



CONTENTS

Topic	Page
Blue Revolution Scheme	1
Project Proposals and Sanctions to States under BR During 2017-18	2
NFDB Launches <i>Mera Matsya Dhan</i> Web Portal	3
NFDB initiates steps to frame Draft National Mariculture Policy	4
Ushering Blue Revolution in Selected Wetlands of Bihar	5
A Success Story	6
HRD - Training/Skill Development Programmes	7
International Event – APA-18, Taiwan	7

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Blue Revolution – Integrated Development and Management of Fisheries

Fish touch our lives in countless ways in terms of providing food, nutrition, recreation, livelihood, employment, and many more. It comes mainly from two modes of production systems: Capture Fisheries (capturing wild fish from marine and freshwater) and Culture Fisheries (farming fish, also known as aquaculture). India is the second largest fish producing country in the world with production of 11.41 million metric tonnes in 2016-17 and production is expected to exceed 12.50 million metric tonnes in 2017-18. Indian fisheries is one of the most comprehensive and representative fisheries globally, with both marine and inland fisheries, warm and cold water fisheries. It significantly contributes to the socio-economic growth of the country.

The National Fisheries Development Board (NFDB), established in 2006, is an autonomous organization under the administrative control of the Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture and Farmers Welfare, Govt. of India. It was set up to realize the untapped potential of fisheries sector in inland and marine fish capture and culture, processing and marketing of fish, and accelerate the overall growth of fisheries sector with the application of modern technology backed by research & development. In the 12 years of its existence, NFDB has taken up numerous and multifarious developmental activities which have undoubtedly brought visible positive changes in production and productivity as well as post-harvest operations of the fisheries sector. Nevertheless, the primary role of NFDB, till recently, has been to channelize Govt. of India funds through activities such as identifying the needs of implementing agencies, providing technical guidance, monitoring physical and financial progress of projects, impact assessment, etc., that have remained as integral components. To accelerate the growth further, the fisheries sector needs to adopt new strategies based on time, situation and context. Foreseeing the high potential, the Hon'ble Prime Minister in 2016 called for a "Blue Revolution" in the fisheries sector. To realize this vision, Department of Animal Husbandry, Dairying & Fisheries launched in the same year the Scheme named "Blue

Revolution: Integrated Development and Management of Fisheries” with a total central outlay of Rs. 3,000 crore by merging all the ongoing schemes in fisheries sector. To remain relevant in the changing scenario, NFDB is also evolving itself to handle a gamut of proactive and pivotal responsibilities under Blue Revolution. NFDB is scrutinizing the proposals received from the States/UTs under Blue Revolution as per the national priorities. NFDB is also gearing up to implement directly some key projects in emerging and innovative areas in fisheries like Cage Culture, Quality Seed Production, Value Chain Development, etc., which have good potential. By successfully implementing the projects NFDB will effectively demonstrate these frontier technologies to farmers and entrepreneurs for wider adoption.

Project Proposals and Sanctions to States & UTs under Blue Revolution Scheme During 2017-18

The Project Proposals received, under the Govt. of India Blue Revolution Scheme, from various States and Union Territories were scrutinized at the NFDB and financial assistance was Sanctioned and funds were released by the DADF. The various Schemes are broadly grouped into three broad categories, viz., Production, Infrastructure and Welfare & Others. The values and percentage breakup of these three components is shown diagrammatically in Fig-1. The financial outlay and percentage share contributed by Govt. of India, the States and the Beneficiaries is shown diagrammatically in Fig-2. The State wise breakup of the three categories of Schemes as percentage is shown as a bar graph in Fig-2.

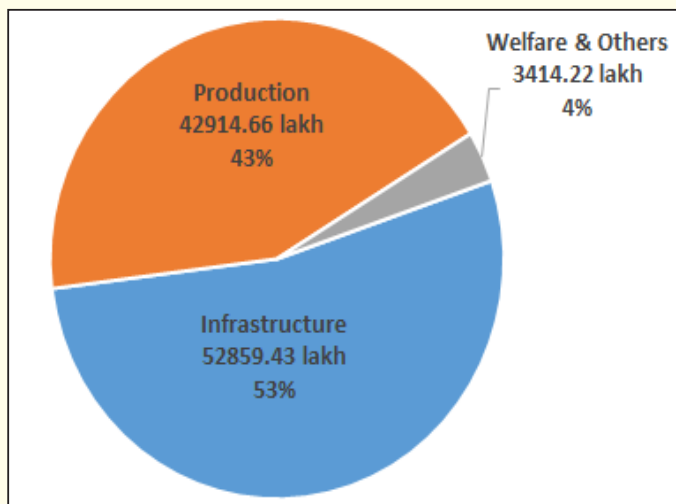


Fig-1. Total project cost for various schemes by broad category during 2017-18

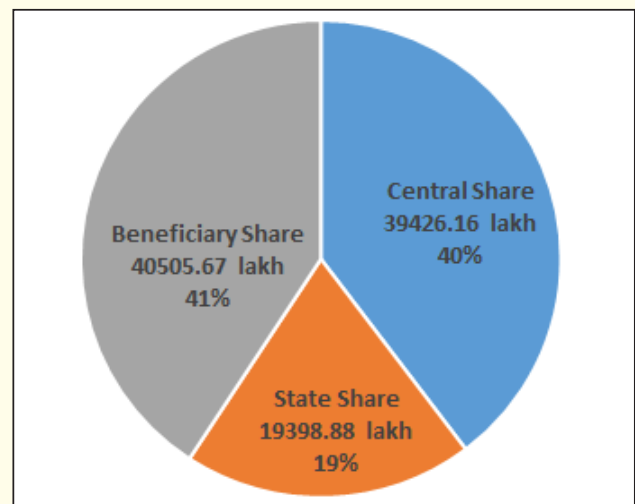


Fig-2. Financial Contribution by different agencies during 2017-18

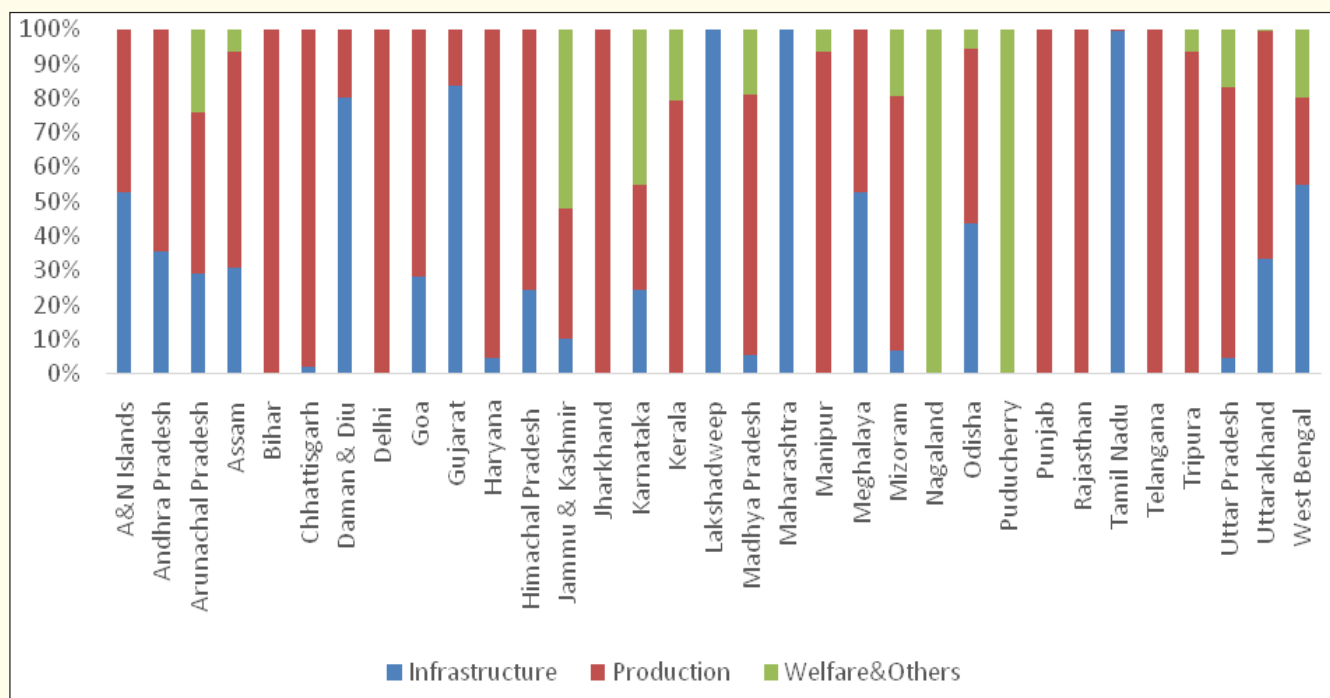


Fig-3. Details of Central share towards various activities to all States during 2017-18

NFDB Launches *Mera Matsya Dhan* Web Portal

With a view to realize the full potentials of Indian fisheries through coordination of different agencies and public-private partnerships and thereby tap the untapped potential in fisheries and aquaculture, and for improving the nutritional security, livelihoods as also women empowerment, the National Fisheries Development Board (NFDB) launched the Web Portal *Mera Matsya Dhan* (MMD). The Web Portal can be accessed directly using the URL mmd.nfdb.gov.in or through the link provided in the NFDB Web Site nfdb.gov.in. The *Mera Matsya Dhan* Web Portal is user friendly and can be accessed to submit on-line proposal for financial assistance by individuals, fishermen societies, fisherwomen SHGs, NGOs, etc., from anywhere in the country through the District Fisheries Officer of the respective State Govt.

Further, NFDB Officials are being deputed to the Commissionerates/Directorates of Fisheries of different States and Union Territories across the country for creating awareness and training the respective District Fisheries Officers in accessing and using the *Mera Matsya Dhan* (MMD) Web Portal.

The MMD Portal would be monitored on a daily basis by the concerned officials at NFDB. The Proposals received from various States/UTs for financial assistance would be scrutinized and if found complete and appropriate in all respects, they would be put up for the approval of the Competent Authority.

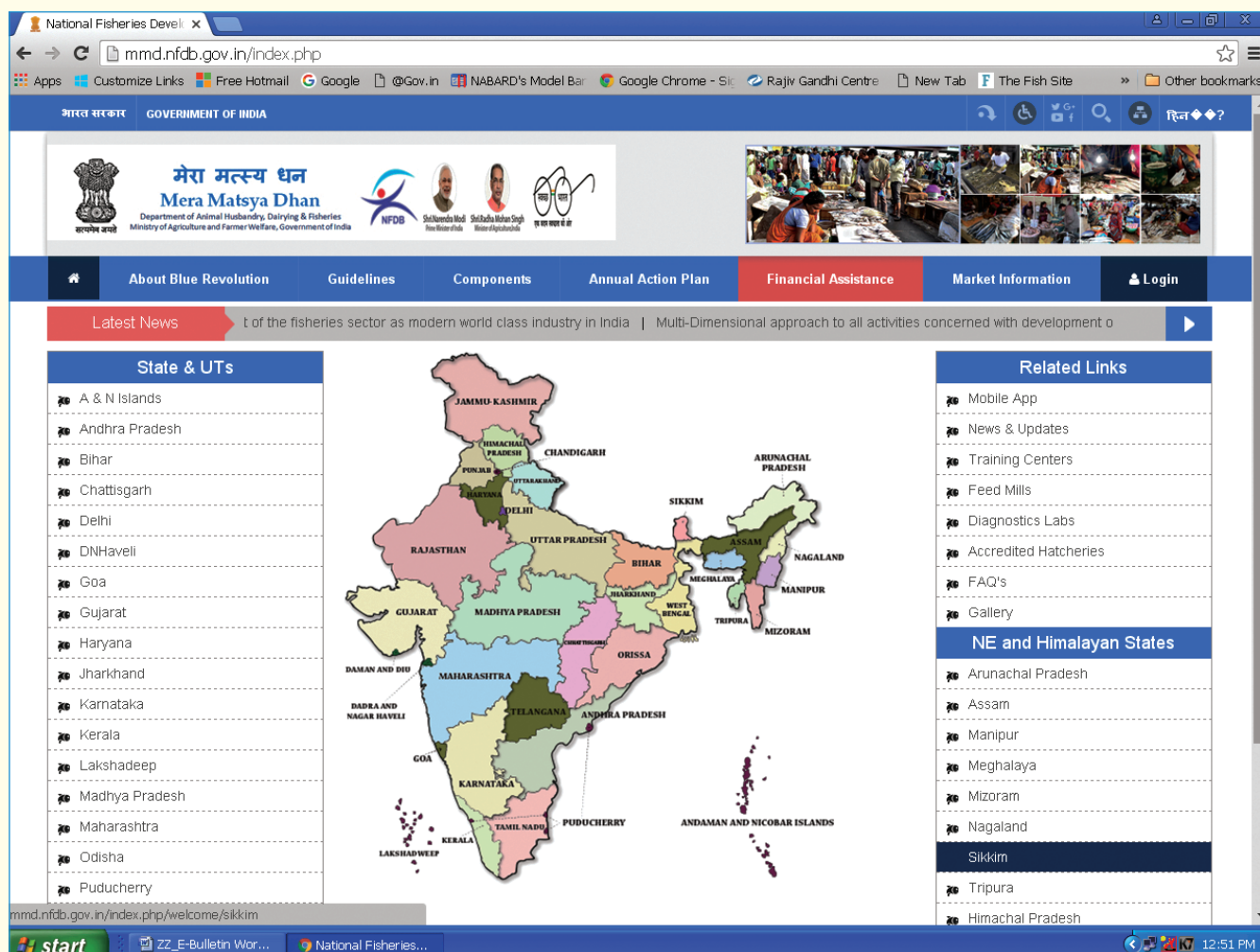


Fig. A screen shot of the Home Page of Mera Matsya Dhan Web Portal launched by NFDB

NFDB initiates steps to frame Draft National Mariculture Policy

A consultative meeting to frame the Draft National Mariculture Policy was held on 15th May 2018 at NFDB, Hyderabad. Smt. I. Rani Kumudini, Chief Executive, NFDB, chaired the meeting. The Director, CMFRI, Kochi, Scientists from NIO, NIOT, DBT, KUFOS and NAARM, besides Technical Staff of NFDB participated. After deliberating at length, a committee was constituted, terms of reference were enlisted and a timeline was set to frame the Draft National Mariculture Policy.

Ushering Blue Revolution in Selected Wetlands of Bihar Through Participatory Technology Intervention

The project was officially launched on 26-09-2017. Team of scientists, engineer and NFDB official interacted with farmers, identified sites for installation of pens and cages and ponds construction in wetlands.

Objectives:

- To develop wetland fisheries through institutionalizing stakeholders' participatory fisheries management model (Co-management) in a sustainable manner.
- To disseminate in-situ fish seed rearing and fisheries enhancement techniques (stock-enhancement, enclosure cultures) for tapping fish production potential of wetlands.
- To empower communities and stakeholders through improved livelihood opportunity and capacity building.
- To refine region specific fisheries enhancement technology for the development of wetland fisheries.

Expected Outcomes:

- Raising stocking materials through cage and pond culture techniques to increase per unit water productivity from open waters such as wetlands can bring appreciable change in inland fish production, increasing the livelihood base in rural areas.
- Fish production in these proposed wetlands is expected to increase in a phased manner, to the tune of 700-900 kg/ha.
- The in-situ seed rearing technologies can prove handy in pursuing stock-enhancement programmes. This would help in bridging the



Shri Radha Mohan Singh, Hon'ble Minister for Agriculture & Farmers Welfare inaugurating the Project on 13 April 2018 at Motihari, Bihar

Project Implementing State	Bihar
Project Implementing District	East Champaran (Motihari)
Name of Wetlands and Total Area	<i>Kararia, Sirsa, Rulbi and Majbaria Mauns: 400 ha</i>
Project Period	Three Years (2017-18 to 2019-20)
Approved Project Cost	Rs. 286.4957 lakh
Sanctioned Amount for the year 2017-18	Rs. 227.7752 lakh
Financial Assistance for the year 2018-19	Rs. 36.2287 lakh
Financial Assistance for the year 2019-20	Rs. 22.4918 lakh
Fund Released as on 29 March 2018	Rs. 159.44 lakh (70 % of approved project cost)

demand and supply gap of fish in the region to a large extent.

- Provide the necessary input for a rational policy formulation support on responsible fisheries management of wetlands in a participatory mode.
- Capacity-building and skill-development of various stakeholders under the scheme would also ensure sustainable practices for these targeted resources.
- Targeted fishermen/beneficiary families: 400



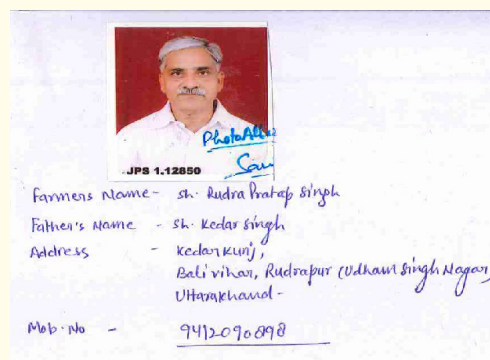
ICAR-CIFRI and NFDB Officials releasing fish fingerlings in the Maun at Kararia, East Champaran (Motihari), Bihar

A Success Story

Shri Rudra Pratap Singh, S/o Shri Kedar Singh, is a Retired Colonel of the Indian Army and a resident of Kedar Kunj, Bali Vihar, Rudrapur, US Nagar, Village Danpur, PO Rudrapur, Udham Singh Nagar, Uttarakhand (Mobile: 9412090898). Post-retirement, he is now actively engaged in agriculture, cultivating his own land.

He submitted a project proposal for financial assistance to the NFDB through the Dept. of Fisheries, Govt. of Uttarakhand, for the construction of a New Pond of 1.0 ha waterspread area under the activity of Development of Inland Fisheries and Aquaculture, under Blue Revolution Scheme of Govt. of India. The total project cost was Rs. 8,50,000/-. He received financial assistance of Rs. 7,65,000 (90%) of which Govt. of India provided Rs. 6,80,000 (80%) and State Govt. provided Rs. 85,000/- (10%) during 2016-17.

Shri Rudra Pratap Singh received technical support on a continuous basis from the District Fisheries Officer. He was able to harvest about 4.0 tonnes of fish/ha/year. He has been able to produce about 1.0 tonne more fish than the average local yield of 3.0 tonnes/ha/year by adopting an innovative Aeration System (see picture). He is now a happy fish farmer and claims that fisheries/aquaculture is more profitable than agriculture or other businesses. He is planning to expand his fish farm.



Innovative Pond Aeration System adopted by Shri Rudra Pratap Singh, Uttarakhand

HRD - Training /Skill Development Programmes

To realize the goals set under Blue Revolution Scheme, the DADF has evolved an Annual Action Plan for skilling around 25,000 stakeholders in 28 State that have potential under five categories of fisheries/aquaculture activities. The programme is to be operationalised by NFDB in partnership with respective State Govts.

Brainstorming Session on Convergence of HRD/Skill Development Programmes undertaken by all Fisheries Institutes under ICAR, DADF and CSIR was held under the Chairpersonship of Smt. I Rani Kumudini, Chief Executive, NFDB on 2nd May 2018 at NFDB, Hyderabad in which the DDG (Fisheries), ICAR, and 12 Directors/ Representatives of Fisheries Institutes participated. An action plan is being developed.



Brainstorming Session on Convergence of HRD/Skill Development Programmes in Fisheries Sector held on 2nd May 2018 at NFDB, Hyderabad

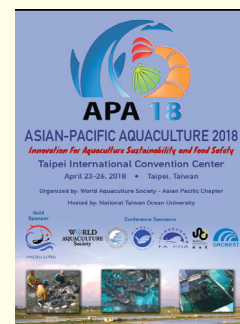
Annual Action Plan 2017-18 Training Programmes			
Sl. No	State	No. of Programmes	
		Target	Completed
1	Andhra Pradesh	84	41
2	Arunachal Pradesh	2	2
3	Assam	12	12
4	Bihar	13	9
5	Chhattisgarh	12	12
6	Goa	2	2
7	Gujarat	21	13
8	Himachal Pradesh	4	4
9	J & K	6	6
10	Jharkhand	11	11
11	Karnataka	59	24
12	Kerala	9	7
13	Madhya Pradesh	25	10
14	Maharashtra	26	16
15	Manipur	4	4
16	Mizoram	2	2
17	Odisha	40	30
18	Punjab	3	3
19	Rajasthan	20	15
20	Telangana	43	23
21	Tamil Nadu	28	26
22	Tripura	4	4
23	Uttarakhand	2	2
24	Uttar Pradesh	25	25
25	West Bengal	43	20
	Total	500	323

International Event: Asia-Pacific Aquaculture 2018

Asia-Pacific Aquaculture 2018 (APA- 18) Conference with the theme 'Innovation for Aquaculture Sustainability and Food Safety' was held from April 23-26, 2018 at Taipei International Convention Centre, Taipei, Taiwan. The Conference was organized by the World Aquaculture Society – Asia Pacific Chapter, and was hosted by the National Taiwan Ocean University, Keelung, Taiwan.

The following is an extract from the Welcome Address of Dr. Ching-Fong Chang and Dr. Guillaume Drillet, Co-Chairs of the Steering Committee of APA-18.:

The theme of the conference succinctly reflects both the needs and the changes taking place in Aquaculture industry. It is believed that innovation will drive most of the upcoming changes not only in this industry but also in education programmes in the decades to come. It has been felt that there is no choice but to integrate new technologies and adjust business models to adhere to increasingly scientifically based and stringent regulations. There is the constraint of limited natural resources, yet we must produce more to feed the ever-expanding global population. Aquaculture industry must support the transformation of food production systems such that hunger can be eradicated globally as recognized by the UN Sustainable Development Goals. Our farms must ensure that ecosystems are protected to allow long-term prosperity of aquatic ecosystems. Our private and public stakeholders must ensure that the products we grow are of high quality and are tested rigorously to safeguard the consumer's health.



The focus of the conference might be on sustainability and food safety, but advancements in other fields of aquaculture will not be neglected – for example breeding, feed formulation, and species specific technical presentations.

There is no doubt that technology adoption and integration will be the key to sustainability and progress of our industry. This conference will serve as a platform for like-minded professionals to interact, exchange valuable ideas and gain perspective of the multifaceted challenges our industry is facing.

Smt. I. Rani Kumudini, Chief Executive, NFDB visited Taiwan from 24th to 27th April 2018 to participate in the deliberations at Asia-Pacific Aquaculture-2018 Conference in Taipei; to see the exhibition showcasing latest information and new products related to aquaculture industry; to visit aquaculture farms, establishments and places of fisheries interest at Penghu, Kaohsiung and Ping Tung; to observe new technologies such as Sea Cage Farming with an integrated approach involving backward and forward linkages that are being implemented in Taiwan; and to discuss with officials from TAITRA and Fishery Council, Taiwan



Smt. I. Rani Kumudini, CE, NFDB with Participants at Asia-Pacific Aquaculture 2018 Exhibition at Taipei, Taiwan



Smt. I. Rani Kumudini, CE, NFDB inspecting a Sea Cage installation at Tienho Marine Farm, Penghu, Taiwan



A setup for selling Live Shrimp and Prawn in a Fish Market at Kaohsiung, Taiwan

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