PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY)

RIVER RANCHING PROGRAMME IN INDIA

I. Introduction:

PMMSY is designed to address critical gaps in fish production and productivity, quality, technology, post-harvest infrastructure and management, modernization and strengthening of value chain, traceability, establishing a robust fisheries management framework and fishers welfare.

It is an umbrella scheme with two separate Components (a) Central Sector Scheme (CS) and (b) Centrally Sponsored Scheme (CSS). Further segregated to Non-beneficiary and beneficiary. Sub components/activities are of 3 broad heads:

- Enhancement of Production and Productivity
- Infrastructure and Post-harvest Management
- Fisheries Management and Regulatory Framework

Fishery resources are increasingly threatened by the environmental pollution and human activities, dominating the natural ecosystem and this impact has accelerated an irreversible damage to the habitat, ecosystem functioning, biodiversity, and the traditional fishery and artificial-culture industries. These effects occur through environmental pollution, overfishing, and climate change.

With a growing human population, the requirement of high-quality protein, the demand for fish products is increasing. To promote the sustainable use and conservation of fishery resources in an economically and environmentally responsible manner, while ensuring the upgrade of traditional fishery mainly focused on to capture fisheries, ecosystem services, and the trade and social protection of Inland communities, the "River Ranching programme" is one such programme which can achieve sustainable fisheries, reducing habitat degradation, conserving biodiversity, maximizing social-economic benefits, and assessing ecosystem services.

Keeping in view of aims & objectives of PMMSY "Enhancing of fish production and productivity through expansion, intensification, diversification and productive utilization of land and water", "River ranching programme is incorporated under PMMSY scheme as a special scheme. Details of river ranching procedure are enclosed in "Annexure-I"

II. Objectives:

It is programmed to address increased fish catch and improved livelihood and to maintain the cleanliness of the river as they feed on organic remnants. Primarily to uplift the depleted fish stock and secondary to enhance production of the ranched fish species. The key objectives of the component are:

- To sustain and conserve the biodiversity in the river.
- Facilitate regular stocking of fingerlings of cultivable carps to enhance productivity
- Increase fish production
- Enhance income and livelihood opportunities to communities' dependent on these resources
- To encourage fishermen community to adopt suitable management strategy like allowing the released fishes to grow and proliferate for restoration of the fish stock.
- To release hatchery seeds to rebuild severely depleted fish stocks, natural habitat conservation to maintain the habitat function of stock enhancement
- A technology of restocking and commercial wild restock yield management

III. Proposed sub-component: The Programme is proposed under Central Sector scheme of Sub - component 6. "Support to assistance National Fisheries Development Board (NFDB)" with a broad activity "River Ranching Programme in India - stocking of fingerlings in major river basins of the Country", anticipated to enhance productivity of these resources.

IV. Unit Cost: To provide financial assistance for stocking of fingerlings @ Rs. 3/- per fingerling.

V. **Components Assistances:**

- Ranching of fingerlings attained at a size of 80- 100mm.
- @ 5% on the allocated budget shall be utilized for photo & video documentation, publicity etc., to Popularize fish stock enhancement activity.

VI. Processes of Implementation:

- The activity shall be implemented as "River Ranching Programme in India" under Central Sector component-National Fisheries Development Board (NFDB) Assistance.

X. Mode of implementation:

1. End Implementing Agency (EIAs) is Director/Commissioner of Fisheries of respective states
2. EIAs shall implement the activity within a stipulated time of 3 months.
3. Selection of site for ranching shall be as per the SOPs as mentioned in Annexure-I
4. Quality of fingerling-native species preferably of local strain.
5. The state shall initiate river ranching with fish seed bred from riverine fish stocks to supplement the depleted stock of commercially important fish species
6. Any excess administrative cost apart from the allotted amount will be borne by the respective State

XI. Suggested Technique:

Ex situ conservation has become a widespread and much essential activity towards surviving of flora and fauna in recent days. This method of conservation is complemented well through captive breeding techniques. Hence, hatcheries to be selected with fish strain existing in the same river system has to be bred, reared & released into the river system.

XII. Species Targeted:

Targeted on replenishing IMC such as Labeo rohita, Labeo catla, Cirrhnus mrigala and Labeo calbasu), Minor carps & any other indigenous species existing in the river system. River Ranching are riverine fish diversity, stock assessment & enhancement of the popular food fishes like Rohu, Catla, Mrigal etc by ranching in the stretches of river basin. Programme focused mainly on stocking fingerlings of endemic fish species, to the river environments for a subsequent growth and harvest, with no intention that the released stock shall contribute to the spawning biomass. It is only a stock enhancement in open water resources which is vital for restoration, conservation and upliftment of this declined fish fauna. Ultimately for increasing resource productivity and production.

All precautions should be taken that no exotic species, banned species and strains of the same species but from other than targeted river system should be released in the ranching programme.

XIII. Timeline for River Ranching:

- Release of the seed to be done in August/ September/ October, November during the year 2022.
- The schedule of release may be submitted well in advance to NFDB beforehand.

XIV. Expected Outcome: Anticipated direct & indirect employment generation, enhancement of fish production and productivity, improvement of economic status of locals and sustain use of fishery resources.

XVI. Monitoring & Evaluation:

Monitoring and Evaluation by NFDB shall be carried periodically to know the progress of activities implemented under the project. To know the performance, utilization of funds and impact of the progarmme.

Annexure-I

Process of Ranching: (SOP)

- Selection of site for collection of live fish (brooder, sub adult etc.).

↓

- Collection of live and healthy fish from the river or associated water body with active connection with river to avoid the genetic pool contamination. (Gear selection is most important, preference should be given to harmless gear like surrounding gear)

↓

- Transportation of live fish for captive maturation and wild germ plasms maintenance. (Most Challenging aspect; proper methodology should be followed to transport the live fish (Adult or brooders) in healthy condition)

↓

- Brooders maintained with proper management (maintaining optimum water quality, proper feeding, water exchange, health management of stocked fish)

↓

- Brooders are tagged for maintaining the data to monitor further i;e Collection site, date of collection, sex should be recorded properly. (If it is more than one river study, it is much important to avoid genetic contamination)

- Selection of mature brooder for induced breeding programme, based on secondary sexual characters.

- Selected brooders should be injected with inducing agent (Hormone).

  1.Carp crude Pituitary Extract (CPE)

  2.Synthetic Hormone

- During breeding programme, make sure that **no hybrid / cross breed** should be happened.

- If using breeding pool, then single species should be put in the pool for spawning.

- If using stripping use male and female of same species for stripping.

- Maintain / follow the entire hatchery procedure. (As per standard procedure like injection, spawning and hatching etc. must be followed)

- Nursery ponds for stocking of produced spawn should be prepared prior to breeding by following standard aquaculture practices like Drying of

pond, weed clearance eradication of predatory fish, manuring and insect control etc.

- Spawn should be stocked in nursery pond (monoculture of spawn may be preferred)

- Spawn usually feeds plankton and supplementary diet. It is very important to maintain the proper plankton density in the pond

- Periodic manuring also to be followed to maintaining the plankton density.

- Periodic netting should be carried out and regular health management of the stocked fish should be taken care.

- Once the seed / fingerlings attained more than size of 80- 100mm then they are ready for ranching. Small size fish should not preferred for ranching because of lower survival and prone to predation.

- Pre-transportation management should be followed before seed transported for ranching site (stop feeding for gut evaculation, prior netting, application of Mahua oil cake, stocking in happa fro 2-3 hour).

- Fingerlings in open tank transportation Care (water exchange, providing medical grade oxygen, oxygen enhancing tablets, application of sedatives) should be followed during the transportation mainly depends on the duration and distance of transportation.

- Acclimatization of the fingerlings with river environment should be carried out. (fingerlings are kept in a happa fitted in the river water prior to release into the river)

- Selection of ranching site is important (depleted site may be preferred with minimum fishing pressure)

- Mass awareness programme on both banks of the river prior and on the day of ranching is required to restrict the fishing activity on that stretch by encouraging active participation of local fishers and state government officials.