

Chapter VII: Conclusion

7.1 Main Findings:

- ✓ Almost all the bheries in North 24 Parganas are tidal and saline in nature and they are situated in the south and south-eastern parts of the district,
- ✓ Variation of tidal amplitude helps in farming of bheries. It is observed to be maximum in the southmost parts,
- ✓ Water is exchanged in the bheri usually in Full Moon and New Moon, since high tides are found to be maximum during those periods,
- ✓ The bheries are usually cluster in physical existence and not discrete or isolated,
- ✓ Operation of bheri-fishery has a long tradition in the district but they are operated in improved traditional methods except some newly formed scientific bheries situated south to Hasnabad town,
- ✓ The bheri-owners used to cultivate both wild and hatchery-incubated seeds of tiger shrimp,
- ✓ The wild seeds are caught from the rivers and canals particularly by the country women and boys & girls. Where as nursery-incubated pins are imported from Andhrapradesh, Tamilnadu etc,
- ✓ Fingerlings of different fishes and prawns in massive quantity and variety are destroyed during catching of wild seeds of tiger shrimp because they are caught and collected selectively and other species are thrown off. This calls for losing of biodiversity in the local areas,
- ✓ Some indigenous species of fishes like Nados, Chunchro (local name) etc have almost disappeared presently after the advent of bheri-farming (i.e., artificial process),
- ✓ Bheri-culture is capital as well as land intensive rather than labour intensive. The spread of bheries in the district was maximum in the late nineteen eighties and early nineteen nineties at the cost of agricultural and mangrove-lands and now it's spread is almost stalling,
- ✓ The salinity of water of any particular bheri does not remain same all along the year long. It becomes maximum during pre-monsoon, minimum during monsoon and moderate during post-monsoon,
- ✓ Bheries in the north-west parts fall in low saline regime where as in southern and eastern parts the bheries are with medium salinity,
- ✓ Tiger shrimp is the most costly product in bheries,
- ✓ Paddy-cum-fish culture was in vogue in the district since long past, but at present it is not so popular, they are seen only in few pockets near Haroa Bazar,
- ✓ Almost all the bheries in the district is cultured on lease basis by the resident-local, non-resident local or outside people, but rarely run by any agency or company,

- ✓ The bheries in N 24 PGS play a pivotal role in supplying substantial cheap animal proteins to the local people and the nation in broad sense, as well as in generating enough employment and earning ample foreign currency,
- ✓ The bheries begate various societal problems and complications, call for violation of govt. formulations & orders, political chaos, law & order problems etc. They also crop up some environmental degradation,
- ✓ The bheries hinder expansion of settlement, growing up of various developmental works & infrastructural facilities, agricultural fertility & production etc,
- ✓ The bheries are vulnerable to various natural calamities, environmental pollution etc,
- ✓ Ice-mills are not in sufficient number in the bheri areas,
- ✓ Local transport is not proper and sufficient for shrimp and fish marketing,
- ✓ Industry for fish and shrimp processing is not sufficient,
- ✓ The *Phores (dalal)/ katawala* (who make weight & selling in the local market) are too much strong in relation to local fish market,
- ✓ Katawalas lend money to the farmers in high rates of interest and they make the farmers bound to sell the products of the bheries to them at the rates fixed by the katawalas,
- ✓ There exists insufficiency of suitable fish-market in the areas etc.

7.2 Suggestions:

1. Optimum quantity of seed, water and feed are to be used during bheri farming,
2. Water, soil and pond management is to be done scientifically,
3. Guidelines formulated by the Aquaculture Authority, Ministry of Agriculture, Govt. of India are to be followed more strictly,
4. Necessary Effluent Treatment System (ETS) as recommended by the Aquaculture Authority is to be established against each cluster of bheri,
5. Reciprocation of experience, findings and knowledge to be done between the Research Institutes and the Bheri-farmers,
6. The farmers to be encouraged to form registered co-operatives,
7. Integrated farming systems like shrimp-fish, aquaculture-agriculture, aquaculture-forestry, aquaculture-poultry-piggery etc are to be followed wherever feasible,
8. Make provision for mangrove-buffer zone,

9. After final harvesting the pond to be dried up and sediment to be reused as manure to the possible extent,
10. To encourage farming of hatchery-pin of tiger shrimp instead of wild pin to avoid destruction of biodiversity,
11. To establish pin-hatchery and pin-nursery for growing of pin of tiger shrimp in the vicinity of the bheri-areas,
12. To discourage catching of shrimp-pin from the rivers and canals by making the local people aware of the consequence of such activities,
13. To provide alternative occupational scopes to the collectors of wild shrimp-seed,
14. It is advisable to the aqua-culturists to use biodegradable organic plant extracts in lieu of chemical pesticides and molluscicides,
15. Use of chemotherapeutants should be avoided as far as possible,
16. Use of antibiotics/drugs should be avoided as far as possible,
17. The use of exotic seed which has a possibility of spreading diseases or carrying of disease-producing pathogens is to be restricted,
18. Bank authority is to provide loans to the bheri-owners on easy terms and conditions,
19. Bheri-owners are to be encouraged to cultivate bheries only with permission of the competent authority,
20. Making proper insurance against bheries is to be encouraged,
21. Ice-mill is to be established in sufficient number in the bheri areas,
22. Local transport is to be improved in proper and sufficient manner for shrimp and fish marketing,
23. Industry for processing of fish and shrimp is to be established in sufficient number within easy reach of the farmers,
24. Proper markets in sufficient number are to be generated in the areas,
25. Proper arrangement and policy to be made by the competent authority with a view to link the farmers directly with the exporters.

7.3 Concluding Remarks:

Farming of bheri in south and eastern skirts of North 24 Parganas has a long tradition though they are run in traditional or improved traditional ways and not in scientific manners. Varieties of sweet-water fishes and prawns are grown up in the bheries depending on salinity of water and availability of seeds, though tiger shrimp is the costliest product. Both low and medium saline bheries exist in the district. It is found that the bheries are much more capital and land intensive and less employment generating as compared to agriculture. The bheries help in supplying cheap animal protein, contribute local fish-market a lot, vis-à-vis earn considerable amount of foreign currency and generate ample employment. At the same time the bheries call for some adverse effect like swallowing of agriculturable lands, mangrove-forests, spreading of salinization etc, creating various types of societal problems, increasing of unemployment, law and order situation etc in the localities, providing environmental degradation, decreasing biodiversity and so on. Of course, most of the local people, as per the author's survey, welcome bheri-farming in the district. However, bheri-farming in the district should be in scientific procedures for the sake of the local people, broadly for the nation as a whole and the environment.