Nutrition-sensitive carp mola polyculture through women's groups: A successful policy intervention by the government of Odisha, India

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Success story

Nutrition-sensitive aquaculture is often referred to as a food-based approach to aquaculture development that prioritizes the production of nutrient-rich aquatic foods to support beneficial nutritional outcomes as well as environmental sustainability.

Despite its vast resource potential and phenomenal growth in the fish producing sector, Odisha imports a significant amount of fish from neighboring states every year to meet its consumer demand. Although Odisha has made great strides in recent decades, some regions of the state are still suffering from undernutrition coupled with poverty. Therefore, the government of Odisha has placed great importance on improved fish production in the state and recognizes the role of fisheries and aquaculture sectors as critical components in combatting the twin scourges of malnutrition and poverty.

The government formulated the Odisha Fisheries Policy in 2015, and one of the important aspects of the policy was to increase the fish production from unused and underused public water bodies, such as Gram Panchayat (GP) tanks, across the 30 districts of the state.

To implement the Odisha Fisheries Policy, the Fisheries and Animal Resources Development Department (FARD) signed a memorandum of agreement for technical collaboration with WorldFish on June 28, 2016.

In 2018–2019, FARD launched a gender-sensitive flagship program named "Input assistance to Women Self Help Groups (WSHGs) for Scientific Fish Farming in Gram Panchayat Tanks." This program promotes nutrition-sensitive pond polyculture through farming micronutrient-rich mola (*Amblypharyngodon mola*) alongside Indian major carps. The program is unique in recognizing and scaling nutrition-sensitive and climate-smart approaches for aquaculture with innovative financing mechanisms. This program provides an input subsidy of INR 90,000/ha at the rate of 60% against the total unit cost of INR 150,000/ha. The program has a fish production target of 2500 kg/ha per crop with two crops per year.

With the state's long-term GP tank leasing policy, a total of 6242 GP tanks with a total water area of 5043 ha have been brought under scientific fish farming over the last three years, involving 6235 WSHGs. The government adopted a multi-institutional strategy with three line departments: the Panchayati Raj and Drinking Water Department, the Women and Child Development and Mission Shakti Department and FARD to implement the program activities using an adaptive governance approach.

These WSHGs are trained and guided at their farmgate to ensure sustainable and profitable fish production through optimal use of public water bodies.

To foster an enhanced understanding on the dynamics of fish production in GP tanks led by WSHGs, WorldFish conducted a crop outcome survey during 2020–2021. The survey was conducted on WSHGs that participated in the program in 2 successive years—2019 and 2020—across the 30 districts of Odisha. The preliminary results of the crop outcome survey are very encouraging. Here is the link to the full report.

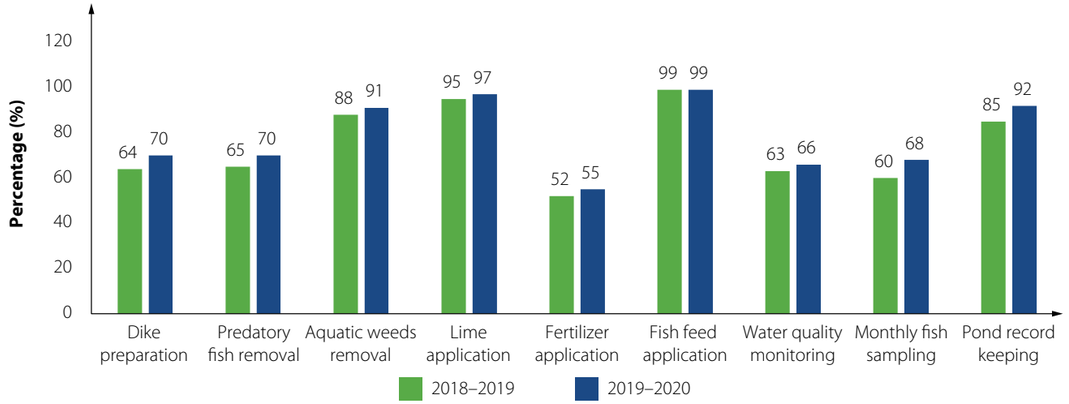

Figure 1. Adoption of better management practices in aquaculture by WSHGs.

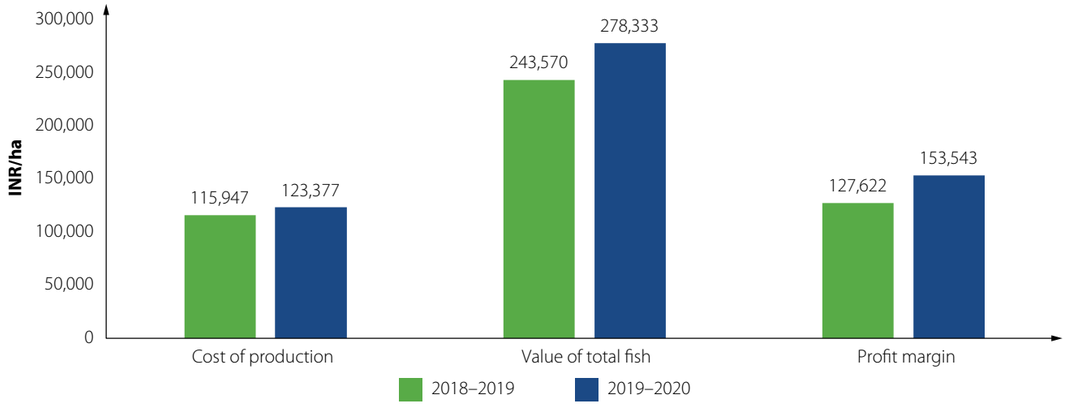

Figure 2. Average cost of production, value of fish and profit margin.

An exceptional achievement in women-centric community aquaculture

- Nearly 96% of the WSHGs attended block-level training sessions on scientific fish farming organized by FARD, Mission Shakti and WorldFish.
- 98% of the WSHGs received technical advice and assistance from FARD officials and WorldFish at the farmgate.
- On average, 75%–89% of WSHGs adopted better management practices for improved fish productivity.
- As suggested, most of the WSHGs stocked advanced large-sized Indian major carp fingerlings (50–100 g) to achieve a better survival rate and to shorten the crop duration.
- Mola stocking was done at the rate of 25 kg/ha.
- WSHGs achieved an average fish production in the GP tanks of 1725 kg/ha in 2018–2019, which increased to 1956 kg/ha in 2019–2020.
- Mola was produced in 55% of the tanks in 2018–2019 and 53% in 2019–2020. WSHGs partially harvested mola for household consumption.
- When compared to exclusive carp polyculture tanks, polyculture tanks with carp, mola and other small fish witnessed a 11%–34% larger yield over 2 years.
- A total of 85% of the WSHGs made a profit in 2018–2019 and 90% in 2019–2020.
- Almost every (98%–100%) WSHG expressed a willingness to continue fish farming at its GP tank after the program ended.
- In addition, nearly all (93%–96%) WSHGs expressed a willingness to renew their lease agreement to further continue fish farming at their GP tank beyond the period of the program.

The larger impact

- The program will have a long-lasting socioeconomic impact, including improved food and nutritional security, gender equity and environmental sustainability in villages across Odisha.
- The program resulted in increased fish production and productivity of the GP tanks across Odisha which in turn increased income and consumption of nutrient-rich fish among local households.
- This program can be replicated as a best practice model for promoting community fish production in public waterbodies, including minor irrigation projects across the state.

Meeting the Sustainable Development Goals