

Aquaculture And Food Security

Role of Aquaculture for Food Security and Nutrition

According to the FAO, over one billion people worldwide rely on fish as their primary source of animal protein. Around the world, average annual fish consumption is 16.1 kg per capita. In the last 30 years, animal protein consumption per capita in developing countries has more than doubled, as a direct result of technology advancement in aquaculture.

Those living in poverty and in lower socio-economic households are unable to access sufficient nutritional food to ensure their health and wellbeing. Often the food produced or purchased consists of cereals or low-cost staple ingredients; budgets are unable to stretch to include meat or fruit and vegetables. Fish, particularly produced through aquaculture, is commonly cheaper than other animal meat. It also contains much higher protein levels, as well as other important minerals and vitamins. As a means of providing greater nutrition for many poorer households, increased availability of fish can mean better health and a more diverse diet.

Indirectly, commercial aquaculture leads to increased food security by providing opportunities for employment and income generation for local communities. More than 500 million people in developing states reportedly depend on fisheries and aquaculture for their livelihood. As a majority of aquaculture production occurs in developing states, a rise in income leads to an increase in food purchasing power and, more importantly, diversification. The consumption of non-staple foods, including fish and vegetables, has a positive correlation with income growth, supporting food security and greater nutritional content in diets.

Small Farm Aquaculture

In rural populations, aquaculture, in addition to increasing food production, is often undertaken as a secondary source of income. In developing states the role of fish farming has increased exponentially, with many agricultural farmers discovering that the integration of aquaculture into their production systems leads to increased land and yield productivity. While the benefits of aquaculture are widely discussed, it is important to note quantitative data highlighting this contribution is limited, with few objective evaluations available. Despite arguments to the contrary, it is still too early to determine the exact impact of aquaculture on food security and poverty alleviation. There is, however, great potential for aquaculture to support income security and nutritional diversity, as part of an integrated approach.

As poverty is often worst among rural communities, aquaculture presents an opportunity to diversify income and protect against market fluctuations in the prices of agricultural products. This integrated system of using agricultural land to raise fish, increases potential yield rates per annum. Diversification also increases overall land productivity, by utilising farm by-products as aquaculture feed and the water from aquaculture sites as a means of irrigating crops.

Commercial Aquaculture

According to the FAO, commercial aquaculture refers to “fish farming operations whose goal is to maximise profits, where profits are defined as revenues minus costs”. The global fish trade is currently estimated at US\$56 billion, surpassing most traditional agricultural exports. Economists at the WorldFish Research Centre and the International Food Policy Research Institute (IFPRI), estimate that the total world production of food-fish will increase by over 40 per cent by 2020. Internationally, approximately 40 per cent of the world’s fish supply is traded, as compared with 10 per cent of the meat supply.

The economic impact of commercial aquaculture is significant, with large commercial aquaculture farms providing business profits, employment, taxes and generating further investment in the industry. Commercial aquaculture has the potential to stimulate economic growth and create jobs, assisting in poverty alleviation as it does so. As many as thirty-five million people are directly employed in the fisheries sector worldwide, 20 per cent of them in the aquaculture industry; indirectly the industry supports several times this number.

It is suggested that commercial aquaculture can contribute significantly to food security, providing employment and income generation to those in developing countries. Furthermore it provides a reliable supply of affordable aquatic food products with greater access to markets across the developing and developed world. The linkage of the commercial aquaculture sector to local economies is twofold; both directly and indirectly it supports other sectors through the purchase and sale of goods and services. It can also link through investment in infrastructure development, human resources and foreign exchange, all of which support economic growth.