सत्यमेव जयते

Mission Fingerling

Action Plan: 2020

Towards Blue Revolution

DEPARTMENT OF ANIMAL HUSBANDRY, DAIRYING & FISHERIES
MINISTRY OF AGRICULTURE & FARMERS WELFARE
GOVERNMENT OF INDIA
March 2017

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DEPARTMENT OF ANIMAL HUSBANDRY, DAIRYING & FISHERIES
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GOVERNMENT OF INDIA
March 2017

राधा मोहन सिंह
RADHA MOHAN SINGH

D.O. No. 1777 /AM

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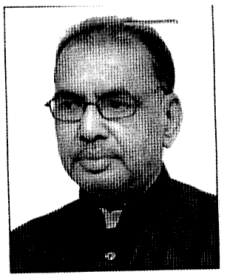

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भारत सरकार
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MESSAGE

Aquaculture is increasingly contributing to the fish basket of the country. In the present scenario, Carps and Shrimp form the mainstay of freshwater and coastal aquaculture respectively. The existing total 1784 freshwater hatcheries produces about 405404 lakh fry only leaving deficit of about 129756 lakh fry. For a sustainable aquaculture production system of these species good quality seed is required to ensure economic viability of the operations. However, there are concerns over quality pertaining to inbreeding, improper size of seed stocked, leading to non realization of full potential.

Blue Revolution, recently launched in the country is focused over increasing in fish production. Thrust areas have been identified to achieve goals highlighted in National Action Plan: 2020. Further, focus on diversification of aquaculture practices like catfish and ornamental fish culture is gaining importance. More and more species are likely to be brought under aquaculture practices including mariculture, resulting in a sharp increase in fish seed demand in near future.

Production and supply of fish seed in the form of standard fingerlings (about 70 mm) is one of the most important need of hour for enhancing fish production. Therefore, in tune with the recent thrust over productivity enhancement, this prioritized activity of fingerling stocking instead of fry, needs to be taken up in Mission Mode "Mission Fingerling" by States/UTs.

I am sure that Mission Fingerling amply justifies its significance input for the growth of culture fisheries. I convey my felicitations to all the members associated with this endeavour for the country's economic growth and livelihood security.

(Radha Mohan Singh)

कृष्णा राज
KRISHNA RAJ

सत्यमेव जयते

कृषि एवं किसान कल्याण राज्य मंत्री
भारत सरकार
MINISTER OF STATE FOR
AGRICULTURE & FARMERS WELFARE
GOVERNMENT OF INDIA

दिनांक 17 नवम्बर, 2017

संदेश

जलकृषि को वैश्विक खाद्य प्रणाली का सर्वाधिक जीवंत घटक माना जाता है और वर्तमान में यह दुनिया भर में उपयोग मछली का लगभग आधा उपलब्ध कराता है। जलकृषि का हिस्सा भविष्य में बढ़ने की संभावना है क्योंकि कैप्चर मात्स्यिकी उसकी धारणीय सीमा पर पहुेच गई है और जलकृषि प्रौद्योगिकी तथा प्रबंधन पद्धतियों में निरंतर सुधार हो रहा है।

पिछले कुछ वर्षों में भारत में मछली उत्पादन कई स्तरों पर बढ़ा है। देश में जलकृषि से मछली उत्पादन वर्ष 2015-16 में 107.9 एमएमटी अनुमानित किया गया था। वर्तमान में हैचारियों से उत्पादित बीज जलकृषि क्षेत्र की अधिकाशं आवश्यकताओं को पूरा कर रहा है। तथापि, अभी भी गुणवत्ता मछली बीज विशेष रूप से मानक फिंगरलिंग की मांग और आपूर्ति में अत्यधिक अंतराल है।

बीज की गुणवत्ता और इसकी उत्पादन प्रकिया में धारणीयता को सुनिश्चित करने के लिए यह महत्वपूर्ण है कि हैचरियां वैज्ञानिक मानदंडों के अनुसार गुणवत्ता ब्रूड स्टॉक, मानक प्रजनन और पालन पद्धतियों का उपयोग करें। इसी प्रकार, यह भी सुनिश्चित करने की आवश्यकता है कि बीज फार्म गुणवत्ता मानदंडों का पालन करे और तालाबों को बढ़ाने के लिए किसानों को मानक फिंगरलिंग की आपूर्ति करें।

फिंगरलिंग उत्पादन अवसरंचना की तीव्र कमी को देखते हुए, फिंगरलिंग की मांग को पूरा करने के लिए मिशन रूप से ऐसी अवसरंचना के निर्माण पर जोर देने की संकल्पना की गई है। मुझे विश्वास है कि केंद्रित प्रयास निश्चित रूप से इस कमी को पूरा करने में मदद करेंगे।

मैं मिशन फिंगरलिंग की महान सफलता की कामना करती हूँ।

(कृष्णा राज)

Office : 199-J, Krishi Bhawan, New Delhi-110001

सुदर्शन भगत
SUDARSHAN BHAGAT

सत्यमेव जयते

कृषि एवं किसान कल्याण
राज्य मंत्री
भारत सरकार
MINISTER OF STATE
FOR AGRICULTURE &
FARMERS WELFARE
GOVERNMENT OF INDIA

Message

Aquaculture is considered to be the most vibrant component of the global food system and currently provides roughly half of the fish consumed worldwide. The share of aquaculture is expected to increase in the future as the capture fishery has reached its sustainable limit and there is continuous improvement in aquaculture technology and management practices.

Fish production in India has grown many folds over the years. The fish production from aquaculture in the country was estimated at 107.9 MMT in the year 2015-16. Presently hatchery produced seed is fulfilling most of the requirements of the aquaculture sector. However, still there is huge gap in the supply and demand of quality fish seed especially Standard Fingerlings (>70 mm).

To ensure quality of seed and sustainability in its production process, it is important that the hatcheries use quality brood stock, standard breeding and husbandry practices as per scientific norms. Similarly, it needs to be ensured that the seed farms follow quality norms and supply Standard Fingerlings to farmers.

In view of acute shortage of Fingerling production infrastructure, emphasis on creation of such infrastructure in a Mission mode is conceptualized to meet the Fingerling Demand. I believe a focused effort will definitely help to overcome this shortage.

I wish Mission Fingerling a great success.

(Sudarshan Bhagat)

MESSAGE

Blue Revolution i.e. adoption of package program to increase fish production was started in 1970 during fifth Five Year Plan. However, desired results were not achieved after a journey of more than 50 years. The Solution is to apply global knowledge customized to India conditions.

Necessitated by an aggressive economic growth characterized by increasing output, achieving higher efficiency is a green card for Blue Revolution. The awareness about cost effective technologies is improving and Government of India's promise of doubling farmer's income can become a reality if careful thought is applied and comprehensive plan is drawn up. There are implementation problems, the role of the state and the public are crucial here. I think farmers have to be taught to handle water carefully. More yields from less resource are the mantra for present day circumstances in the case of aquatic resources. It implies that we can achieve more from less by adopting strategies centered on Innovation, Convergence and Execution. By increasing productivity and ensuring that the output increases without cost going up much, farm income can go up.

Neel Kranti – the Blue Revolution Mission is a comprehensive and multipronged transformational strategy of Indian Fisheries aims to resolutely deal with vicious cycle of underinvestment, strained capacity and low investible surpluses through a sustained and substantial CAPAEX. It also focuses on to make the system responsive to the needs of higher production through structural and policy reforms and to instill a culture of efficiency and technology consciousness through revamp of its priorities.

It will focus on tapping the potential from aquaculture and fisheries resources, subsequently increasing the contribution of Indian fisheries in the export earning of the country.

DEVENDRA CHAUDHRAY
Secretary,
Department of Animal Husbandry, Dairying and Fisheries
Government of India

संयुक्त सचिव
भारत सरकार
कृषि एवं किसान कल्याण मंत्रालय
पशुपालन, डेयरी और मत्स्य पालन विभाग
कृषि भवन, नई दिल्ली-110001

Joint Secretary
Government of India
Ministry of Agriculture & Farmers Welfare
Department of Animal Husbandry, Diarying & Fisheries
Krishi Bhawan, New Delhi-110001

MESSAGE

Adequate availability of quality stocking material for different categories of water bodies is of paramount significance for the success of Blue Revolution. Fish fingerling production is the single most important critical input visualised to achieve fish production targets through culture based fisheries. Estimated deficit of fingerlings is more than 1,94,215 lakh at the National level. The present fingerling production in the country is 74884 lakh only. There is a need of 50,490 ha rearing pond area to get the required 1,94,215 lakh fingerlings (80-100mm size) to ensure availability of good quality stocking material locally

We need to establish more than 913 hatcheries [2ha unit] to produce fry for the required fingerlings in the country. Barring few States, that too in terms of fry (15-20 mm size) all States are in chronic deficit of fingerling production (standard size 80-100 mm). Use of better quality of brooder is another significant aspect to be addressed on priority. Based on the demands received from various States under Blue Revolution, assistance extended during 2016-17 is only for 72 units in 13 states with a central liability of Rs 959 lakh, leading to the addition of only 7200 lakh fry (15 - 25 mm) against the requirement of 3,88,430 lakh fry needed to get the required number of fingerlings annually.

Any delay in creation of hatchery and rearing pond facilities will reasonably delay the culture output also because, insufficient availability of stocking material shall scale down the output proportionately.

I am sure that the implementation of this program will supplement the fingerling production in the country, which remains a much needed input to achieve the targets under Blue Revolution.

Aditya Kumar Joshi
Joint Secretary Fisheries
Government of India

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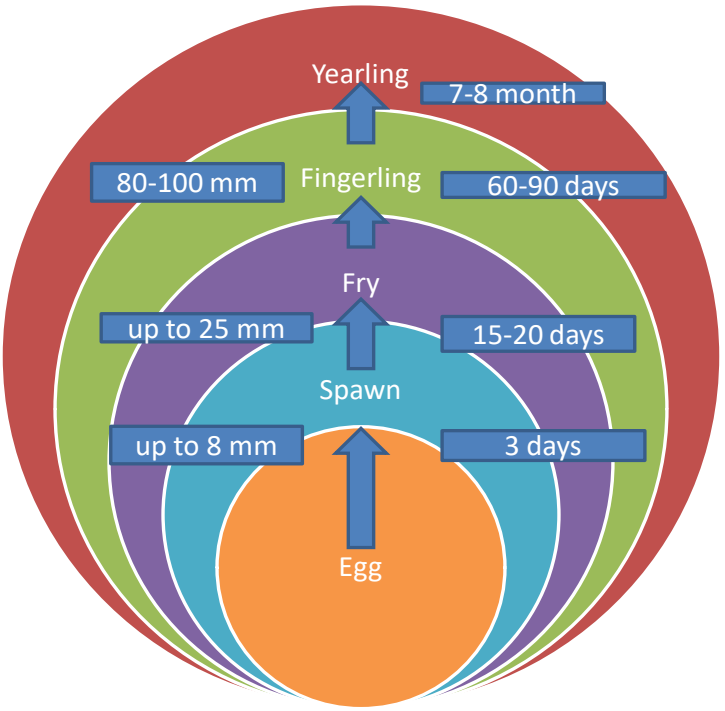
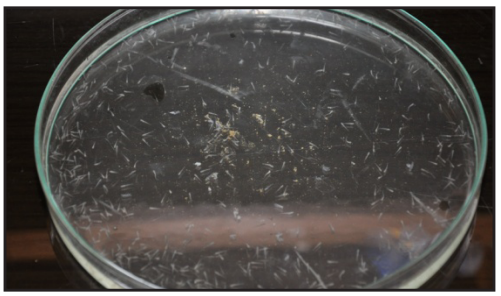
LIFE STAGES OF FISH



Fish Eggs



Fish Spawn

Fish Fry

Fish Fingerlings

MISSION FINGERLING

1.1 CONTEXT

Recognizing the potential and possibilities in the fisheries sector, Government of India has envisaged a program to unlock the country's latent through an integrated approach at a scale necessary to make a difference. The **Blue Revolution**, in its scope and reach, focuses on creating an enabling environment for an integrated and holistic development and management of fisheries for the socio-economic development of the fishers and fish farmers keeping in view the sustainability, bio-security and environmental concerns. Thrust areas have been identified for enhancing fisheries production and productivity from aquaculture and fisheries resources, both inland and marine, during ensuing years through the active participation of all stakeholders.

The programs and strategies for fisheries and aquaculture development in the country under the umbrella of Blue Revolution have been prioritized to address the identified gap in the sector. Greater emphasis is on the production oriented infrastructure with adequate management and conservation measures. Technology transfer and its adoption to make fisheries sector a modern industry with an aim to increase the income of the fishers and fish farmers through productivity enhancement, better post-harvest facilities and marketing operations by adopting best global innovations. Integration of various production oriented activities such as: Production of quality fish seeds, Cost effective feed and value addition facilities *etc*. Cluster approach by forming groups among entrepreneurs and progressive fish farmers will be encouraged to adopt Good Aquaculture Practices (GAP) in hatcheries and farming.

1.2 CULTURE FISHERIES

The culture fisheries is seen as the main source for future growth of fish production, as world's capture fisheries is fully or overexploited. Aqua Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators *etc*. Aquaculture, also known as aqua farming, is the farming of fish, crustaceans, molluscs, aquatic plants, algae, and other aquatic organisms. Aquaculture involves cultivating freshwater and saltwater populations under controlled

conditions, and can be contrasted with commercial fishing, which is the harvesting of wild fish. Feeding of the reared fish is an important aspect of aqua farming in most of the cases. Mariculture refers to aquaculture practiced in marine environments and in underwater habitats. Particular methods include different practices that may integrate fish farming and plant farming.

The culture-based-fisheries (CBF) are practices to enhance fish stocks in waters that don't have enough natural recruitment to sustain a fishery. CBF practices are usually applied in small water bodies such as dams and irrigation reservoirs. Here the fish growth is driven by the natural productivity of the waters. Usually there is no feeding and the fish are left to forage on natural food supplies.

1.3 MEETING BASIC NEED OF STOCKING MATERIAL

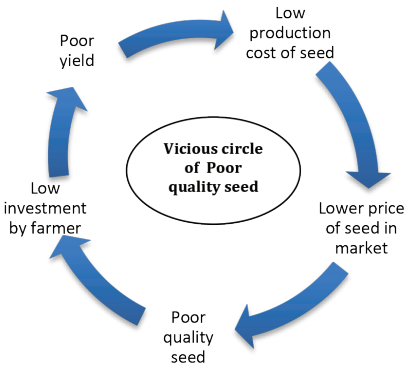
Stocking of quality fish seed in adequate quantity is basic need for any aquaculture system. The lack of fingerlings of suitable size in adequate quantities is the most important limiting factor, compelling farmers to stock ponds with spawn or fry instead of fingerlings. High prices for commercial feeds and feed ingredients often restrain farmers from feeding at the desired level, thus limiting production. The new improved strain of some culture fishes like Rohu and Tilapia could have enormous benefits for India's poor, boosting yields, increasing nutritional benefits and opening aquaculture to more people. Its goal is to produce fast-growing, High-yielding, low-cost strains that are adapted to the needs of India's farmers.

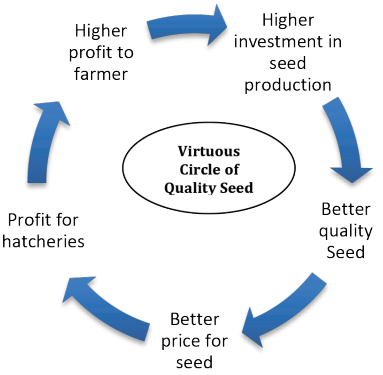
1.4 STOCKING FINGERLING BENEFICIAL BUT IGNORED

The survival rate of Fingerlings is always higher in grow out ponds as they are less susceptible for predation, less vulnerable to the disease and more tolerant to environmental fluctuations. It leads to higher production and productivity due to better growth rate because unhealthy juveniles perish during nursery rearing. Advanced fingerlings take less time to reach marketable size, ideal for multiple stocking and harvesting. Ranching of advance fish fingerling in natural environment gives better performance. Rearing of advance fingerling adopted by the farmers with assurance of low mortality and compensatory growth during the grow-out phase fetches better economical returns. The subsequently growth of the advance fingerlings up to marketable size is believed to be rapid.

1.5 ADDITIONAL APPROACH: STUNTED FINGERLING

Inland fish cultivation by using stunted fish fingerlings is a good recommended practice as stunted Fingerling attain marketable weight within 5-6 months in the grow out pond/tanks. Stunted fingerlings provide an opportunity for fish cultivation in any ponds which has water for at least 5-6 months. Stunted fish fingerlings can be obtained by rearing of fish fry at higher stocking density (7-8 lakh per hectare) fed with natural food for 10-12 months. Main benefits to use the stunted Fingerling – Carps have more growth rate in 2nd year than 1st year. Species suitable for stunted fish fingerlings among Indian Major Carps are Catla, Rohu, Mrigal and Exotic carps - Silver carp, Grass carp, Common carp *etc*.





2.0 KEY COMPONENTS (Table-2)

2.1. *UPSCALING THE PRODUCTION OF FRY/FINGERLINGS FROM EXISTING HATCHERIES:* This component is aimed to maximise the use of existing infrastructure through better utilization and planning by involving all stakeholders.

2.2. *CREATION OF NEW HATCHERIES AND FINGERLING REARING PONDS:* This includes the construction of new hatcheries (cemented) and Fingerling Rearing ponds (earthern) to fill the demand – supply gap. Tie up with ICAR Institutes to mentor farmers during construction and operation of hatcheries/fingerling rearing with an emphasis over the diversification of species.

2.3. *LEVERAGING FUNDS FOR NEW INFRASTRUCTURE:* This component is to increase fund availability by convergence of financial resources from Blue Revolution Schemes, RKVY, State Funds, and Rural Development Schemes *etc*. States/ Agencies are advised to dovetail funds from all possible sources to meet their requirements.

2.4. *USE OF MNREGA PONDS FOR FINGERLING REARING:* This Department has envisaged a program to utilize the village ponds constructed/renovated under Rural Development Schemes of MoRD. A MOU has been signed to ensure focussed attention over the utilization/creation of village level infrastructure amenable for Fisheries development. State Fisheries Departments have to identify usable ponds for Fisheries Development. These selected/identified ponds will be used for fingerling rearing (fish seed production) primarily, while larger ones will also serve as grow out ponds.

2.5. *INSTITUTIONAL STRENGTHENING:* This component is to bring clarity in fish seed segment for smooth supply chain from Brooders to Fingerlings, awareness campaigns and training to facilitate the implementation of program and skill development of entrepreneurs through *Micro Action Plan.*

2.6. *PROMOTION OF HIGH YIELDING VARIETIES:* Promotion of High Yielding Strains through hatchery led supply chain throughout the country. ICAR- Central Institute of Freshwater Aquaculture, Central Institute of Brackish water Aquaculture, Central Marine Fisheries Research Institute and

National Freshwater Brood Bank, NFDB, will provide technical support for the activities taken up under Mission Fingerling.

3. CARP SEED PRODUCTION

Aquaculture of carps is extensively practiced in India. They comprise mainly Rohu, Catla, Mrigal, Grass carp, Silver carp and Common carp. Presently, more than 90% of the carp seed is produced through induced spawning in hatcheries. The quality of the seed is critical factor for successful aquaculture. Hence, for the production of good quality of carp seed, few important points are to be followed.

3.1 Brood stock Care: For production of quality carp seed, healthy brood fish (male and female) of more than 2 years are required. Proper care of brood fish is to be taken throughout the year.

Brood Parameters

Age	:	Minimum 2 years (between 2 to 6 years)
Source	:	Reputed hatchery or Farm adopting Good Aqua Culture Practices
Health	:	Must be healthy, free from parasite/infections
Weight	:	IMC: 1.5- 4 Kg, Chinese carps 2-5 Kg
Male/Female ratio	:	1: 1

Optimal Brood Pond Water Parameters: Dissolved Oxygen: 3 - 8 ppm; Total Alkalinity: 80 - 150 ppm; Ammonia: 0.5 - 1.5 ppm; Nitrate: 0.02 - 0.05 ppm; Nitrite: 0.002 - 0.02; Hardness: 60 - 120 ppm; pH: 7.5 - 8.5; Carbon dioxide: trace; Plankton density: > 2ml/50 liter water.

Pond Fertilization: Basal green manure: 3 - 5 MT/ha at a water depth of 30 - 40 cm and exposed to sunlight for 4 - 5 days, after decomposition, pond is filled with water or raw cow dung @ 5 - 8 MT, single super phosphate 100 - 250 kg, urea 75 - 100 kg and murate of potash 50 kg/ha/yr can be applied. The initial dose is one fourth of the total and the rest applied in split doses. Lime @ 200 kg/ha is applied if pH of water is in between 6.5 - 7.5.

Application of Lime: Generally, for brood fish pH of water should be maintained at 7.5 - 8.5 and alkalinity 80 - 150 ppm but if the pH is less than 7 and alkalinity is less than 80 ppm then 200 kg of lime/ha must applied in the pond. At the beginning, the lime solution is prepared in aluminum or earthen pots and uniformly spread all over the pond.

Brood Fish Collection and Record Keeping: Collection of healthy fish is the first requirement for quality seed production. Source, age of fish, culture or wild brood fish and weight of parent of brood fish are to be recorded at the time collection. To maintain the quality of brood stock different records are to be maintained in hatchery. Separate registers should be maintained for brood fish, induce breeding, seed production and feed application *etc*.

Transportation of Brood Fish: For the transportation of mature male and female brood from the farm pond to hatchery, bag made up of canvas are to be used. This is called "Fish Stretchers" or hammock. For long distance transportation of brood fish, cold environment such as morning or evening time suitable. For long distance transportation anesthetic agents MS222 or 2-Phenoxy ethanol (about 2%) are to be used to avoid transportation stress and aerator or oxygen cylinders may be used to increase dissolved oxygen in water.

Management of Water in Brood Fish Pond: For more and early maturity of brood fish water exchange to be done at regular interval of 15 - 20 days. Apart from this to increase dissolved oxygen content of the water, use of aerators or pump is also necessary.

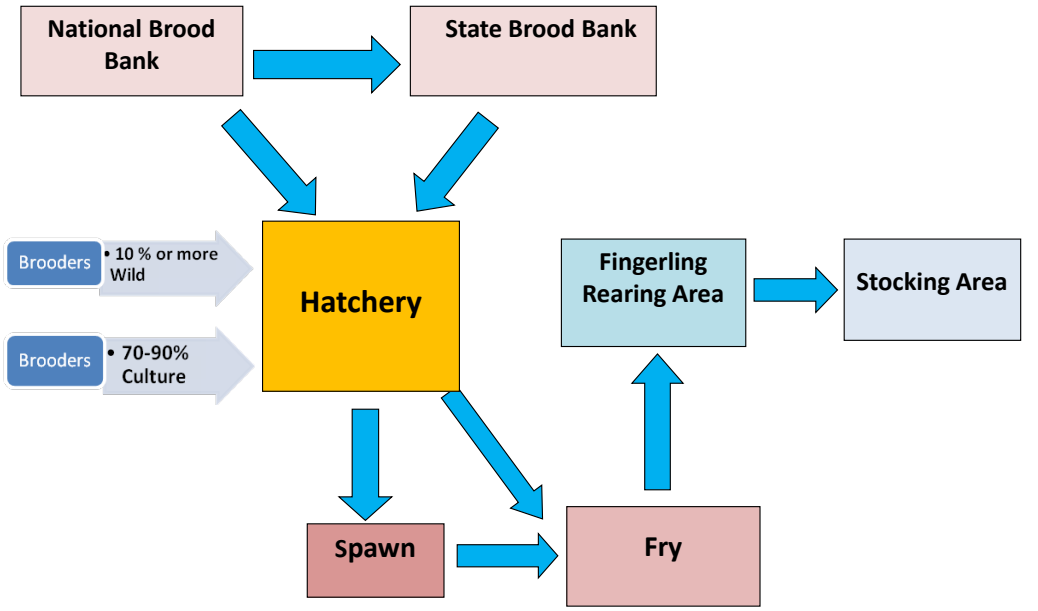
Brood Fish Diet: To improve the breeding capability of the fish, a balance diet is required. Brood fish are given both natural and supplementary diet comprising groundnut oil cake (48%), soybean oil cake (40%), rice bran (5%), fish meal (5%), calcium dibasic phosphate (1.5%), salt (0.3%) and vitamin mixture (0.1%).

3.2 Management of Hatchery for Quality Seed:

1. Male and female fish should be in equal ratio of 1:1.
2. Hormone injection should be administered in the intra peritoneal region (space between stomach and outer muscle).
3. For better availability of oxygen to the brood fish before and after injection, fish is to be kept in a water flow system.
4. A single brood fish should be used for 3 - 4 years for breeding purpose after maturation; then new fish > 2 years should be replaced.
5. Care has to be taken so that no exchange of brood fish or fingerling is done for 5 - 10 years from the same source from where new brood fish were collected.
6. Cryo preserved milt is used to improve the quality of seed. If it is not available, then short term preserved milt (10 - 12 h) of carps may be used.
7. In no case mixed spawning practice using random male from one species and female from other species or vice versa.
8. Different age male and female brood (male 3 years and female 2 year) yield good quality seed.
9. By rearing fingerlings produced from carps that spawned on different days will increase the effective breeding population and result in good quality seed.
10. After 5 Hours of injection, water flow is to be maintained in tank and wastage is to be prevented.
11. To get good quality seed collect brood fish from National Freshwater Brood Bank of NFDB located at Kausalyaganga, Odisha.

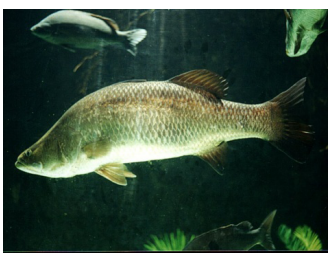
Courtesy: ICAR-CIFA

4. SUPPLY CHAIN



5. SOME CULTURED SPECIES

	**Catla**, being surface feeder, is the fastest growing species among the three Indian Major Carps. Normally, the grow-out period is one year, during which it grows to about 1^{+} kg. When stunted fingerlings are used as the stocking material, the average size of catla harvested is 1.5 - 2.0 kg. The production levels recorded in carp polyculture systems usually remain at 3 - 5 MT/ha/yr, with Catla contributing about 20 - 30 percent of the biomass.
	Among the Indian major carps, **Rohu** is one of the most preferred species in the country and commands a higher price in the market."Jayanti Rohu" is genetically improved Rohu with about 17% higher growth efficiency developed through selective breeding by ICAR - CIFA. It is Rohu but grows faster than the normal individuals. National Fisheries Development Board (NFDB) is disseminating this High Yielding Verity to hatchery owners through National Brood Bank located at Bhubaneswar, Odisha.
	The grow-out culture of **Mrigal** in polyculture systems is confined to earthen ponds with stocking of fingerlings at a combined density of 3000 - 4000 fingerlings/ha. The grow out period is usually one year; during which Mrigal grows to about 400 - 600 gm. Production is normally 2 - 3 MT/ha/yr, with Mrigal contributing about 20 - 25 percent.

	**Genetically Improved Farmed Tilapia** (GIFT) could address the twin problems Indian producers' face with current strains by improving the quality of the bloodstock and increasing efficiencies. Government of India permitted introduction of this exotic fish through Rajiv Gandhi Center for Aquaculture. The center is working to establish a nucleus for the selective breeding and genetic improvement of the GIFT tilapia in India. Male tilapia are stocked at 1 - 3 fish/m^2 and grown to 400 - 500 gm in 5 - 8 months, depending on water temperature. Normal yields range from 6-8 MT/ha/crop but yields as high as 10 MTs/ha/crop are reported. Higher yields of large fish (600 - 900 gm) are obtained in other regions by using high quality feed, multiple grow out phases, high water exchange rates and continuous aeration.
	**Pangasius** belongs to Mekong River Delta region of Southeast Asia. Although a freshwater fish but can tolerate salt concentrations of around 0.7% - 1% and alum water (PH > 5) at temperatures of around 30°C. Pangasius has more red blood cells, an additional respiratory organ and can breathe through bubbles and skin. Therefore, it is able to tolerate environments with little dissolved oxygen. Pangasius can be fed with kitchen waste, rice bran or pelleted feeds at a rate of 2.5% of their average body weight. Feed Conversion Ratio (FCR) averages to 1.5:1, which makes it a suitable for culture. Its growth rate is rapid and it can achieve between 800 - 1,100 gm after 6 - 8 months, best size at harvesting. Availability of Pangassius fingerlings is still an issue in the country, to be solved on priority.
	**Sea Bass (Barramundi):** The grow-out system may be earthen ponds or cages with a depth of 6 - 8 feet. This species has an elongated body form with a large, slightly oblique mouth and an upper jaw extending behind the eye. Barramundi are salt and freshwater sport fish, which may become darker or lighter, depending on their environments. Their bodies can reach up to 1.8 m long. The maximum weight is about 60 kg. The average length is about 0.6 – 1.2 m. Barramundi are demersal, inhabiting coastal waters, estuaries, lagoons, and rivers; they are found in clear to turbid water, usually within a temperature range of 26 - 30 °C.

	**Mud Crab** (***Scylla serrata***) is an economically important species of crab found in the estuaries and mangroves. In their most common form, the shell colour varies from a deep, mottled green to very dark brown. Interest in the aquaculture of this species has been high due to the high demand/price for them, high flesh content and rapid growth rate in captivity. In addition, they have a high tolerance to both nitrate and ammonia. Their aquaculture has been limited due to the often low and unpredictable larval survival. *S. serrata* can be kept easily in home aquaria when smaller, but will outgrow small setups. They are very active and will eat almost any conventional sinking pellets; they also consume some small fish pieces and vegetable matter. They are tolerant of most water conditions and are generally a very hardy and entertaining species.
	**White Leg Shrimp** ***(Litopenaeus vannamei***), native of Latin America, grows to a maximum length of 230 mm; with a carapace length of 90 mm. Adults live in the ocean, at depths of up to 72 m, while juveniles live in estuaries. The rostrum is moderately long, with 7 - 10 teeth on the dorsal side and 2 - 4 teeth on the ventral side. Recommended stocking densities is not more than 60 no./ m^2. Creation of bio-security measures including crab fencing, bird scare and Effluent Treatment Systems. Stocking of SPF *L. vannamei* in inland waters is advised to ensure profitable returns. The average weights of the shrimp at harvest vary from 15 to 22 gm in about 4 month culture period in ponds.

6. TIME FRAME

The targeted activities shall be taken up in Mission Mode in three (3) Years [2016 - 2017, 2017-2018 & 2018 - 2019] duration for timely achievements and benefits to farmers as well as to avoid cost escalations (Table-3).

7. STRATEGY

- Integrated approach to meet the demand of targeted water bodies
- Increase fingerling production infrastructure
- Promotion of culture based fisheries
- Cluster approach to be adopted
- Diversification of cultured species
- Area specific/ need based approach
- Formulation of plan for each water body
- Complete tie-up of all stages in seed production: Brooders-Hatcheries-Fry-Fingerling-Grow out ponds / water body

- Hatcheries will supply spawn/fry for fingerling rearing purpose only
- NFDB to execute/ supervise civil work in collaboration with States.

Production of Standard Fingerling (80 - 100 mm size)

- Rearing and nourishing of quality brooders round the year to get better offspring in breeding season.
- Commencing breeding operations early during monsoon season to maximize the time availability for growth of reared fry at higher densities for 2 - 3 month. Nurturing spawn in larger quantity, followed by thinning of fry which are then raised to fingerling. Nursing fingerling at low density, makes it to grow faster.
- Rearing fry in high densities for 10 - 12 months to get stunted fingerlings/ yearlings.
- Supply of superior fingerlings in healthy culture environment to ensure fast growth and higher survival rate.

8. MECHANISM FOR MONITORING

A three tier Task Force structure will be established as follows:

8.1. At National Level

1. Secretary, DADF, GoI
2. CE, NFDB (Convenor)
3. JS (Fy)
4. DDG (Fy) - ICAR
5. Director (F-S)
6. Representative from MPEDA

8.2. Technical Committee at National Level

1. JS (Fy)
2. DDG (Fy) - ICAR
3. Executive Director, NFDB (Convenor)
4. FDC
5. JC (Fy)
6. Representative from MPEDA

8.3. At State Level:

1. Agriculture Production Commissioner/Equivalent.
2. Principal/Secretary Fisheries
3. Principal / Secretary Agriculture
4. Commissioner/ Director Fisheries (Convenor)
5. MD, Fish. Corporation & Federations

- **State will notify and convene State Level Committee meetings.**

9. Summary of investment details of Mission Fingerling

EOP: Summary of Costs under Mission Fingerling					
S. No.	**Item**	**Unit**	**Physical**	**Fund Required** (Rs. in lakh)	
				Total	**GoI Share**
1	**2**	**3**	**4**	**5**	**6**
1	FW Carp/Catfish Hatchery	No.	474	11850	6023
2	Coldwater (Trout) Hatchery	No.	12	300	240
3	Seabass Hatchery	No.	6	150	75
4	Shrimp Hatchery	No.	44	2200	1100
5	Mud crab Hatchery	No.	7	350	175
		Sub Total	**543**	**14850**	**7613**
6	FW Fingerling Rearing Pond	Ha.	4424	24396	12407
			Grand Total	**39246**	**20020**

Table - 1

States Identified for Focussed Attention

S. No.	State	Pond Aquaculture	Wetland	Reservoir	Cold water	Brackishwater	No. of Activities
1	2	3	4	5	6	7	8
1	Andhra Pradesh			✓		✓	2
2	Assam		✓				1
3	Bihar	✓	✓				2
4	Chhattisgarh	✓					1
5	Gujarat			✓		✓	2
6	Himachal Pradesh				✓		1
7	Jammu Kashmir				✓		1
8	Jharkhand			✓			1
9	Karnataka	✓					1
10	Madhya Pradesh			✓			1
11	Maharashtra			✓		✓	2
12	Odisha					✓	1
13	Rajasthan					✓	1
14	Tripura	✓					1
15	Telangana	✓					1
16	Tamil Nadu					✓	1
17	Sikkim				✓		1
18	Uttarakhand			✓	✓		2
19	Uttar Pradesh		✓	✓			2
20	West Bengal		✓			✓	2

Table - 2

EOP: Total Fund Requirement

S. No.	State	FW IMC/catfish Hatch.			Fry Output	FW Fingerling Rearing Ponds			Fingerling Output
		Physical	Financial (Rs. in lakh)			Physical	Financial (Rs. in lakh)		
		No.	Total	GoI Share	No. in lakh	Ha	Total	GoI share	No. in lakh
1	2	3	4	5	6	7	8	9	10
1	AndhraPradesh	14	350	175	3360	120	720	360	1680
2	Assam	10	250	200	2400	86	516	412.8	1200
3	Bihar	108	2700	1350	25920	925	5550	2775	12960
4	Chhattisgarh	12	300	150	2880	103	618	309	1440
5	Gujarat	6	150	75	1440	51	306	153	720
6	Himachal Pradesh		0		0				0
7	Jammu & Kashmir		0		0				0
8	Jharkhand	3	75	37.5	720	26	156	78	360
9	Karnataka	42	1050	525	10080	360	2160	1080	5040
10	Madhya Pradesh	11	275	137.5	2640	94	564	282	1320
11	Maharashtra	114	2850	1425	27360	977	5862	2931	13680
12	Odisha		0		0				0
13	Rajasthan		0		0				0
14	Tripura	3	75	60	720	26	156	125	360
15	Telangana	130	3250	1625	31200	1114	6684	3342	15600
16	Tamil Nadu		0		0		0	0	0
17	Sikkim		0		0		0	0	0
18	Uttarakhand		0		0	4	24	19.2	50
19	Uttar Pradesh	6	150	75	1440	51	306	153	720
20	West Bengal	15	375	187.5	3600	129	774	387	1800
Total		474	11850	6023	113760		24396	12406.8	56930

under Mission Fingerling

	Coldwater Trout Hatch.			Brackishwater Hatch.			EOP: Physcial Target		EOP: Fund Required (Rs. in lakh)	
	Physical	Financial (Rs. in lakh)		Physical	Financial (Rs. in lakh)		Hatch.	FL pond		
	No.	Total	GoI share	No.	Total	GoI share	No.	Ha	Total	GoI Share
	11	12	13	14	15	16	17	18	19	20
		0	0	14	675	337.5	28	120	1745	873
							10	429	766	613
							108	926	8250	4125
							12	103	918	459
				12	575	287.5	18	51	1031	516
	4	100	80				4		100	80
	4	100	80				4		100	80
							3	26	231	116
							42	360	3210	1605
							11	94	839	420
				1	25	12.5	115	977	8737	4369
				13	625	312.5	13		625	313
							0		0	0
							3	26	231	185
							130	1114	9934	4967
				14	675	337.5	14		675	338
	2	50	40				2		50	40
	2	50	40				2		74	59
							6	69	456	228
				3	125	62.5	18	129	1274	637
	12	300	240	57	2700	1350	543	4424	39246	20019

Table - 3

EOP: Requirement of Hatcheries and Fingerling

S. No.	State	Hatcheries											
		Total			2016-17			2017-18			2018-19		
		Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. in lakh)	Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. in lakh)	Hatch (No.)	Cost (Rs. in lakh)	GOI Share (Rs. in lakh)	Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. in lakh)
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Andhra Pradesh												
2	Assam												
3	Bihar	95	2375	1187.5	19	475	237.5	38	950	475	38	950	475
4	Chhattisgarh	12	300	150	3	75	37.5	5	125	62.5	4	100	50
5	Gujarat												
6	Himachal Pradesh												
7	Jammu & Kashmir												
8	Jharkhand												
9	Karnataka	42	1050	525	8	200	100	17	425	212.5	17	425	212.5
10	Madhya Pradesh												
11	Maharashtra												
12	Odisha												
13	Rajasthan												
14	Tripura	3	75	60	1	25	20	1	25	20	1	25	20
15	Telangana	130	3250	1625	26	650	325	52	1300	650	52	1300	650
16	Tamil Nadu												
17	Sikkim												
18	Uttarakhand												
19	Uttar Pradesh												
20	West Bengal												
Total		**282**	**7050**	**3547.5**	**57**	**1425**	**720**	**113**	**2825**	**1420**	**112**	**2800**	**1407.5**

*** 25% of total area to be taken up for construction of new ponds**

**** Fingerling from total area from column no. 16**

Rearing Area for FW Pond Aquaculture

Fry Output/ Stocking	Fingerling Rearing Ponds													Fingerling Output**
	Total				2016-17			2017-18			2018-19			
No.in lakh	Area (ha)	25 % of Area (ha)	*Cost (Rs. in lakh)	GOI Share (Rs. in lakh)	Area (ha)	Cost (Rs. in lakh)	GOI Share (Rs. in lakh)	Area (ha)	Cost (Rs. in lakh)	GOI Share (Rs. in lakh)	Area (ha)	Cost (Rs. in lakh)	GOI Share (Rs. in lakh)	No. in lakh
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
22800	3257.1	814.29	19542.9	9771	163	978	489	326	1956	978	326	1956	978	11400
2880	411	102.86	2468.57	1234	21	126	63	41	246	123	41	246	123	1440
10080	1440	360	8640	4320	72	432	216	144	864	432	144	864	432	5040
720	103	25.714	617.143	494	6	36	28.8	10	60	48	10	60	48	360
31200	4457.1	1114.3	26742.9	13371	224	1344	672	445	2670	1335	445	2670	1335	15600
67680	**9668.6**	**2417.1**	**58011.4**	**29190.86**	**486**	**2916**	**1468.8**	**966**	**5796**	**2916**	**966**	**5796**	**2916**	**33840**

Table - 4

EOP: Requirement of Hatcheries and

S. No.	State	Hatcheries												Fry output/ Stocking
		Total			2016-17			2017-18			2018-19			
		Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	No. in lakh
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Andhra Pradesh													
2	Assam	10	250	200	2	50	40	4	100	80	4	100	80	2400
3	Bihar	13	325	162.5	5	125	62.5	4	100	50	4	100	50	3120
4	Chhattis-garh													
5	Gujarat													
6	Himachal Pradesh													
7	Jammu & Kashmir													
8	Jharkhand													
9	Karnataka													
10	Madhya Pradesh													
11	Maharash-tra													
12	Odisha													
13	Rajasthan													
14	Tripura													
15	Telangana													
16	Tamil Nadu													
17	Sikkim													
18	Uttara-khand													
19	Uttar Pradesh	2	50	25	1	25	12.5	1	25	12.5	0	0	0	480
20	West Bengal	15	375	187.5	5	125	62.5	5	125	62.5	5	125	62.5	3600
Total		**40**	**1000**	**575**	**13**	**325**	**177.5**	**14**	**350**	**205**	**13**	**325**	**192.5**	**9600**

*** 25% of total area to be funded for construction of new ponds for Fringerling rearing**

**** Fingerling Output from total area of column no. 16**

Fingerling Rearing Pond Area for Wetland

Fingerling Rearing Ponds													Fingerling Output**
Total				2016-17			2017-18			2018-19			
Area (ha)	25 % of Area (ha)	*Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Area (ha)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Area (ha)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Area (ha)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	No. in lakh
16	17	18	19	20	21	22	23	24	25	26	27	28	29
343	86	514	411	18	108	86	34	204	163	34	204	163	1200
446	111	669	334	23	138	69	44	264	132	44	264	132	1560
69	17	103	51	8	48	24	13	78	39	13	78	39	240
514	129	771	386	25	150	75	52	312	156	52	312	156	1800
1371.43	**342.857**	**2057.1**	**1182.857**	**74**	**444**	**254**	**143**	**858**	**490**	**143**	**858**	**490**	**4800**

Table - 5

EOP: Requirement of Hatcheries and

S. No.	State	Hatcheries												Fry output/ Stocking
		Total			2016-17			2017-18			2018-19			
		Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Hatch. (No.)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	No. in lakh
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Andhra Pradesh	14	350	175	4	350	175	5	100	50	5	125	62.5	3360
2	Assam													
3	Bihar													
4	Chhattisgarh													
5	Gujarat	6	150	75	2	150	75	2	50	25	2	50	25	1440
6	Himachal Pradesh													
7	Jammu & Kashmir													
8	Jharkhand	3	75	37.5	1	75	38	1	25	13	1	25	12.5	720
9	Karnataka													
10	Madhya Pradesh	11	275	138	3	275	138	4	75	38	4	100	50	2640
11	Maharashtra	114	2850	1425	24	2850	1425	45	600	300	45	1125	562.5	27360
12	Odisha													
13	Rajasthan													
14	Tripura													
15	Telangana													
16	Tamil Nadu													
17	Sikkim													
18	Uttarakhand ***	0	0	0	0	0	0	0	0	0	0	0	0	100
19	Uttar Pradesh	4	100	80	2	100	80	1	50	40	1	25	20	960
20	West Bengal													
Total		**152**	**3800**	**1930**	**36**	**3800**	**1930**	**58**	**900**	**465**	**58**	**1450**	**732.5**	**36580**

*** 25% of total area to be funded for construction of new ponds for Fringerling rearing**

**** Fingerling Output from total area of column no. 16**

*** **Fry Stocking in Fingerling rearing pond in Uttarkhand from previous existing Hatcheries**

Fingerling Rearing Pond Area for Reservior

Fingerling Rearing Ponds													Fingerling Output**
Total				2016-17			2017-18			2018-19			
Area (ha)	25 % of Area (ha)	*Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Area (ha)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Area (ha)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	Area (ha)	Cost (Rs. in lakh)	GOI Share (Rs. In lakh)	No. in lakh
16	17	18	19	20	21	22	23	24	25	26	27	28	29
480	120	2880	1440	24	144	72	48	288	144	48	288	144	1680
206	51	1234.3	617	11	66	33	20	120	60	20	120	60	720
103	26	617.14	309	6	36	18	10	60	30	10	60	30	360
377	94	2262.9	1131	20	120	60	37	222	111	37	222	111	1320
3908.6	977	23451	11726	195	1170	585	391	2346	1173	391	2346	1173	13680
14	4	85.714	69	0.4	2.4	2	0.8	4.8	4	0.8	4.8	4	50
137	34	822.86	658	8	48	24	14	84	42	14	84	42	480
5225.7	**1306.4**	**31354**	**15949.71**	**264.4**	**1586.4**	**793.92**	**520.8**	**3124.8**	**1563.84**	**520.8**	**3124.8**	**1563.8**	**18290**

Table - 6

EOP : Coldwater Hatcheries [Trout] Construction Target

Sl. No.	State	2015-16 Status				Additional Proposal			Fingerling out put (No. in lakh)
		Hatcheries [No.]	Fingerling Poduct. * [No. in lakh)	Growout Raceway (No.)	Fingerling Requirement (lakh)	Hatcheries	Funds Required [Rs.in lakh]		
						No.	Total	GoI Share	
1	2	3	4	5	6	7	8	9	10
1	Andhra Pradesh								
2	Assam								
3	Bihar								
4	Chhattisgarh								
5	Gujarat								
6	Himachal Pradesh	5	15	611	3055	4	100	80	8
7	Jammu & kashmir	10	30	1060	5300	4	100	80	8
8	Jharkhand								
9	Karnataka								
10	Madhya Pradesh								
11	Maharashtra								
12	Odisha								
13	Rajasthan								
14	Tripura								
15	Telangana								
16	Tamil Nadu								
17	Sikkim	5	1	250	1250	2	50	40	4
18	Uttarakhand	3	1	132	660	2	50	40	4
19	Uttar Pradesh								
20	West Bengal								
Total		**23**	**47**	**2053**	**10265**	**12**	**300**	**240**	**24**

*** Existing hatcheries infrastructure is under perfroming. There is a need for better management plan**

Table - 7

EOP: Brackishwater Hatcheries

S. No.	State	Seabass				Shrimp		
		Hatch.	Cost (Rs. in lakh)		Fry output (No. In lakh)	Hatch.	Cost (Rs. in lakh)	
		No.	Total	GoI Share		No.	Total	GoI Share
1	2	3	4	5	6	7	8	9
1	AndhraPradesh	1	25	12.5	240	12	600	300
2	Assam							
3	Bihar							
4	Chhattisgarh							
5	Gujarat	1	25	12.5	240	10	500	250
6	Himachal Pradesh							
7	Jammu & Kashmir							
8	Jharkhand							
9	Karnataka							
10	Madhya Pradesh							
11	Maharashtra	1	25	12.5				
12	Rajasthan	0	0	0	0	0	0	0
13	Odisha	1	25	12.5	240	10	500	250
14	Rajasthan							
15	Tripura							
16	Telangana							
17	Tamil Nadu	**1**	**25**	12.5	240	**12**	600	300
18	Sikkim							
19	Uttarakhand							
20	Uttar Pradesh							
21	West Bengal	1	25	12.5	240	0	0	0
Total		**6**	**150**	**75**	**1200**	**44**	**2200**	**1100**

Construction Target

PL output (No. In lakh)	Mud Crab				Total Hatch. Proposed (No.)	Funds Required (Rs. In lakh)	
	Hatch.	Cost (Rs. in lakh)		Crablet output (No. In lakh)			
	No.	Total	GoI share			Total	GoI share
10	11	12	13	14	15	16	17
600	1	50	25	50	14	675	337.5
500	1	50	25	50	12	575	287.5
					1	25	12.5
0	0	0	0	0	0	0	0
500	2	100	50	100	13	625	312.5
600	**1**	50	25	50	14	675	337.5
0	2	100	50	100	3	125	62.5
2200	**7**	**350**	**175**	**350**	**57**	**2700**	**1350**

Table - 8

EOP: Requirement of Hatcheries & Fry / PL / Crablet

S. No.	State	Frewshwater Carp/Catfish								Fingerling	
		Ponds		Wetland		Reservoir		Total		Area	
		Hatch. (No.)	Fry out-put (in lakh)	Hatch. (No.)	Fry output (in lakh)	Hatch. (No.)	Fry output (in lakh)	Hatch. (No.)	Fry output (in lakh)	ha	
1	2	3	4	5	6	7	8	9	10	11	
1	Andhra Pradesh					14	3360	14	3360	480	
2	Assam		0	10	2400			10	2400	1714.286	
3	Bihar	95	22800	13	3120			108	25920	3702.857	
4	Chhattisgarh	12	2880					12	2880	411.4286	
5	Gujarat					6	1440	6	1440	205.7143	
6	Himachal Pradesh										
7	Jammu & Kashmir										
8	Jharkhand					3	720	3	720	102.8571	
9	Karnataka	42	10080					42	10080	1440	
10	Madhya Pradesh					11	2640	11	2640	377.1429	
11	Maharashtra					114	27360	114	27360	3908.571	
12	Odisha										
13	Rajasthan										
14	Tripura	3	720					3	720	102.8571	
15	Telangana	130	31200					130	31200	4457.143	
16	Tamil Nadu										
17	Sikkim										
18	Uttarakhand										
19	Uttar Pradesh			2	480	4	960	6	1440	274.2857	
20	West Bengal			15	3600			15	3600	514.2857	
Total		**282**	**67680**	**40**	**9600**	**152**	**36480**	**474**	**113760**	**17691.43**	

Output under Mission Fingerling [Physical Estimates]

rearing	Cold Water		Brackiswater							Total Hatch. (No.) [FW+CW +BW]
output	Trout		Seabass		Shrimp		Mud Crab		Total B/ Water Hatch. (No.)	
No. in lakh	Hatch. (No.)	Juvenile output (in lakh)	Hatch. (No.)	Fry out-put (in lakh)	Hatch. (No.)	PL out-put (in lakh)	Hatch. (No.)	Crablet output (in lakh)		
12	13	14	15	16	17	18	19	20	21	22
1680			1	100	12	600	1	50	14	28
6000										10
12960										108
1440										12
720			1	100	10	500	1	50	12	18
	4	8								4
	4	8								4
360										3
5040										42
1320										11
13680			1	100					1	115
			1	100	10	500	2	100	13	13
										0
360										3
15600										130
			1	100	**12**	600	**1**	50	14	14
	2	4								2
	2	4								2
960										6
1800			1	100			2	100	3	18
61920	**12**	**24**	**6**	**600**	**44**	**2200**	**7**	**350**	**57**	**543**

Table - 9

EOP : Year-wise Hatchery

S. No.	State	FW IMC/Catfish Hatcheries									Trout Hatcheries						
		2016-17		2017-18		2018-19		Total			2016-17		2017-18		Total		
		No.	GoI share (Rs. in lakh)	Hatch No.	GoI share (Rs. in lakh)	Hatch No.	GoI share (Rs. in lakh)	Hatch No.	Cost (Rs. in lakh)	GoI share (Rs. in lakh)	Hatch No.	GoI share (Rs. in lakh)	Hatch No.	GoI share (Rs.in lakh)	Hatch No.	Cost (Rs. in lakh)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1	Andhra Pradesh	2	25	6	75	6	75	14	350	175							
2	Assam	2	40	4	80	4	80	10	250	200							
3	Bihar	21	262.5	43	537.5	44	550	108	2700	1350							
4	Chhattis-garh	2	25	5	62.5	5	62.5	12	300	150							
5	Gujarat	2	25	2	25	2	25	6	150	75							
6	Himachal Pradesh										2	40	2	40	4	100	
7	Jammu & Kashmir										2	40	2	40	4	100	
8	Jharkhand	1	12.5	1	12.5	1	12.5	3	75	37.5							
9	Karnataka	8	100	17	212.5	17	212.5	42	1050	525							
10	Madhya Pradesh	2	25	5	62.5	4	50	11	275	137.5							
11	Maha-rashtra	22	275	46	575	46	575	114	2850	1425							
12	Rajasthan																
13	Odisha																
14	Tripura	1	20	1	20	1	20	3	75	60							
15	Telangana	26	325	52	650	52	650	130	3250	1625							
16	Tamil Nadu																
17	Sikkim										1	20	1	20	2	50	
18	Uttara-khand										1	20	1	20	2	50	
19	Uttar Pradesh	2	25	2	25	2	25	6	150	75							
20	West Bengal	3	37.5	6	75	6	75	15	375	187.5							
	Total	**94**	**1198**	**190**	**2412.5**	**190**	**2413**	**474**	**11850**	**6023**	**6**	**120**	**6**	**120**	**12**	**300**	

Construction Target

	Brackishwater Hatcheries (No.)													EOP Requirement		
	Seabass		Shrimp						Mud Crab		Total					
	2016-17		2016-17		2017-18		2018-19		2016-17		Phy	Financial		Phy.	Financial	
GoI share (Rs. in lakh)	Hatch No.	GoI share (Rs. in lakh)	Hatch No.	GoI share (Rs. in lakh)	Hatch No.	GoI share (Rs. in lakh)	Hatch No.	GoI share (Rs. in lakh)	Hatch No.	GoI share (Rs.in lakh)	Hatch No.	Cost (Rs. in lakh)	GoI share (Rs. in lakh)	Hatch No.	Cost (Rs. in lakh)	GoI share (Rs. in lakh)
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
	1	12.5	2	50	5	125	5	125	1	25	14	675	337.5	28	1025	513
														10	250	200
														108	2700	1350
														12	300	150
	1	12.5	2	50	4	100	4	100	1	25	12	575	287.5	18	725	363
80														4	100	80
80														4	100	80
														3	75	38
														42	1050	525
														11	275	138
	1	12.5									1	25	12.5	115	2875	1438
	1	12.5	2	50	4	100	4	100	2	50	13	625	312.5	13	625	313
														3	75	60
														130	3250	1625
	1	12.5	2	50	5	125	5	125	1	25	14	675	337.5	14	675	338
40														2	50	40
40														2	50	40
														6	150	75
	1	12.5							2	50	3	125	62.5	18	500	250
240	6	75	8	200	18	450	18	450	7	175	57	2700	1350	543	14850	7613

Table - 10

EOP: Year-wise Fingerling

S. No.	State	Hatcheries	Fry Stocking	Pond Area for Fingerling Rearing		2016-17			
		No.	No. in lakh	Total (Ha)	25% New ponds (Ha)	Area (Ha)	Total (Rs in lakh)	GoI share (Rs. In lakh)	
1	2		3	4	5	6	7	8	
1	Andhra Pradesh	**14**	**3360**	**480**	**120**	24	144	72	
2	Assam	**10**	**2400**	**342.86**	**86**	17	103	82	
3	Bihar	**108**	**25920**	**3702.9**	**926**	185	1111	555	
4	Chhattisgarh	**12**	**2880**	**411.43**	**103**	21	123	62	
5	Gujarat	**6**	**1440**	**205.71**	**51**	10	62	31	
6	Himachal Pradesh								
7	Jammu & Kashmir								
8	Jharkhand	**3**	**720**	**102.86**	**26**	5	31	15	
9	Karnataka	**42**	**10080**	**1440**	**360**	72	432	216	
10	Madhya Pradesh	**11**	**2640**	**377.14**	**94**	19	113	57	
11	Maharashtra	**114**	**27360**	**3908.6**	**977**	195	1173	586	
12	Odisha								
13	Rajasthan								
14	Tripura	**3**	**720**	**102.86**	**26**	5	31	25	
15	Telangana	**130**	**31200**	**4457.1**	**1114**	223	1337	669	
16	Tamil Nadu								
17	Sikkim								
18	Uttarakhand								
19	Uttar Pradesh	**6**	**1440**	**205.71**	**51**	10	62	31	
20	West Bengal	**15**	**3600**	**514.29**	**129**	26	154	77	
Total		**474**	**113760**	**16251**	**4063**	**813**	4875	**2477.8286**	

Rearing Pond Construction Targets

2017-18			2018-19			Funds required (Rs. in lakh)	
Area (Ha)	Total (Rs.in lakh)	GoI share (Rs. In lakh)	Area (Ha)	Total (Rs.in lakh)	GoI share (Rs. In lakh)	Total (Rs.in lakh)	GoI share (Rs. In lakh)
9	10	11	12	13	14	15	16
48	288	144	48	288	144	720	360
34	206	165	34	206	165	514	411
370	2222	1111	370	2222	1111	5554	2777
41	247	123	41	247	123	617	309
21	123	62	21	123	62	309	154
10	62	31	10	62	31	154	77
144	864	432	144	864	432	2160	1080
38	226	113	38	226	113	566	283
391	2345	1173	391	2345	1173	5863	2931
10	62	49	10	62	49	154	123
446	2674	1337	446	2674	1337	6686	3343
21	123	62	21	123	62	309	154
51	309	154	51	309	154	771	386
1625	**9751**	**4956**	**1625**	**9751**	**4956**	**24377**	**12389**

NOTES

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