

THE MASTER PLAN STUDY ON FISHERIES DEVELOPMENT IN THE UNITED REPUBLIC OF TANZANIA

MAIN REPORT

JUNE 2002

Japan International Cooperation Agency

NO. 2

Ministry of Natural Resources and Tourism  
Fisheries Division  
The United Republic of Tanzania

# THE MASTER PLAN STUDY ON FISHERIES DEVELOPMENT IN THE UNITED REPUBLIC OF TANZANIA

## MAIN REPORT

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# **THE MASTER PLAN STUDY ON FISHERIES DEVELOPMENT IN THE UNITED REPUBLIC OF TANZANIA**

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**JUNE 2002**

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## Composition of Final Report

Final Report consists of 3 volumes listed below:

Summary

Main Report

Data Book

## Preface

In response to the request from the Government of the United Republic of Tanzania, the Government of Japan decided to conduct the Study on the Fisheries Development Master Plan and entrusted the study to Japan International Cooperation Agency (JICA).

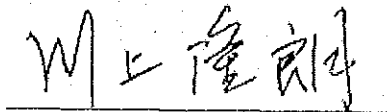
JICA sent to the United Republic of Tanzania the study team headed by Mr. Sachio Yamamoto, System Science Consultants inc., four (4) times between January 2001 and April 2002.

The team held discussions with the officials concerned of the Government of the United Republic of Tanzania, and conducted field survey and investigation in the study area. After the team returned to Japan, further studies were made and this report was prepared.

I do hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the United Republic of Tanzania for their close cooperation extended to the team.

June 2002

A handwritten signature in black ink, consisting of stylized Japanese characters, is written over a horizontal line.

Takao KAWAKAMI  
The President of  
Japan International Cooperation Agency

June 2002

Mr. Takao KAWAKAMI  
The President of  
Japan International Cooperation Agency  
Tokyo, JAPAN

Letter of Transmittal

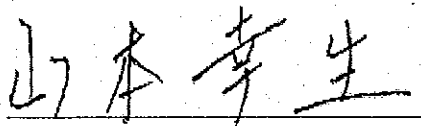
Dear Sir,

We are pleased to submit to you the report for "The Master Plan Study on Fisheries Development in the United Republic of Tanzania". This report presents the result of all work performed in both Tanzania and Japan over 18 month period from January 2001 to June 2002.

Tanzania is endowed with rich fisheries resources, including coastline of 800km, Lake Victoria, Lake Tanganyika and Lake Nyasa. The fisheries sector has large potential to contribute to the life of the people. Under the condition of the country has been applied "Heavily Indebted Poor Country", the Tanzanian Government tackle on the poverty reduction beyond the sector. This Master Plan provided fisheries development strategies and fifteen (15) priority programmes, with consideration how the sector plays the role to the national development policy. Implementation of the programme will contribute to reduce the poverty through the improvement of the food security, marine/lake environment, fish export and livelihood of fisheries community.

We wish to express our deep appreciation and sincere gratitude to the officials concerned of your Agency, the Ministry of Foreign Affairs, and the Ministry of Agriculture, Forestry and Fisheries of the Government of Japan for the courtesies and cooperation kindly extended to our team. We additionally inform you that we had sincere cooperation from the Ministry of Natural Resources and Tourism of the Government of Tanzania, especially that our counterparts of the Fisheries Division participated the field study and planning, very actively. We also express our hearty gratitude to the officials concerned from Tanzanian Office of JICA, the Embassy of Japan in Tanzania for the close cooperation and various form of assistance extended to our team during field investigations and studies in Tanzania.

Very truly yours,

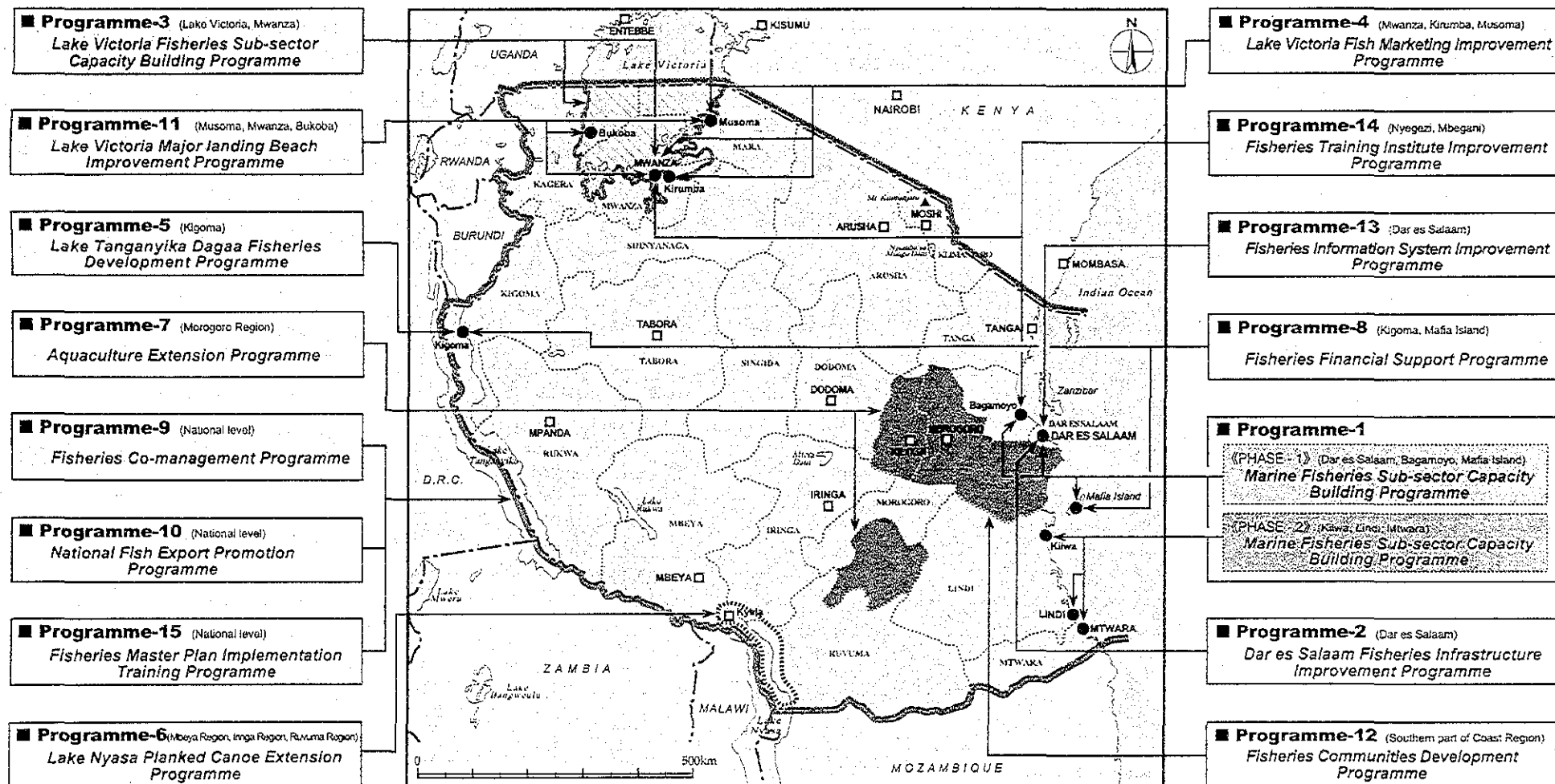


Sachio YAMAMOTO

Project Manager of the Master Plan Study on Fisheries Development in the United Republic of Tanzania

System Science Consultants inc., in consortium with  
Overseas Agro-fisheries Consultants co. Ltd.





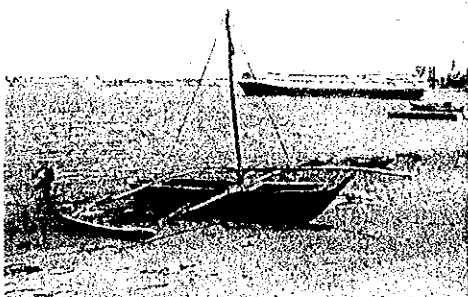
Location of priority programmes



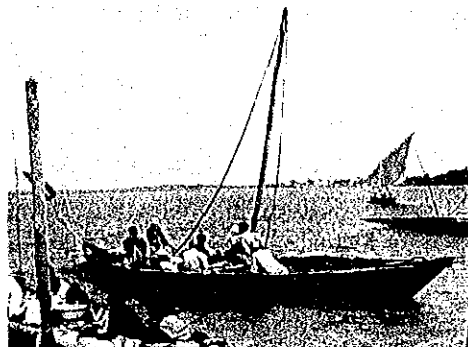


## Fishing Boats and Gears

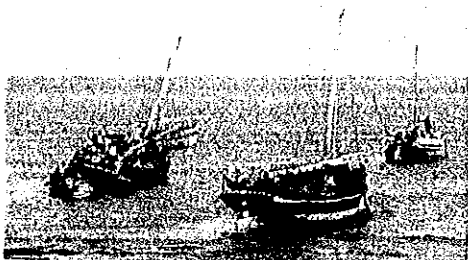
### Marine



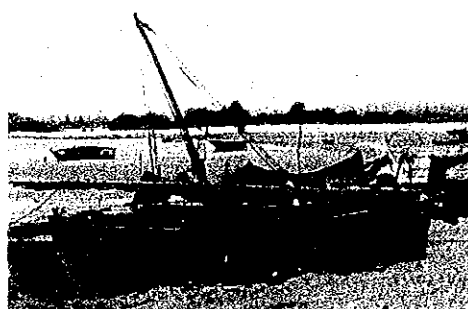
Fishing canoe with outriggers and mast.



Sailing Dau, length normally about 6 to 10 m.

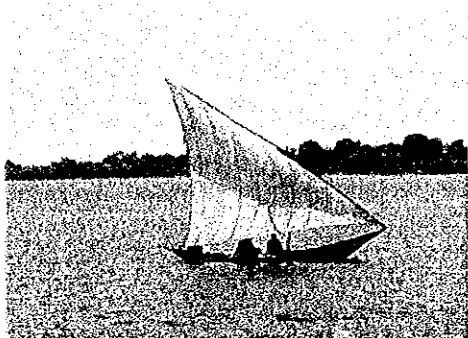


Mashua fishing boats with sails at Mafia Island.

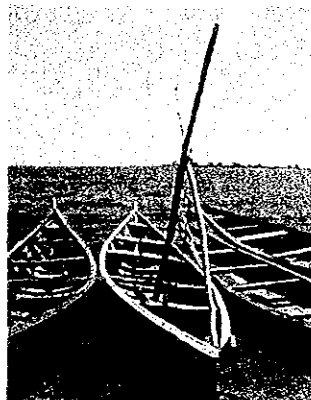


Mashua fishing boats at Kunduchi.

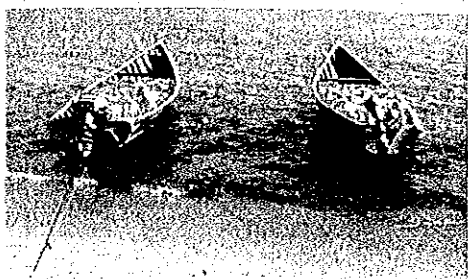
### Lake Victoria



Sailing canoe on Lake Victoria fishing for Tilapia.



5 to 10 of these small canoes are normally towed by a mother boat to go fishing. They can be fitted with sail or peddle.

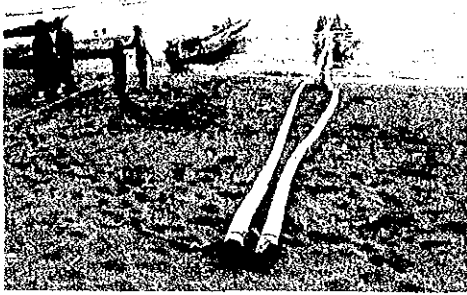


Nile perch fishing boats fitted with 25 to 40HP outboard engine.

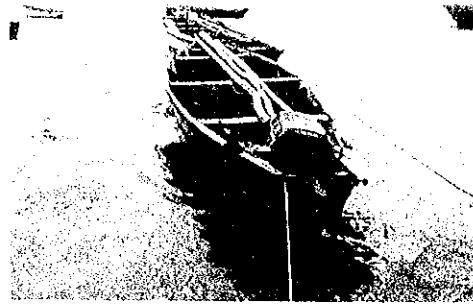


Fish carrier boats at Nkome.

## Lake Tanganyika



Dagaa fishing boats with poles to support lift nets.



Dagaa fishing boats with outboard engine.



Dagaa fishing boats seen on Lake Tanganyika.



Dagaa fishing boats landing at Katonga.

## Lake Nyasa



Dugout canoes used on Lake Nyasa.



Dugout canoes used on Lake Nyasa.

## Fishing Gears

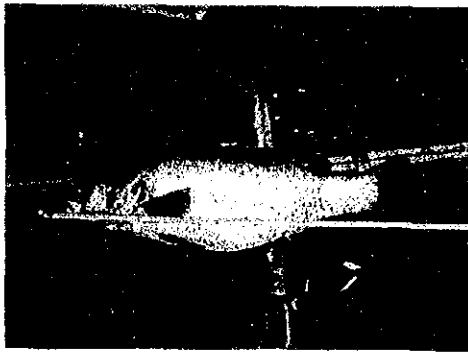


Handline wound on a plastic bottle container.

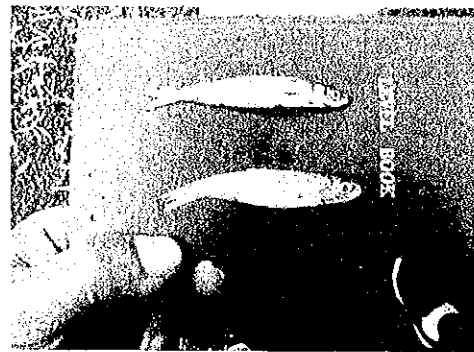


Pressurized kerosene lamps used for Dagaa fishing.

## Major Economical Important Fish Species in Tanzania



Nile perch (*Lates niloticus*)



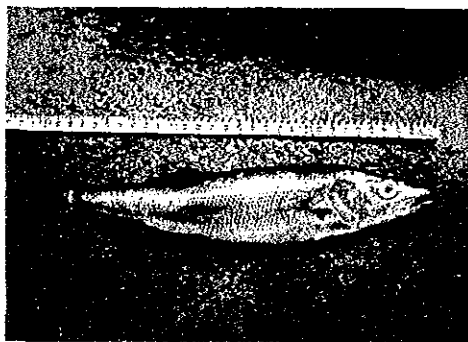
Dagaa from Lake Tanganyika (*S. tanganyicae*) called "Dagaa Kigoma"



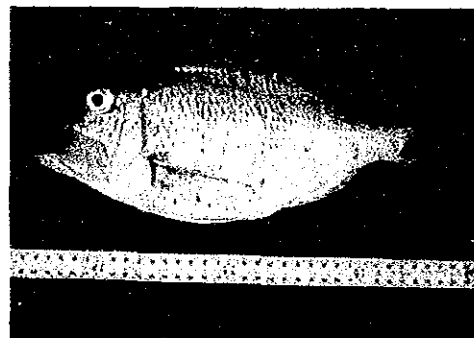
Dagaa from Lake Victoria (*Rastineobola argentea*) called "Dagaa Mwanza"



Tilapia in Lake Victoria (*Oreochromis niloticus*)



Migebuka (*Luciolates stappersii*) from Lake Tanganyika.



Changu (*Lutjanidae*). Normally about Tsh. 1,500 to 2,000/kg at Banda Beach Market.



Grouper (*Epinephelus*), Marine



Mbasa (*Barilius microlepis*) and Labeo, Lake Nyasa

## Workshops



Participants (total about 60 people) at the National level workshop held at Morogoro from 30th October to 1st November.



Group discussion on the second day of the National level workshop. Participants were divided into 4 groups.



Technology transfer seminar held at Dar es Salaam on 18th and 19th April 2002.



Mr. Mtani, fisheries officer from Mafia island presents outcomes of group discussion on Master Plan at Technology transfer seminar.



Workshop held in 25th June 2001 for government fisheries officers.



Workshop held in February 2001 at Dar es Salaam to discuss the operation of the new fish market at Banda Beach.



Workshop held on August 2001 in Dar es Salaam to discuss the new fish market at Dar es Salaam and the administration management method.



Workshop held on April 2001 in Tanga to discuss fishers' problems and constraints.

## Summary

### 1. INTRODUCTION

#### 1.1 Background of the Master Plan Study

In 1997, the Tanzanian Government established the "National Fisheries Sector Policy and Strategy Statement 1997" as a basic policy for Fisheries Development. There, 18 policy statements and development issues are given. It is a national issue to promote sustainable development in fisheries, improve livelihood in fisheries villages, and secure stable food supply in future. On the other hand, through enforcement of HIPC (Heavily Indebted Poor Countries)<sup>1</sup> initiative in Tanzania since the year 2000, the national target has been focused on poverty alleviation. With poverty alleviation as a national development goal, cross-sectoral strategies have been enforced. Additionally, decentralisation promotes fisheries resource development and fisheries management by local government. This means fisheries administration in terms of participation of all stakeholders who have responsibilities on the use of fish resources, is strongly required today. This Master Plan Study on fisheries development, considering these situations, prepared an Action Plan for realization of the national framework and fisheries policy for further fisheries development.

This document is prepared as a final report through analysing data/ information, which have been obtained from existing publications, field interview surveys, and workshops between January and December 2001. The report introduces development strategies and 15 priority programmes for their implementation.

#### 1.2 Overall Objectives of the Master Plan Study and the Beneficiaries

This Master Plan aims at operationalising the National Fisheries Sector Policy and Strategy Statement (1998) and the overall objectives of are to develop a feasible integrated development strategy that will stimulate sustainable economic growth of the sector, in terms of food security, fishery environment and economic/social welfare of the fisheries communities.

The beneficiaries of this Master plan will be artisanal fisheries groups, such as fishers, small-scale traders, fish processors and their communities. The Fisheries staffs of the central and local governments, other related service institutions and NGOs are also included as beneficiaries.

This Master Plan aims to provide plans for 10 years starting from the year 2002.

This Master Plan is the national plan targeting the whole area of the United Republic of Tanzania except Zanzibar.

#### 1.3 Survey Methods

Surveys for this project were implemented in two phases. Phase 1 survey was carried out from 8th January to 11th September 2001. Analysis on present conditions and basic development concepts are summarised as the main output in the interim report. Phase 2 survey has been implemented from 15th October 2001 to 10th June 2002 and main focus is on the planning of priority programmes based on basic development concepts.

It goes without saying that consistency between National development policy and Fisheries Development Policy shall be highly respected in the planning process. Planning of this Master Plan

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<sup>1</sup> HIPC are countries that have GNP per capita below US\$ 659, and total financial debt exceeding 2.2 times the annual export or 80% of GNP. HIPC initiative is a plan for debt relief of HIPC that has been agreed among official creditors. HIPC are obligated to form PRSP, and through this procedure, 100% of ODA and 90% of non-ODA debt are to be reduced. Tanzania has completed PRSP by 2001.

takes into consideration the role of the fisheries sector and its contribution to the National Development Policy, because presently, the government requires that all sectors commonly focus on poverty reduction under the Poverty Reduction Strategy Paper (PRSP). The planning process from National Policy to priority fisheries programmes which are presented in this Master Plan is shown in the next page.

## Structure of the Fisheries Development Master Plan

National Policy	Contribution of the Fisheries Sector to the National Development	Issues of Fisheries Sector	Basic Concept	Development Strategy	Priority Programmes
Financial Stability and Rational Investment Focusing on Poverty Reduction	1. Contribution to Food Security and Nutrition	① Stagnant Fish Production, which cannot Meet Population Growth ② Undeveloped Fishers Organization ③ High Post Harvest Loss and Opportunity Loss of the Fresh Fish Trade, which derives Fishers of Better Incomes ④ High Fish Prices and Large Disparities in Prices among the Production Sites	Basic Concept 1: Stable Supply of Fish for Domestic Consumption	1.1 Strengthening Fisheries Cooperatives/ Organizations 1.2 Improvement of Fishing Technologies and Extension 1.3 Reduction of Post Harvest Losses and Promotion of the Fish Utilisation by Shifting from Non-food to Food Purposes 1.4 Reduction of Marketing Costs and Development of Fish Distribution System 1.5 Implementation of Feasibility Survey on Aquaculture and Establishment of a Development Model	1 Marine Fisheries Sub-sector Capacity Building Programme 2 Dar es Salaam Fisheries Infrastructure Improvement Programme 3 Lake Victoria Fisheries Sub-sector Capacity Building Programme 4 Lake Victoria Fish Marketing Improvement Programme 5 Lake Tanganyika Dagaa Fisheries Development Programme 6 Lake Nyasa Planked Canoe Extension Programme 7 Aquaculture Extension Programme 8 Fisheries Financial Support Programme
	2. Contribution to the Protection of the Marine Environment	⑤ Poor Co-management System on Fish Resources	Basic Concept 2: Sustainable Use of Fishery Resources	2.1 Strengthening of Fishers Organizations for Resource Co-management 2.2 Publication of Fisheries Statistics (1997-) and Preparation of Effective Data Processing System 2.3 Implementation of Monitoring on Fisheries Activities and Collection of Biological Information on Catches at Major Landing Sites by Fishers' Group	9 Fisheries Co-management Programme
Poverty Reduction aimed in Development Goals in Each Sector	3. Contribution to Redress the International Trade Balance	⑥ Lack of Diversification on Fish Export Products and Under Developed High Value Added Products	Basic Concept 3: Sustainable Development of Fish Exports	3.1 Implementation of Market Survey on Tanzanian Fish Product 3.2 Strengthening of the Competitiveness of Export Product by Improving Quality Control Capabilities	10 National Fish Export Promotion Programme 11 Lake Victoria Major Landing Beach Improvement Programme
	4. Contribution to the Poverty Reduction through the Fisheries Community Development	⑦ Lack of Technology on Development of Fishing Community by Self-help	Basic Concept 4: Reduction of Poverty and Improvement of the Livelihood in the Fisheries Communities	4.1 Fostering of Fisheries Community Organizations and Improvement of Institutional Capabilities of Fishing Villages 4.2 Mobilization of the Economic Activities of Fishing Villages 4.3 Women's Economic Activities Encouragement 4.4 Social Infrastructure Improvement in Communities	12 Fisheries Communities Development Programme
		⑧ Weak Financial Base of the Local Government for Fisheries Development ⑨ Inefficient Administrative Services	Basic Concept 5: Efficient Administrative Services and Financial Management	5.1 Improvement of Training and Extension Services by Rehabilitation of Fisheries Training Institutes 5.2 Strengthening of Experimental Study Functions and Technological Development at Training Institutions 5.3 Establishment of Fisheries Development Fund 5.4 Multi-sectoral Cooperation Promotion at District Level 5.5 Construction of New Fisheries Division Headquarters Building	13 Fisheries Information System Improvement Programme 14 Fisheries Training Institute Improvement Programme 15 Fisheries Master Plan Implementation Training Programme



## 2 OVERVIEW OF THE FISHERIES SECTOR

### 2.1 General Situation

Tanzania is well endowed with water resources as well as agricultural resources of arable land and also mineral deposit of gold. The country has a coastline of 800 km and narrow continental shelf (mostly 7 to 20 km). Inland resources of fishing include three African Great lakes, with a total of about 54,000 km<sup>2</sup>. Lake Victoria, which is the second largest lake in the world is the predominant water body, covering 68,800 km<sup>2</sup> (35,000 km<sup>2</sup> or 51 % on Tanzanian side) and supplies about half of the fish to the country. The economy has traditionally depended on agriculture and its export. Agriculture sector contributes nearly half of GDP, about 40 percent of export earnings and also provides a livelihood for about 80 percent of the population. It is a common feature that farming is integrated with fisheries in fisheries communities. Fishers are often farmers at the same time, and own 1 to 2 ha of farming land.

The government has made progress in macroeconomic stability since early 90s. The government's objectives under the "Government Development Vision 2025" is to raise GDP growth to 8 percent with the "Poverty Reduction Strategy Paper" targeting a reduction of population under poverty line from 48 percent to 24 percent by 2010. The real growth rate of the Gross Domestic Product (GDP) in 1999 was 4.8 percent, an increase over the 1998 GDP of 4.0 percent. However, population under the poverty line still exceeds half the total population and is still increasing, making poverty alleviation a national issue.

During 1996, the total fish production was 328,813 tons, with over 80 percent coming from the inland water and/or 99 percent from artisanal fisheries sector (Fisheries Division, 1996). The quite high ratio of artisanal fisheries in Tanzania is a consequence of relatively small resources and also government policy. Presently, to protect artisanal fishers, fishing activities of the Nile perch processing plants are prohibited at Lake Victoria, and only 23 prawn trawlers have been granted licenses on the Indian Ocean. There are 102,527 full time fishers and 30,171 traditional boats. Motorization of these small-scale boats is extremely low at 10 percent only. The contribution of the fisheries sector to the GDP in 1999 was 2.9 percent (Economic Survey, 1999).

The statistics on fish resources are not reliable, but the available information indicates an allowable catch of 730,000 tons. During 1980-90, there was a gradual increase in fish production from 150,000 tons to 300,000 tons. However, since 1990, Tanzania's fish production has reached a plateau and major stocks at fishing grounds near fisheries community are fully exploited and further increase has to come from exploitation of outer-sea resources or further fishing grounds. The production peaked at 350,000 tons in 1996 and 1997, but declined to 310,000 tons in 1999 and 320,000 tons in 2000. This recent drop in fish production is largely attributed to the stagnant production levels of inland fisheries. Aquaculture is one of the principal factors to meet future additional demand for fish, but still its production is negligible.

A breakdown of the fish production volume (1990-1996) according to regions shows that 48 percent of the volume was harvested from Lake Victoria, followed by 20 percent at Lake Tanganyika, 15 percent by marine fisheries, and 9 percent at Lake Nyasa. There have been no major changes in this composition in recent years.

Among the species caught, Nile perch (*Lates niloticus*), Dagaa (*Stolothrissa tanganyicae*) Tilapia (*Oreochromis niloticus*) and Migebuga (*Lates mariae*) are dominant. Lake Victoria fisheries have a significant socio-economic role in Tanzania, contributing 159,220 tons (49.2%) to total fisheries production in 1996. The steady production growth since early 1980s was dominated by the Nile perch, the production of which increased sharply during late 80s to early 90s. At present Nile perch accounts for 38 percent of the total Tanzanian fisheries production and 90 percent for fish exports.

Of the total fish production in Tanzania, it is estimated that 63 percent is used in various forms for human consumption, 30 percent for export and 8 percent for animal feed or non-food use. As food fish, there is strong preference for fresh fish and consumed mainly at fish landing area and its neighbouring

towns, the remainder being processed into traditional product by drying, smoking or salting. Small Cyprinide and Clupeid fish "Dagaa" is largely processed into fish-meal used for chicken feed.

## **2.2 Contribution of the Fisheries Sector to National Development**

### **(1) Contribution to Food Security and Nutrition**

At present, Tanzania is a net export country of fishery products. They are one of the potentially self-sufficient food items and fish is a preferred source of animal protein. The per capita fish consumption volume is estimated at 5.9 kg/year and nutritionally, it comprises 32.7 percent of the animal protein consumption of the populace. In contrast to the average value of 16 percent for the entire continent of Africa or 9.4 percent of the animal protein intake of the adjacent country, Kenya, this is a high ratio. Due to cultural reasons and the undeveloped distribution system, fish products fulfil a high ratio of the nutritional demand of the urban and particularly, the coastal regions since fish consumption is limited in the inland areas.

According to PRSP, 43 percent of all children under the age of five in Tanzania are under height, and stunted, of whom 18 percent are severely undernourished. The daily nutritional intake is 1,940 kcal in Tanzania (FAO, 1999), which is greatly below the average for Africa (2,411 kcal). One of the major causes is attributed to the low animal protein intake of the country (average value in Africa 12.3g/day vs. 9.8g/day in Tanzania). Adequate nutritional intake is the basis for sound health; and the improvement or deterioration of fish culture in Tanzania will have a major economic impact on the nation's health care burdens.

Tanzania Food and Nutrition Research Centre has assessed (in 2000) the nutritional value of various food including several fish product, which is calculated as energy and protein purchased at Tsh.100. The finding showed that Dagaa from Lake Victoria is the most cost effective, with highest value of 200 points as a potential energy and protein source. Consequently, increased consumption of Dagaa, which has been recognized as a very economical food source, will contribute greatly to improving the national nutritional intake. Therefore, it is extremely vital for the national economy to resolve issues such as developing a distribution system for Dagaa and other economical fishes, and promoting the consumption of fish in the remote areas.

### **(2) Contribution to the Protection of the Marine Environment**

Sustainable development of the fisheries sector largely depends on the condition of marine environment and its ecosystem. An important role of fisheries sector is to monitor and protect the environment through the implementation of fisheries emphasising resources management.

### **(3) Contribution to Redressing the International Trade Balance**

One of the government's main economic policy goals, as outlined in PRSP, is to achieve macro-economic stability through the improvement of present trade balanced. In 2000, Tanzanian trade balance is still negative with a trade deficit of US\$7 billion (export US\$6.6 billion, vs. import US\$15.4 billion). Tanzanian export is constrained by its structure, which depends on traditional agriculture products. In 1999 the overall sales of traditional export products such as coffee recorded a decline of 8.1 percent or US\$521 million from the previous fiscal year. The government should identify priority in the area of non-traditional product for further export promotion. The export of fish products had averaged a rapid growth of 10 percent since 1990 and had become an important export product comprising 12.3 percent of the total export value in 1998. The total export value in 2000 was US\$75.5 million and it has continued to maintain a large growth rate which has established fisheries as a major export item of the country. The government also earned substantial tax revenue (Royalty) from fish export, with US\$4.6 million in 2001. These are considered to be very important sources for the fisheries policy implementation.

#### (4) Contribution to the Poverty Reduction through Fisheries Community Development

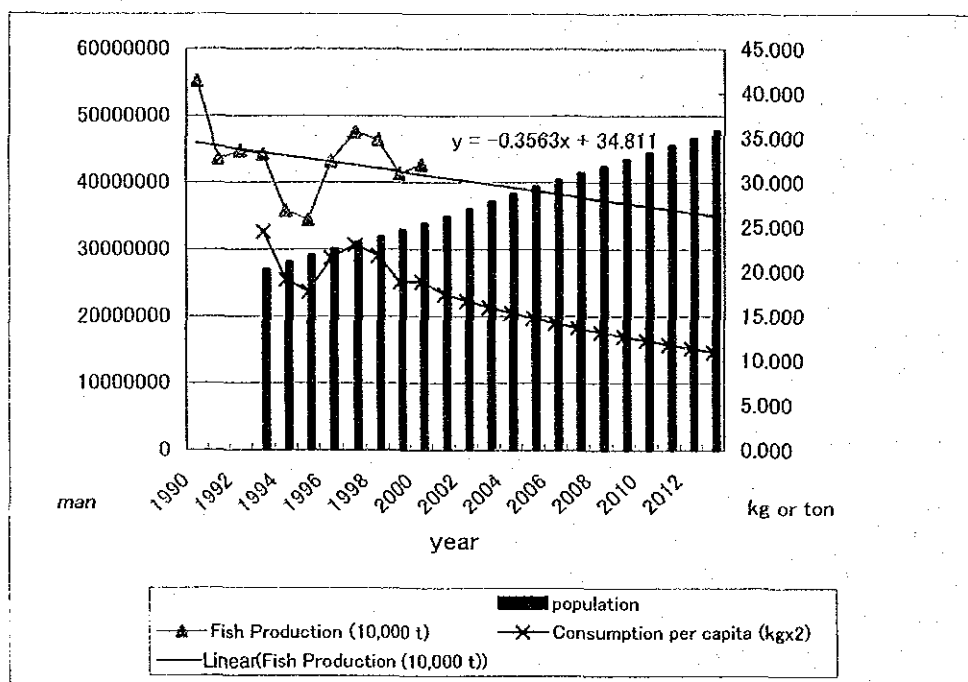
According to the fishery census of 1995 and 1998, there were 968 fish landing sites scattered throughout the country, which signified that a fishing village was located about every 4km along the coastline of major water bodies. Many of these villages were often located in isolated areas where the other industries are limited. Hence the fishery is a valuable source of employment and maintains equilibrium within the country.

### 2.3 Issues of Fisheries Sector

The issues of the sector are summarized into the following 9 categories, according to the fisheries roles above mentioned.

#### (1) Stagnant Fish Production, which cannot Meet Population Growth

Fish production in the last decade in Tanzania has continued to stagnate after peaking in 1996 and 1997 at 350,000 tons, dropping to 310,000 tons in 1999 and 320,000 tons in 2000. In contrast, fish demand has grown in conjunction with a population growth rate of 2.7 percent. Subsequently, the per capita fish consumption volume of 12 g in the 1980s, is surmised to have decreased by 50 percent. The decreased fish supply has seriously impacted the health of the people, and there is concern that this will increase social insurance expenditures.



Sources: Population: UNFPA, Fish production in 1990-1996: Ministry of Natural Resources and Tourism 1990, Fish production after 1996: Estimation by members of Master Plan

#### Estimated Consumption per Capita in 2011

#### (2) Undeveloped Fishers Organization

To increase fish production, the technical knowledge and productivity of the artisanal fishers must be improved. For artisanal fishers who do not have enough capital to invest in modern or large scale fishing inputs, organizing fishing and marketing activities will be the best or only means to improve the productivity of the artisanal fisheries. It is also an important means of raising the incomes of the

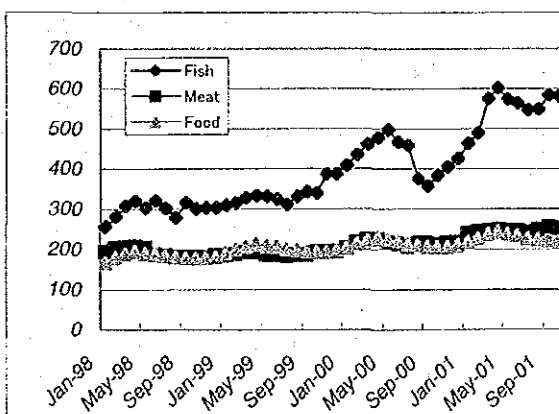
economically weak artisanal fishers. However, the cooperatives' activities have stagnated and a large scale cooperative union does not exist in the sector. Despite the transition from a socialist to a free economy in the 1990s, the meagre business experience of the private sector, the undeveloped business skills and mindset, have impeded the development of fishery business and organizations. In addition, the strong socialist dependence on government institutions and the management failures of the cooperatives has produced a strong resistance against joint business activities, which also hampered the growth of fishery cooperatives. The issues that must be addressed to structurally strengthen fishery cooperatives are: a) lack of capital, b) small scope, c) low management capabilities/low educational background, d) low reliability, and e) frail system of assistance.

### (3) High Post Harvest Loss and Opportunity Loss of the Fresh Fish Trade, which Deprives Fishers of Better Incomes

Reducing post-production losses offers an important means of increasing the real food supply without increasing the fish production volume. In Tanzania, one of the greatest post harvest losses occur during the processing of Dagaa in the rainy season. Dagaa are usually sun-dried and this process takes 1 to 2 days under fine weather. But during the rainy season, it is quite difficult to dry before the raw material deteriorates, due to the rain. The lack of means to dry Dagaa artificially or to store the fish in cold storage is the constraints of Dagaa processing. Post harvest loss of Dagaa Kigoma (from Lake Tanganyika), which is an economical important fish species comprising 15 percent of the total fish production volume of the country, has serious impact not only on reduction of the artisanal processors' income, but also on the stability of the nation's food supply.

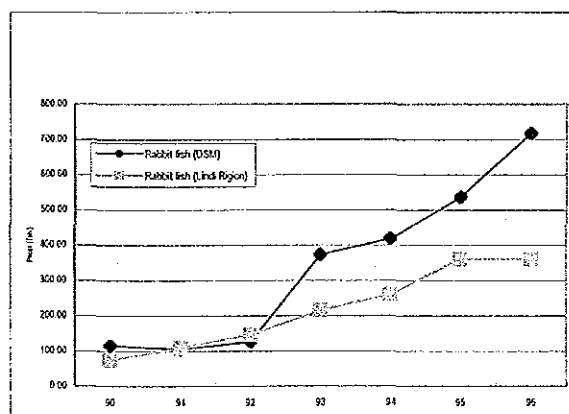
### (4) High Fish Prices and Large Disparities in Prices among the Production Sites

According to the consumer price index (National Statistics Bureau; 1994=100), fish prices increased sharply during the past 10 years, from 256 in January 1998 to 581 in October 2001. These figures greatly exceeded the other consumer food index for general food products of 219 (October 2001) and meat of 252 (October 2001). In contrast, the fish price at production sites, where do not have good access to urban markets, is only one-fifth to one-third the price of fish sold at the city fish markets. The per capita production volume of fishers in many of the regional fishing villages is small; and the non-existence of cooperatives and subsequent lack of a joint shipping system has made shipments to urban areas difficult. Consequently, appropriate pricing of fish products does not exist.



Source: National Statistics Bureau

Price Change in Fish, Meat & Food '98-01  
(1994=100)

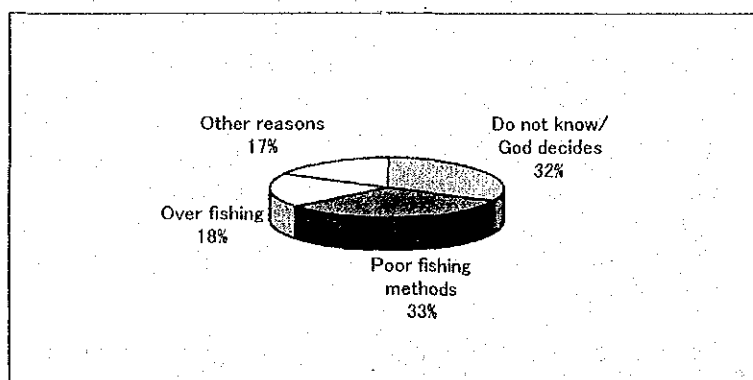


Source: National Statistics Bureau

Price Change in Rabbit fish '90-96

### (5) Poor Co-management System on Fish Resources

Although surveys to determine the resource volume of major water bodies in Tanzania have been conducted, it has not reached a stage where resource management such as TAC (Total Allowable Catches) or MSY (Maximum Sustainable Yield) can be applied. The number of government staffs are too few to monitor the large water bodies, necessitating the need for fishers' participation as key actors in resource management. However, fisher awareness about fishery resources is low, and they are strongly resistant to fishing licence restrictions or limitations to fishing grounds. A foundation for independent management activities is nonexistent. In Lake Victoria, a fisheries management plan has been implemented and BMUs are being organized. Unfortunately, the lack of fisher identity and understanding about resource management has hampered efforts to establish an effective organization.



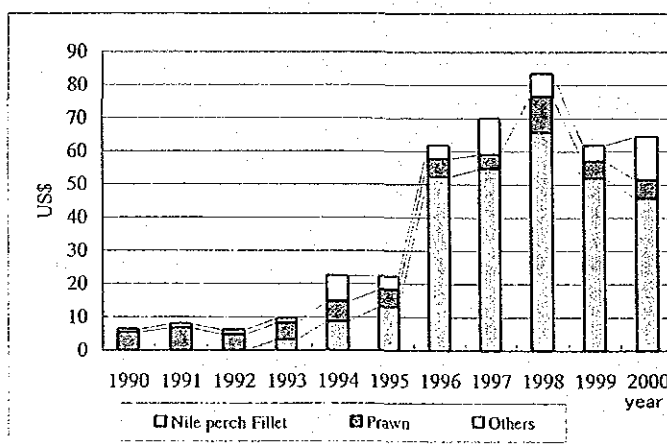
Source: Lake Tanganyika Research

**Reasons Given for Production Decrease**

### (6) Lack of Diversification on Fish Export Products and Under Developed High Value Added Products

The production of Nile perch exports, which comprise 90 percent of Tanzania's fish export has stagnated its volume, despite investments made by export companies. The core commodity of the Nile perch export is fillet product. The export of other parts of the Nile perch such as the bladder, other than the Nile perch fillet has contributed to increased export revenue, in recent years.

The result of the recent study on the fish stock and other indicators suggest increasingly small fish size and that export volume is not anticipated to grow in future. Measures to promote exports will thus have to shift from volume to quality, but such measures have been lagging in Tanzania.



Source: TRA

**Changes in Fisheries Export Value between '90-00 by Products**

### **(7) Lack of Technology on Development of Fisheries Community by Self-help**

The development budget for production and social inputs is extremely scarce for the fishing villages, and they depend heavily on the central government's support for community development activities. To reduce poverty and its incidence on fisheries communities, it will be necessary to support them by self-help at community level. A system of residents participation to resolve village issues remains inadequate; therefore, the capabilities of the village leaders are important to the community's development. However, in many cases, the leaders have not had adequate opportunities to receive training in development methods to utilize and manage resources and to alleviate poverty. In addition, access to fishing and processing technology is quite limited.

#### **Major Negative Factors for Fisheries Community Development**

1. Weak fisheries extension services
2. Un-established method and know-how for the organizing of the fishers and community development
3. Low education level of the fishers
4. Poor social and economical infrastructure in the community

### **(8) Weak Financial Base of the Local Government for Fisheries Development**

Tax revenue from fisheries sector is a very important source for the local government to implement their services to the sector. However, it is extremely difficult to accurately grasp the small fishing villages that are subject to taxation due to their dispersal, and it is difficult to adequately collect taxes due to the shortage of government staffs. In order to provide the government services and to collect tax efficiently, a number of small fish landing sites should be strategically centralized according to their geographical and marketing advantage. At the moment, landing site identified by Fisheries Division do not have any grade. Responsible fisheries management and services that meet fishers' needs cannot be provided by the financial resources of the districts. Hence a new system of financial assistance from the central Fisheries Division must be created, in conjunction with the districts' efforts to secure stable, independent financial sources.

### **(9) Inefficient Administrative Services**

The inadequate placement of government staffs and their low level of motivation have contributed to inefficient administrative management. Currently in Fisheries Division headquarters, 19 fisheries officers have bachelor's degree or higher. It is difficult to implement a myriad number of administrative tasks in an inefficient working environment with inadequate office automation facilities. Despite regional reforms and a reduction in a large number of fisheries extension personnel, retraining programmes for district officers have been extremely limited, and this has lowered the quality of the services that is provided. Additionally, the district fisheries officers and extension personnel are under the direct management of the DED. Subsequently, the work of the extension personnel shifted from supervising fishery activities, data collection and extension activities to tax collection activities that directly affect the district government.

### 3. BASIC DEVELOPMENT CONCEPT AND STRATEGY

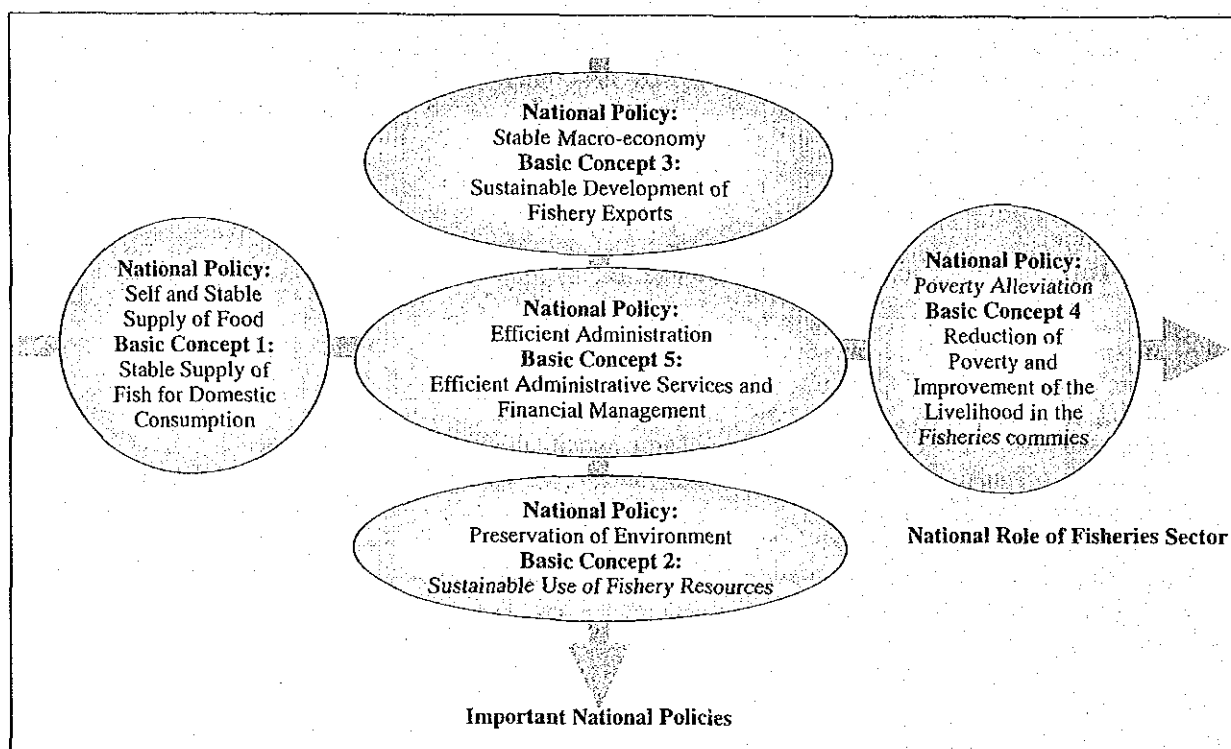
#### 3.1 Development Objectives

The objectives of this Master Plan are to strengthen the capacities of the development of artisanal fisheries in both the public and private sectors; and thereby, the sector could contribute to the national economy, in terms of the nutritional intake of the populace, and raise the livelihood and social welfare conditions of the rural fisheries communities.

#### 3.2 Structure of the Master Plan

This Master Plan consists of "Basic Concepts", "Development Strategies" and "Priority Programmes". Basic concepts for fisheries development aim to solve the 9 issues in the sector explained above and suggest the direction for the future fisheries development. For the planning of the basic concepts, consistency between national development policies and fisheries development are taken into consideration. These basic concepts are:

- Basic Concept 1: Stable supply of fish for domestic consumption to improve the general nutrition of the country
- Basic Concept 2: Sustainable use of fishery resources through optimal utilisation of resources
- Basic Concept 3: Sustainable development of fish exports to earn foreign exchange
- Basic Concept 4: Reduction of poverty and improvement of the livelihood in the fisheries communities
- Basic Concept 5: Efficient administrative services and financial management



Basic Concepts in Relation to National Policies

### **3.3 Basic Concept and Strategy to Develop Fisheries**

#### **Basic Concept 1: Stable Supply of Fish for Domestic Consumption**

*Fishery products are an important source of protein for the Tanzanian people. The fish demand as domestic consumption in 2012 is estimated at 280,000 tons, or about 80,000 tons higher than the current demand, due to a projected population growth of 37 percent from 2001 levels. Presently, the self-sufficiency ratio is 100 percent. To fully utilize fishery resources, production must be increased in combination with the development of aquaculture and fish imports. Furthermore, to ensure that the harvested fish is not wasted and rational consumption is promoted, the accelerated development of fish processing and marketing will be targeted and integrated with the task of securing the minimal volume of food supply needed to meet the demand of the populace.*

#### **Development Strategy 1.1 Strengthening Fisheries Cooperatives/ Organizations**

Existing fisher organizations will be categorized. There are two types of fisher organizations in Tanzania. The first is the general fishery cooperatives that are mainly comprised of boat owners and conduct or aim to conduct diverse activities, including credit activities. The second type is small, specialized groups comprised of members who jointly operate one purse seiner. In many cases, the latter type has not been officially registered as a fisher organization. As fisher organizations are voluntarily organized by fishers, its operations should adequately incorporate their ideas and intent; and its potential as an organization should be strengthened according to category, activities and scope.

In the case of general fishery cooperatives, technical guidance, support to strengthen the organization's operations, and financial support will be provided to model cooperatives that meet specific criteria in terms of capital, number of members, etc. Large organizations with more than 300 members will be able to purchase certain equipment and materials, depending on the membership fees and capital collected from members. In contrast, the disadvantage of general fishery cooperatives is the fact that mutual trust decreases as the number of members increases, and the cooperative's active contributions are directly related to the strong leadership capabilities of the executive members of the organization. Therefore, educational support for the executive members in the area of organizational operations, activity management, and others are essential. Additionally, support will be provided to expedite the cooperative's SACCOS activities, activity programme formulation, long-term loans, and others.

In the case of small fishery cooperatives, technical guidance for activity operations aimed at raising the efficiency of the organization's activities is needed. To spur collaborative relations between specialized fishery cooperatives, a model project targeting fishing operations using a jointly operated fishing vessel will be formulated at the district level.

An important goal of fishers' cooperatives, especially young fishers and boatmen who are unable to purchase fishing gear, is to provide a solidarity guarantee for loans. The national government will support measures to strengthen a credit system for small cooperatives to enable them to set up a financial system to purchase fishing equipment and materials and to provide the fishing village access to private sector loans. Additionally, the fishing technology of cooperatives comprised of young fishers and boat owners is undeveloped in many cases, and assistance measures to improve their technical skills are needed. The traditional educational system of the fishers will be reviewed; and cooperatives and a systematized organization, that will enable technical transfer activities to be carried out by fishers, will be fostered to enable artisanal fishers to participate in drafting and assessing fishery policies through their representatives.

#### **Development Strategy 1.2 Improvement of Fishing Technologies and Extension**

Each fishery law currently in effect in Tanzania requires major or minimal reforms. A trial project with the cooperation of the fishers to improve purse seine and long-line fishing technology will be conducted in conjunction with the Master Plan and extension activities.



### **Development Strategy 1.3 Reduction of Post Harvest Losses and Promotion of the Fish Utilisation by Shifting from Non-food to Food Purposes**

Measures to raise the ratio of Dagaa as a fish food product will be pursued. The Dagaa is a small pelagic fish that is produced in the marine waters and the three major lakes of Tanzania. In particular, Dagaa Kigoma fish landed in Lake Tanganyika and Dagaa Mwanza fish landed in Lake Victoria have high marketability. Sun-dried Dagaa is the commonly marketed product, and production loss during the rainy season is especially high. Consequently, Dagaa that is generally consumed is poor in quality. Developing and improving the processing and marketing technology of Dagaa as a food commodity will contribute greatly to securing a stable domestic supply of fish.

A different approach is needed to improve the production of the two types of Dagaa, Dagaa Kigoma and Dagaa Mwanza, due to their dissimilar characteristics as a food product. The price of Dagaa Kigoma, which is an expensive, high-demand product, differs according to fish quality and ranges in price from US\$1.0 to US\$1.5/kg. Therefore, technical improvements will include introducing artificial drying techniques during the rainy season that will raise the product's general consumption as well as the profits of the artisanal processors. In the case of the lower-priced Dagaa Mwanza, the handling functions of the Kirumba fish market, where 90 percent of Dagaa Mwanza is marketed, will be improved to increase the absolute quantity consumed.

Supplementary products of the fisheries industry will be effectively promoted. Presently, the utilization rate of the Nile perch by the processing plants is 50 percent. The head, entrails, and backbone, that are discarded by the processing plants, undergo secondary processing by artisanal processors and are sold and consumed in the domestic and other African markets. These wastes will be 1) processed into high value added products by the processing plants and exported or marketed domestically at high quality food markets, and 2) the domestic market for processed products produced by artisanal processors will be expanded, after the processing technology and sanitary management at small-scale plants have been improved. As a result, the product development capabilities of the Nyegezi Freshwater Fisheries Training Institute will be strengthened.

### **Development Strategy 1.4 Reduction of Marketing Costs and Development of Fish Distribution System**

The national highway connecting Dar es Salaam and Mwanza, that will be completed in the next five years, provides a major advantage in transporting fresh fish from Mwanza. Consequently, the joint shipment of surplus fish produced at Lake Victoria will be promoted and marketing activities of Nile perch and tilapia to major cities will be expedited, in tandem with cost reductions in marketing. Presently, the majority of exported Nile perch (Tsh.700 to 1,000/kg, Dar es Salaam) are competitively viable with coastal fishery products. As a result, fresh fish marketing activities have already begun at some markets such as Kariakoo market. Diversification of the market in terms of developing of domestic market, shall be more promoted to secure the fishers sales. To efficiently ship fresh fish from the production sites, measures to organize the fishers and to provide cold storage facilities must be carried out.

### **Development Strategy 1.5 Implementation of Feasibility Survey on Aquaculture and Establishment of a Development Model**

Farmers normally are cautious about engaging in aquaculture due to the initial cost of construction ponds, fish mortalities, theft, and other inherent risks. One means of effectively changing the conservative mindset of these farmers is to foster aquaculture guidance farms by setting up a model fish culture farm where farmers can experience firsthand the profits generated from aquaculture activities. Aquaculture activities in Tanzania are presently limited to a few areas in Ruvuma, Morogoro, Lindi, and Mtwara regions. Therefore, an effective strategy is to conduct extension activities in these areas, where the existing aquaculture farms can serve as guidance farms. The economic viability of the NADC's trial aquaculture project based on private sector consignment and use, and the subsequent results will be made public.

Aquaculture extension activities will target 1) composite agriculture aimed at achieving self-sufficiency, 2) commercial aquaculture, and 3) seedling production. Criteria such as water resources for aquaculture use, soil suited for culture activities, and marketing routes for cultured fish will have to be adequately surveyed and confirmed prior to the start of these activities. The training programme and equipment and materials will be provided based on the training needs and the technical levels of both the extension personnel and the farmers who will undergo training in aquaculture technology.

## **Basic Concept 2: Sustainable Use of Fishery Resources**

*The cornerstone of Tanzania's fishery policy is to sustain and manage its fishery resources and to develop resource management based fisheries that will ensure the sustained use of its fishery resources. Some of the resource management measures that have been pursued are regulated management of fishing grounds, controls on harvested fish species, regulated production volume, and others, but due to the enormous land area within its national boundaries and the approximately 1,000 fisheries communities dispersed throughout the country, the effectiveness of external government agencies to oversee individual fishing activities is limited. Hence the hitherto adopted procedure of enforcing external controls in fisheries must change to a system of controls and regulations based on voluntary, self-enforced co-management by fisheries communities and fisher organizations.*

### **Development Strategy 2.1 Strengthening of Fishers Organizations for Resource Co-management**

A nationwide co-management system of fishery resources conducted mainly by fishers will be developed. It will be difficult to solicit the independent participation of fishers in such a system unless it is tied to resource usage rights. Although the Tanzanian government requires all fishers to register, a system of fishing rights that regulate exclusive fishing operations in specific water areas or fishing licenses that regulate different types of fishing operations do not exist. The rights of fishers have not been secured and this has greatly impeded the active participation of fishers in resource co-management activities. As a result, establishing fishing rights and regulations on fishing operations must be enacted in tandem with the task of educating fishers in resource management. Thus an immediate task of the Fisheries Division is to create fishing laws governing fishing rights.

### **Development Strategy 2.2 Publication of Fisheries Statistics (1997-) and Preparation of Effective Data Processing System**

The existing fishery information processing system (TANFISH) will be reviewed and improved. The annual fishery statistics, that have not been published since 1996, will be supplemented by estimated values and promptly published. To accomplish this task, the statistical data processing equipment of the Fisheries Division will be replaced and simultaneously, a training programme will be implemented for the personnel in charge of statistics at the Fisheries Division and at the regional level. To increase the accuracy of fishery statistics, the sampling method used at the landing sites must be reassessed. The Fisheries Division in collaboration with the Local Government Management will have to develop a mechanism to collect data from the landing sites to get actual information on fishery statistics from all resources. The prevailing conditions and the primary processing capabilities of the fish landing sites that are presently designated as data collection points will be reviewed.

### **Development Strategy 2.3 Implementation of Monitoring on Fisheries Activities and Collection of Biological Information on Catches at Major Landing Sites**

With the cooperation of the artisanal fishers (boat owners) and fishery cooperatives, biological data on landed fish at major landing sites will be collected. As data on harvested fish (the length, etc.) is presently collected at Lake Victoria by the LVEMP, a survey system on economically important fish species in Lake Tanganyika and the coastal area will be established. Banda beach new fish market could be the most suitable station for data collection on the coast. The market should be facilitated for

data collection and its processing. A contract to measure the harvested fish will be signed with boat owners; and fishing nets, GPS unit, fish sensors will be leased to boat owners and training programmes for fishers will be provided.

### **Basic Concept 3: Sustainable Development of Fish Exports**

*Fishery exports in Tanzania comprises more than 10 percent of the country's foreign currency. The growth of traditional export products such as coffee and raw cotton has stagnated due to a surplus supply in the international market. As the global demand for fishery products is anticipated to continue, developing and sustaining fishery exports as the mainstay foreign currency earning industry is an important strategy in terms of the macro economy. In addition, the royalties (export tariffs) generated by fishery exports will be an important financial source for the Fisheries Division in future, due to the central government's policy that will allow the ministries and agencies to possess an independent financial source. Therefore, stable fishery exports must be achieved.*

#### **Development Strategy 3.1 Implementation of Market Survey on Tanzanian Fish Product**

A market survey on major fishery export products of the advanced nations - Nile perch, prawn, seaweed, and aquarium fish--will be conducted to collect information on market trends and export related systems and to disseminate this information to export companies. An evaluation analysis of international market demands and Tanzania's products will be made, and an export strategy aimed at reducing production and marketing costs and expediting stable product quality will be drafted. In particular, the raw supply of Nile perch, which comprises 90 percent of the total export volume, is not expected to drastically increase due to resource restrictions. Therefore, in addition to the processed fillet product, an increase in value added processing must be targeted to raise export values. Therefore, the trial development of new products will be implemented with the cooperation of the processing cooperatives and the Nyegezi Freshwater Fisheries Training Institute; and a market survey of Europe, Asia, and North America will be implemented.

A distribution and marketing survey on the regional marketing of Dagaa will be conducted (particularly Democratic Republic of Congo) to ascertain the export volume that is not officially known at present. Although the official export volume statistics for Dagaa Kigoma, the high demand food fish, is 500 tons in 2000, an export volume exceeding this figure by tenfold is exported mainly to the Democratic Republic of Congo. This export activity does not pay royalties or export tariffs, and therefore, it is believed to be illegal. To meet the increased domestic demand in future, the domestic demand for Dagaa must be raised. An export strategy that includes the collection of tariffs will be drafted based on the market survey findings.

#### **Development Strategy 3.2 Strengthening of the Competitiveness of Export Product by Improving Quality Control Capabilities**

Sanitation standards and control based on HACCP and ISO 9000 methods will be pursued to ensure the safety of fishery export products, and a quality control testing laboratory in Mwanza and Dar es Salaam will be established. To strengthen the system to address the pollution of fishery resources caused by the gold mining industry, industrial waste water, and agricultural pesticides, the capabilities of the laboratory to analyze mercury, cyanide compounds, pesticides, and other substances will be enhanced. Further, coordination with related ministries and agencies will be targeted and comprehensive pollution countermeasures to improve the water quality will be pursued.

### **Basic Concept 4: Reduction of Poverty and Improvement of Livelihood in the Fisheries Communities**

*The fishing villages are the focal centre regarding fish production activities and livelihood of the fishers and their families. Therefore, comprehensive measures aimed at developing the fishing village*

*economy, improving the living environment and welfare activities must be implemented. To reduce the poverty of fisheries communities, it will be necessary to support fishers at the grass roots level, with the participation of fishers, district staff, NGO, etc. However, the key is fisher's active participation to improve their livelihood by themselves. The approaches should focus on the capacity building of the fishers to assess the condition of their communities and how to solve their problems.*

#### **Development Strategy 4.1 Fostering of Fisheries Community Organizations and Improvement of Institutional Capabilities of Fishing Villages**

A micro project that will be implemented within the scope of the fishing villages and aimed at strengthening the joint functions of the villages, will be supported technically and financially. This project will be planned and implemented with the participation of village residents. The institutional capabilities of the village such as educating the fishing village leaders and strengthening the village meeting functions will be improved.

#### **Development Strategy 4.2 Mobilization of the Economic Activities of Fishing Villages**

Fish processing is the potential economic activities in most of the fisheries communities. Activities to increase value added processed fishery products and their distribution in the market to mobilize the economic activities of the fishing villages will be supported. The financial source of the village budget must be strengthened in order to improve the living environment and social welfare activities of the villages, and the cash economy of the villages must be stimulated. The villages are hampered by the lack of infrastructure such as electricity and transport that is needed to expand their fresh fish marketing activities. Therefore, processing the surplus fish will help preserve the fish for marketing, and the processed fish product will greatly affect profitability. Thus an effective means of achieving increased income is to produce specific high value added processed products for the market. TAFIRI and the experts from training institutions, in conjunction with the women of the fishing village are to develop and improve specific products for hotels and restaurants. These activities will assist the fisheries community's expansion into the market. The majority of the processing activities are carried out by women, hence management training for women processors will be conducted to improve their capabilities and to stimulate the participation of village women in economic activities.

#### **Development Strategy 4.3 Women's Economic Activities Encouragement**

Fish processing and its trading are major economic activities of women in the fisheries community. To promote their activity, appropriate training, which up-grade their business skill and technology will be provided.

#### **Development Strategy 4.4 Social Infrastructure Improvement in Communities**

Enlightening the importance of social public infrastructure, such as water supply, clinic, school, feeder road, etc. through the various workshops.

#### **Basic Concept 5: Efficient Administrative Services and Financial Management**

*Achieving efficient administrative operations is fundamental to implementing policies efficiently. Due to the rapid regional decentralization that occurred in 1997, regional governments at the regional and village levels are required to respond to the needs of fishers and fisheries communities. The independence of these autonomous bodies must be enhanced to enable them to fulfil their responsibilities and to further expedite administrative reforms. To achieve these goals, the role of the Fisheries Division, District fisheries office and other related institutions must be clarified; and the efficiency of administrative management will be pursued through adequate placement of staff personnel and measures to improve their capabilities. Presently, the major issue that must be addressed is the shortage of technical fishery staff at the field, compared to the staff in the government training institutes.*

### **Development Strategy 5.1 Improvement of Training and Extension Services by Rehabilitation of Fisheries Training Institutes**

The depreciated facilities and equipment of both the Nyegezi Freshwater Fisheries Training Institute and Mbegani Fisheries Development Centre will be replaced to enable both schools to provide practical and high quality educational services and to strengthen the re-educational opportunity for government fisheries officers. Additionally, an adequate budget must be procured for this re-educational programme. In view of the scope of domestic demand for vocational training in Tanzania, the scope of the existing training facilities and the necessity for two schools must be reviewed. The integration of the two schools, the development of a unified training programme, and the shared use of facilities are some of the measures that can be taken to reduce the operational budget of the training schools, while endeavouring to procure a budget for the re-educational programme for government officers.

### **Development Strategy 5.2 Strengthening of Experimental Study Functions and Technological Development at Training Institutions**

To achieve the integrated development of applied technology and training extension, the applied technical research and development functions of both the Nyegezi Freshwater Fisheries Training Institute and the Mbegani Fisheries Development Centre will be strengthened. Collaborating with the regional fishers to resolve the technical issues faced by artisanal fishers, will also serve to enhance the application of the education provided by the training schools. Therefore, a research panel (external organization) comprised of artisanal fishers, artisanal processors and distributors, will be established at the training schools; and the selection of study issues, drafting projects, and a system of evaluating findings will be created. Services that meet the needs of artisanal fishers will be provided.

### **Development Strategy 5.3 Establishment of Fisheries Development Fund**

A National Fisheries Development Fund that is financially sourced by royalties will be established to secure a financial source to fund technical assistance for artisanal fishers and fishing village development. Fish landing tariffs paid by fishers and royalties generated by export processing companies are an important financial source for the fisheries administration. The amount generated from royalties alone was five million dollars in 2000. In contrast, government services for the private sector in return for these tariffs have been unclear and unregulated. As a result, there is private sector distrust of the government. Therefore, a fund will be created using a portion of the royalties collected and financial assistance for the private sector will be provided and governed by uniform rules. A stable system that can be utilized by fishers must be created immediately. A Fisheries Development Assistance Committee will be created to evaluate the content and priority of projects requested for financial assistance and to ensure that the funds are efficiently managed.

### **Development Strategy 5.4 Multi-sectoral Cooperation Promotion at District Level**

Cooperation between the high-level district fisheries officers, executive members of the cooperatives, and high-level agricultural government officers will be pursued in fisheries extension activities and fisheries community development at the district level. These government officers and executive cooperative members from different sectors are directly involved in technical extension activities and organizing villages. Hence educating these personnel in basic fisheries will increase the services for fishers. Since these three different sectors belong to the Economic Division at the district level, a combined team of these three groups can be easily formed by the division director as needed. Such teams will be especially effective in organizing cooperatives, aquaculture extension, and fishing surveillance activities. Therefore, the model of these multi-sectoral cooperation team consisting of fisheries officer, agriculture officer and cooperative officer will be established at the district which has the fish production centre; they will give the appropriate training for fisheries community development.

## Development Strategy 5.5 Construction of New Fisheries Division Headquarters Building

The headquarters of the Fisheries Division is presently located in a segment of the Ministry of Land building. Therefore, the Fisheries Division's headquarters will be moved to a newly constructed office located in an extended lot of the Dar es Salaam fish market.

## 4 PRIORITY PROGRAMMES

### 4.1 Composition of Priority Programmes

This Master Plan provides 15 priority programmes in order to achieve basic concepts and development strategies. Composition of the programmes and their relation to the development strategies are shown in the table below.

Priority Programmes and Development Strategies in Master Plan

Priority Programmes	Development Strategies														
	Basic Concept 1: Stable Supply of Fish for Domestic Consumption	Strengthening Fisheries Cooperatives/ Organizations	Improvement of Fishing Technologies and Extension	Acquisition of New Harmed Lines and Transition of the Fish Utilization by Shifting from Non-food to Food Purposes	Reduction of Marketing Costs and Development of Fish Distribution System	Implementation of Feasibility Study on Aquaculture and Establishment of a Development Model	Basic Concept 2: Sustainable Use of Fishery Resources	Strengthening of Fishers Organizations for Resource Co-management	Publication of Fisheries Statistics (1997) and Preparation of Effective Data Processing System	Implementation of Monitoring in Fisheries Activities and Collection of Fisheries Information on Catch and Major Landing Sites	Basic Concept 3: Sustainable Development of Fish Exports	Implementation of Market Survey on Tanzanian Fish Product	Strengthening of the Competitiveness of Export Product by Improving Quality Control Capabilities	Basic Concept 4: Reduction of Poverty and Improvement of the Livelihood in the Fisheries Communities	Strengthening of Fisheries Communities and Improvement of Livelihood Capabilities of Fishing Villages
1 Marine Fisheries Sub-sector Capacity Building Programme	●	●													
2 Dar es Salaam Fisheries Infrastructure Improvement Programme	●	●			○										
3 Lake Victoria Fisheries Sub-sector Capacity Building Programme	●	●	●												
4 Lake Victoria Fish Marketing Improvement Programme	●	○		■	■										
5 Lake Tanganyika Dagaa Fisheries Development Programme	●		●	■											
6 Lake Nyasa Planked Canoe Extension Programme	●		●										●		
7 Aquaculture Extension Programme	●					●									
8 Fisheries Financial Support Programme	●													●	●
9 Fisheries Co-management Programme							●	●							●
10 National Fish Export Promotion Programme											●	●	■		
11 Lake Victoria Major Landing Beach Improvement Programme					○					●		■	●	●	●
12 Fisheries Communities Development Programme		●											●	●	●
13 Fisheries Information System Improvement Programme							●		●	●				●	●
14 Fishing Training Institute Improvement Programme														●	■
15 Fisheries Master Plan Implementation Training Programme														●	●

- Soft component such as technical support (● Direct impact, ○ Indirect impact)  
■ Hard component such as building infrastructure and providing equipment

## **4.2 Priority Programmes**

### **Programme 1: Marine Fisheries Sub-sector Capacity Building Programme**

#### **A Objectives**

##### **[Goal] Stable Supply of Fish for Domestic Consumption**

- To demonstrate that fishers' incomes can be raised through formation of joint fishing and marketing groups and cooperatives.
- To establish models of cooperatives by providing technical and financial supports to advance fishers groups/ cooperatives.
- To encourage joint marketing of fish by groups and cooperatives and as a means of stabilizing fish prices for the benefits of both fishers and consumers

#### **B Brief Description**

Project site :Dar es Salaam, Mafia and Bagamoyo (1st phase)

Duration :24 month (1st phase)

Project cost :US\$2,970,433

This programme aims at raising fishers' capacity in fishing and marketing through supporting and strengthening fishers groups/ cooperatives.

The programme will consist of three components; (a) Strengthening fishers groups/cooperatives: This component is for fostering and strengthening fishers groups/cooperatives with education, production means and credits support. (b) Field training on fishing technique (OJT): This component is for assisting young fishers to acquire fishing techniques in the traditional training system with a fishing boat which will be consigned to the fishers group for training purpose to be introduced. (c) Promotion of marketing: This component intends to establish marketing with joint shipment by cooperation of the fishers groups.

For the first phase, Dar es Salaam, Mafia and Bagamoyo are the target areas for the reason that Dar es Salaam has the largest population and demands for fish in the country and the biggest fishing fleet. Mafia and Bagamoyo are major fishing grounds near Dar es Salaam.

In the second phase, the southern areas (Mtwara and Lindi Region) will be the target areas because of their least development in fishery and remote areas from the Dar es Salaam market.

#### **C Condition for Implementation**

The existing cooperatives are highly motivated and a high implementation ratio is anticipated. Their joint retail activities face very minimal risk since the group is located in the consumption area, Dar es Salaam. Direct supervision from the Fisheries Division headquarters is possible and there is access to technicians in Dar es Salaam.

The Dar es Salaam new fish market (Banda beach market) shall be effectively utilized in this programme, in terms of providing the training service, office for cooperatives, storage of fish etc.

## **Programme 2: Dar es Salaam Fisheries Infrastructure Improvement Programme**

### **A Objectives**

#### **[Goal] Stable Supply of Fish for Domestic Consumption**

- To improve the facilities and functions in Dar es Salaam to act as the centre of fishery production and marketing in the marine coastal regions and to lead the coastal fisheries of Tanzania.

### **B Brief Description**

Project site :Dar es Salaam, Banda Beach, Kivukoni Front

Duration :24 month

Project cost :US\$ 3,634,931

This programme aims to promote the fisheries sector of the country, by expanding and improving the facilities and functions in Dar es Salaam, to serve as the centre area for promotion of the fishery sector. In order to improve and promote marketing of fish, the new fish-market has been constructed in Dar es Salaam in 2002. This new market is however not enough to accept more fish from various production sites and store it. Additional facilities are required in adjacent area of the new market. Facilities and functions supporting fishers and operation of fishing boats are also required in Dar es Salaam in connection with the fish-marketing area. Including improvement of these issues, this programme intends to develop the areas in Banda beach and Kivukoni Front to serve as a fishery centre for leading promotion of the fishery sector. The programme consist of the following components:

#### **1) Expansion of fish market**

The expansion of the market facilities will include ice plant, cold storage, new commercial zone composed of restaurant and shops, which are especially provided for the people who cannot be accommodate in the new fish market. The old fish market building (auction hall) will be utilized for fishery cooperatives rooms, meeting/training rooms and engine-repairing workshop.

#### **2) Improvement of the mooring area in Kivukoni Front**

The shore area in Kivukoni Front, which has been utilized as the main mooring area of Dar es Salaam fishing boats, will be improved so as to support the fishers' activities and operation of fishing boats and secure safety mooring area as well as clean/ hygienic working areas for the people. The area will also be provided with fishing gear storage, toilet and workshops.

### **C Condition for Implementation**

The programme includes the expansion of the Dar es Salaam fish market. The market is presently under construction. The appropriateness of the programme's effectiveness and management capabilities will be confirmed before it is implemented.



### **Programme 3: Lake Victoria Fisheries Sub-sector Capacity Building Programme**

#### **A Objectives**

##### **[Goal] Stable Supply of Fish for Domestic Consumption**

- To develop and to extend low cost and effective fishing technology
- To examine the FRP boat building technology to reduce pressure on forest resources

#### **B Brief Description**

Project site :Nyegezi Freshwater Fisheries Training Institute (phase 1)

Duration :12 month (phase 1)

Project cost :US\$ 252,757

This programme aims at upgrading the standard of living for fishers by improvement in fishing technique and fishing household management technique. For fishing technique, it is considered to introduce small echo-sounder and other fishing technique that are presently not used in the lake, and modify Dagaa hurry-up net to purse-seine net. Prior to the introduction, Nyegezi Freshwater Fisheries Training Institute will verify the cost performance of said technique (phase 1). And after the verification, together with the basic know-how such as assembly and repair of fishing gears, handling of fish, concept of fishery cooperative, money management and resource management, training and education service will be extended to the fishers at village (phase 2).

Moreover, the technical and financial possibility of FRP boat for small-scale fishing will also be examined in phase 1. With the assistance of foreign expert, Nyegezi Freshwater Fisheries Training Institute, with their technical personnel and know-how will develop the locally fitted proto-type boat and monitor its working condition in collaboration with some fishers.

#### **C Condition for Implementation**

Technical development of the Nyegezi Freshwater Fisheries Training Institute should wait until the renovations implemented under this programme have been completed.

## **Programme 4: Lake Victoria Fish Marketing Improvement Programme**

### **A Objectives**

#### **[Goal] Stable Supply of Fish for Domestic Consumption**

- To improve Kirumba fish market, which is the centre of Dagaa trading, in order to promote Dagaa marketing nation wide.
- To provide appropriate facilities to the three small-scale processing area which handle left-over from the Nile perch factories in order to utilize these materials efficiently for human consumption.

### **B Brief Description**

Project site :Kirumba market -Mwanza, Kanyama and Mkolani (Mwanza), Bweri (Musoma)

Duration :48 month

Project cost :US\$ 5,855,158

This programme consists of two components, marketing and processing. One is the improvement of Kirumba market in Mwanza and the other is the improvement of existing processing area for Nile perch filleting left-over in Mwanza and creation of same type of processing area in Musoma. Both components aim to contribute to the food security, job opportunity creation, and poverty alleviation through efficient use of economic resource.

The marketing component proposes construction of the wholesale facility in the existing Kirumba market, which handles the biggest amount of Dagaa but is unsanitary and inefficient. The new wholesale facility makes it possible to handle commodities rapidly in response to the demand of the market without interruption by weather and to reduce the market loss while commodities are stocked in unprotected area.

Nile perch left-over processing area component upgrades the sanitation of the processing and marketing by construction of products storage, sanitary facilities for workers, and improvement of working environment for the food processing area.

### **C Condition for Implementation**

The small-scale processing areas and Kirumba market are presently in operation; improved facilities will contribute highly to the working environment. The market is a distribution center for dried Dagaa with an expected increased handling volume of additional 900 tons annually from implementing market improvement. An existing cooperative is managing a segment of the market and the facilities are relatively maintenance free. Therefore, a short-term programme was considered feasible.

Existing groups in Mkdani and Kanyama processing area are expected to play a management body. Two organization shall be strengthened in order to capable enough to maintain the facility.

## **Programme 5: Lake Tanganyika Dagaa Fisheries Development Programme**

### **A Objective**

#### **[Goal] Stable Supply of Fish for Domestic Consumption**

- To reduce the post harvest loss of Dagaa products especially during the rainy season.
- To develop the Dagaa processing method and facility to ensure its supply for human food.
- To enlightenment to the fishers to achieve effective utilization of limited fishery resources.
- To increase fishers' net income without increasing current fishing pressure by introducing new fishing method and developing the current fishing method.

### **B Brief Description**

Project site :Katonga and Kibilizi (Kigoma), Lake Tanganyika

Duration :24 month (phase 1)

Project cost :US\$ 132,919

This programme is focused on the promotion of Dagaa production and trading in Lake Tanganyika. Increasing Dagaa production and availability of new Dagaa products for human consumption as table fish are the targets. This programme consists of four components as follows;

Fishing aggregate light improvement component: This component aims to make high fish aggregating effect by adding the appropriate light reflection plate on the currently used pressure lamp. The light reflection plate is to concentrate the light into the water than defuse to the sides with high fish aggregating effect.

Fishing method experiment improvement component: This experiment component is to introduce the new fishing method like under water lamp, fish finder, and sonar. During the night, these equipment contribute to find the fish school easily and using the under water lamp, induce the fish school to the fish net.

Smoking Dagaa development component: This component targets to expand the diversity of Dagaa product as human food by introducing smoked Dagaa and also to activate the untapped Dagaa market and consumers. This component aims not only an experiment with new processing method but also the development of new Dagaa products.

Fish processing development component: This component aims to stabilize the Dagaa dry processing with hot air drier so as not to be affected by weather throughout the year. To dry Dagaa with hot air drier is expected to secure the food safety and contribute to the decrease in post harvest loss especially during rainy season resulting in stable and increased food supply.

### **C Condition for Implementation**

The content of the technical improvements in the programme has been limited to simple and specific fishing (using fishing lamps) and drying methods of Dagaa, where effective input is possible. Due to the existence of an NGO to assist with technical extension activities, creating a system of cooperation to strengthen management capabilities can be easily achieved. An approach that will reduce post harvest loss of Dagaa Kigoma, an important food fish, will be studied. Since the programme will not contribute to increased fishing pressure, considerably large benefits can be derived from the programme.

## **Programme 6: Lake Nyasa Planked Canoe Extension Programme**

### **A Objectives**

#### **[Goal] Stable Supply of Fish for Domestic Consumption, Reduction of Poverty and Improvement of the Livelihood in the Fisheries Communities**

- To focus on developing fishing technology especially boat operation technique and boat building material by comparison to other water bodies, which will contribute to safe and eco-friendly fishing, and will also preserve the forest resources.
- To defuse the appropriate fishery technology to the Lake Nyasa area to achieve good harmony with nature.

### **B Brief Description**

Project site :Mbeya, Iringa, Ruvuma Region (Lake Nyasa)

Duration :36 month

Project cost :US\$ 140,614

This programme will establish the Lake Nyasa Fishery Technology Expansion Centre in Kyela to develop the fishery technology in harmony with biodiversity concept and sustainable fishery resources. This centre involves two kinds components, one is "Diffusion of planked boats component" and the other one is "Introduce the sail technology". Diffusion of planked boats component is to promote the local boat builders to convert from dugout canoes to planked boat. The sail technology component is to introduce the use of sail to the local fishers to broaden their fishing activity.

### **C Condition for Implementation**

In terms of the fair distribution of fisheries development input, this programme targeting Lake Nyasa should be given priority. However, in view of fisher input capabilities and management skills, the impact of this programme will be lower than that of other programmes.

## **Programme 7: Aquaculture Extension Programme**

### **A Objectives**

#### **[Goal] Stable Supply of Fish for Domestic Consumption**

- The volume of cultured fish will be increased, in view of the region's dependency on fish supplies from outside the region to meet the fish demand of the urban and farming communities.
- The factors that have impeded aquaculture extension activities will be pinpointed and suitable aquaculture sites in Morogoro region will be identified, a culture training model will be developed, and a strategy for culture extension activities will be formulated.
- Aquaculture data and training activities will be provided to farmers and companies engaged in culture activities. Input in the aquaculture industry will be promoted and new revenue generating opportunities will be created.

### **B Brief Description**

Project site :Morogoro Region

Duration :36 month

Project cost :US\$ 625,600

In Tanzania where the fish supply from natural fisheries is abundant, the relative importance of a cultured fish supply is still in its intermediate stages. Under this programme, a survey will be carried out on the potential implementation of two types of culture activities at the National Aquaculture Centre in Morogoro region, i.e., commercial based culture of Tilapia (*Oreochromis niloticus*) and Catfish (*Clarias gariepinus*) and self-sustaining fish culture operations. In addition, suitable aquaculture sites in the region, culture methods, and the market will be studied. Morogoro region is located inland and its access to fish supplied by natural fisheries is limited. Therefore, the need for aquaculture development is high. In addition to the construction of the National Aquaculture Centre, FAO and SADC have implemented aquaculture extension projects in the region. However, due to the inability to secure a water source and the lack of continuous extension services, these projects have not been very successful. Past projects will be reviewed in this programme. A detailed survey will be conducted to designate water resources suitable for aquaculture, to study extension activities that are linked with the agricultural sector, and to assess the marketability of cultured fish.

### **C Condition for Implementation**

In contrast to natural fisheries production, the production levels of aquaculture is minimal, and achieving increased production in a short period of time through aquaculture extension activities is difficult. The Tanzanian Government is presently renovating the Morogoro National Aquaculture Development Centre and the priority of this programme is to strengthen and improve the facilities and functions of this centre.

## **Programme 8: Fisheries Financial Support Programme**

### **A Objectives**

#### **[Goal] Stable Supply of Fish for Domestic Consumption, Efficient Administrative and Financial Management**

- To establish low interest rate credit system for artisanal fishers.

### **B Brief Description**

Project site :Mafia (phase 1) and Kigoma (phase 2)

Duration :48 month

Project cost :US\$ 1,225,000

There are many fishers who lack financial resources to purchase out-board engine and/or fishing gears, therefore it is needed to establish a credit system for small-scale fishing with low interest rate. But the credit scheme from foreign donations, such as Kigoma and/or Kagera Fisheries Development Programmes, were misunderstood to be a grant, and showed low repayment ratio. As a result, these credit schemes could not continue after the foreign aids stopped.

The credit system with low interest rate will enable artisanal fishers to purchase capital goods such as fishing boats, outboard engines and fishing gears. Revolving funds will be established directly between fishers' groups and district authorities. In order to keep high repayment ratio, it needs the practical know-how of NGOs. The interest rate should be set at 5%, the minimum lending rate of the Central Bank of Tanzania.

In this programme, the sustainable credit scheme combining foreign fund as a seed and "District Fisheries Development Fund" (based on fish levy) are proposed. Considering the fragile situation of local finance especially in the districts, it is necessary for Fisheries Division to assist the districts which intends to promote fisheries in their district using Fisheries Development Fund (FDF) practically as a revolving fund.

### **C Condition for Implementation**

Based on the experience of past projects, micro projects must be closely related to the local community, and the existence of a management institution with adequate financial knowledge is essential. Criteria to select the project area and borrower should be with great care based on Kigoma, Kagera project. A fixed period of time is needed to foster such an institution or to build trust between fishing villages and an existing NGO. Thus, an implementing body that has been monitored should be selected in a region where measures to strengthen the existing NGO have been implemented and where there are fisheries communities with progressive knowledge and education, as in the case of Programme 8, the Fishery Community Poverty Eradication Programme.

## **Programme 9: Fisheries Co-management Programme**

### **A Objectives**

#### **[Goal] Sustainable Use of Fishery Resources**

- To enhance the basic understandings about resource management of the fishers and to foster self-reliant planning and implementation capabilities in fishery management.
- To establish an organizational system that will enable fishers to conduct independent fishery surveillance and data collection activities.

### **B Brief Description**

Project site :78 fish landing sites in Dar es Salaam and Coast regions

Duration :36 month

Project cost :US\$ 833,400

The objectives of this programme are to establish a collaborative resource management system conducted by the fishers, to strengthen resource management education for fishery cooperatives and to assist the fisheries community's environmental project that will be implemented by the fishery cooperatives. Due to the shortage of fisheries officers, it is difficult to administer fishery resource management activities. In addition, it has been difficult to compile national fishery statistics since reports from a segment of the fish landing sites on landing conditions are inadequate. All these factors combined necessitates the formulation of basic resource management policies. To resolve these conditions, the LVEMP at Lake Victoria established more than 600 BMUs, cooperatives that are in charge of managing the fish landing sites and collecting fish landing data, and the sanitary management of the landing beaches. But due to the fishers' inadequate knowledge resource management, their lack of consensus, and the lack of a financial assistance system, the majority of the BMUs are not functioning. Through learning the BMU's experiences, this programme aims to reform the fishers and fisher cooperatives' awareness about independently managed fishery resources and expanding their activities. In addition, a project to create a fishery management model of fisheries communities at Dar es Salaam and Coast regions will be studied as a means of developing independent management methods that can be applied nationwide.

### **C Condition for Implementation**

A change in fisher awareness about fishery resources management is needed. To accomplish this, the fisheries officers from each region must provide the fishers with appropriate information and build up a relationship of trust. Therefore, the priority goal is to strengthen the capabilities of the district fisheries officers and extension personnel. In addition, adequate preparation time is needed to manage the entire regions.

## **Programme 10: National Fish Export Promotion Programme**

### **A Objectives**

#### **[Goal] Sustainable Development of Fish Exports**

- To survey exporters, the evaluation of purchasing preferences of general consumers in major advanced countries where Tanzania's products are exported; and study the product standards, quality, grading, type of processing, inspection system that are demanded for Tanzania's exported products.
- To identify the marketing routes of smoked, dried and traditionally processed products in Africa, the trends of the informal market, pricing mechanism, etc. and draft a policy to export fishery products to the African interior.
- To construct a new quality inspection laboratory to conduct quality control inspections of fishery products in the country, raise the standard of quality inspections, and promote the export of safe fishery products.

### **B Brief Description**

Project site :-  
Duration :36 month  
Project cost :US\$ 590,000

The National Fish Export Promotion Programme embraces the intercontinent trade activities and regional African trade activities. This programme to promote the intercontinental fishery export is comprised of two components, a marketing survey and the construction of a quality control laboratory. The marketing survey will investigate means to improve the competitive viability of Tanzania's major fishery export products, the Nile perch, Dagaa, seaweed, and aquarium fish in the international market, new markets, value added export products, and other factors, and a production and sales strategy will be formulated. As an expanded production volume of the Nile perch, which comprises 90 percent of fishery exports, cannot be expected, a shift from fillet processing to a new and higher value added processed product will be developed; and market demands must be clearly understood. The fundamental component that supports the competitive viability of exported products in the international market is stable product quality. Presently, due to inadequate equipment, domestic quality control inspections are limited to bacterial tests, and heavy metal and agricultural pesticide residue tests are consigned to a testing centre in South Africa. A laboratory will contribute to establish a self-reliant quality inspection system in the country, capable of expanding testing activities to achieve consistent, quality processed export fishery products. The regional African trade activities are still not yet fully understood and mostly handled by the informal sector. Trust caution have to be practised in order to get a clear picture.

### **C Condition for Implementation**

The programme for both the intercontinental and regional African trade aims to provide market information to promote investments by processing companies and to effectively implement the programme by targeting companies with capital. As of FY2000/2001, Nile perch export has steadily grown due to the increased EU demand for fillet. Thus although factories are interested in developing new products, investment has been passive. Developing higher value added processed Nile perch products is a mutually shared issue that must be addressed by the entire processing industry. Thus, the priority is to achieve a consensus within the industry in a short period of time. However, since the equipment for the quality control laboratory will be placed under the direct administration of the Fisheries Division, very minimal management problems are foreseen. Therefore, the immediate implementation of the programme is feasible. On the contrary, the programme implementation for the regional African trade programme will have more time since the entire process is not yet known.



## **Programme 11: Lake Victoria Major Landing Beach Improvement Programme**

### **A Objectives**

#### **[Goal] Sustainable Development of Fish Exports, Reduction of Poverty and Improvement of the Livelihood in the Fisheries Communities**

- To ensure the quality of Nile perch product through the construction of landing facility
- To organize fishers cooperatives, which have the function of joint sales of the catches, through the management of the landing facility.

### **B Brief Description**

Project site :Lake Victoria; Igombe TX (Mwanza), Mwigobero (Mara), Nyamkazi (Kagera)

Duration :36 month

Project cost :US\$ 1,856,721

Landing beaches along Lake Victoria for Nile perch which are destined for EU markets, have rapidly improved hygienically through ad-hoc visit of EU inspector and technical advice from quality control section of Fisheries Division. There are some platforms for weighing and screening of fish built by fish agents themselves. Landing barges are also installed by the effort of Fisheries Division at selected beaches. But there are more than 600 landing beaches along the lake and further hygienic handling of fish is requested to mitigate post harvest loss. This project aims at introducing hygienically improved fish handling system by means of installation of a landing jetty or landing barge for efficient landing work, and construction of a fish handling facility which satisfies the HACCP standard so that fish can be landed, selected, weighed and loaded to the insulated van or insulated carrier boat as soon as possible. In addition, the project tries to organize fishers who are attracted by the landing facility, support fishery cooperative and its operation, and contribute to the fishers' income.

### **C Condition for Implementation**

The aim of the programme is not only to improve the sanitary conditions of the fish-handling task, but to organize the fishers by having them manage the facilities. Therefore, the initial priority is to strengthen fisher capabilities through their use of the facilities. Careful training and monitoring activities are especially required since a new cooperative will be created to manage and maintain the ice-making equipment as well as the other facilities.

## **Programme 12: Fisheries Communities Development Programme**

### **A Objectives**

#### **[Goal] Reduction of Poverty and Improvement of the Livelihood in the Fisheries Communities**

- Introduce resident participation approach in community development, remedy fisher and village council dependency on the government, and raise self-reliance.
- Organize poverty-level fishers and their community.
- Strengthen administrative functions of organizations to improve welfare in fisheries communities.
- Foster the technology needed to develop the economy of the fisheries community.
- Increase the income of poverty-level fishers.

### **B Brief Description**

Project site : Southern part of Coast Region

Duration :36 month

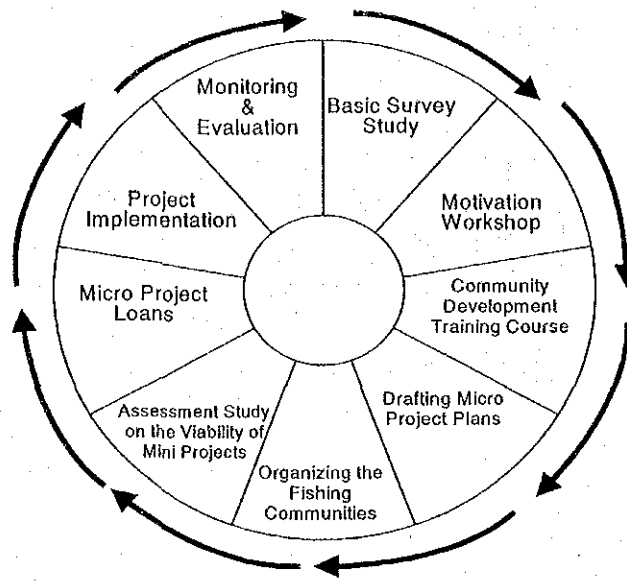
Project cost :US\$ 581,073

The fisheries community development programme is concerned with reduction poverty in fisheries communities through an approach based on community resident participation and organized community leadership, in contrast to the traditionally pursued comprehensive approach to farming and fisheries community development by government leadership. The new approach will be combined with a series of micro projects that will be planned, implemented, and monitored to launch the creation of cooperatives and to improve the institutional capabilities of the community.

The fisheries communities, which cannot depend on subsidies and other forms of financial assistance from the government, must efficiently implement improvements using the limited taxes collected at the fish landing sites. Therefore, community issues will be approved by the village council or the village decision-making body, fishery groups, and the residents. A model project with a small budget of US\$ 10,000 to US\$ 50,000 will be implemented in the form of OJT aimed at strengthening the activity planning capabilities, negotiating skills with the government, and activity operations and management skills of the village council and fishers. The micro project will be managed and supervised by a team of district fishery officers, cooperative members, rural community development officers, and others who are familiar with the local environment. The programme will provide training in project design, securing financial resources, management and operations for district officers. Simultaneously, a network of NGOs and other development institutions will be created to ensure that the project is efficiently managed; and a fisheries community development fund will be established to help the sustainability of the programme's activities after the programme itself is completed.

### **C Condition for Implementation**

The fishery community development programme is highly considered as a development model for fishing villages, and its extension potential is high. It is also directly relevant to the national plan and the basic structure of this Master Plan since it deals directly with the poverty and living environment of the fishers. Since the programme site is located in the southern coast region, access to Dar es Salaam is good and direct guidance from the Fisheries Division is possible. Therefore, the programme is relatively easy to manage.



**The Development Process of Fishing Village**

## **Programme 13: Fisheries Information System Improvement Programme**

### **A Objectives**

#### **[Goal] Sustainable Development of Fish Exports, Efficient Administrative Services and Financial Management**

- To establish a new data processing system in order to achieve quick data processing and analysis of landing information
- To improve the capacity for data collection, data processing and report generation
- To publish fisheries statistics between 1997 and 2001 by using a new data processing system
- To arrange fisheries marketing information by market such as number of fish traders, fish prices, fish inflows by production area, etc.
- To establish the project information coordination office, to keep major publications of implemented fishery projects in digital figure by computer system, and to connect the office to/from the major district fishery offices and training institutions by internet to send / receive the information.

### **B Brief Description**

Project site :Statistic Section of the Fisheries Division

Duration :12 month (This period for the programme is utilised for the equipping the facility and establishing the fisheries information system, and the system will be continuously operated during the Master Plan as a normal service provided by the Fisheries Division.)

Project cost :US\$ 513,493

Fisheries statistics system stopped functioning due to the lack of data collection in some areas and the latest publication of fishery statistics by Fishery Division was for 1996. In "Fisheries Information System Improvement Programme", Statistics Section of Fisheries Division and major District offices will be equipped with computer instrument, and the fisheries statistics system "TANFISH" will be improved, and then fisheries statistics between 1997 to 2001 will be published. Moreover, the present fisheries statistics, which can give only the information of fish landing, will be strengthened to be an overall fishery statistics by adding fisheries marketing information such as number of fish traders, fish prices, fish inflows by production area, etc. For this purpose, the information collection capacity will be well arranged in major markets such as Dar es Salaam fish market, Kariakoo market and Kirumba market, etc.

The fishery information and data from fishery projects in Tanzania is extremely useful as information source on the fishery administration. Therefore the Project Information Coordination Office will be settled in the Fisheries Statistics Section, in which major publications of implemented fishery projects will be kept in digital form in computer system, and the office to/from the major district fishery offices and training institutions will be connected by internet to send / receive the information.

### **C Condition for Implementation**

Fisheries Division statistics have been unavailable since 1997. This lack of fisheries data must be immediately rectified in terms of fisheries administration.

## **Programme 14: Fisheries Training Institute Improvement Programme**

### **A Objectives**

#### **[Goal] Efficient Administrative Services and Financial Management**

- The depreciated educational equipment of the Nyegezi Freshwater Fisheries Training Institute will be replaced to keep abreast with the technical development of artisanal fisheries; and practical training services that meet the needs of the existing fisheries industry will be pursued.
- High quality training services will be provided following the replacement of the equipment and facilities of the Nyegezi Freshwater Fisheries Training Institute and the retraining of its faculty members.
- Measures to strengthen the capabilities of fisheries officers and private fisheries personnel will be pursued in conjunction with improved training services.
- Restructuring the organization and creating new financial sources for the fisheries training institute will contribute to the sound operations of the institute and enable it to provide inexpensive and efficient training services.
- A short-term programme will be developed and services will be provided in the Master Plan to meet the training demand of the district officers and fishers.

### **B Brief Description**

Project site :Nyegezi Freshwater Fisheries Training Institute (Mwanza)

Duration :24 month

Project cost :US\$ 2,642,733

Strengthening the capabilities of private sector fishery related personnel and government fisheries officers through educational and training programmes is essential in order to improve public fisheries services and to conduct effective fishery extension activities. However, the fishery educational facilities and equipment are badly depreciated, and the shortage of advanced training for instructors has greatly lowered educational quality. This has greatly impeded efforts to strengthen the capabilities of fishery related personnel and the situation must be quickly improved. Under Fisheries Training Institute Improvement Programme, the facilities and equipment of the Nyegezi Freshwater Fisheries Training Institute will be improved and a retraining course for its faculty will be implemented to strengthen educational services. In addition, this will be implemented in conjunction with the Master Plan's priority programme to strengthen personnel capabilities.

### **C Condition for Implementation**

The high motivation of district fisheries officers and educational staff members of the training institutions, which will greatly affect the efficiency of all the programmes, is needed to successfully implement this Master Plan. The management risk of the Nyegezi Freshwater Fisheries Training Institute, the implementing body of this programme, is minimal since there is an adequate number of staff and technical personnel.

## **Programme 15: Fisheries Master Plan Implementation Training Programme**

### **A Objective**

#### **[Goal] Efficient Administrative Services and Financial Management**

- To strengthen the project's management capabilities and related technical knowledge of the personnel involved in the priority programmes of the Master Plan
- To achieve sound management and uninterrupted implementation of the project.

### **B Brief Description**

Project site :-  
Duration :36 month  
Project cost :US\$ 144,302

To efficiently implement the Master Plan, it is important that the Fisheries Division, the district Fisheries Division and training institutions adequately fulfil their responsibilities in implementing the priority regional programmes. The Master Plan is a ten-year plan and must be flexibly designed to cope with conditions related to financial sources. Hence a training programme in project management will be implemented for the instructors at the Nyegezi Freshwater Fisheries Training Institute, who teach the fisheries, processing, and cooperative courses, and the District Executive Directors, and the executive fisheries officers of the Fisheries Division and district Fisheries Division. The training programme will consist of a workshop and classes on project management technology and advanced technology that are aimed at promoting an understanding of the Master Plan and monitoring activities.

### **C Condition for Implementation**

Regional linkage is an important element that is needed to coordinate the 15 priority programmes that are part of the basic design of the Master Plan. In addition, to ensure that the programmes are implemented efficiently in a short period of time, it is important that the responsible personnel in each region and for each programme fully understand the content of the Master Plan and have the technical skills and leadership capabilities to implement the programmes.