



FISHERIES AND AQUACULTURE RESOURCES FOR FOOD SECURITY AND RURAL LIVELIHOOD

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Abstract

Fisheries has been recognized as important tool for employment generation and as a vital source of supply fish for meeting the food security and nutrition requirements of our growing population. Global fish production has grown steadily in the last five decades, with food fish supply increasing at an average annual rate of 3.2 percent, outpacing world population growth at 1.6 percent. Global fish production in 2013 reached 161 million tonnes, with 90 million tonnes coming from capture fisheries and 71 million tonnes from aquaculture with annual per capita fish consumption remaining at 19.2/kg, a similar proportion of fish going into fishmeal, fish oil and other non-food uses as today, and a world population of 9.6 billion people, approximately 47.5 million additional tonnes of food fish will be needed in 2050. China contributes 41.10 mmt from aquaculture sector. Whereas national fish production in the year 2014 reached 9.48 million metric tonnes, with 6.14 mmt coming from inland and 3.44 mmt from marine sector with annual per capita fish consumption are 3-7 kg in urban areas and <2 kg in rural area. The export of fisheries product from the country in 2013-14 reached 983.76 thousand tones in quantity and in values are 30213.26 crores. In India, 933124 and 1,072, 079 people were engaged in full time and part time, respectively in fisheries activities. The total inland fishery resources are 73.12427 lakh ha. Dedicated efforts are considered necessary to meet the projected demand. Intensification of aquaculture in ponds and tanks. Increase of the productivity of ponds and reservoirs. Usage of derelict water bodies. Construction of new ponds and tanks. Introduction of culture based capture fisheries in reservoirs. Species diversification and introduction of high value commercial species. Development of breeding and farming technologies for new indigenous species that have potential for farming and market demand to be considered as priorities for sustainable development of fisheries and aquaculture Food Security and Rural Livelihood

Keywords: Fisheries and aquaculture, Food Security and Rural Livelihood, aquaculture in ponds and tanks, Species diversification

Introduction

India is the largest producer of fish in the world contributing to 5.43% of global fish production. India is also a major producer of fish through aquaculture and ranks second in the world after China. The total fish production during 2013-14 (provisional) is at 9.48 million metric tonnes with a contribution of 6.14 million metric tonnes from inland sector and 3.44 million metric tonnes from marine sector respectively (DAHDF, 2014). Fisheries being one of the promising sectors of agriculture and allied activities in India, a growth target rate of 6 per cent were fixed by the Union Government so as to achieve the overall growth rate of 4.1 per cent for Agriculture during the 11 th Five year Plan. During 2013-14 the volume of fish and fish products exported was 8,13,091 983.76 thousand tonnes worth 30213.26 crores. As per the estimates of Central Statistical Organization (CSO), the values of GDP from fisheries sector at current price during 2013-14 was 78053 crores which is 4.75 per cent of the total GDP of Agriculture and allied sectors and contribute GDP from fisheries sector is 0.83 % (FAO, 2014).

Fisheries sector occupies a very important place in the socio-economic development of the country and plays a crucial role for food security. It has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries, and is a source of cheap and nutritious food besides being a foreign exchange earner. Most importantly, it is the source of livelihood for a large section of economically backward population of the country. Small-scale fisheries are an important, but often undervalued, source of employment, food security and income, particularly in the developing world and in rural areas: nearly 90 percent of the full-time or part-time fishers are within the small-scale sector (World Bank/FAO, 2009), and 70 and 80 percent of aquaculture ventures are considered small-scale (Subasinghe *et al.*, 2012). The main challenges facing fisheries development in the country includes accurate data on assessment of fishery resources and their potential in terms of fish production, development of sustainable technologies for fin and shell fish culture, yield optimization, harvest and post-harvest

operations, landing and berthing facilities for fishing vessels and welfare of fishermen to achieve these objectives: Enhancement of fish production at an annual growth rate of 6%. Increasing the per capita consumption of fish to 10-11 kg/annum. Empowerment and welfare of fishers. Capacity building of fishers, fish farmers and fishery professionals and strengthening of infrastructure. Creation of marketing facilities with forward linkages. Sustainable management of fishery resources and adequate infrastructure in the form of fishing harbours and fish landing centers. Increasing employment generating ability of fisheries sector. Strengthening of infrastructure including transport, storage and processing.

Inland fisheries and aquaculture

Aquaculture is the fastest growing food producing sector in the world. India is the second largest producer of fish both in total and from aquaculture. Increasing the demand for fish and fishery products would be mostly sourced from aquaculture and culture based capture fisheries in reservoirs as capture fisheries growth world over is stagnant. Issues that need to be addressed for enhancing aquaculture production on a sustainable basis are: Intensification of aquaculture in ponds and tanks. Increase of the productivity of ponds and reservoirs. Usage of derelict water bodies. Construction of new ponds and tanks. Introduction of culture based capture fisheries in reservoirs. Species diversification and introduction of high value commercial species. Development of breeding and farming technologies for new indigenous species that have potential for farming and market demand. Assess the potential impact of already introduced alien species and if found environment friendly, develop suitable management practices for their farming as is being done in the case of *Litopenaeus vannamei* and *Pangasius sutchi*. Small-scale fish farming through cage culture in reservoirs, rivers and irrigation canals. Establishment and expansion of fish hatcheries for production of quality fish seed. Development and availability of low cost fish feed for different species and farming systems. Research on aquatic health management and development of disease resistant strains of fish. Production improvement through genetics and biotechnology. Encourage fish consumption through awareness on the health benefits of fish and its nutritional security. Aquaculture needs to be treated at par with agriculture in terms of

water, power tariff, tax benefits, subsidy, insurance and credit.

Marine Fisheries sector

Harvesting of marine fisheries resources in the country warrants stronger emphasis on invoking technological innovations as well as management paradigms that reconcile livelihood issues with concerns on resource conservation. Global production of fish from marine capture fisheries in the last decade has stagnated gradually and many stocks have been either overexploited or have reached their maximum sustainable yields. Issues that need to be addressed for enhancement of marine fish production are: Open sea cage culture of high value fin fishes and shell fishes involving fisher folk as an innovative system that aims to fulfill not only the fascination to farm the seas as a profitable aqua-venture but also as a potential tool for conservation and mariculture. Diversification of fishing towards the under exploited deep sea and oceanic resources like tuna, shark, sail fish and allied species. Exploitation of perch resources in and around Island waters of Andaman & Nicobar. Need to reorient the fisheries management regime for a long-term sustainability of the resources and enhancing the economic efficiency of fishing operations. Reduction of fish discards at sea and utilization of such discards for production of value added byproducts.

Planned initiatives required

Enhancement of Fish production and productivity for ensuring sustainability limited to aquaculture sector taking into consideration of major inputs like quality and healthy fish seeds, feed etc and promising species are required. Adoption of culture based capture fisheries in reservoirs and under-utilized larger water bodies are required. Diversification of marine fishing activities to tap the deep sea and underutilized resources, multiday fishing, species-specific fisheries, utilization of by catch etc are required. Networking of all line departments and organizations dealing with fisheries under a single agency. Comprehensive policies for treating Aquaculture at par with Agriculture. Revamp of FFDAs and involvement of Cooperative Societies and Self Help Groups (SHGs) and ensuring the Socio economic welfare of fisher folk. Post harvest, value addition and marketing infrastructure. Enhance production and productivity of the existing water bodies by developing technologies for intensive culture, integrated aquaculture, broodbank development, creating new hatcheries, nurseries, feed mills, diagnostic laboratories etc

are most important aspects required for sustainable development of fisheries and aquaculture for food security and improve rural livelihood of fisher.

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