

# AQUACULTURE – AN ECONOMIC ROUTE TO NUTRITION.

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*Abstract* : Globally, per capita annual availability of grain has declined between the 1970s-and the 2000s. On the average, Urban areas seem to do better than rural areas in terms of food and nutrition security. For instance, global data suggest that the prevalence of under-nutrition among urban children is consistently lower than that among rural children. To improve the nutritional status of the population, there may be various routes. To prevent malnutrition required nutrients which are essential may be met by fish. This study focus on the nutritional values of fish that prevents health problems related to childhood, adulthood pregnancy and lactation.

Key words: *Nutrition Security, Undernutrition, malnutrition*

## INTRODUCTION

At the beginning of the twentieth century, there were less than 20 cities in the world with a population of one million or more. By the time of 21st century, this figure had crossed 400. Around 75 percent of these cities were in low and middle income countries (Cohen, 2004). By 2008, more than half of the World's population lived in Urban areas. This figure is expected to increase to 70 per cent by 2050.

As the Third World urbanizes rapidly, ensuring food security, has become a daunting challenge. For the first time since 1970, the number of hungry people in the world has crossed one billion. The proportion of the undernourished in the developing World which had steadily declined from 34 per cent in 1969-71 to 16 per cent by 2004-06 has risen to nearly 20 per cent in 2009 (FAO 2009). Global food prices rose by 83 per cent between 2005 and 2008. Between January 2005 and June 2008, the price of rice rose by 170 per cent and that of wheat by 127. Liberalization policies across the Third World have led to serious declines in productive investments in agriculture as well as decline in the rate of growth and output of grain and oilseeds since 1990 as compared to the period 1970 to 1990.

An important aspect for consideration is the impact of the current global financial and economic crisis. This has serious implications on the slowing down of the growth rate of food production globally, leading to a decline in per capita output of grain between the 1970s and the first decade of the twenty-first century. Globally, per capita annual availability of grain has declined between the 1970s-and the 2000s. On the average, Urban areas seem to do better than rural areas in terms of food and nutrition security. For instance, global data suggest that the prevalence of under-nutrition among urban children is consistently lower than that among rural children. At all India level, there has been a significant increase in percentage of urban children wasting from 13.1 per cent in 1998-99 to 19 per cent in 2005-06.

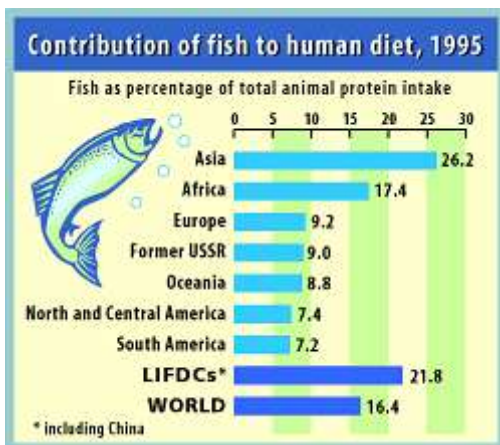
India produces about 6.57 million metric tons fish every year. The inland-sector, which has a growth rate of 6%, contributes around 5% of it. According to Dr. S. Ayyappan, Deputy Director General (Fisheries) of Indian Council of Agricultural Research, India is home to more than 10% of global fish biodiversity with 2200 species of fish and shellfish in the marine and inland waters.

Fish protein - like that of meat - is easily digestible and favorably complements dietary protein provided by cereals and legumes that are typically consumed in many developing countries. Fish Experts agree that, even in small quantities, fish can have a significant positive impact in improving the quality of

dietary protein by complementing the essential amino acids that are often present in low quantities in vegetable-based diets. Closely spaced pregnancies, often seen in developing countries, can lead to the depletion of the mother's supply of essential fatty acids, leaving younger siblings deprived of this vital nutrient at a crucial stage in their growth. This makes fatty fish such as tuna, mackerel and sardine - all of which are commonly available in developing countries - a particularly good choice for the diet of pregnant and lactating women.

In this context, encouraging incentives in the aqua culture may be an alternative to enhance the nutritional status of children especially in rural areas. Fish makes a vital contribution to the survival and health of a significant portion of the World's population particularly developing World. Often referred to as 'rich food for poor people', as it provides quality proteins, fat and a wide variety of vitamins and minerals which includes vitamin A and D, Phosphorous, Selenium, Megnesium and Iodine in Marine fish. For those who are involved in aquaculture and fish trade fish is a source of income too.

People in developing countries are much more dependent on fish as part of their daily diets than those living in the developed world. Figures for 1995 show that while fish provide slightly over 7 percent of animal protein in North and Central America and more than 9 percent in Europe, in Africa they provide over 17 percent, in Asia over 26 percent, and in the low-income food-deficit countries (LIFDCs) including China they provide nearly 22 percent.



According to the Food and Agriculture Organization (FAO) of the United Nations (1997) Fish also has substantial social and economic importance. The FAO estimates the value of fish traded internationally to be US\$ 51 billion per annum (FAO,2000). Over 36 million people are employed directly through fishing and aquaculture (FAO,2000), and as many as 200 million people derive direct and indirect income from fish (Gracia S. and Newton C,1997). Consumption of fish is increasing, having risen from 40 million tonnes in 1970 to 86 million tonnes in 1998 (FAO, 2000), and is expected to reach 110 million tonnes by 2010 (FAO, 1999). Increases in per capita consumption account for only a small portion; it is the growing human population in many countries in Asia, Africa and South America that is primarily responsible for this steadily growing demand for food fish. These data illustrate that a consistent source of fish is essential for the nutritional and financial health of a large segment of the world's population.

American Heart Association recommends fish twice a week as part of healthy diet, lowers blood pressure and prevents sudden deaths from heart attacks. Eating fish is an important source of omega-3 fatty acids. These essential nutrients keep our heart and brain healthy. Two omega-3 fatty acids found in fish are EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid). Our bodies don't produce omega-3 fatty acids so we must get them through the food we eat. Omega-3 fatty acids are found in every kind of fish, but are especially high in fatty fish. Some good choices are salmon, trout, sardines, herring, canned mackerel, canned light tuna, and oysters.

Eating fish twice a week reduce the risk of diseases ranging from childhood asthma to prostate cancer. Presence of PUFA in fish fat taken during pregnancy is associated with proper development of brain in unborn babies and reduced risk of premature babies. Though the fat content of fish varies depending on the species as well as the season the fat content ranges from 0.2% to 25% which are essential for proper growth of children.

## Conclusion

Thus it can be concluded that Fish has always been considered important to man. Man has always eaten fish. Though the consumption per capita is expanding globally, and the pattern of fish consumption is changing. In developing countries fish is still very much an essential food and a main source of protein. The FAO estimates that about one billion people world-wide rely on fish as their primary source of animal protein (FAO, 2000). To meeting the challenges of hunger and malnutrition aquaculture should be given priority by the policy makers.

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