

RESPONSIBLE AQUACULTURE - MAKING FISH FARMING ECOLOGICALLY AND ECONOMICALLY SENSIBLE

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“Fish farming is a profitable enterprise today”.

I don't think this statement needs any further elaboration. But we need to qualify this fact with another one. Yes, we need to be aware about the risks involved. There are many types of risks in fish farming. They occur not only in the farm but also in the entire value chain consisting of the fish we grow and harvest in our farm to the fish that ends up as a dish in the consumer's dining table.

Your success as an aquaculture entrepreneur depends on the extent to which you are able to anticipate and tackle the various risks at every step in the whole value chain. It means that your responsibilities as an entrepreneur go beyond your farm. This demands a certain level of preparedness about the ways in which various risks emerge and the knowledge about the means by which they can be resolved. The philosophy that guides this responsible behavior is based on the principle of precaution. It can be simply put as “Better safe than sorry”. We can call this preparedness as responsible aquaculture. This is a behavior each one of us must nurture. But remember, it is something like a lock which needs to be opened from inside, not from outside.

Responsible aquaculture emphasizes the need for practicing aquaculture in a responsible way so as to ensure profitability as well as food safety without causing negative environmental and social consequences. Promotion of Responsible fisheries including aquaculture is a concern shared by all nations in the world. And we have a number of guidelines in this regard. Food and Agriculture Organisation (FAO) under the United Nations has brought out a set of guidelines called Code of Conduct for Responsible Fisheries (CCRF). It is a voluntary code signed by the member countries including India in 1995. The code has 12 articles and article 9 deals with aquaculture development. The Socio economic Evaluation and Technology Transfer division of ICAR-CMFRI has brought out the Malayalam version of the Code in 2002. You can access the pdf online.

The meaning of being responsible

When do we feel responsible? Most often we feel responsible towards something or someone when you have a sense of ownership over that thing or person. We have a sense of responsibility towards our parents, relatives, children and pets. We feel responsible towards our assets like house, vehicle, land, and pond. But this sense of responsibility may get weaker when our sense of ownership is also weak. For example, if we are harvesting fish from a river or lake, which is anyway not owned by you, we have less concern towards the future. Your priority is to maximize your profit. You have least concern towards the well being of the ecosystem. This may not be the case if that lake belongs to you. Similar is the case, when you do aquaculture in a leased out pond. Since you are not the owner of the pond you may tend to ignore, for example, the bad consequences of the excessive chemicals you may apply there.

We must pay little more attention to this point. The pond or water body where you do the farming may be under your ownership. You can argue that because of the ownership vested with you, you can also be irresponsible in what you do there. "Any way it is my property, I will do whatever I want". But the

consequences of your irresponsible action will not end in your pond. The water is linked with the other water bodies. If you wish to practice certain harmful practices, the harm will not be confined to your waterbody. It can have spill over effects on the nearby farms. If your neighboring farmers do unscientific practices you are also likely to get affected by those practices. This is more clear when you do your farming in a common water body like a river, lake or sea. So, our sense of responsibility will determine the kind of risks we may face in aquaculture. Thus individual sense of responsibility, the very awareness of the consequences of your actions, needs to be elevated to that of the wider community of the entrepreneurs as well as members of the society.

You may not have sufficient control over the members of your community. But as we have seen without the community taking equal responsibility, the right action of a single individual may not be of any use. Or bad action of a single individual will ruin the prospects of many other entrepreneurs depending the common water source or body. So what is the solution? Yes, the State must play its role. That is why we have rules and regulations. The rules and regulations in aquaculture ensure the collective responsibility which is very much essential for our individual success.

Principles of Responsible Aquaculture

A) Scientific farming is the first line of defense

As a farmer you have to face a number of risks while doing the fish culture. The most important one is the threat of diseases. When you start thinking about fish farming say shrimp farming, the first advice you might have received would be about the loss someone suffered in the past from a sudden outbreak of disease. There was a time when commercial shrimp farming was almost on the verge of extinction due to viral diseases. Today we have different kinds of scientific practices (biotic and abiotic controls) that reduce the risk of diseases.

This leads us to the first lesson in responsible aquaculture. Scientific aquaculture is the first line of your defense against risks.

Scientific aquaculture comes as a package of practices. Modern scientific aquaculture is knowledge intensive. You need to have sufficient knowledge on a number of aspects of the farming. This means that you can't claim to be scientific if you have merely adopted a new technology. The success of the new technology, for example hatchery produced fingerling, depends on many other scientific practices like stocking density, water quality, nutrient status etc. You need to be aware about what factors make your pond susceptible towards diseases. You need to have knowledge about the good feeding practices. The more you understand the science or the scientific rationale behind each recommended practice the more control you can exercise over the production process.

This is especially important when you are applying chemicals like antibiotics or pro-biotics. It is often seen that many farmers use anti biotics on false notions like the effect on growth or immunity. Irrational use of anti biotics leads to the very serious problem of anti biotic resistance. There is widespread and global concern towards the ill effects of anti biotic abuse not only among humans but also among animals. The consumer is well aware about this danger. Fish consumers, especially in developed countries are doubly cautious towards this threat. The technology for detection of anti biotic residues in such countries is highly sophisticated and chances of rejection of the whole consignment are high if you are careless in export oriented aquaculture. Consumers elsewhere prefer to take shrimp as raw unlike us. This makes them more vulnerable. In fact, a decision to avoid unscientific use of anti -biotics even if there is no rejection threat is a better testimony that you are practicing responsible aquaculture.

Another aspect of scientific farming is diversification and integrated farming technologies. Availability of good quality water in required quantity is becoming a constraint in aquaculture. So we need to think about ways by which available water can be put to the best use. The research institutes under ICAR have developed a number of fish farming technologies for increasing productivity

Breed improvement, Disease detection kits, Intercropping, poly culture, multiple stocking and multiple harvesting, waste water aquaculture systems, and low cost feeds are some of such technologies. You must make use of every opportunity to get training in such advanced technologies.

b) Value chain holds the key to success

Aquaculture today is a globalised trade. And as a modern fish farmer you can not remain as an isolated player. We live in a google world. Market is no longer a place where you physically meet the seller and buyer. Like any other commodity fish is also sold "on line" these days. There is wide spread awareness on the value of the fish protein and their health benefits. The consumer is equally aware about the bad effects of fish farming when done in an irresponsible manner. The domestic consumer herself is rich in consumer power. Money and mobile connectivity define purchasing power today. Mobile phone has enabled the consumer to be equally influential on the choices they make while purchasing the fish. The concerns for food safety used to be a major factor that influenced the purchasing decision. Social media plays a big role in spreading food safety issues. You may recall the recent case of the formalin scare that happened in Kerala. The public in general today is aware and concerned about the issue of unscientific use of chemicals especially antibiotics in fish farming. By establishing that you are following Good Aquaculture Practices in your farming you can take the consumer into confidence. Institutions like KVK can act as a "trust link" between the producer and consumer through suitable arrangements. Food safety is a value addition in aquaculture.

Today consumers, especially in developed countries, are nudged to exercise their purchasing power to buy products which are ecologically benign. This has come to fish also. This is mainly done through labeling schemes like organic fish farming. Ecological safety is an emerging option of value addition. Food safety and ecological safety are going to be market access conditions soon.

c) Be aware about the environmental and social consequences of aquaculture

Though Aquaculture is able to provide fish in a world where fish from the sea is becoming less abundant it is likely to bring certain negative consequences to the environment and society. We need to be aware about these impacts and take sufficient care to avoid or reduce the bad effects.

Some of the bad consequences are listed below

- A) Destruction of mangroves, wetlands and other sensitive aquatic habitats.
- B) Conversion of agricultural lands (like paddy lands) into ponds for fish farming
- C) Excessive use of drugs and chemicals for aquatic disease control
- D) Inefficient use of fish meal and other natural resources
- E) Salinization of land and water by effluents, seepage and sediment from brackish water ponds
- F) Excessive use of ground water and fresh water supplies for filling the ponds
- G) Spread of aquaculture diseases and culture organisms into the native population
- H) Loss of biodiversity (killing of birds, invasion of non native species through escape etc.,)
- I) Conflicts with other resource users and disruption of nearby communities

In conclusion we can say that by practicing responsible aquaculture you are increasing the chances of your success as an aquaculture entrepreneur. The general public or the consumer is becoming well aware about the need to be sensitive towards the health of the individual as well as the ecosystem. As a producer we need to be sensitive towards this changing value system. If you are ecologically and socially sensitive you are economically sensible too. The producer is not a mere producer she needs to be a steward of the ecosystem too. Responsible aquaculture is the way forward.