

FISHERY COUNTRY PROFILE	Food and Agriculture Organization of the United Nations	FID/CP/URT
PROFIL DE LA PÊCHE PAR PAYS	Organisation des Nations Unies pour l'alimentation et l'agriculture	 December 2007
RESUMEN INFORMATIVO SOBRE LA PESCA POR	Organización de las Naciones Unidas para la Agricultura y la Alimentación	

NATIONAL FISHERY SECTOR OVERVIEW

THE UNITED REPUBLIC OF TANZANIA

1 General geographic and economic data

Area:	886,037 km ²
Water area:	276,920 km ²
Population (2006):	39.46 million
GDP current (2006):	12,78 million \$US
GDP per head (2006):	308 \$US
Agricultural GDP (2006):	45% of GDP
Fisheries GDP (2005):	324.21 million \$US (2005)

2 Fisheries data

2003	Production	Imports	Exports	Total Supply	Per Caput Supply
	tonnes live weight				Kg/year
Fish for direct human consumption	351,127	668	87,148	259,967	7.0
Fish for animal feed and other purposes	4,680	-	-	-	

Estimated Employment (2005):	
(i) Primary sector (including aquaculture):	About 171,793
(ii) Secondary sector:	About 2,000,000
Trade (2005):	
Value of fisheries imports:	540,000 \$US
Value of fisheries exports:	145,244,000 \$US

3 FISHERY AREAS AND MAIN RESOURCES

The fishery areas in Tanzania are the following:

- (i) Major lakes (Victoria, Tanganyika and Nyasa): All fin fish and sardines;
- (i) Marine Territorial Waters: Shellfish and finfish;
- (ii) Marine Exclusive Economic Zone: Mainly fin fish – tuna and tuna-like species.

The most important fish stocks and other aquatic resources include the snappers, Scombrides, mackerels, Nile perch (*Lates niloticus*) from Lake Victoria, sardines from lake Tanganyika (*Stolothrissa tanganyicae* and *Limnothrissa miodon*), Nile tilapia (*Oreochromis* sp.) and pelagic sardines (*Rastrineobola argentea*);

4 FISHERY SECTOR STRUCTURE

4.1 Overall fishery sector

4.1.1 Marine sub-sector

This is divided into artisanal and industrial .

(i) Artisanal:

All artisanal fisheries in marine waters takes place within the territorial waters (12 nautical miles stretch). The catch consists mostly of fin fish and to a small extent of shrimps. It is dominated by the artisanal fishers using poor crafts and fishing methods.

(ii) Industrial

The marine industrial sub sector fish both the territorial waters and beyond in the Exclusive Economic Zone (EEZ). The main target species in the territorial waters are shellfish (shrimps and lobsters), cephalopods and crabs. In the EEZ industrial fisheries generally target tuna, tuna-like species, marlin, sword fish and sharks.

Inland sub-sector

Inland fisheries is carried out in the major lakes, the minor lakes, dams and rivers. Inland fisheries is all artisanal. The major lakes are the three internationally shared Lakes: Victoria, Tanganyika and Nyasa. The minor lakes with significant fisheries are Rukwa, Babati and Manyara. There are also other smaller lakes with fish though the fisheries here is insignificant in terms of quantities landed. The main dams are Mtera and Nyumba ya Mungu. These are man made dams with significant fisheries mainly tilapia and catfish species. The major rivers are Pangani, Wami, Ruvu, Rufiji and Ruvuma all emptying into the Indian Ocean. Other rivers with fish include the Malagarasi, Ruaha, and Kagera. There are also minor rivers with fish in various parts of the country.

Catch profile

Tanzania, being a tropical country, is characterised by multi-species fish stocks. Generally fish catches comprised many species with few dominating. However, there are common species groups dominating the catches as presented in the table below:

The catch data for the main species groups are:

No.	Water body	Common Species	Annual catch 2004 in Metric tonnes
1.	Lake Victoria	<i>Lates niloticus</i>	132,458
		<i>Clarias gariepinus</i>	
		<i>Rastreniobola argentea</i> (Sardine)	
		<i>Stolothrissa victoriae</i> (Sardine)	
		<i>Stolothrissa miodon</i> (Sardine)	
		<i>Tilapia</i> sp.	
2.	<u>Marine waters</u>		
	(i) Territorial waters	White prawns (<i>Fenneropenaeus indicus</i> , formerly known as <i>Penaeus indicus</i>), Giant black prawns (<i>P. monodon</i>), and Tiger prawns (<i>P. semisulcatus</i>) and Brown shrimp (<i>Metapenaeus monoceros</i>);	Total prawns 959
		Octopus	1,320
		Squid	74
		Lobsters,	259
		Crabs	112
		Other finfish species belonging to the families of Lutjanidae, Lethrinidae, Pomacentridae, Scombridae, Flatfishes, etc.	
	(ii) EEZ	Yellow fin tuna	17,842
		Marlin	1,265
		Skip jack tuna	972
		Big eye tuna	774
		Sword fish	36

4.1.1.1 Means of fishing/production

The main fishing techniques used in Tanzania depend on the type of fishery. They are:

(i) Freshwater fishery

This fishery is dominated by artisanal fishers who use small boats of between 7 to 11 metres long mainly motorized by outboard engines. Few have inboard engines. Other crafts used include dug out canoes and dhows. The main type of gear used is

gill nets mesh size determined according to the size of the target species. Results from a National Fisheries Frame Surveys (2006) indicates that there are 39,881 fishing vessels in the fresh water sub sector (Fisheries Division, 2006) . These include boats, dhows and canoes.

(ii) Marine Territorial waters fishery

This fishery yields fin fish, shellfish (prawns and lobsters), cephalopods (Octopus and squids), crabs and coral reef species. This fishery is undertaken both by artisanal and industrial fishers. The artisanal fishers use mainly canoes and small boats with inboard and few outboard engines with a total number of 7,190 vessels (Fisheries Division, 2006). The main fishing gear used are gill nets and shark nets for fishing fin fish. When fishing the territorial waters the industrial fishers generally target shrimps for export markets. The fishing vessels used are trawlers. However, trawlers of more than 500 HP and/or more than 150 GRT are not allowed to fish in the territorial waters. The trawl nets used for shrimp fishing have to conform to a specified mesh size both for the wings and for the codend. Traps are used in the coral reef fishery. According to the Fisheries Act No. 22 of 2003 and the Fisheries Regulations 2009, no person is allowed to use or cause use of trawl nets with mesh size of less than two inches or forty five millimetres for fishing prawns in marine waters except for approved research and training purposes.

(iii) Marine Exclusive Economic Zone (EEZ)

The fishery in the EEZ mainly targets fin-fish. The main fish species are tuna and tuna-like species. Other fish species caught from the EEZ include marlin, sword fish and sharks. This fishery is solely industrial and the bulk of the catch is exported. This fishery is mainly conducted by licensed foreign vessels flying the flags of major fishing countries. The fishing vessels used in this fishery are purse seiners and longliners.

5 POST-HARVEST USE

5.1 Fish utilisation

(i) In Tanzania, fish is mainly consumed fresh, processed (smoked, sun-dried, and salted-sun dried). Kilns are used to smoke fish.

(ii) Nile perch, mostly from Lake Victoria, is the only fresh water used for filleting. However, the Government has now allowed processing of specified marine fish species. Most fish fillets and other processed fishery products including crabs, lobsters, octopus, shrimps and squids are exported. Fish that is exported in fresh or frozen form is generally processed in industrial fish processing plants. .

(iii) There is no trash fish used purely for fishmeal and animal feed production. However, fishmeal is produced from the remains of Nile perch filleting including frames; and low quality Sardines especially from Lake Victoria.

5.2 Fish markets

The main consumer markets for fish and fisheries products from Tanzania are the domestic market and neighbouring countries including the SADC region. Asian countries and the European Union (EU) provide the main market for Nile perch fillets and shrimps.

6. Fishery sector performance

6.1 Economic role of fisheries in the national economy

(i) **Fish is an important source of animal protein:** Fish contribute to 27% of the total animal protein consumption in the country.

(ii) **Source of employment and hence income:** The Fisheries Sector employs about 150 000 full time artisanal fishermen (Fisheries Division, 2006). About other 2.0 million people make their livelihoods through various fisheries-related activities. Such activities include boat building, net mending, fish processing, food vendors, other petty business, etc.;

(iii) **Source of Government Revenue:** The Fisheries Division collects revenue from the sector activities at different levels of the government. The money collected is used to develop the sector in terms of management, training and monitoring of the resource utilization. Some of the revenue is also used for human resource development in the fisheries sector.

6.2 Demand

Fish demand is still high in Tanzania in relation with the growing population, for which the available fisheries resource are not sufficient. In response to this situation, the government is encouraging aquaculture as a strategy to improve food security and at the same time to ensure sustainability of the capture fishery.

6.3 Supply

Fish contribute about 2.9% to the GDP, and about 27% of the animal protein consumed in the country.

6.4 Trade

Tanzania mainly exports fish and other fisheries products. The commercial species available include freshwater finfish, marine finfish and shellfish.

(i) The most important species of freshwater lakes is the Nile perch (*Lates niloticus*), which forms the bulk of exports from lake Victoria. Others include the sardines from lake Tanganyika (*Stolothrissa tanganicae*), pelagic sardines (*Rastrineobola argentea*);

(ii) Shellfish (mainly shrimps, lobsters and crabs) and cephalopods (squids and octopus) are the main exports from the marine sub – sector;

(iii) Seaweeds of the *Eucheuma* and *Kappaphycus* species also contribute to the fishery exports from Tanzania;

Fish and fisheries products is the main foreign exchange earner after tourism and mining. Total exports value is US\$ 145,244,000 (2005).

6.5 Food security

Fish and fisheries products contribute about 27% of the total animal protein intake in the country.

6.6 Employment

The Fisheries Sector generates the following types of employment:

- (i) **Fishing:** There are 149,946 artisanal fishermen in the artisanal sub sector;
- (ii) **Boat building:** artisans are finding employment in numerous artisanal boat-building yards scattered along the Indian Ocean coastline and on the shores of the major lakes.
- (iii) **Net mending:** provides jobs in all fishing villages.
- (iv) **Fish processing (small scale and industrial):** About 4,000 people employed in the fish processing sub sector (includes fish processing plants and the prawn fishing crews);
- (v) **Aquaculture:** Offers employment to about 18 000 (Freshwater fish farming, seaweed farming and prawn farming);
- (vi) **Other ancillary activities:** A large number of jobs- many parttime – are found in food vending and other petty business in the fisher communities all totalling about 2.0 million people;

6.7 Rural development

- (i) Generation of employment such as fishing, local fish processing, net mending, boat building, seaweed farming and fish trading plays a role in keeping the population in rural areas, preventing urban drift. However, some of these jobs involve periods of work outside the home village.
- (ii) The state use part of the revenue collected from the fisheries sector to develop management capabilities. The intention is that better management will benefit capture fisheries, especially in the remote parts of the country, and result in increased fish catch, better quality and hence better prices;
- (iii) Through some development projects with a Fisheries component, the rural fisher communities benefit through credit facilitation, training, etc;
- (iv) The Fisheries Division of the Ministry of Natural Resources and Tourism ploughs back into the fisheries sector some of the revenue it is allocated by constructing fish landing sites and associated infrastructures;
- (v) The Fisheries Division also uses also supports activities intended to develop the rural aquaculture through extension services including training programmes and means of transport (mainly motorbikes, bicycles);

7. FISHERY SECTOR DEVELOPMENT

7.1 Development prospects/strategies

7.2 Main areas for opportunities

Investment opportunities in the fisheries sectors are very attractive and numerous. They are found in the capture fisheries, fish processing, manufacture of fishing craft and gears, aquaculture, trade in aquarium fish, fish marketing, supply of gears, engines, spare parts and consultant services.

Inland fishery

Investment opportunities exist in the pelagic resources of lakes Victoria and Tanganyika. In Lake Victoria the available species is *Rastrineobola argentea*. In Lake Tanganyika further expansion is possible for *Stolothrissa* and *Limnothrissa sp* specifically in processing.

Marine fishery

Within the marine fisheries of Tanzania investment opportunities exist in the Exclusive Economic Zone (EEZ). Possibilities exist for the exploitation of pelagic species like Tuna, tuna-like and other species.

Aquarium fish potential

Lakes Nyasa, Tanganyika, Rukwa, Victoria and coastal reefs have very attractive aquarium fish. At the present very few investors are engaged in the aquarium fish business. Development of this fishery is encouraged due to available markets for tropical aquarium fish.

Land based facilities

a) Fishing craft

Tanzania's fishery is dominated by wooden fishing boats, which are made from hard wood. Investment could be in the manufacture of fibre glass boats, ferro-cement boats or any other alternative cheap material. The market for boats exists in the artisanal fishing sub sector.

b) Fishing gear manufacturing

There is a big domestic demand for fishing nets and other fishing gear. Opportunities exist for further investment in the production of nets and other fishing gears like hooks, lines, and ropes of different sizes.

Fish processing facilities

There is room for fish processing investment in the following areas:

a) Fish canning industry

This activity is not developed. The sardines locally known as the "Dagaa" of the species *Stolothrissa tanganicae* from Lake Tanganyika and *Rastrineobola argentea* from Lake Victoria could be canned for human consumption.

At present, sun drying is the main technology used for processing of "Dagaa". The resulting product is of poor quality. There is a possibility of improving the methods of processing for this species for other markets than those that buy the sun-dried fish. Investment opportunities also exist in the exploitation of marine pelagic stocks in the EEZ especially the tuna, and other tuna-like species, mackerel and swordfish, which can be utilized for canning.

b) Value-Added products

Fish and other fishery products in Tanzania are mainly exported in fresh/chilled or frozen state. Some sun dried and smoked fish are also exported to neighbouring countries. There is an opportunity for investment in value-added fish products such as: ready to eat fish, fish fingers, fish balls, salt-spiced marinated fish, fish sausages etc.

Unexploited fish products from the EEZ can be utilized for this purpose.

c) Fish meal

By-products from Nile perch fish processing plants and sardines can be used for fishmeal production.

d) Cold and hot smoking

Modified Atmosphere Packaging (MAP) increases the shelf-life of fish products, therefore fish processed in this way can be transported to long distances to reach the interior areas as well as for export. These processing alternatives could be another opportunity.

Fish support services

Although trade liberalization has offered opportunities for traders to invest in various inputs supply to industrial and agricultural activities, there are only a few investors serving the fishing industry. Ship chandling is absent in this country. Fisher folk require equipment like engines, spares, pulleys, swivels, waterproofing materials, containers for fish handling and filleting knives and boards. The government encourages investment in such services for sustainable fishing.

Fishing harbours

The fish landing sites in the coastal and lake areas lack appropriate facilities for receiving and handling fish. Investment in construction of proper fish receiving stations providing ice, freezing and cold storage facilities could be a profitable venture. Possible ports for investment include Tanga, Kigoma, Mtwara and the Lake Victoria region. Mtwara is particularly attractive due to the current effort to develop it under the program known as Mtwara – Mbamba bay corridor to provide Port services for Malawi and Tanzania.

Aquaculture

Demand for fish in both rural and urban areas is very high in Tanzania. This demand has not been met from the existing capture fishery, a part of the catch of which is exported.

Culture of high value species for the export market has a high potential. There is room for investment including but not limited to Prawn farming and other marine finfish species. Investors in this field are currently exempted from paying export royalties as an incentive towards promotion of aquaculture in the country. Fisheries Legislation and other relevant guidelines are in place. High value species for culture include fresh water shrimp (*Macrobrachium* sp.) and crabs. In freshwater fish farming, the Nile tilapia (*Oreochromis niloticus*) has a high potential as it has desired characteristics and popular in local markets. Moreover, large-scale farming is possible for the export market.

The African cat fish (*Clarias gariepinus*) is another species with potential for farming especially for the provision of live bait to the capture and sport fishing industries and can be a profitable foreign exchange earner.

Seaweed farming is a relatively new venture in Tanzania with a high potential for development. Investment in farming and processing in the country is highly encouraged by the government. There is room and opportunity for investment in this sub-sector.

Table 4 - Potential species for aquaculture in Tanzania

Area	Common name	Scientific name
Freshwater	Tillapia (Nile) Catfish (African) Freshwater prawn (shrimp)	<i>Oreochromis niloticus</i> <i>Clarias gariepinus</i> <i>Macrobrachia</i> sp.
Brackish/Marine water	Prawns Crabs Clams Oysters Tarpon Milk fish Mullet	<i>Penaeus monodon</i> <i>Scylla serrata</i> <i>Anadara</i> sp. <i>Saccostrea cuculata</i> <i>Elops machnata</i> <i>Chanos chanos</i> <i>Mugil</i> sp.

7.3 Fish marketing and distribution

The demand for fisheries products is high. Exports are mainly based on fresh Nile perch products from lake Victoria; prawns and other shellfish and molluscs (squids and octopus) from marine waters and dried freshwater sardines, the latter sold to neighbouring countries. There is room for investment in fish marketing within the country to fill the vacuum left by the defunct National Cold Chain Company. However, the export trade to countries outside Africa is generally subject to controls on both fish quality and fish origin, imposed by the country into which the fish is sold. Such controls create transaction costs for the exporter, which will make such trade less rewarding. However, Tanzanian fish processors have opportunities for the exports of their products to neighbouring countries and elsewhere in the SADC region.

7.4 Main constraints to development

Despite past efforts to develop fisheries in Tanzania, the following constraints still remain:

- (i) Inadequate knowledge of the fisheries resource base;
- (ii) Inadequate quality of fish seeds to use in the promotion of aquaculture;
- (iii) Inadequate extension services;
- (iv) Inadequate funds for research;
- (v) Inadequate credit facilities for fisher community;
- (vi) Inadequate information on markets;
- (vii) Poor infrastructure in some parts of fish production areas which leads to a high percentage of post harvest losses;
- (viii) Lack of fishing harbours;

7.5 Research

List of Research Institutions:

- Tanzania Fisheries research Institute (Research)

Faculty of Aquatic Sciences and Technology (FAST), University
Of Dar es Salaam (Research and training)

Sokoine University of Agriculture (SUA) (Research and training)

Main research projects:

There has been several research programmes and projects. The ongoing research project is the: Lake Victoria Research Project (VICRES) which is a regional project for Tanzania, Kenya and Uganda.

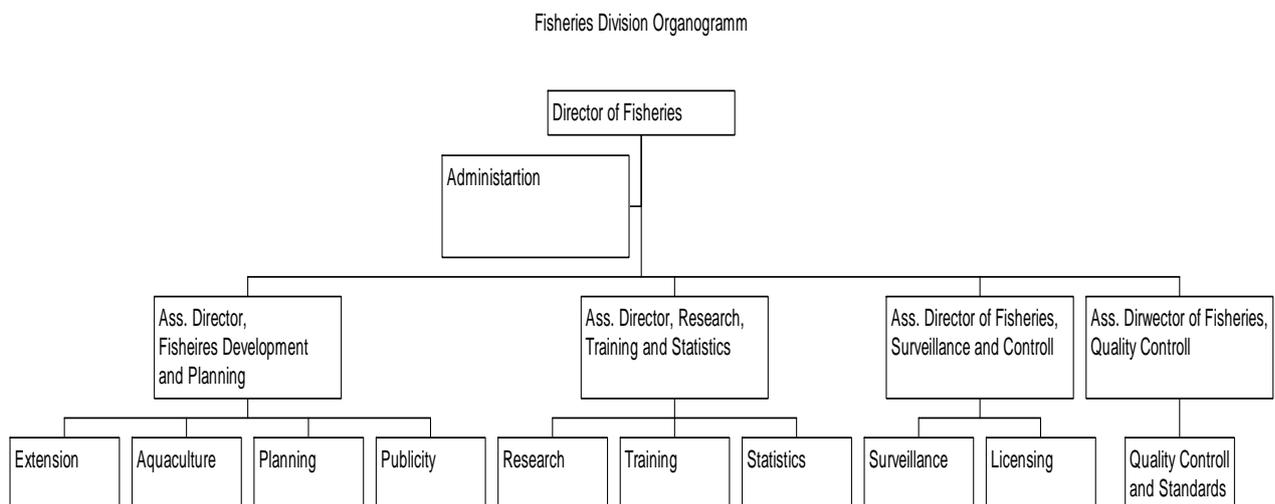
7.6 Foreign aid

On-going or planned projects,

- (i) Marine and Coastal Environment Management Project (MACEMP);
- (ii) Implementation of Fisheries Management Plan (IFMP) – Regional project involving Kenya, Uganda and Tanzania. It is specific for Lake Victoria;

Planned projects: Lake Tanganyika Environment Management Project.

8. FISHERY SECTOR INSTITUTIONS



List of main institutions responsible for fisheries management:

Fisheries Division under the Ministry of Natural Resources and Tourism is the competent authority responsible for both development and utilization issues pertaining to the fisheries sector;

- (i) Other institutions as collaborators of fisheries sector in the issues of management include:
 - The National Environment Management Council (NEMC); responsible for environmental issues including those of an aquatic nature;
 - Faculty of Aquatic Sciences and Technology (University of Dar es Salaam);
 - The Ministry of Agriculture and Food Security;
 - The Ministry of Justice and Constitutional Affairs;
 - The Ministry of Water and Energy;
 - Ministry of Home Affairs;
 - Ministry of Defence (NAVY Division);

Major stakeholders active in fisheries:

- (i) Fishermen;
- (ii) Fish processors;
- (iii) Fish traders;
- (iv) Seaweed farmers;
- (v) Fish and fisheries products exporters;
- (vi) Boat builders and other input suppliers.

9. GENERAL LEGAL FRAMEWORK

- (i) Fisheries Act No. 22 of 2003 - is an Amendment of the Fisheries Act No. 6 of 1970;
- (ii) Principal Fisheries Regulations (2005) - is an Amendment of the Fisheries Principal Regulations of 1989;
- (ii) Territorial Sea and Exclusive Economic Zone Act of 1989;
- (iii) Marine Parks and Reserves Act (Act No. 29 of 1994);

9.1 Management applied to the main fisheries

9.2 Main goals/objectives

The overall goal of the National Fisheries Policy is to promote conservation, development and sustainable management of the fisheries resources for the benefit of the present and future generations (National Fisheries Sector Policy and Strategy Statement, December 1997).

The objectives that the Government wishes to achieve through the management of the fisheries resources include the following:

- (i) Enhanced knowledge of the fisheries resource base;
- (ii) To put into efficient use available resources in order to increase fish production so as to improve fish availability as well as contribute to the growth of the economy;

- (iii) Improving fisheries product utilization and their marketability;
- (iv) To encourage and support all initiatives leading to the protection and sustainable use of the fish stocks and aquatic resources;
- (v) To protect productivity and biological diversity of coastal aquatic ecosystems through prevention of habitat destruction, pollution and over exploitation;
- (vi) Promote small scale semi-intensive aquaculture systems with simple technologies and low capital investment
- (vii) Promote effective farm and fish health management practices favouring hygienic measures;
- (viii) Improved involvement of fisher communities in the planning development and management of fishery resources;
- (ix) Pursue a continuing integrated programme for fisheries in the coastal zones to meet the ecological and social economic needs of present and future generations;
- (x) To strengthen regional and international collaboration in the sustainable exploitation, management and conservation of resources in shared water bodies;
- (xi) To promote and achieve effective utilisation of the Exclusive Economic Zone (EEZ) .

9.3 Institutional arrangements

9.3.1 Co-management activities

Co-management of the fisheries is practiced through the following:

- (i) Formation of Beach Management Units (BMUs). These are recognized by the Fisheries Act No. 22 of 2003;
- (ii) Involvement of various stakeholders in decision making on the exploitation of the fisheries resource.

9.3.2 Participatory approaches

The Beach Management Units (BMUs) are involved in supervised fisheries patrols and also act as revenue collection agencies.

9.3.3 Rights-based approaches to fisheries management

In the past years, fisheries resource was regarded as resource open for all. In this context, fishers were allowed to fish in any part of the national waters upon presentation of a fishing licence given by any District Fisheries Officer in the country. This practice is believed to have contributed to the destruction of some fisheries . The Fisheries Division has therefore developed a co-management strategy in which fishers are allowed to fish only in the areas (district) from which they have obtained a fishing licence. This is intended to give each community a feeling of ownership. There are no territorial use rights, or tenure systems, in Tanzania;

9.4 Management measures

Technical measures depend on the type of fishery.

Fishing licence and registration

Licensing is the major regulatory measure imposed by the government to ensure sustainable utilization of the fisheries resources. All fishing vessels are subjected to registration in which the owners pay fees when vessels are commissioned for the first time, and, pays vessel and fishing licence fees annually. The registration of fishing vessels is intended to permit the authorities to keep track of the number of vessels that enter the industry. It also is a means of revenue collection.

For freshwater fisheries, the following measures are applied:

- (i) Closed period of six months for critical habitats (breeding sites);
- (ii) Restriction of mesh sizes for gill nets; Minimum mesh size is 3 centimetres.
- (iii) Restriction of the size of Nile perch permitted for filleting to between 55 – 80 centimetres.
- (iv) Prohibition of destructive fishing gears and methods;

For marine water fisheries:

- (i) Restriction of mesh size of gill nets and trawl nets;
- (ii) Restricted fishing in marine parks and reserves;

Management of shrimp fishery:

(i) Zoning shrimp fishing grounds;

There are three main shrimp-fishing zones in Tanzania. The objective of zoning is to spread fishing effort evenly over the fishing grounds so as to minimize environmental degradation on any particular part. Further, to facilitate implementation of this measure, shrimp trawlers are required to rotate among the fishing grounds, this to minimize possible conflicts among trawlers;

(ii) Onboard Fishing Vessel observers

Government fisheries personnel act as observer onboard fishing vessels. The objective is to monitor fishing activities of the commercial shrimp fishery.

(iii) Restricting fishing time

Shrimp trawlers are allowed to operate between 06.00 hours and 18.00 hours only. This includes scouting time and steaming time to the fishing grounds. The objective is to give artisanal fishers time to set their nets at night and haul them at dawn without being fouled by a trawl. Daytime operation is also thought to ensure good visibility so that captains can avoid their vessel and gear coming into contact with other fishing gear. This restriction is meant also to reduce conflicts between the commercial and artisanal fishers.

(iv) Closed fishing season

In 1990 the Fisheries Division introduced a closed season from 1st December to 29th February (this is the time where many young shrimps are observed in catches). The objective of this regulation is to give sufficient time for the shrimps to grow to harvest size. The duration of the closure has been extended to a four months period. It now runs from the 1st of December to the 31st of March the following year. Stakeholders are involved in the process of determining the closed season as a way to enhance co-management of the resource.

(v) Restriction on fishing vessel capacity

In 1997 the fisheries authorities introduced a regulation to restrict shrimp trawlers to not more than 500 HP and not more than 150 GRT. The objective here is to reduce the fishing pressure. In addition the entry into marine capture fisheries is limited by licensing, which encompasses both type of vessel and type of fishing gear.

As concerns Total Allowable Catches (TACs) and quotas, in Tanzania they are not yet applied;

9.5 Aquaculture sub-sector

The Aquaculture sub-sector of Tanzania is generally little developed. The industry is dominated by the culture of freshwater fish. Small-scale fish farmers practise both extensive and semi-intensive fish farming. Small fishponds of an average size of 10m x 10m (100m²) are integrated with other agricultural activities such as gardening, animal/birds keeping on small pieces of land. Today Tanzania (mainland) is estimated to have a total of 14,750 freshwater fishponds (for *Tilapia* and *Oncorhynchus sp*).

The distribution of fishponds in the country is determined by several factors including water availability, suitable land for fish farming, community awareness on and acceptability of fish farming.

Mariculture in Tanzania is still experimental. Shrimps have been farmed in very small trial farms in the Bagamoyo area. A number of private companies have acquired plots and permits for culture of prawns but are not yet in operation.

Further, in Mtwara and Lindi regions *Chanos chanos* is farmed in ponds.

In recent years seaweed farming has become an attracting, income-generating activity in some parts along the coastline of Tanzania. Farmers operate small-scale seaweed farms scattered along the whole maritime coastline from Tanga in the North to Mtwara in the South and on Mafia Island.

Two species are farmed: *Kappaphycus cottonii* and *Eucheuma spinosum*. *Kappaphycus cottonii* is believed to be indigenous while *E. spinosum* was imported from the Philippines. There is also a potential for other seaweed species farming such as *Gracilaria*, etc.

In terms of employment, aquaculture offers employment to about 18 000 people; 14,750 are involved in freshwater fish farming, 97 in mariculture and about 3,000 in seaweed farming. The aquaculture is still subsistence and in most cases is household ownership.

9.6 Fishing communities

- (i) Fishermen are of different categories some working individually and other working in informal and formal groups;
- (ii) The Fisheries Act No 22 of 2003 has legally recognised Beach Management Units (BMU) as part of the co-management measures for sustainable management of the resource;

- (iii) There are several formal and informal fisher community groups engaged in various types of fisheries activities including fishing, fish processing, fish trading, and other petty business.

REFERENCES

1. Fisheries Act No. 22 of 2003;
2. Fisheries Policy and Strategy, 1997,
3. Mariculture Guidelines,
4. Various Fisheries Annual Reports