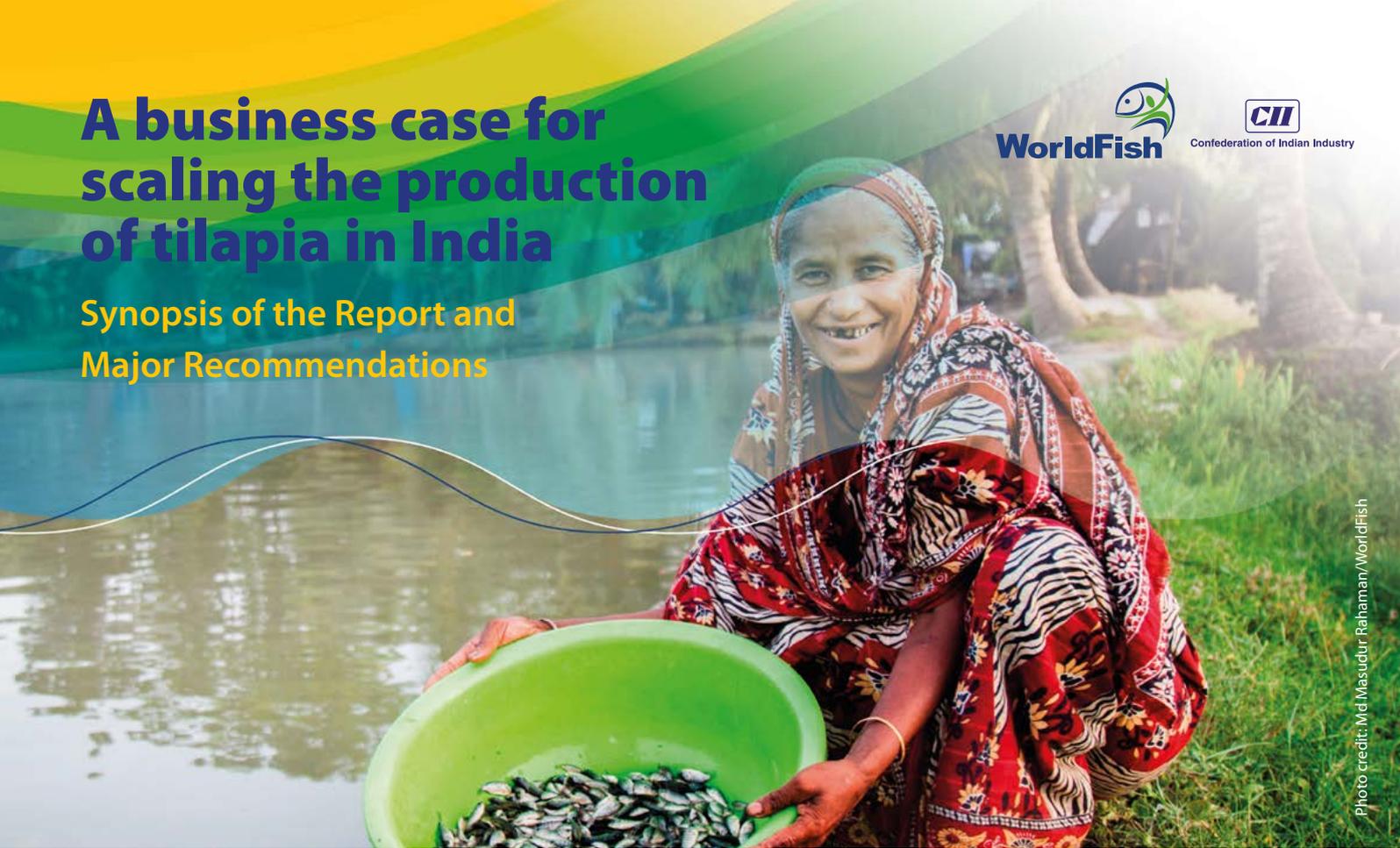


A business case for scaling the production of tilapia in India

Synopsis of the Report and Major Recommendations



1. Overview

1.1 Background

Improving farmers' incomes is crucial to India reaching the Sustainable Development Goal (SDG) of No Poverty by 2030. Given that almost 55% of the population is engaged in agricultural and allied sector activities (Census 2011), improving revenues within agricultural sectors such as aquaculture and fisheries is pertinent, as they can deliver higher returns on investments while supporting attainment of climate adaptation and mitigation goals. India is the fourth-largest producer of fish in the world, with nearly 10 million people residing in more than 4000 coastal communities engaged in aquaculture and fisheries and relying on the sector to earn a living. India has a coastline of 8129 kilometres, and rivers and canals exceeding 19,000 kilometres, demonstrating immense potential for both marine and inland fish production. The fisheries industry significantly contributes to India's GDP, and generated Rs. 46,663 crore in exports in 2019 – 2020.

1.2 Vision for the sector

Realising the impact potential of aquaculture and fisheries on the Indian economy in general and farmers' incomes in particular, the Government of India has committed to a national target of increasing fish production to 22 million metric tons by 2024-2025¹. This commitment will benefit 28 million fishers and fish farmers, fish workers, and fish vendors who depend on small-scale aquaculture and fisheries for their livelihoods, and almost twice that number along fish-related value chains². It will increase employment opportunities, empower women, and help deliver food and nutrition security. These development outcomes are also major paths to delivering the SDGs.

1.3 Current export volumes

In recent years, inland aquaculture production has experienced rapid growth in India, and while India supplies fish to the world's top three fish importers,

1 India's National Fish Policy 2020

2 Handbook of Fisheries Statistics, 2020. Department of Fisheries, Ministry of Fisheries, Animal Husbandry & Dairying, Government of India

Indian contribution to global fish exports remains minimal. India's exports represent 0.1% of global exports of live fish (#56 globally) and 2.2% of global frozen fish exports (#10 globally). At present, India's seafood exports are dominated by shrimp, with frozen shrimp contributing almost 70% of India's seafood exports (by value). In order for India to double its fish exports by 2025, it will have to focus on product diversification and value addition.

1.4 Tilapia as a best bet specie

Building on its proven success in scaling up shrimp production, India has carried out a 'best bet' species assessment and identified tilapia as a specie to develop, based on its suitability for domestic production and rising demand in global markets. It is also a specie that can diversify local production. The benefits of focusing on tilapia range from its affordability and climate resilience; to being conducive to being farmed in small-scale or commercial culture systems, meaning its production and start-up costs can be kept low. Tilapia is also an affordable source of protein, essential fatty acids, and other micronutrients, and thus can contribute to national and state food and nutrition security goals. Tilapia is not just affordable, but it contains no inter-muscular bones (so is easy to eat) and has a mild taste, and all of these attributes contribute to its growing demand. The domestic consumption and export potential of the specie is significant, with the domestic market size expected to grow to more than 0.766 million metric tons by 2027 and the global market for tilapia is predicted to be valued at USD 9.2 billion by 2027.

1.5 Indian tilapia production and export targets

In order to leverage the potential of tilapia, India has set an ambitious goal to produce 0.766 million metric tons of tilapia by 2027, and 2.155 million metric tons (valued at USD 4.398 Billion / Rs. 32,105 Crores) by 2032. The anticipated revenue from tilapia exports by 2027 is USD 1.135 billion, which is 8% of the total estimated seafood export revenue of USD 14 billion by 2025. By the 2032 financial year, the estimated revenue from tilapia exports will grow to USD 3.92 billion, contributing to 15% of the Indian export revenue target of USD 24 billion from freshwater and marine produce. Of the targeted annual production of 2.155 MMT of whole round fresh tilapia by 2032, 0.738 MMT will be exported (0.59 MMT of fillets processed from 1.78 MMT whole round fish to premium markets in the USA, Europe, and Japan, and also 0.15 MMT in the form of whole round frozen fish to African countries). The remaining 0.23 MMT will be sold in the domestic market as fresh whole round fish (0.114 MMT) and fillets (0.038 MMT fillets derived from 0.114 MMT of



Tilapia fingerling (25 gram size).

whole round fish), including sales to the HORECA sector (food service industry).

1.6 Infrastructure Needs

In order to achieve these targets, India needs to create the enabling infrastructure to develop and strengthen an efficient tilapia value chain. To produce 2.16 MMT of whole round fresh tilapia by 2032, India will need to produce 4.85 billion tilapia mono-sex all-male seed (fry). These production numbers need to be supported with requisite infrastructure such as hatcheries, grow-out ponds, and reservoir cages. An estimated 1,151 new hatcheries will be needed to deliver these production targets. This includes 977 small hatcheries (each 2 million fry per year), 145 medium hatcheries (each 10 million fry per year) and 29 large size hatcheries (each 50 million fry per year). An investment of Rs. 236 crores between 2022 and 2032 is needed to develop this hatchery infrastructure. In addition to the required hatchery infrastructure, developing the tilapia value chain will require grow-out assets such as semi-intensive ponds (13,200 Ha), intensive ponds (2,800 Ha), small rectangular cages of 100 cubic meters (89,000 needed) and large circular cages of 1000 cubic meters (21,000 needed). The capital expenditure required to create these grow-out assets over a 10-year period is estimated to be approximately Rs. 5,023 Crores.

1.7 Financial incentives, policy support, and other major needs

Given the multiple positive social and economic impacts of developing the tilapia value chain for India, investments into the sector should be incentivised by the Government of India, for example through subsidies and interest subventions. The proposed total financial support in the form of subsidies and interest subventions needed to create these tilapia production assets is Rs. 2,587 Crores (USD 354 Million) by 2032. India has already taken a few steps towards

creating an enabling environment to reach tilapia production targets, including updating Guidelines for the Responsible Farming of tilapia in India; reducing the minimum size of the tank/pond area required for tilapia farming from 1 acre to 0.05 acres to encourage small farmers; constituting a National Steering Committee to oversee and monitor tilapia seed and grow-out production; among other actions. However, to reach the vision of producing 0.77 million metric tons of tilapia by 2027 and 2.2 million metric tons by 2032; focus should be placed on scaling up investments, integrating traceability, and ensuring sustainability. The development of the value chain needs to be supported with multiple enablers, including long-term land leasing for production infrastructure (hatcheries, reservoirs, etc.), incentivising investment by strengthening access to working capital, interest subvention and subsidies, mitigating risks through insurance coverage, among other important steps.

1.8 Sustainability, food safety, and certification

India must also include sustainability parameters in all its actions across the value chain, while maintaining the biodiversity in fish production. To meet food safety standards of its own market and global markets, India must integrate end-to-end digital traceability into the value chain. Consistent quality in flavour is key to success in selling tilapia fillets and gaining major shares of the global market. India will also need to comply with globally-recognized certifications such as Best Aquaculture Practices, Global G.A.P., and Aquaculture Stewardship Council.

1.9 Return on investment

Investing in India's tilapia production is predicted to bring a healthy return on investment of 24% - 30%. It is anticipated that by 2023, the volume of farmed tilapia will attract more investment into processing and manufacturing of value-added products for domestic and international customers. Production of fillets in processing plants will create thousands of jobs, especially for women. Given the nutrient-rich nature of tilapia, increased production will also ensure a steady supply of affordable fish protein to boost nutrition among domestic consumers, thereby enabling India to advance the SDG of Good Health and Well Being for All by 2032.

This report summarizes some of the most important analyses and data needed to guide such investment decisions, and the major recommendations from the report are summarized below, focusing on four critical enablers – infrastructure, financial, capacity building, and branding and marketing.

2. Infrastructure enablers

2.1 Enable long-term land leasing

With more than 1000 new hatcheries needed to deliver India's tilapia production targets, it is recommended that state governments allow long-term land leasing (10-20 years) to encourage the necessary infrastructure investments.

2.2 Provide subsidies

The Central Government should incentivise and support farmers, small entrepreneurs, and the industry to establish hatcheries, including by providing subsidies. It is recommended that the government should provide a 50% subsidy for small hatchery farmers and a 40% subsidy for medium hatchery entrepreneurs. For large hatcheries, it is recommended that the initial subsidy be at 40% for the scale-up period (2021-2027) and thereafter at 25% from 2028-2029. A 3% interest subsidy under the interest subvention scheme of the Reserve Bank of India is also recommended, to make the sector more attractive to investors. Given the potential impact of increased production on farmer incomes, the government should also consider making the power tariff to be on par with the tariff on agricultural activities.

Circular Cages (1000 m³ volume and production capacity of 30 tons per harvest).



3. Financial enablers



3.1 Increase access to working capital

The growth of the tilapia value chain needs to be supported through access to working capital. Availability of adequate credit at a reasonable cost is critical to ensuring the growth and development of this sector. It is thus recommended that the Central Government should extend working capital requirement under MSME Lending Norms, without insisting collateral security. Working capital loans to the sector could also be given with an interest subvention of 3%.

3.2 Provide credit guarantees

With limited fixed assets on the farm, it is difficult for farmers to provide adequate collateral security to banks. It is thus recommended that the Central Government should extend to the tilapia sector the Credit Guarantee Support (under Credit Guarantee Fund Trust for Micro and Small Enterprises) for loans, in order to offset the risks associated with agricultural loans advanced without adequate collateral security.

3.3 Increase insurance support

Like other agricultural sectors, tilapia production is vulnerable to natural disasters, disease outbreaks, and other risks, therefore agricultural insurance should be extended to tilapia farmers to cover their risks.

4. Capacity building enablers



4.1 Adopting better farming and management practices

Technological advancements such as recirculating aquaculture system are proving to be crucial footholds towards the development of sustainable tilapia farming systems. Thus, to ensure a robust and sustainable tilapia value chain in India, focus needs to

be on building capacities towards farming, breeding, feeding, harvesting, post-harvest and transportation areas. Increased training, awareness, and knowledge dissemination on the different farming systems and excellent management practices will need to be delivered to many fish farmers. Skilled manpower is especially needed to deliver proper breeding and feeding practices, and farmers should be trained on how to properly feed, harvest, and handle tilapia. The recently-published New Guidelines for the Responsible Farming of tilapia in India is an immediate source of knowledge that can be made more widely available.

4.2 Sharing best practices

Considering that the tilapia value chain in India is still nascent, the Departments of Fisheries should create a shared platform comprising all states involved in tilapia production, to ensure adoption of common practices and enable sharing of best practices and lessons learned.

5. Branding and marketing enablers



5.1 Creation of 'Brand India'

The creation of 'Brand India' is encouraged, and this can be delivered through a tilapia Branding and Marketing Development Board. This enables the government to create specific export strategies for targeted markets such as USA, Europe, South East Asian Countries, and other countries that purchase value added products of tilapia.

5.2 Increase knowledge of tilapia's benefits

To strengthen the domestic consumer market for tilapia, the government will need to increase knowledge of the many benefits of tilapia consumption, especially its nutritional benefits. Promotion and brand building of fresh and value-added tilapia products will be needed locally, especially for the HORECA sector.

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