

Outreach on sustainable fisheries, aquaculture, and tourism for communities

Community Outreach on Eco-Friendly Pond and Fish Biodiversity Management

The School of Fisheries, Centurion University Paralakhemundi, Odisha-India-promotes sustainable aquaculture practices through its Aquaculture Research Farm (ARF), spread over 10 acres, comprising rearing, nursery, and broodstock ponds. The farm cultivates Indian Major Carps (IMC), Pacu, and Amur Carp, integrating poultry and fruit farming for nutrient recycling and ecosystem balance.

Students of the 4th-year FELP programme actively participate in regular sampling, fish harvesting, liming, manuring, weed control, feed management and water-quality monitoring, gaining complete hands-on field experience. The activity also serves as a community learning platform, where farmers and SHG members receive training in eco-friendly pond management and biodiversity conservation.



Figure 1: Water Quality Monitoring and Eco-Friendly Pond Management

Outcome: This initiative enhances both student experiential learning and local livelihood skills, Educational Outreach for Sustainable Fisheries and Aquaculture Management.



Figure 2: Hands-On Field Training and Fish Harvesting at the Aquaculture Research Farm, Centurion University

A. Community adoption of aquaponics and biofloc system

In 2024, Centurion University of Technology and Management , Paralakhemundi campus, Odisha, conducted four community training programmes on aquaponics-based farming and biofloc shrimp culture, reaching around 20–25 farmers in each program, mainly women from Self-Help Groups (SHGs). Alongside, 3rd and 4th year B.F.Sc. Students were regularly engaged, gaining hands-on skills and transferring knowledge to their families and communities.

The training provided practical demonstrations on tank-based aquaculture, nutrient recycling, and water-efficient techniques, with participants receiving manuals and exposure to modern methods. Farmers reported improved awareness of sustainable aquaculture practices and interest in adopting biofloc tanks and integrated farming models at the village level.

Outcomes included: Enhanced **capacity building among women farmers, student-led entrepreneurial projects in shrimp culture**, and the use of aquaponics/biofloc units as **eco-tourism demonstration models**. Testimonials highlighted increased confidence in using these sustainable methods for both **livelihood diversification and freshwater ecosystem management**.



Figure 3: Community Outreach in Sustainable Aquaculture: Interaction of the Gajapati District Collector on Biofloc Shrimp Culture



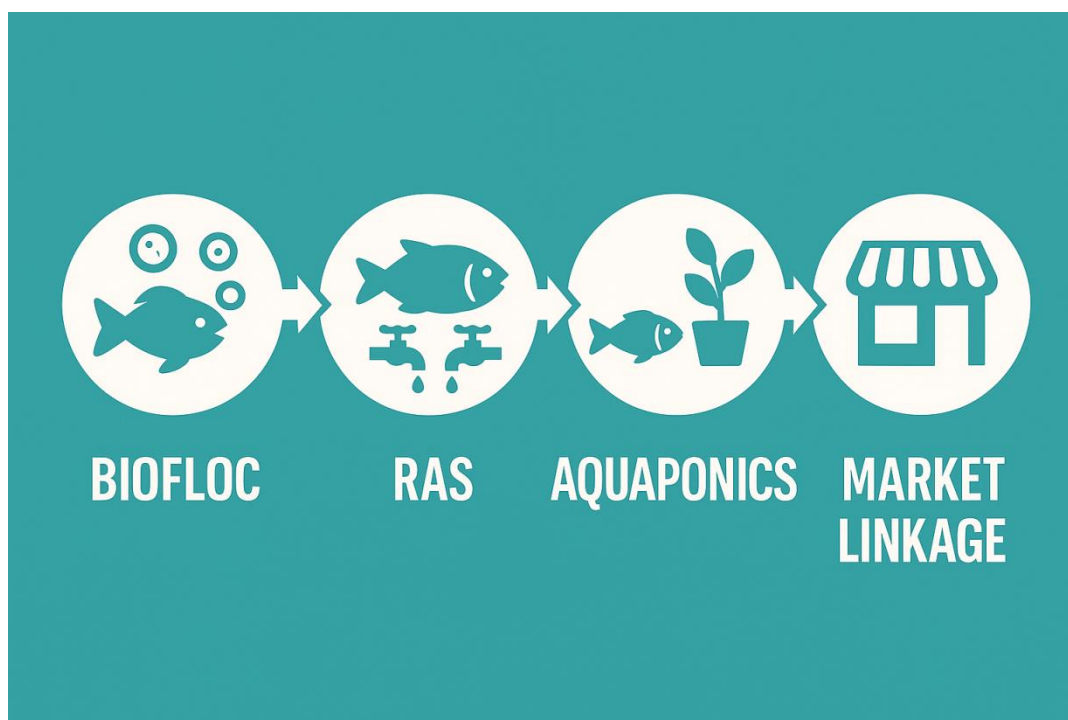
Figure 4: Students' hands-on training



Figure 5: Aquaponics units – Nutrient film technique and media-based Sustainable Aquaculture Technologies:

Centurion University’s aquaculture ecosystem combines Biofloc, Recirculating Aquaculture Systems (RAS), and Aquaponics for efficient resource use.

- **Water Reuse:** 80% recirculation through filtration and solar-powered aeration.
- **Biofloc System:** DO 8–9 mg/L, ammonia ↓ 10%, disease ↓ 12–15%.
- **RAS:** Closed-loop tanks with biological filters prevent nutrient discharge.
- **Aquaponics:** Fish + vegetable cultivation → 20–25% fertilizer reduction.



Community Impact: Farmers from Gajapati, Ganjam and Srikakulam adopted low-cost models for livelihood diversification.

Water Quality Monitoring and Improvement

Centurion University maintains a centralized Water Quality Dashboard for aquaculture and pond monitoring.

Parameter	2023	2024	% Change
Dissolved Oxygen (mg/L)	6.5	7.0	+8%
Ammonia (mg/L)	0.90	0.81	-10%
BOD (mg/L)	3.2	2.9	-9%

University ensures zero untreated discharge through STP reuse for irrigation, directly supporting SDG 6 and 13.

