

## **COUNTRY PAPER 10.**

### **GENERAL CONTEXT OF FISHERIES IN THE SUDAN**

By

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Sudan lies between 50°N and 23°N, in the heart of the northeast part of Africa, covering a million square miles. Its natural vegetation ranges from thick equatorial forest to desert shrub, and is traversed by the Nile and its tributaries.

The population of Sudan is estimated at 26 million people and has recently been administratively divided into 26 federal States.

For a long time the economy of Sudan depended on rain and irrigated agricultural projects, as well as animal resources. During the last few years efforts have been fruitful in exploring for minerals like gold, and also for oil.

In spite of the adverse effects of various liberalized economic policies on the populace, there is a diversification and abundance of basic commodities. There is a tendency to follow Islamic procedures in banking and commerce.

There is a continuous effort to improve low investment in favour of producers and businessmen. The government has recently concentrated on building roads and airports. Telecommunication has improved remarkably, to the extent that anybody – however far – is within reach.

### **FISHERIES OF THE SUDAN**

Fishes in Sudan come mainly from the Nile and the Red Sea. The total annual catch is estimated at 45 000 t, with only 2 000 t from marine sources.

The highest per caput level of fish supply ever recorded did not exceed 1.3 kg.

### **FISHERIES MONITORING, CONTROL AND SURVEILLANCE**

For inland fisheries, the catch is landed as appropriate for the fishermen and is carried by lorries to market. The problem faced here is size of fish, which indicate wrong mesh sizes. Despite great effort over a long period, it cannot be said that the problem has been eliminated.

Marine fisheries are regulated by the Marine Fisheries Ordinance, 1937, as amended 1975. The most prominent items of this law are:

- Registration and licensing of fishing boats.
- Fishing permits.
- Designated zones and fishing seasons.
- Gear and fishing methods.
- Power of search, examination and arrest.
- Power of local authority to amend schedules and make regulations.

➤ Offences and penalties.

The regulations provide details on these items and the new local government system gives great flexibility to regional Ministers to act promptly. Of course, there are other authorities with their own responsibilities, but they coordinate with fisheries administration when required.

**THE ROLE OF THE MARINE FISHERIES ADMINISTRATION:**

The administration is entrusted with developing the fisheries sector to increase catch to the MSY level while protecting the resource. This involves:

- (i) Registration and licensing of boats yearly after ensuring that they meet certain standards.
- (ii) Issuing permits to interested and bodily able fishermen.
- (iii) Inspecting and estimating total catch by species and weight at landing sites and markets, using specially designed forms.
- (iv) Ensuring use of right gear and method. In that respect the customs authorities play a respected role.
- (v) After showing a valid licence and permits, fishermen must notify the security authorities before going on fishing trips, with duration determined in advance.

As for foreign fishing boats, a special procedure for licensing is followed and is explained in a permit. These are normally accompanied by observers to ensure compliance with fishing and other regulations.

- For exports, grading of marine products is done under supervision of the fisheries administration to ensure quantity and quality.
- There are numerous fisheries station along the coast to provide services and to issue licences.
- The Navy and its satellite units have patrol and observation towers along the coast.
- The fishermen themselves represent a guard on the resource and its environment.
- Penalties for violation of marine fisheries ordinance and regulation extend to confiscation of catch, gear and vessel, in addition to fines and imprisonment.

**CONSTRAINTS**

- Weak infrastructure in the sector, including the organization of the Department.
- Many technicians have left their jobs, with no new recruits.
- Lack of training in fish technique.
- Inability of the cooperatives to play their role.
- Illiteracy of fishermen, creating difficulties when dealing with modern gear.
- Conflicts with port authorities over power of licensing.
- Marine Fisheries Ordinance 1937 needs updating to cope with developments like pearl and shrimp culture problems, etc.
- Lack of any proper scientific stock assessment, leaving the administration with no firm basis for decision making.

## TECHNICAL APPENDIX – HIGHLIGHTS OF THE MARINE FISHERIES OF SUDAN

### INTRODUCTION

The coastline of Sudan on the Red Sea extends for 720 km between Egypt in the North and Eritrea in the South. Many explanations have been postulated for the name “Red Sea,” including the magnificent reflection of sunset on red rocks, or a red tide or massive mortality of bacteria on the water surface. The European name surprises the Sudanese, who see beautiful blue, pollution-free water which guarantees healthy quality fish to eat or observe.

The Red Sea divides Africa and Asia and has three main zones:

- (i) A shallow coral area to a depth of 50 m.
- (ii) A steep drop to the sea bed between 500 - 1000 m.
- (iii) A middle trench that is 3 040 m at its deepest, and this makes the Red Sea one of the deepest seas, with an area of 450 000 km<sup>2</sup>, a volume of 244 000 km<sup>3</sup> and a water renewal period of about 30 years.

The Red Sea is part of the Indo-Pacific zone but it receives no major ocean currents. It is important for several reasons, including:

- (i) Comparatively pollution free.
- (ii) A major shipping channel.
- (iii) Rich in minerals.
- (iv) Tourism potential, such as the Sengnaib atoll, sports fishing and diving.
- (v) Unlike other seas, it abounds with a great variety of fish.

The Red sea has received scientific attention since 1762, with the Danish Expedition, and the French Cousteau work in the 1960s, based on a sea garage on Romi reef, off the Sudan coast.

For fisheries purposes, the grounds of the Red Sea off Sudan are divided into seven zones:

- (i) *Mersas* and inlets.
- (ii) Boat channel.
- (iii) Fringe reef.
- (iv) Deep channel.
- (v) Barrier reef.
- (vi) Pelagic zone.
- (vii) Open sea.

To the north lies Dongnab Bay, while to the South is the trawlable area that provides shrimp and lizardfish.

No proper stock assessment has been conducted, but, according to the British ODA, the maximum sustainable yield (MSY) is 35 000 t. However, despite considerable efforts by the Government through development projects, catches have not exceeded 2 000 t/year, and have even been declining as no fresh inputs have been supplied. Until 1969, all effort was concentrated on the oyster farms in Dongnab Bay, with its unique physical characteristics for culture of mother of pearl.

From 1975, other types of marine produce were recorded: finfish, ornamental fish, sea cucumber, shark fins and prawns. The big gap between MSY and landings could be bridged if the example of the fisheries project established by the Chinese in Lake Nubia were repeated for the

Red Sea, under the management of the Ministry of Agriculture and Animal Resources of the Red Sea State, with capabilities proven in former projects.

### PROGRESS IN THE MARINE FISHERIES SECTOR IN THE LAST 25 YEARS

The following paragraphs and tables provide some data on the development and current status of the fisheries effort and production.

- To increase production, the authorities supplied a number of boats and gear to fishermen, at cost price and on easy terms, including: 92 boats with inboard engines; 40 boats with outboard engines; 137 outboard engines; and fishing gear and spare parts
- Construction of three small ice plants, at Suakin, Port Sudan and Mohammed Qol.
- Six insulated vehicles for transporting ice and fish between landing sites and markets.
- Establishing fisheries cooperatives for providing extension and other services.
- Training staff and fishermen both locally and abroad in fish technology.
- Carrying out experimental fishing surveys and stock assessment studies.
- Establishing oyster farms in Dognab Bay in association with fishers.

### TYPES OF FISHING CRAFT

The main vessels operated are: *ramas* – operated by one person; *huris* – crew of 3; *felukas* – 4-5 crew; launches – 7 m LOA; *sambuks* – 12 m LOA; and trawlers – 22 m LOA.

**Table 1.** Licensed fishing boats and fishermen

Year	Fishermen	Non-mechanized boat	Boat with outboard engine	Boat with inboard engine	Trawlers
1991/92	970	120	256	134	4
1992/93	787	94	103	95	8
1994/95	209	24	29	36	–

### MAIN MARINE PRODUCTS

- (i) Finfish
- (ii) Shrimp, lobster and crab
- (iii) Bêche-de-mer (Sea Cucumber)
- (iv) Aquarium fish
- (v) Oyster and trochus
- (vi) Shark fin
- (vii) Coral

**Table 2.** Some selected production data for three years (1992/93 - 1994/95; t)

Product	1994/95	1993/94	1992/93
Fresh fish	1 050	1 120	1 235
Oyster	13	14	23
Trochus	432	535	305

Based on even the most pessimistic studies, production did not reach 20% of MSY in spite of the great effort by government through development projects since 1975.

### ACTIVE FISHING COOPERATIVES AND COMPANIES IN THE RED SEA

- (i) Elbar Elshargi Cooperatives
- (ii) Sudanese and Refugees Cooperative
- (iii) Social Solidarity Cooperatives
- (iv) Susaf Company (joint venture between Red Sea State

- (v) Ficod (joint venture between the Animal Resources Bank and Saudi private investors)
- (vi) Fakki Company
- (vii) Ayed Enterprises (specialized in catching Bèche-de-mer)
- (viii) Embo
- (ix) Arab-German Company (shrimp culture and tuna processing)
- (x) Gulf Pearl Company

### MARINE FISHERIES ORDINANCE 1937

This is the controlling Act, with subsequent Regulations, covering organization of fishing activities, controlling limits and encouraging investment.

### PRODUCTION DATA

**Table 3.** Annual production of a stern trawler (1992/93 season; kg)

Month	Catch
Nov. 1992	10 420
Dec.	19 150
Jan. 1993	12 240
Feb.	14 340
Mar.	16 000
Apr.	14 220
May	–
June	12 960
<b>Total</b>	<b>99 330</b>

**Table 4.** Feluke monthly production (1996/97; kg)

Mouth	No. of boats	No. of trips	Total catch
May 1996	17	4	14 080
June	23	5	12 208
July	22	5	24 587
Aug	22	5	14 604
Sept	22	4	14 545
Oct	22	5	32 950
Nov	15	2	6 116
Dec	22	2	10 439
Jan 1997	24	2	18 277
Feb	–	–	–
Mar	24	2	13 255
Apr	24	2	18 055
May	39	3	30 236
June	51	3	34 917
July	60	3	30 482
<b>Total</b>			<b>274 743</b>

Source: Susaf Co.

**Table 5.** Export of marine products (1996/97; kg)

Month	Fresh fish	Trochus	Oyster	Sea cucumber	Shark fin
July 1996	6 500	52 000	2 000	–	40
Aug	11 200	26 000	–	15	–
Sept	10 400	50 000	2 000	1 770	–
Oct	12 920	40 000	1 000	–	–
Nov	4 500	40 000	–	860	–
Dec	5 500	13 000	1 000	30	180
Jan 1997	6 500	13 000	–	–	–
Feb	2 000	28 000	–	–	1 103
Mar	5 000	–	–	–	–
Apr	4 000	13 000	–	–	–
May	9 000	–	–	–	–
June	9 500	39 000	–	–	–
<b>TOTAL</b>	<b>87 020</b>	<b>314 000</b>	<b>6 000</b>	<b>2 675</b>	<b>1 323</b>

**Note:** It is believed that there were additional direct exports of fresh fish by Susaf Co.