ABSTRACT

The Arab Republic of Egypt covers an area of roughly one million. Square kilometers, of this only 4% is permanently inhabited, the remainder being desert or march. The population of Egypt is about 70mln. and concentrated in this small habitable area making it one of the most densely populated regions in the world. Fisheries resources in Egypt consist of marine resources, inland water fisheries, and fish farms. The total area of those fish resources is about 13.3mln. feddans. Egypt's fish production was 876 thousand tons in year 2003, where the total consumption was about 1.04mln. tons of fish. Egypt has imported 163 thousand tons of fish in year 2003, and the food gap on fish protein in the same year 2003 was about 22.8%. In spite of good potential for fish resources in Egypt, the abuses of those resources make it difficult to raise fish production from these resources.

This study did elaborate main problems that face Egypt's fisheries resources and came with several solutions that could be a good start for the sustainable development as follows:

1- Safeguarding the environment of fisheries resources and acting in a socially responsible manner.

2- Implementing adjusted plans to reduce the number of fishing vessels allowed to fish in the national waters.

3- Actively enhancing fish stocks in inland fisheries.

4- Encouraging fish farming and integrating it into agriculture.

5- Create new employment opportunities and improve working conditions and living standards in small-scale fisheries local communities.

SUMMARY

Egypt as one of the developing countries has a problem of lack of animal problem of lack of animal problem, where the per capita of animal protein from the available national resources is less than the world average.

There are many reasons of the insufficient animal protein as a food for Egyptian's First, the shortage in green area for animal food.

Second man and animal compete on the same agriculture land for food and for crops that directed for local consumption and export. Third, there is no good strains of animals for meat production, having these problems in mind, the solutions come from fish resources however, these resources have its problems.

This study seeks solutions for fish resources problems on the basis of economic analysis.

Data used in the study were gathered from several sources.

Many published and unpublished information were obtained from the General Authority for Fish resources Development, National Institute of Fisheries and Oceanography, Central Agency for public Mobilization and Statistics, technical reports and interviews with related people of fisheries regions, researchers and experts related to fish resources development.

Descriptive as well as quantitative methods were used for analysis and studies of different development fish resources aspects.

Statistical methods were employed for analysis of different periods focusing on fish production and problems facing the sector. Many problems in the sector were exposed and solutions for these problems were tackled.

The study includes 6 chapters:

Chapter (1)

Consists of the introduction, the problem and the objectives of the study. This chapter has to explain main technical concepts used in this study brief notes about previous studies and researches related to the sector have been mentioned.

Chapter (2)

Gives outlook on the world fisheries and fish production, the world fish import and export and the situation in Egypt for fish export and import.

The Arab Republic of Egypt covers an area of roughly 1mln. square kilometers, of this only 4% is permanently inhabited, the remainder being desert or marsh.

The population of Egypt of nearly 70mln. is concentrated in this small habitable area making it one of the most densely populated region in the world.

Agriculture continues to be the second largest sector in the Egyptian economy generating about 13.2% of the GDP, about 40 % of total employment and directly or indirectly, about 70% of the country's non oil exports earnings. The bill for fish imports reached about US$ 100mln. in 2003.

The fisheries sub-sector contributes about 6.1% of agriculture GDP and provides primary income and employment to some 250,000 fishermen and fish farmers, and temporary or seasonal employment to an estimated 750,000 workers. Fish is a traditional component of the Egyptian diet accounting for 30-40% of total consumption of animal protein. However per capita consumption (about 14.56kg.) is not far from the world standards. During the past decade, domestic fish production increased at about 9.9% per annum on average, while population grew at about 1.9% annually. Fish imports rose from 90,000 tones in 1991 to 163000 tones in 2003, increasing by 48.2% from 1996 to 2003. Recognizing the need to reduced the growing dependence on fish imports and the opportunity for improving nutrition through this relatively low-cost protein source, the Government is giving high priority to fisheries development.

Chapter (3)

Is dealing with economics of production , and fish consumption in Egypt through two topics namely cost of production , fish consumption production functions , consumption functions and cost functions were estimated for fish farms and fish conservation products . The results suggest that there is a place for new comers in fish farming and fish conservation activities . Results indicated that average per capita consumption has an increasing trend during the period 1984-2003. The domestic fish production in 1984 was 234.9ths . tons then increased to 876ths. tons in year 2003 with 208.4 percent increase. The results also indicated that there is a high demand on fish consumption , which was 366.7 ths . tons in 1984 and 1.03mln. Tons in year 2003. The annual per capita fish consumption in

1984 was 7.8 kg and has increased to 15.24kg in year 2003, with an increase of 81.4% . Having the relationship between fish consumption and annual consumer expenditure in Egypt , results indicated that income has the strongest impact on the annual per capita fish consumption , and fish is a substitute for red meat . Regression analyses were conducted in order to estimate the price elasticity's of demand , the income elasticity's of demand .

Chapter (4)

The fourth chapter exhibited various experiment of other countries in the field of fisheries, aquaculture and sectorial sustainability development.

Problem and solutions which were faced by fishermen, fish farmers and management have been cited.

The small scale fisheries communities in Nigeria, India and other countries were given chance to improve their way of live, financial institutions have delivered small loans to fishermen to buy fishing tools, these experiments indeed , as a new financial tools have helped local communities for increasing fish production and more income were gained. The Nineo ecological phenomena were identified in respect to decrease of fish production in Chile and Pero, in Latin America

Chapter (5)

Has demonstrated the problems of fish resources sector in Egypt and the proposed solution of these problem on the basis of economical analysis, Having the gained experience of pervious studies in the field of fisheries, marine, aquaculture and dynamic fisheries stock assessments recommendations were suggested based on economical environmental and fisheries potential : In respect to water pollution:

In Egypt , water quality degradation of the River Nile , the Lakes , and agricultural drains is mainly related to the discharges of untreated effluents and drains from industrial effluents, agricultural drains, raw sewage from the expanding un-serviced area, and other sources such as navigation and weed control. Therefore, the main causes of water pollution in Egypt are: (1) Industrial effluents (2) Agriculture drainage.

However, one can say that the industrial sector is the most responsible sector for the water pollution problem in Egypt. Bilharziasis disease (as a water –borne disease from water pollution) is a threatening sickness and death disease for most

poor farmers. In that sense, addressing the water pollution problem would be particularly important to the poor (EEAA, 1992 and 1995).

Experiments with grass carp were carried out in a small drainage canal in the province of Giza near Cairo, with favorable result: submersed weeds were effectively controlled, Further experiments and management measures covered several other canals in the country. Grass carp also found a ready used as human food, with poaching of fish from the canals on a large scale at might (Van der Zweerde, 1990). The use of grass carp in one of the Egypt's main irrigation canals improved irrigation conveyance efficiency through decreasing the percentage of submersed aquatic weeds from 35% to 60% (Bakry,1996), through not affecting the floating water hyacinth.

The key challenges for the fishery industry and production business in now to satisfy fish demand whilst safeguarding the environment of fisheries resources and acting in a socially responsible manner.

This represents a key change in forces from simply increasing in production to now fully considering social, environment and economic issues and impacts.

Interactions between fish and aquatic macrophytes in inland waters, FAO Fisheries Technical Paper 396, FAO, ROME 2000.

Fisheries production were derived from several sources, both within Egypt's hinterlands and the seas. Marine resources come from the Mediterranean and the Red sea.

The productivity of the southern Mediterranean is very low. This can be explained by the lack of proper physical processes, which may bring nutrients to the surface of water. The primary productivity of the shallower parts of the continental shelf of this region is relatively higher (due to local and temporary mixing) yet, the fishery yield is not high largely on account of the bottom morphology. The inshore bottom is flat, made mainly of sand or low biogenic rocks and there are almost no bags or islands.

This morphology supplies very little refuge, spawning sites and other essential niches for commercial species, therefore, the Egyptian Mediterranean fisheries are poor and the average fish production per feddan of these fishing grounds in1985 was about 4.9 kg/ feddan, and in 1999 was about 13.2 kg/feddan, finally in 2000 was about 8.76 kg/feddan. These highly fluctuated productivity tells that there is no stability in Mediterranean fisheries, due to many reasons: first, because of high number of fishing boats, second because of pollution, finally because of lack of regulatory system for these fisheries.

The Egyptian fishing fleet incurred significant economic losses in the period of the study 1991-2000, when catches were at their highest level. These losses were primarily caused by an excessive fleet size, which meant that there are number of fishing vessels could have been working else where or the investments that were allocated for those vessels could have been allocated for other projects .

It was estimated in the Mediterranean fisheries that about 521 standardized fishing boats worth of L.E. 159.4 million.

In respect to the Red Sea fisheries, there is other kind of problems but still the main problem is the increased number of fishing boats. In 1991the number of mechanized fishing boats was 856 and 895 fishing boats without engines, where in Year 2000 the number of mechanized fishing was 1316 and 1718 fishing boats without engines.

In order for effective conservation and management measures to be implemented, Egypt will need to improve the economic situation by implementing effective control over fishing vessels Implementing adjustment programs reduce the number of fishing vessels allowed to operate. Capture fisheries contributed 384,314 tonnes to food supplies in year 2000 while aquaculture provided almost 340,000 tonnes. Although continued attention to aquaculture production can be expected to contribute an extra production to food supplies each year. The aquaculture contribution in the total production of the country has increased dramatically. During the period 1991-2000 the fish farming production ranged from 60,5 thousands tons in 1991 to 340 thousand tons in year 2000, which is 18.9% of the national total fish production in 1991 and 46.9% in year 2000.

The sustainable contribution from both fresh water and marine capture fisheries will not be much higher than a million tones provided that conservation and management measures are implemented effectively to increase supplies further, the government will need to extend the resource base by:

- Actively enhancing stocks
- Increasing sea ranching
- Encouraging fish farming and integrating it into agriculture
- Rehabilitating fish habitats

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