

Contribution of Fishery Production and Marketing Sector in the Household Food Security in the Red Sea State, Sudan

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Abstract

This study aimed to determine the contribution of fishery production and marketing sector in the household food security in the Red Sea State, Sudan. The study used questionnaire, field survey and personal communications as primary sources of data collection; literature from previous studies and records were used as secondary sources of data. The population of fishery production and marketing sectors were identified as fishers, fish sellers, labors, restaurant owners, fish exporters, fishery input producers, and traditional fish product producers, representing 41.9%, 14%, 25.9%, 10%, 1.7%, 4% and 2.7% of the sampled population, respectively. Participation of women in fishery production and marketing activities of the sampled population constitute 4.7%. The average annual fish production was calculated as 769.97 tons from the daily fish landing in Feb. 2015 and was estimated as 1436 tons through questionnaire results. The results indicated that 99% of fin fish production is sold in Port Sudan and Swakin localities. The results showed that 85.4% of the enterprises are managed by their owners while 8.5% hire their relatives with 85% of enterprises in fishery sector were depends on self-financing. The recently developed central fish market and specialized sea food restaurants center represent a positive impact on fisheries production and marketing.

Keywords: Fish production; marketing; Household; Food security; Red Sea and Sudan.

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1. Introduction

Millions of people depend on fisheries for their income and livelihoods including a diversity of stakeholders from tourism operators, to fishers and fish processors. A number of studies have shown the impact of marine resource management and activities on reducing access to fish [12]. The Sudanese Red Sea coast (750 km) has a continental shelf of about 9800 km². According to the Marine Fisheries Administration [17] records, the potentials of the marine fisheries is 35000 to 10000 tons per year based on British ODA Project (1975- 1990) and FAO Project (1979-1984), respectively. The average annual fish production for the last ten years was around 545.5 tons of which 100 tons of Najil were exported to Saudi Arabia every years. On the other hand, the average production of trawling fisheries for the last five years was about 445.8 tons per year, while the average production for the Sardine, shrimps, sea cucumber and Kokian (*Trochus* sp.) for the last five years were 1039, 37.4, 9.17 and 214.7 tons per year, respectively. Although the fishery sector's contribution to national income in Sudan is small (i.e. 0.4% of gross domestic product), fishing is the source of employment and livelihood for large communities ([1] and [10]). It is estimated that the sector provides employment to more than 64 500 peoples, supplying more than 64 550 tons of fish every year [9], and 10 % of the estimated production potential of the country from marine waters [10].

In Red Sea State there were 1938 fishers distributed into three main areas; the northern area (North of Haloot to Osief) with 693 fishers, the central area (from Haloot to Swakin) with 645 fishers, south of Swakin with (600) fishers. The operating boats were 143, 165 and 211 boats for southern, central and northern areas, respectively [17]

Though fish resources have significant potential in food security and socio- economic development in Sudan, the fisheries sector is still dominated by small scale and subsistence production systems employing relatively traditional technology. Fishers are the poorest among the Sudanese and most of them lack alternative sources of livelihood making them intimately tied to this resource [7]. Reference [20] stated that the Red Sea State artisanal fisheries are facing drop out of fishes because people become better off, urban and unwilling to see their young family members as fishers. For these changes fish industry need to be expanded and up graded to cope with global markets [4] and to improve livelihood of fishers [11]. Although several plans and projects have been launched to promote fish trade and fisheries sector in Sudanese Red Sea coast [5], nevertheless studies and research concerning the development of the sector were inadequate, and they were mostly university theses e.g. [2,19,6,15]. The study was supposed to cover the whole Red Sea State, however, due to funding limitation the study confined to Port Sudan and Swakin localities.

2. Material and Methods

2.1. Study area and duration

The study was conducted in Port Sudan and Swakin localities- Red Sea State in the period from Dec. 2014 till Jun. 2015.

2.2. Data collection methods

A questionnaire was designed to collect data and descriptive information on fish production and marketing. The questionnaire includes two parts; the 1st part was personal and demographic data of the study sample e.g. sex, age, education, income, housing, social status and the 2nd part was related to fish production and marketing.

2.3. Sampling techniques

Data on fish production and marketing manpower was sampled from fish market, restaurants and boat building yards. The number of individuals was 1245 [17] The sample was selected randomly according to statistical models with expected level of response 50%, confidence limits 95% with error level 0.05 [18]. The sample size was 294 persons.

2.4. Data analysis

The SPSS programme was used to analyze data.

3. Results and Discussion

3.1. Characteristics of the studied population

The results indicated that females participation in fish production and marketing activities was low (4.7%). Probably due to traditional perceived ideas about participation of women in fisheries activities. Awareness programmes should be launched and executed to change community concept towards work of women and encourage means to incorporate them in fishery sector activities. For women in particular fish processing and trading are tangible livelihood support [3]. With respect age groups distribution; those below 18 years constituted 3.3%, those between 18 to <30 years 28.9%, between 30 to <40 years 24.6%, between 40 to < 50 years 18.6% and >50 years was 24.6%.

About 21.9% of studied sample were illiterate, 12.6%, 33.9% and 25.2% were attended Khalwa, primary school and secondary school respectively high school while 5% were university graduates and 1.4% were postgraduate. Cultural factors and relative isolation of fisheries groups seems to be the main factors of low education level.

The results illustrated that 65% of fisher groups are married, 33% are bachelors and 2% are divorced or widowed. This reflects the nature of settlement and responsibility to family life. The average family is composed of 5 members. About 12% have no kids, 33% have 3, 27% have between 4 to 6 and those who have seven members or more are 28%, polygamy may be behind this high percentage of family members.

The fisheries communities are quite settled as 81.6% have more than 15 years in the Red Sea state, 6% have <5 years while 10% have 5-15years. This reflects that fisher communities are mostly from the state and are well engaged in fishery business. With respect to fishery activities the study showed that 56% of the sampled population has been working over 10 while those who worked for more than 5 and less than 10 years were 15% and 29% have less than 3 years in business. This suggested that the majority of fishers are well acquainted and satisfied with their job.

The study revealed that fishery sector is composed from the fishers, fish sellers, labours, restaurant owners, fish exporters and fishery producers which represented about 41.9%, 14%, 25.9%, 10%, 1.7%, 4%, 2.7% of the sampled population, respectively.

3.2. Fish production

Fisheries along the Sudanese Red Sea coast are generally considered traditional of small scale and subsistence nature which poorly serves both the market and producers [20].

The fisher can obtain 1-200 kg per day, with an average of 38kg. The quantity of fish being consumed on daily basis by restaurants varies from 1-250 kg per day for each restaurant. Shell fish products range between 1-200kg. Fish and fish products which are stream line for exportation vary between 2-100kg on daily basis. The production of processed fish ranged between 1-80kg. The results showed wide range modes which reflect the variability in production and consumption estimations on daily basis and at an individual level.

The average annual fish production was estimated as 545.5 tons during last ten years [17] The current study calculated 769.97 tons from the daily fish landing (Feb-2015). The variation reflected clearly the lack of efficient data collection system. Reliable data is tool for production, utilization, processing, marketing development and planning of fishery sector. This was supported by [15] who mentioned the lack of reliable data for fish production and lack of strategic plans.

There is high demand on coral fishes, shrimps and sharks. There are consumed locally or exported. Next in production are sea cucumbers, shell fish, oyster with fish meal as a last priority. Fish trade relied on whole fresh fish for local marketing and frozen whole fish for export. Few species such as *Mugil cephalus*, *Gerres oyener* and *Chanos chanos* are wet salted at limited scale for local consumption [16]. The major economically exported and tradable fish species included *Plectropomus maculatus*, *Letherinus lentjan*, *Caranx melampygus* and *Lutjanus gibbus* [8]. Reference [2] confirmed the role of marine resources in fulfillment of food security in the Red Sea State, he indicated the vital need for marine resources to cover the shortage of other animals protein due to successive dry seasons passed across the area lastly.

The study indicated that most of the sampled population (98%) have an average monthly income ranged between 425-3000SDG.

The study showed that 57.5% of the sampled population were satisfied with their work and 42.5% wants to change their jobs. 37.9% of the sampled population stated that the reason behind their desire to change their work was the low income, 5.6% stated that it was difficult or dangerous work while, 56.5% wanted to change their work without giving any reasons. Reference [20] Stated that fish industry needed to be expanded and upgraded to attract young fishers.

The fishery sector employees working with salaries are around 43.3%. The percentage of fishery officers is around 14.6%; gender-wise men were around 91% and women working in administrative jobs were around 3%. Results showed that only 5.6% women were employed with salaries in the sector. Employees who were

classified as professional constitute 53.2%, while those with academic degree constitute 5% and the semi-professional workers were also about 5%. Fishery represent a source of indirect employment for boat builder, fishing gear manufactures, fish cleaners in the market, engine suppliers, ice manufactures and traders. There is a need to quantify indirect employment based on fishery. Elsewhere fish related jobs are well classified and articulated [13,14].

The flare up in fisheries business is due to the development of the central fish market and specialized sea food restaurants.

3.3. Marketing and Sale

The results showed that 99% of the produced fish were sold in Port Sudan and Swakin in the Red Sea State. Fishers sell 57% to consumers, 37% to middlemen and 5.6% to whole traders and 0.4% goes to exporters and local producers who may use it for traditional fish food products. The study showed that 80% of the respondents are satisfied with the environment of marketing.

The need for special marketing committee to handle marketing was marginally not appreciate as more as 51% of respondents are not for it.

3.4. Finance, Management and Development:

The fishery sector enterprises are classified as small or medium based on indicators related to employment and market share. The type of business is basically family type managed by the owner in 85.4% of the cases. About 8.5% of owners may employ their relatives. Management through professionals was about 4.2%. Thus, community-based cooperative societies seems to be a promising area to improve fish production and consequently food security.

The results indicated that 62.8% of the sampled population has links with local authorities, 33% with health authority, 20.3% with taxation and financial authority and 30.6% with societies and unions. This reflects weak links between the sampled population and the concerned departments; this was in line with [15].

The study indicated that 85% of the enterprises in the sector were self-financed, and 5.3% were supported. The contribution of NGOs in funding was about 1%. Thus banks and micro-finance facilities should be encouraged to contribute to the fishery sector activities. Reference [6,19] mentioned that the lack or limitation of funds had negative impact on fishery production and marketing sector development.

Concerning the investments in fishery sector; the employees think that the current investments were satisfactory; however, these were considered far below the demand.

The study revealed that contribution from fisheries administration, local and international NGO's, academic institutes and professional societies in fisheries development was weak. This is in line with [6]. Only 10.3% of the sampled population benefited from fisheries administration, 21.3% from NGO's., 7.3% from the financial

facilities, 1% from academic institutes and 3% from professional societies. Although the financial support was so little, most of it was allocated for possessing fishing boats. On the other hand the contribution of academic institute in capacity development and research was limited and/or weak. The overall analysis reflected that there was a weak response from above constituents towards improvement of the fisheries sector. Most of those who are in concern with fishery sectors did not participate effectively in activities related to the sector development.

4. Conclusions and Recommendations

The annual fish landing and other fisheries activities were so limited compared with the available potentialities along the Sudanese coast. The efforts exerted in the last few years to promote and improve fishery sector by the state government, supported with some national and international funds were highly appreciated, and more efforts are still needed. Collaboration between the concerned departments, institutes, and NGOs is required to promote the sector. Banks and micro-finance authorities should be encouraged to facilitate funding for the fishery sector. Involvement of women in fishery sector activities should be encouraged.

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