

# Indigenous Fish Farming Knowledge in Kutch District of Gujarat

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**Abstract**—Farmers innovations are based on their indigenous knowledge. These indigenous technological knowledge innovated by farmers is stored in the peoples memories and activities. The present study was conducted for the documentation of indigenous technological knowledge of fish farming in district of Kutch, Gujarat. These innovations are socially and ecologically acceptable, economically viable. These knowledge can be promoted through scientific approach as a mean of higher and sustainable fish seed production in ecofriendly manner.

**Keyword:** Fish farming, traditional fish farming, Gujarat.

## 1. INTRODUCTION

Indigenous knowledge is traditional type of innovation by farmers that is stored in people's memories and it is expressed in the form of stories, songs, folklore, proverbs, dance, myths, cultural values, beliefs, rituals, community laws, local language and taxonomy, agricultural practices, plant species and animal breeds. Farmer's innovations are based on their indigenous knowledge. These indigenous knowledge is the accumulated knowledge, skill and technology of local farmer derived from the interaction of the ecosystem. Aquaculture remains a growing, vibrant and important production sector for high protein food. The systems and technology used in aquaculture has developed rapidly in the last fifty years. They vary from very simple facilities (e.g. family ponds for domestic consumption in tropical countries) to high technology systems (e.g. intensive closed systems for export production). Much of the technology used in aquaculture is relatively simple, often based on small modifications that improve the growth and survival rates of the target species, e.g. improving food, seeds, oxygen levels and protection from predators. Simple systems of small freshwater ponds, used for raising herbivorous and filter feeding fish, account for about half of global aquaculture production. The ultimate goal of aquaculture is to achieve high production with the good profit margin. Much more sophistication in the technology may helps to achieve more production. On the other hand some traditional and cost effective techniques are still used in aquaculture which are found to be effective are discussed here such as bhars for transportation of seed, empty water bottles are used as the floats during net operation, an handmade

balance use for counting seeds, Ash produced from Banana to improving pH of water and vegetation pit use for keeping colour of water green etc.

## 2. METHODOLOGY

The present study was carried out in Kutch District of Gujarat. Data were collected from the respondents through personal interview using semi-structured scheduled. The conclusion was drawn from the overall response of the respondents.

### 2.1 Bhars for transportation of seed

Bhars are the simple aluminum rounded pots which are used for transportation of seed from pond to market. These Bhars are carrying by two ways one person can carry two pot full of fingerlings on his shoulder with the help of one bamboo stick also two person can carry one pot full of fingerlings on their shoulder with the help of one bamboo stick. The mouth of bhars is covered with the net in order to prevent escape of the fishes. While the jerking movement during walking started splashing of water which results in increasing DO inside water.(fig1)



Fig. 1: Men's carrying bhars

### 2.2 Plastic Floats

Floats are the material which is used to keep the mouth of net open during fishing operation. The floats are generally made up of plastic hollow material. But in India some farmers are

using empty water bottles which act as the floats during operation of net. This helps to keep the net erect during operation (Fig.2) These floats are attached at the specific distance. This technique is used to reduce cost of floats.



**Fig.2: Net operation**

### 2.3 Homemade balance for fish juvenile counting

Generally these are simple homemade weighing balance which is generally used for counting the fingerlings of the fishes. (Fig.3-4) Generally small sieves are used for counting the fingerlings, but by using these method one can quickly count the fingerlings.



**Fig. 3: Man with fingerling counting balance**



**Fig. 4: Workers are counting the fingerling by using balance**

### 2.4 Ash produced from Banana

The pH of water is an important criterion to produce adequate amount of natural food in the water through effective release of nutrients for the production of such organisms. Application of lime is essential to rectify pH of water. In general, 200-500 kg/ha can be applied to all ponds, irrespective of the pH status. In ponds with low pH, higher level application would be necessary (Fig.5). In rural areas, availability of lime may be a constraint. Hence, in place of lime, ash produced at home by burning fire wood or various other sources can also be used. Ash produced from Banana is reported to be having very good impact in improving pH of water.



**Fig. 5: Man collecting ash from burned wood and banana leaves**

### 2.4 Vegetation pit

Green water is essential to increase the growth of fish based on the natural food produced in the pond. Most carps depend on the natural food produced in the pond and this is eaten by the fish through the filtration process. Northeast has plenty of greenery and vegetation that is rich in nitrogen, particularly (*Eupatorium* spp). All such plants can be composted in various corners of ponds by creating bamboo fence and dumping the vegetation in such enclosures. (Fig.6) Adding manure to vegetation pit would stimulate the process of composting in aquatic environment and increase productivity. Make sure that you do not over dump vegetation in the pond and cause oxygen depletion. Repeated applications are far more efficient than dumping at a time.



**(Fig.6) Fish Farmer adding manure to vegetation pit**

### 3. RESULTS

In order to understand the hatchery owner and traditional fish farmer clearly and comprehensively for this study, some of the personal, socio- economic, communicational characteristics were undertaken. The socio economic condition of fish farmers was found to be comparatively better than the traditional fish farmer.

### 4. CONCLUSION

From the stage of ancient India, traditional knowledge system in field of fisheries is abounded. Some of these methods are still in used either in original form or with modification. Though the new techniques are developed with the technological innovations, but still these traditional methods are having their own importance. This abounded store of knowledge in area of traditional technique for fish production is still in practice and of great value. It is our duty to develop, preserve and protect them.

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### REFERENCES

- [1] National Commission on Agriculture, Government of India, Ministry of Agriculture and irrigation, New Delhi, part VIII (Fisheries), 1976.
- [2] Dasgupta DD, Traditional wisdom and experience in agro technology generation and use, XVII Indian Science Congress, Bangalore, August 10-15, 1993.
- [3] Jha BK and Shiyani RL, A study on differential levels of adoption of dairy innovations in tribal setting of Burdwan district of West Bengal, *Indian J Agric Econ*, 47(3), 1992, 419-420.
- [4] Dohare RS, A study on indigenous technical knowledge in animal husbandry in Mathura district of UP, PhD Thesis, IVRI, Izatnagar, 1996.
- [5] Gupta A K, Documenting indigenous farmer's practices, *ILIEA News Letter*, 6(2)(1990), 29-30.
- [6] Das P, Das SK, Arya HPS, Reddy Subba Gand Mishra A, Inventory of indigenous technical knowledge in Agriculture, Mission unit, Division of Agriculture Extension, Indian Council of Agricultural Research, New Delhi, 2002.
- [7] Pandey AK, A comparative study of livestock rearing system among tribal and non tribal in Chotanagpur region of Bihar, PhD Thesis, NDRI, Karnal, 1996.
- [8] Gupta SL, Singh SP and Dubay VK, Traditional wisdom: A conceptual exploration, *Interaction*, 12(1), 1994.
- [9] Ratnakar R and Reddy MS, Knowledge of tribal farmers about recommended farm practices, *Indian J Extn Edu*, 27(3&4) (1991), 91-94.
- [10] Vikash k, Suvra R, Debtanu B, Devanand U, A Case Study: Fish seed nursing by farmers of Udaipur, South Tripura, India, *International Journal of Fisheries and Aquatic Studies* 2014; 1(4):103-107