisms for this link, including the use of the Tanzania Coastal Management Partnership (TCMP) as a co-ordinating unit for the coastal initiatives has so far not brought too much success. As stressed earlier the successful links will be two-way and this requires more interest from the Fisheries Division, in terms of their demands from Tanga and their willingness to use the information supplied. An opportunity to develop this link lies in the macro-framework as described in earlier sections. As the Fisheries Division is developing a role in the national Poverty Monitoring System to support the implementation of the PRSP, there could be an opportunity for some fisheries variables to be included, thereby providing an important incentive to the district councils to collect such information and report it to the higher levels. In such a way the state of the fisheries resource (or the condition of the people dependent on it) could find its way into the higher level decision-making processes via the MRALG or the Vice-President’s Office (poverty Eradication Division) and eventually put the political or peer pressure on the FD to be involved at the district level in coastal fisheries.

In terms of external data requirements the outputs of the workshop in earlier tables stress the need for a range of information to be supplied to the communities.

## **10. EXISTING OR PROPOSED ACTIVITIES TO DEVELOP DATA COLLECTION AND INFORMATION SYSTEMS IN THE TANGA AREA**

### **10.1 Existing**

The nationwide Poverty Monitoring System (PMS) is currently being reviewed along with the PRSP itself and it is likely the new PMS will be in place in November 2004.

### **10.2 Planned**

The MNRT (including the FD) are in the formal planning stages of the Marine and Coastal Environment Management project (MACEMP) in collaboration with the World Bank and other development agencies. The intervention is expected to start in mid 2005 and could last between 7 and 10 years at a total costs of \$75M. The project is still in the planning stages but at present the components are:

Component 1 – Sound management of the EEZ

Component 2 – Marine Protected Area network (development/expansion of)

Component 3 – Coastal development planning and co-management capacity building

Component 4 – Private sector capacity building

Component 5 – Science for planning and management

All of these components contain a sizeable information input aiming to improve capacity, review and implement effective systems for the fisheries data collection, collation and reporting – at EEZ and coastal scales. Sites and extent of the intervention on the coast are unclear as yet.

## 11. CONCLUDING REMARKS

This report, and the research leading to its preparation, has tried to review the information systems at the district/regional level associated with the TCZCDP in the context of the national policy and legislative environment as related to fisheries. Although the community is identified as the lowest level (level 1) for decision making, this report has focused on the Program level interventions which is higher up the scale (with the district authorities).

The text below outlines some preliminary concluding thoughts from the main report and also tries to highlight a number of points which maybe of particular relevance in the development of guidelines for data and information collection systems in support of collaborative management of fisheries.

### 11.1 National level

Can see from the review of the national, macro policy framework that poverty alleviation, financial restrictions, and decentralisation of decision-making are principal themes running through all levels. In fisheries, the need for continued (and perhaps increased) revenues from the fisheries sector to the national Treasury is perhaps a priority objective in the FD, although sustainable development is frequently mentioned.

- The role of the Fisheries Division in local coastal fisheries management initiatives is still evolving and the FD is only one of a number of players trying to establish their role and re-align themselves with the devolved power structures. Given the currently limited resources of the FD and the expectations that the FD will be able to contribute more revenues to the Treasury, combined with the earning power of the inland fisheries and the potential of a well-managed EEZ fishery, it is unlikely that there will be a substantial increase in resources for the Department in the near future.
- The FD is increasingly being asked to justify the current resources allocated to their work, in terms of the impact on poverty alleviation, and specifically in terms of the activities and objectives set out in the Poverty Reduction Strategy Paper. With the current information systems (even though they are no longer properly functioning) set up by the FD they are unable to show any contribution, of their sector, to such policy related targets (fish catch and value improvements do not necessarily equate with broad social benefits or poverty alleviation). The FD can show the financial contribution to the Treasury from the other sub-sectors particularly relating to export levies (Lake Victoria Nile perch fishery) and licence fees (the EEZ fishery). One question is should the FD actually be very interested in allocating resources to establish a fisheries information system (recording catch and effort) at the landing sites or would its purpose (role as policy maker) be better met by collaborating with other agencies to set up a system that allowed measurement of other variables? With most fisheries decision-making made at a lower level this is where the responsibility lies for detailed catch and effort collection systems.
- Is there a core of information (variables and accuracy etc) which is required at the local level for decision-making (number of fishers and vessels and gear) which in a summarised form would meet many of the requirements at the national level also?

### 11.2 Local level

The Tanga Programme working in close collaboration with the District and Regional levels of government, and the villages and lower levels, for over 9 years, has enabled the development of a working collaborative fisheries management system along the Tanga coast. A number of data and information collection systems have been developed to accompany this process, and measure success in achieving objectives.

- Is very difficult to isolate whether or not the current data and information collection systems are actually a response to an identified information need expressed by involved communities or whether they are measuring and satisfying the information needs of the Programme and higher levels of authority (e.g. the districts in terms of the revenue generating potential of the fisheries) and then presented to the communities to participate in. The survey methods

employed (for fish catch monitoring, reef health and socio-economic monitoring) are clearly externally led but it is unclear how much fine-tuning was made to the methods or approaches as a result of local inputs, or community consultations. The SEMPP has perhaps more room for a process approach as the methodology is less rigid and established, but there are still requirements in terms of accuracy and methodology.

- The results of various surveys are fed back to the users/villagers during the periodic reviews of the CMAPs (perhaps every two years or so) and the less structured feedback is the responsibility of the District Co-ordinator, the district coordinator for that survey itself – and is done informally during the various meetings held of the key stakeholders, and through the submission of the various monthly, quarterly and annual reports. The rationale for the two year review and use of the data at that stage is that it would take such a time-period for trends to be clear in the system.
- Perhaps we are being over-ambitious if we are trying to determine, rationalise and document community-systems of information collection, flow and use. An appropriate process to adopt at the village level (if this is where information is used and can be targeted to change behaviour rather than improve decision-making only in the formal environment) would be to provide an enabling environment, and appropriate institutional set-up (local groups, associations such as the VeMC) to ensure that information is exchanged, and that the ability to exchange information at the local informal level is not lost – as many societies shift to individualistic types. An additional component would then be to ensure that officials, government staff, extension workers, community organisers are part of the local information exchange systems and can inject external knowledge (where necessary or useful) and similarly take issues of importance from the local level to the next level for action (if the local level is not integrated already into the next level).
- The data collection systems set up some time ago seem to reflect the programme focus on nature conservation, in line with the source of the technical assistance, but perhaps as a result of the changing macro environment focus, there have been changes and additions for example in the establishment of the SEMPP.
- Undoubtedly – collaborative systems are trying to give users a voice in the management of fisheries – and often this involves the formal use of data and information which may not have been part of the usual decision-making processes before (were based on other systems – not democratic and transparent) – so institutionalising the process of data collection and use is just as important as the actual data that is collected and used (depending on the objectives of management) – but many collaborative management systems aim at empowerment as one of the main reasons (empowerment in turn leads the removal of a constraint which is one cause of poverty) – so if empowerment is one of the goals – then the process is very important. Maybe the actual data and information is important to donors, sponsors, even higher level of government – but at the village level, start with the process and then worry about what data and information is flowing through the system?
- Is very little involvement of the villagers themselves in the processing and analysis of the results in Tanga but efforts are focused on feedback. If feedback is important then this implies that the research itself is extractive (rather than community-based learning) and this is unlikely to lead to the sort of empowerment required for poverty alleviation.
- The Management Plan Review Process includes the use of the results from the surveys – and the participatory nature of this process perhaps has ample space to include discussion and processing of results.

### **11.3 Process**

In the conduct of this research – a few thoughts on the process of developing information and data collection systems as inputs for the workshop

- Often we find that even though the role is clear – the particular institution is not completing the task for many reasons (e.g. finances) not just because they do not have access to the appropriate information.
- The difficulties of clarifying the roles and responsibilities of various stakeholders in a collaborative management system (as a basis for identifying information needs) should not be underestimated. Many of the roles and responsibilities in the systems are still evolving – some



enshrined in law whilst others are not – some done by project supported structures and others not. It is often in the changing roles and responsibilities within a co-management system when the necessary changes in power relationships are enshrined so the issue can often have strong political implications. There is ample room for misunderstandings and suspicion in the clarification of this issue. Even where the external funded project has set itself within the statutory structures, they often establish additional groups or structures to meet their purposes. To clarify and differentiate between the roles of the different stakeholders of the groups involved in collaborative fisheries management is often one of the challenging tasks of collaborative fisheries management. In the Guidelines if we believe that roles and responsibilities is important in clarifying the information needs then we should ensure that there is some guidance to local managers as to how they might go about this task.

- The attempt in this research to clarify the roles and responsibilities in a short visit was a good start but to be complete and to get into the actual details of the information needs and processes requires follow-up. The workshop perhaps clarified the group roles, but more processing of the results are necessary (in smaller stakeholder groups) for detailed and comprehensive outputs.
- Found the diagrams of decision-making processes (Figures 7 and 8) a useful tool in discussion and to understand the processes and the actual levels of influence and roles of the different groups.
- As part of the research tried to develop a matrix with fisheries management functions/tasks along the top and then key stakeholders/decision-makers down the side (see Tables 8 onwards) but struggled to get agreement on a comprehensive list of ALL fishery management tasks – could be something to look at in the workshop.
- The research successfully involved the national FD, which is important to get the reality of the situation and possible support at that level.

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