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UNDERSTANDING FISH FOR FOOD SECURITY AND TRADE

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Abstract

Ensuring food security is an issue of vital importance for the developing countries particularly in India. Fisheries sector plays an important role for food security and nutrition by providing food and livelihood for a large section of population. Also, it plays pivotal role directly and indirectly for the development of nation. The FAO world conference in 1984 also ensured that fish is an important part of daily diets and most traded food commodity. We have to understand how fish is ensuring food security and trade of the nation. From this background, this paper tried to understand the importance of fish for food security and trade in India.

Keywords: *Food security, Fish production, Marine fish export trade*

Introduction

Food security is a basic human right and it is also one of the most essential indicators of sustainable human development. The UN Millennium Declaration in 2000 set the Millennium Development Goals (MDGs), the first of which is to halve poverty and hunger by 2015. It has been the major challenge facing developing country like India. However, according to the World Human Development Index 2017, India HDI is 131 out of 188 countries. International Food Policy Research Institute (IFPRI, 2017) said India rank is 100th out of 119 countries in the Global Hunger Index list. This level of vulnerability corresponds to indices of 'food security' in public discourses on nutrition and health. In this background food security is considered as important one. Food security can be achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preference for leading an active and healthy life. Physical and economic access to nutritious food and safe drinking water are very important for all people. Pazhani

(2006) article describes the various types of failures of fishermen in becoming very poor which had happened due to Amertya Sen's food entitlement approach. It is very interesting to know that entitlement failure is one of the reasons for food security. People often fail to eat enough nutritious food only because they do not have sufficient purchasing power, hence creates problem of food insecurity. Population has been increasing very fast at global level at the same level have to be ensured food availability and accessibility to all.Raoet.al (2006) pointed out that fish is a very good source of protein and our nutritional requirement can be fully met by fish food and this is not difficult because fish production can be trebled or quadrupled by either culturing or exploiting from the seas. There will be no starvation of deaths in India and in the world in future, if all of them consume fish. Fish provides good food security and it prevents starvation deaths provided if fish is distributed to the entire region. This article emphases the importance of fish for food security and trade in India. Nasurudeen et. al. (2006) concludes that inequality in the consumption of calories, protein and fats between states as well as income classes given by the Gini coefficient indicating the state wise disparity in calorie intake declined by about 16 % for the urban population indicating an increased inequality in the calorie consumption in case of urban population in different states in India. From this paper one can understand that inequality of nutritional insecurity situation exists in almost all states. It is known that aquaculture has been one of the fastest growing food production sectors in the world. India stand second place in the aquaculture production in globe. Table -1 shows the capture fisheries and aquaculture production and consumption in the top five ranked aquaculture producer's country. Among these, India is in second place in terms of global rank of aquaculture production. At the same time, per year per capita fish consumption is 5.2 kg per head. It is very low compared to other countries. From this, it can be understood that there is wide gap between production and consumption of fish in India.

Table - 1

Capture fisheries and aquaculture production, together with fish consumption in the top five ranked aquaculture producers.

Country listed by rank of aquaculture production	Capture production	Aquaculture production	Global rank capture	Global rank aquaculture	Capture as % aquaculture	Annual capture growth (1990-2011)%	Annual Aquaculture growth (1990-2011) %	Fish consumed (kg/head/yr(2011)
China	15.8	38.6	1	1	41	4.2	8.9	33.5
India	4.3	4.6	5	2	94	2.1	7.4	5.2
Vietnam	2.5	2.8	10	3	88	5.7	14.7	33.6
Indonesia	5.7	2.7	3	4	210	4.0	8.4	28.9
Bangladesh	1.6	1.5	15	5	105	4.4	10.4	19.7

Source: www.fao.org/3/a-i3963e.pdf

2. Objectives and Methodology

The prime purpose of the paper is to understand fish for food security and trade in India. The present study is based on Secondary data. The data were collected from books, journals, government reports and internet sources. In this paper, authors used the statistical tools such as Least Squares Estimators for forecasting and simple regression models.

3. Analysis and discussion

3.1. Economic Importance of Fisheries Sector in India

Fish is a vital source of food for all social groups in all countries. In India, the fisheries and aquaculture sector plays an important role for food production, providing nutritional security to the food basket, contributing to the agricultural export and engaging about fourteen million people in different activities. We need to understand the significance of fisheries sector in Indian economy. According to National Fisheries Development Board (2016), constituting about 6.3 % of the global fish production, the sector contributes to 1.1 % of the GDP and 5.15% of the agriculture GDP. The total fish production of 10.07 million metric tonnes presently has 65 % contribution from the inland sector and nearly the same from culture fisheries. Fish and fish products have presently emerged as the largest group in agricultural exports of India, with 10.51 lakh tones in terms of quantity and Rs.33,442 crores in value. The given below table - 2 describes about Indian fisheries.

Table - 2

Fishery sector in India

Global Position	3rd in Fisheries and 2nd in Agriculture
Contribution of fisheries to GDP (%)	1.07
Contribution to agricultural GDP (%)	5.15
Per capita Fish Availability (Kg)	9.0
Annual expenditure earnings (Rs. in crore)	33,441.61
Employment in sector (million)	14.0

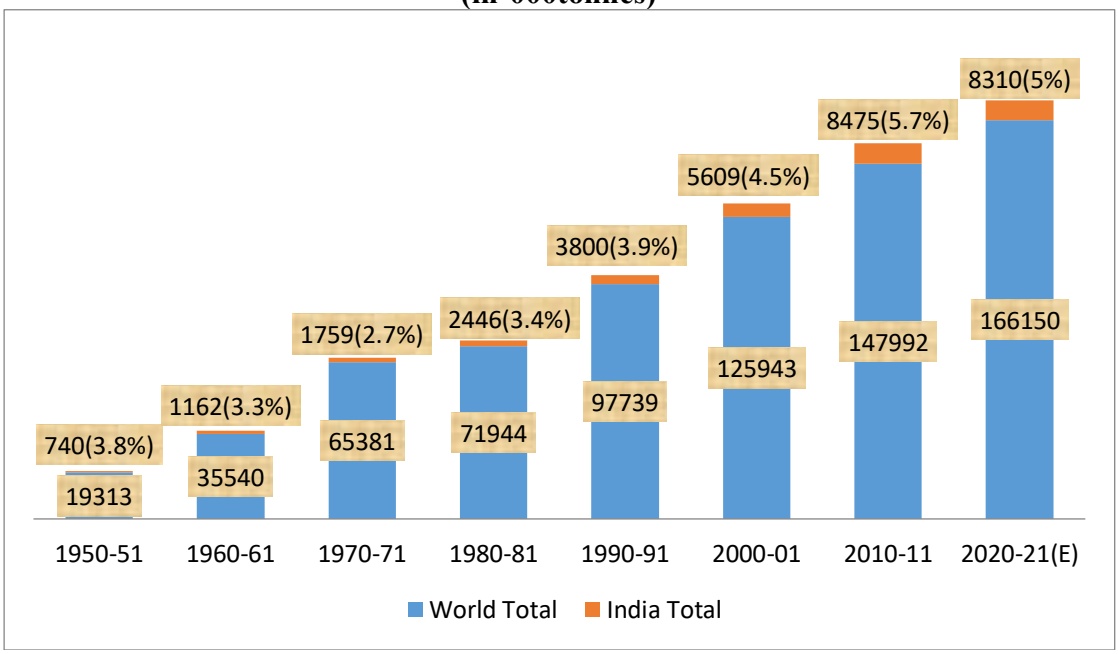
Source: www. nfdp.gov.in/about - Indian-fisheries.htm

Chand, Rameset.al (2013) concludes that improving incomes is not a panacea for the undernourishment and malnourishment problem in India. There is a strong need to create awareness about adequate intake of energy and protein and bring attitudinal change to raise energy and protein intake and adopt lifestyle to digest higher energy and protein. India is rich country in terms of natural resources but have to be utilize properly. In this aspect, fish and fisheries products are an important source of both macro and micro - nutrients for humans. Globally fish accounts for about 17 % of animal protein intake.The contribution of fish production and export in global level has been increasing since 1980's.

Sustainable agricultural development is more important in developing country particularly in India. Sustainable agricultural development, including the essential contribution of the fisheries sector, has become of utmost importance, both to ensure adequate supplies of food at affordable prices, and as the main source of economic and social progress for the rural poor and fishing

communities. The given below the figure - 1 shows contribution of India to world fish production.

Figure - 1
Contribution of India to World Fish Production (in'000tonnes)



Source: Hand Book on Fisheries Statistics (2014), Govt. of India; E for expected value

In 2010-11, the contribution of fish in world fish production was 8475 tonnes, it means 5.7 % share in global level. Expected production will be in 2020-21 at 8310 million tones. So, Government of India has to take necessary steps to increase fish production in the next decades.

We have to consider two important things for sustainable development. One is population growth and another one is food production particularly fish production. India is the second largest population country in the world. In India, large population will create a large demand for food consumption. In this situation, we need to increase agriculture production such as cereals, pulses and fish production for precautionary motive.

Table - 3
Population growth, Agriculture Production and Fish Production in India

Year	Population (in millions)	Decadal Growth Rate	GDP at factor cost (at constant prices in crore)	Output of food grains (Million Tonnes)	Fish production (in '000 tonnes)	Decadal Growth Rate
1950-51	361	-	224,786	50.80	752	-
1960-61	439	21.6	329,825	82.00	1160	54.2
1970-71	548	24.8	474,131	108.40	1756	51.4
1980-81	683	24.6	641,921	129.60	2442	39.1
1990-91	846	23.8	1,083,572	176.40	3836	57.1
2000-01	1,028.7	21.6	1,864,300	196.80	5656	47.4
2010-11	1,210.2	17.6	4,493,743	218.20	8231	45.5
2020-21(E)	1,305.8	7.9	3,656,791	251.68	8192	-0.4

Source: India's Census report 2011 and Hand book on fisheries statistics 2014, Govt. of India

The above table-3 presents the India's population growth, GDP, food grain production, and fish production since 1950-51. The population has been increasing continuously from 1950. In terms of GDP and food grain productions have been increasing high at the same time fish production has not increased that much level. The trend line shows the negative growth rate at -0.4 in 2020.

Table – 4
Fish production trends in India
('000 tonnes)

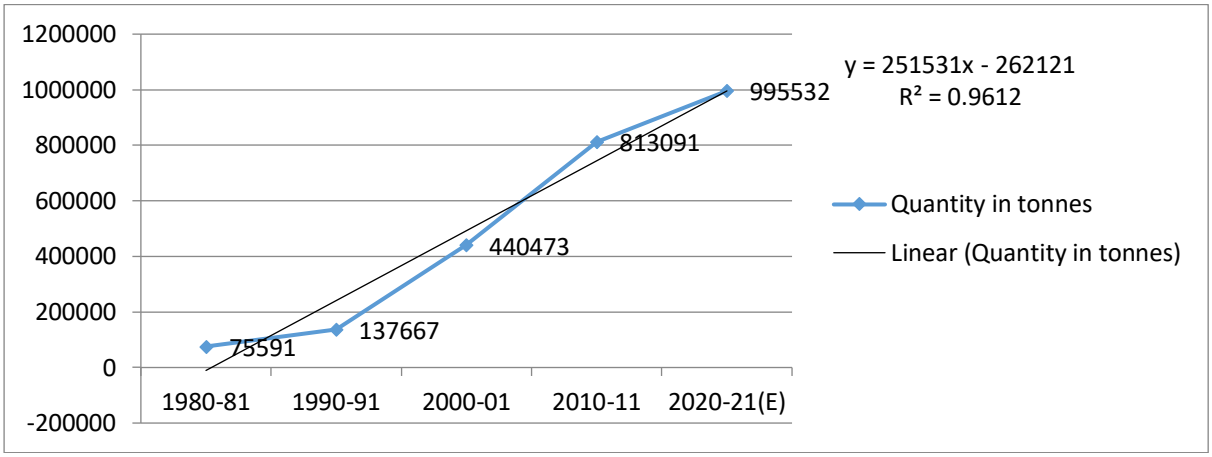
Year	Marine (%)	Inland (%)	Total
1950-51	534(71)	218(29)	752
1960-61	880(76)	280(24)	1160
1970-71	1086(62)	670(38)	1756
1980-81	1555(64)	887(36)	2442
1990-91	2300(60)	1536(40)	3836
2000-01	2811(50)	2845(50)	5656
2010-11	3250(39)	4981(61)	8231
2020-21(E)	3663(45)	4529(55)	8192

Source: Hand book on Fisheries Statistics, GOI Percentage in parenthesis

In fish production in India, Inland and marine fish production plays significant role. The percentage contribution of inland fish production in the total fish production of 29 % during the year of 1950-51 and has increased to 61% in the year of 2010-2011. There are many reasons for declining marine fish production like as overfishing, Using high efficient technology, etc. Due to natural resource degradation, marine fish production has been declining. Apart from the natural resource degradation climate change is one of the major reasons for declining fish production. These reasons may be altering fish demand and supply in Indian fisheries. Fish and fish products from India plays a significant role for providing employment opportunities and food security in the world. During the past decades from 1950 to 2010 the Indian fisheries and aquaculture has witnessed improvements using new technology and farming methods. From the above table, it is obvious that the contribution of inland fish production is higher than marine fish production.According to Meenakumari, deputy director general (fisheries) of the Indian Council of Agricultural Research (ICAR), the stagnation of marine fishing is the result of irresponsible fishing and over-exploitation of coastal marine resources. Even tiny and underdeveloped fish, which ought not to be caught, are spared. There are no restrictions on the number of fishing vessels that can operate in the oceans. As a result, too many fishing boats scout for increasingly meager resources.

Fish and fish products export play a great role in foreign trade. As mentioned earlier it has the largest group in agricultural exports of India, with 10.51 lakh tones in terms of quantity and Rs.33,442 crores in value. The given figure-2 shows increasing steadily the trend in export of marine products since 1980. Given the simple linear regression model describes the relationship between the year and export of marine fisheries products. It has positive relationship between the variables and it's coefficient of determination (R2) value is 0.961 (Figure-2). The value is close to 1. It means that this model explained and predicts well and high linear relationship between two variables.

Figure-2
Trend in Export of Marine Products since 1980



As far as the export of marine products is considered, it has been increasing and has considerable contribution of GDP and foreign trade. In future also, it will have significant role. In this situation, theCentral and State government should give more importancefor fish production, distributionfor sustainable food security in India.

4. Conclusion

Food security is one of the human rights and it has been becoming political, social and economic dimensions at the national, regional and global levels. As the good statement given by FAO in 1984, "fish is an important part of daily diets in many countries and provides nearly one quarter of the world's supply of animal protein and…in many countries fisheries are important sources of employment, income and foreign exchange". There is no doubt in that fish food can improve the food security of India. It may be directly or indirectly ensure food security, trade and development of the country. Hence, Central and State Government should give more importance to Fisheries sector. In the current increasing population condition, experts estimate the world will need to double food production by 2050, and those same experts say fish are the answer.

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