

Opinion: Benefits of animal welfare in Indian aquaculture

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Hundreds of dead fish a day

Like many fish farmers in the villages of Andhra Pradesh, India, Siva leased a pond from the Village Panchayat. The cost of leasing common lands, once inexpensive, has now risen dramatically due to the growth of aquaculture. Coupling the high lease cost with the other increased input costs, Siva really needed his operation to succeed so he could at least earn back the money he spent.

The grow out started well, with relatively few mortalities. But then more fishes started dying. And more. And more. Until a particularly bad week close to the harvest date, where hundreds were dying every day. These mortalities were caused by a number of issues impacting his pond, including low oxygen, argulus infestations and algal blooms. Working hard to turn the pond around, Siva spent more money following the advice of his neighbours and the local aqua businesses. None of it worked very well, and now there are only more chemicals in the still suffering fishes. And when the consumers finally purchase the fishes, their quality will only be lower.

Parasites, disease and antimicrobial resistance in aquaculture

Unfortunately, the troubles Siva faces are not unusual. Parasites and disease are amongst the greatest issues affecting Indian aquaculture. Mishra et al. notes that disease has become “a primary constraint to sustainable aquaculture production and product trade.”¹ *Argulus*, a parasitic aquatic crustacean, is particularly endemic, with one study on Indian carp culture estimating total losses due to argulosis to be Rs 29,000 per hectare per year.²

Disease is unfortunately not the only issue aquaculture faces. Due to the proliferation of disease, farmers invest heavily in prophylactic antibiotic use. In



Aqua farmer Siva with his fish farm in Andhra Pradesh

addition to the investment such farmers take on, heavy antibiotic use has the concerning consequence of increasing antimicrobial resistance (AMR). One study, which found that India has amongst the highest rates globally of antimicrobial agents used in both humans and farmed animals, noted that aquaculture is one of the “drivers of environmental AMR in India.”³ Scientists at the Central Institute of Fisheries Technologies-Vizag have recognised the problem of aquaculture-caused AMR, and are conducting a study to mitigate it.⁴

These high rates of disease and subsequent overuse of antibiotics only hurt the position of aquaculture in the eyes of the consumer, who is already exposed to critical investigations outlining the health implications of eating such fishes. At a time when consumers are increasingly concerned about food safety, aquaculture is doing little to reassure such doubts.

The organic promise

So aquaculture faces serious challenges in India. Farming conditions are often poor, and occasionally toxic, far from the safe and nutritious fishes that consumers were promised. What can be done?

One approach here is to learn from similar models that have previously succeeded at improving Indian agriculture. Amongst those, one of the more successful has been the organic movement: The percentage of farms under organic production has more than doubled in the last 5 years.⁵ Before these farms transitioned to organic, they, like many aquaculture farms, were suffering from an overuse of chemicals being used in the cultivation. Such inputs, in both agriculture and aquaculture, are costly to farmers. And they are certainly not healthy for the humans who consume them—one famous study in Hyderabad found pesticide residues in schoolchildren’s urine samples, at a rate 10-40 times higher than their US counterparts.⁶

The organic farming movement, while still relatively small, is taking positive first steps to mitigate these issues. And it's not only beneficial for consumers—farmers, now producing a better product, can fetch a price premium of 10 to 20%.⁷ Although there are costs in transitioning from conventional to organic farming, long-term what's better for consumer may also be better for farmer.

Could aquaculture follow the organic model of eliminating chemical inputs? Perhaps fish farmers could eliminate antibiotic use in their ponds, but at least in the short term that could cause disease and parasite issues to skyrocket. Reducing chemical inputs is surely part of the solution, but it must be coupled with other paradigms.

Animal welfare: Part of the solution

One paradigm that our organisation, Fish Welfare Initiative, believes to be promising is that of animal welfare. This is not particularly complex—by animal welfare, we simply mean farming animals in such a way where they have a good quality of life, a life worth living. Instead of asking what will produce the greatest number of fishes possible, to consider animal welfare means to ask what is actually good for the fishes.

From our field visits and discussions with farmers, we believe that two of the most important animal welfare issues in Indian aquaculture are 1) water quality, and 2) stocking densities. We've talked with too many farms who suffer from poor water quality, just like Siva from the opening story above. And the lack of oxygen and other water quality issues are frequently exacerbated by the ponds being stocked beyond both the pond's carrying capacity as well as the FAO's recommended limit.⁸ See our full initial report at:

<http://www.fishwelfareinitiative.org/fish-welfare-improvements>

On further reflection, it's hardly surprising that improving welfare leads the fishes to perform better. The same holds true for any type of animal: If you treat a dog better, it is less likely to develop some sickness. Even with humans, it's clear that a child that was shown care and compassion is much more likely to flourish than one shown abuse and neglect. The farmers we work with intuitively grasp this fact, and they usually want their fishes to flourish more than anyone. Yet their desire to change is not enough—farmers often lack the resources and the know-how to improve the welfare of their fishes.

With these challenges in mind, we're proud to announce the launch of the Alliance for Responsible Aquaculture (<http://fwi.fish/ara>), a coalition of fish farmers and local NGOs in Andhra Pradesh working to improve aquaculture by improving animal welfare standards. Our NGO, Fish Welfare Initiative, and the other NGOs are providing free-of-cost water quality testing and regular consulting to participating farmers, who in turn are raising healthier, happier fishes. Long term, we're working to establish market linkages such that these higher welfare fishes fetch a price premium at market, just as with organic produce today. We're currently beginning work in the Nellore and West Godavari districts and encourage any interested producer or collaborator to reach out via our website.

Across the world, the idea of treating fishes well to procure a better product has increasingly gained traction. Major retailers, such as Marks and Spencer in the UK, now include animal welfare policies for the seafood they source. In Egypt, where fishes are widely farmed in similar earthen pond systems as India, farmers who were facing similar antibiotic use challenges found that improving water quality and feed management reduced disease occurrences and thus reduced the need for antibiotics.⁹ And animal welfare is certainly not a novel concept in India: Showing compassion for all living creatures is a duty of all Indians, per Article 51 (G) of the Constitution.¹⁰

Here in India, everyone works incredibly hard to pick the best food for their families—we're all familiar with the sight of parents going to great lengths to gather the healthiest produce for their families. And when it comes to buying fishes, people are even more careful. With the pandemic impacting so many lives, the need every parent feels to ensure their family's health and well-being has only deepened. We believe that by changing the paradigm towards fish welfare, aqua producers can rise to the occasion. There is perhaps no better way of honouring the care Indian consumers put into choosing food than by increasing the care with which we produce it.

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