

through targeted aquaculture practices, ornamental fisheries, and sport fishery-based ecotourism. India has projected a sustained annual growth rate in its inland sector, characterized by an impressive Compound Annual Growth Rate (CAGR) of 8.58% from 2013-14 to 2023-24. While this growth aligns with national projections, the freshwater aquaculture sector faces specific constraints that require urgent attention for both horizontal and vertical expansion. The Himalayan region is blessed with an abundance of rivers, streams, and lakes across Jammu and Kashmir, Himachal Pradesh, Uttarakhand, West Bengal, Sikkim, Arunachal Pradesh, Nagaland, and Meghalaya. Similarly, the Western Ghats in Kerala, Tamil Nadu, Karnataka, and Maharashtra offer enormous resources for coldwater farming.

The lower temperature regimes in these regions support the farming of selected fast-growing species, including rainbow trout (*Oncorhynchus mykiss*), and exotic carps such as grass carp (*Ctenopharyngodon idella*), silver carp (*Hypophthalmichthys molitrix*), and common carp (*Cyprinus carpio*), alongside various exotic ornamental and minor carps. However, climate change, biodiversity loss, and over-exploitation remain significant challenges. ICAR-DCFR is actively promoting sustainable and responsible practices to improve infrastructure and reduce production waste (Sarma and Chandra, 2020). In the North Eastern region, particularly in Assam, Manipur, and Tripura, the exploitation of high-value indigenous fishes has gained priority due to high local consumption. Over 95% of the population in these states is involved in fish consumption, and meeting this demand requires intensive farming supported by appropriate technological interventions and infrastructure (Barman, 2012). While rural and tribal communities currently utilize small to medium-sized ponds, there remains tremendous scope for introducing fast-growing species tailored to the North East (Das, 2018).

Ornamental fish, abundantly distributed across freshwater, brackish, and inshore marine ecosystems, are gaining significant attention due to rising global and local demand. India possesses a high potential for the culture and export of ornamental varieties, many of which are easily accessible from wild resources for aquarium rearing. This sector fosters entrepreneurship, offering opportunities for individuals and women's groups through small-scale backyard units or larger enterprises. By advancing breeding and farming techniques, there is a clear opportunity to boost production and increase foreign exchange (Raja et al., 2014). Government departments are now emphasizing modern fishing practices, the expansion of aquaculture, and effective technology transfer. Well-managed aquatic food systems, integrated with efficient value chains, are essential for ensuring food security and improving livelihoods (Sarkar et al., 2020; Prado-Carpio et al., 2021). Furthermore, adherence to certifications regarding food safety and animal welfare ensures that consumers receive healthier, safer products, thereby boosting the overall credibility of the industry (Amundsen and Osmundsen, 2020).

15 R & D Support Towards Blue Economy

To achieve a sustainable economy, India leverages various sectors-including fisheries, tourism, shipping, offshore energy, and biotechnology-as primary drivers for growth, livelihood improvement, and job creation for coastal and inland communities. India's ocean economy is expanding at an annual rate of 15%, with projections to exceed USD 120 billion by 2025. The nation is committed to socioeconomic prosperity by transforming the fisheries sector, promoting food security, and ensuring the judicious utilization of resources on a sustainable basis. Furthermore, India's Integrated Coastal Zone Management (ICZM) program facilitates the sustainable management of coastal resources by balancing economic objectives with social and environmental considerations.

Central to these efforts is the Pradhan Mantri Matsya Sampada Yojana (PMMSY), which promotes fisheries development through infrastructure enhancement, robust marketing, and social security for fishers. Complementing this, the Integrated National Fisheries Action Plan (NFAP) is instrumental in achieving the goals of the Blue Revolution by addressing critical sustainability issues in aquaculture and ensuring long-term livelihood security. These strategic frameworks align modern production techniques with conservation goals, fostering a resilient aquatic economy that supports millions. By integrating technological innovation with policy reform, India continues to strengthen its position as a global leader in sustainable aquaculture and marine resource management.