Photo credit: Arun Padiyar/WorldFish

FACT SHEET
WorldFish contributions to the development of Odisha's fisheries sector

WorldFish

CGIAR

Technical collaboration between Fisheries and Animal Resources Development (FARD) Department, Government of Odisha, India and WorldFish, Malaysia

On June 28, 2016, in the auspicious presence of the Honourable Chief Minister of Odisha, Shri Naveen Patnaik ji, a Memorandum of Agreement was signed between the Government of Odisha and WorldFish that formed a collaboration between WorldFish and the Fisheries & Animal Resources Development (FARD) Department. As per the terms of the agreement, WorldFish would provide technical support to the FARD Department from July 2016 to March 2022 in order to implement the government's Odisha Fisheries Policy (2015) across the state of Odisha.

Major outputs and outcomes

Over the 5 years and 9 months of the collaboration, Odisha experienced tremendous acceleration in the growth of the fisheries sector and its impact on the UN Sustainable Development Goals, including such areas as nutrition gains, job creation, increased farmer incomes and women's empowerment. During this period, several policies and schemes were launched targeting a wide spectrum of beneficiaries, including farmers, fishers, primary fisher cooperative societies, women self-help groups, hatchery operators, entrepreneurs and private companies. By the end of the collaboration, fish production had nearly doubled from the baseline of 521,000 t in 2015–2016 to 991,000 t in 2021–2022, with an annual average growth rate of about 12%.

Among all the outputs, outcomes and impacts that resulted from the technical collaboration, there are 14 that are particularly noteworthy:

1. Through a joint program between the departments of FARD, Mission Shakti, and Panchayati Raj & Drinking Water, the Fish Farming in Gram Panchayat Tanks by Women Self-Help Groups (SHGs) scheme received support in all 30 districts of the state.

Project name

Sustainable aquaculture and fisheries in Odisha, India, through technical collaboration with the Fisheries and Animal Resources Development Department

Donor

Fisheries and Animal Resources Development Department, Government of Odisha, India

Project duration

July 2016–March 2022

Approximately 9229 women SHGs received training and farmgate extension services on nutrition-sensitive fish farming in Gram Panchayat (GP) tanks on long-term leases. This helped empower more than 92,000 women members of the SHGs under Mission Shakti by increasing their incomes through the sale of large carps and through household consumption of small indigenous fish, specifically *mohurali* (mola). On average, the SHGs are now making a net annual income of INR 154,000/ha from farming fish in the GP tanks.

2. In 2020, in collaboration with PFCS/SHGs, the Government of Odisha rolled out an investor friendly, and socially equitable and environmentally sound, "single window clearance" policy for fish farmers, private entrepreneurs, and companies to undertake cage culture in reservoirs. A total of 101 sub-zones were allotted to 96 entrepreneurs for them to take up cage culture on a "lease-install-operate" basis in the Hirakud reservoir and, two years later, the entrepreneurs had installed 213 cages (69 circular cages in 23 subzones and 144 rectangular cages in 6 subzones). WorldFish supported the effort by providing them with support in adopting technology for commercial-scale cage culture. Overall, reservoir cage culture in Odisha has the potential to add as much as 125,000 t of fish to the state's fish basket.

3. In all 138 reservoirs of the state, the program made reservoir fingerling stocking and fish production more efficient and effective by using a community-based, co-management approach and strictly implementing standard operating procedures. This empowered local fishers with greater fish catches from reservoirs and improved household incomes and nutrition. In addition, a reservoir atlas was prepared to help manage reservoir fisheries resources, both now and in the future.

4. To achieve self-sufficiency in fish seed production, the Master Plan for Fish Seed Production was prepared in 2019–2020. As a result, adoption of early breeding of Indian major carps was successfully introduced, and four government/OPDC hatcheries were upgraded to mega hatcheries. In addition, introducing genetically improved varieties such as *jayanti* rohu, catla and *amur* common carp improved early breeding and seed quality in 49 private hatcheries.

5. Technical support was provided for lateral expansion of freshwater aquaculture through Matsya Pokhari Yojana and PMMSY, under which more than 6689 ha of new fishponds were excavated over the past 3 years. To this end, beneficiary farmers received district- and block-level training on better management practices for sustainable and profitable fish farming.

6. To increase farmer profits and resilience to climate change, several measures were used to successfully promote crop diversification. A state-of-the-art GIFT hatchery was set up at the government fish seed farm in Kausalyaganga, *amur* carp seed production was introduced in 11 government hatcheries, and four GIFT hatcheries were established by the private sector. In addition, farmers were given demonstrations on best practices for GIFT production in over 250 acres of farms and were provided with support on how to create market links.

7. Nutrition-sensitive carp-mola polyculture was widely promoted throughout Odisha in various types of water bodies, such as GP tanks, private tanks, backyard tanks and and agricultural farm ponds. The goal was to make nutritional gains, especially among vulnerable and tribal communities in the state. To accomplish this, the government brought out suitable schemes for promoting polyculture fish farming system in 10,000 agricultural farm ponds on an annual basis.

8. In the freshwater and brackish water sectors, biofloc and polyliners were introduced to jumpstart intensive aquaculture. At total of 7080 biofloc tanks were installed in all 30 districts, and more than 1838 farmers, entrepreneurs and youths were trained to take up this activity.

Photo credit: Amin Pradhan/Worldfish

Government GIFT Tilapia hatchery, Kausalyaganga (left), GIFT Tilapia seed (right).

9. Under the Women and Child Development (WCD) Department, fish-based nutrition was included in the state nutrition policy SOPAN-2025, after which a pilot project on including fish-based products in Anganwadi centers was successfully conducted. A total of 50 centers covering 1200 children (3–6 years old) and 800 pregnant and lactating mothers in Kaptipada Block of Mayurbhanj District participated in the pilot for 6 months (April–September 2021). Currently, a plan for scaling this activity is being prepared under the guidance of the WCD and FARD departments.

10. In coastal villages, hygienic solar drying of marine fish using low-cost polyhouse technology of ICAR-Central Institute of Fisheries Technology, Cochin was introduced among women SHGs and promoted as a joint program among FARD, Micro, Small and Medium Enterprises (MSME) and Mission Shakti.

11. Under the CGIAR Research Program on Climate Change, Agriculture and Food Security, the FARD Department helped fish farmers across Odisha manage climate risks by identifying suitable climate change mitigation practices and disseminating them through various channels, including the Ama Krushi platform, All India Radio, Door Darshan and the Reliance Foundation.

12. Support was provided to effectively implement a fishing ban in olive ridley turtle nesting sites in three rivermouths and the Bhitarkanika marine wildlife sanctuary along the coast of Odisha. This was done by integrating GIS-based mapping in the Fisher Friend Mobile Application of the department with the GPS navigation systems of the fishing vessels.

13. A third party "Impact assessment study of the FARD-WorldFish technical collaboration" was impact assessment study of the Odisha-WorldFish Project was conducted in order to understand ground-level impacts achieved in the fisheries and aquaculture sector as a result of the technical collaboration between WorldFish and the FARD Department.

Fish harvesting by Women SHGs from a Gram Panchayat Tank

14. In 2020, WorldFish helped the FARD Department prepare the Odisha Fisheries Master Plan for holistic and sustainable development of fisheries sector over next 10 years, which includes a fish value chain study and a

Women SHG members farming fish in Gram Panchayat tanks (left), Photo 4: Nutritious Small Indigenous Fish (right).

foresight analysis of the sector. In March 2022, WorldFish submitted a new technical collaboration proposal to the FARD Department to support it for 5 more years (2022–2027) in implementing the master plan. The Master Plan envisages to (1) increase the domestic annual fish production from 873,000 MT in 2020–2021 to 20,28,392 MT by 2030–2031; (2) increase the annual sale value of fish to Rs. 82,447 Crores and annual contribution of fisheries sector to the Gross State Value Added (GSVA) to Rs. 26,096 Crores by 2030–2031; (3) increase the seafood export sale value from present Rs. 3,108 Crores in 2020–2021 to Rs. 20,884 Crores by 2030–2031; (4) increase the percapita annual fish consumption in Odisha from 16.24 kg in 2020–2021 to 22 kg by 2030–2031; (5) generate additional 5.57 lakh full-time employment.

Currently, WorldFish is providing technical support to the FARD Department with two externally funded projects:

1. The Taking Nutrition-Sensitive Carp-SIS Polyculture Technology to Scale project is supported by the German Corporation for International Cooperation (GIZ) in Germany and will be implemented over 3 years (2021–2024). It focuses on developing and disseminating hatchery seed production technology for small indigenous fish species, including mola.

2. The One CGIAR Resilient Aquatic Food Systems for Healthy People and Planet (RAqFS) project is funded by the CGIAR Trust Fund and is also a 3-year program (2022–2025). For this project, WorldFish is supporting the FARD Department, as well as other line departments (WCD, Mission Shakti, Water Resources-OIIPCRA project) with implementing fisheries sector development programs, as per the requirements and guidance of the government.

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About WorldFish

WorldFish is an international, not-for-profit research organization that works to reduce hunger and poverty by improving aquatic food systems, including fisheries and aquaculture. It collaborates with numerous international, regional and national partners to deliver transformational impacts to millions of people who depend on fish for food, nutrition, and income in the developing world.

The WorldFish headquarter is in Penang, Malaysia, with regional offices across Africa, Asia, and the Pacific. The organization is a member of the CGIAR, the world's largest research partnership for a food secure future dedicated to reducing poverty, enhancing food and nutrition security, and improving natural resources.

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