

Chapter 2

Performance Audit

*Performance Audit on
Development of Pisciculture in the State*

Chapter 2: Performance Audit

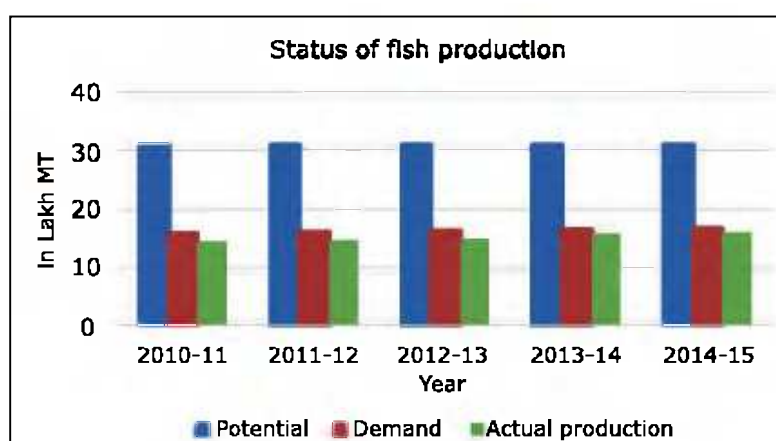
Department of Fisheries, Aquaculture, Aquatic Resources & Fishing Harbours

Development of Pisciculture in the State

2.1 Introduction

Pisciculture is an important economic activity of the State which has 8.16 lakh hectare (ha) of different inland water resources⁸ and 158 km long coast line spread over three⁹ coastal districts. The fishery sector is broadly classified into inland and marine sectors. The State contributes about 16.5 per cent of fish production and 40 per cent of fish seed production of the entire country¹⁰. The contribution of fisheries sector to the Net Domestic Product of the State was 2.35 per cent during the year 2014-15.

The Status of fish production against potential and demand in West Bengal during the last five years is depicted in the chart below:



(Source: Departmental data)

In 2014 - 15 actual fish production was 16.17 lakh MT which was about 52 per cent of the total potential¹¹.

2.2 Organisational Set Up

Department of Fisheries, Aquaculture, Aquatic Resources and Fishing Harbours (Department) is responsible for activities in the fishery sector¹². It is headed by a Principal Secretary and executes policies and programmes through Directorate of Fisheries (Directorate), West Bengal State Fishermen's Cooperative Federation

⁸ Like ponds, tanks, beels, baors, reservoirs, wetlands, rivers, streams, canals, brackish water farms etc.

⁹ North 24 Parganas, South 24 Parganas and Purba Medinipur

¹⁰ Annual Report of the Department, 2012-13

¹¹ Source:-Hand Book of Fisheries Statistics, 2013-14, Department of Fisheries, Directorate of Fisheries, Government of West Bengal

¹² Fishery means any activity or occupation or profession connected with rearing, culture, development, conservation, protection, exploitation, utilisation, extension, augmentation or disposal of fish, fish products and fish by-products.

Limited (BENFISH¹³), State Fisheries Development Corporation Limited (SFDC) and West Bengal Fisheries Corporation Limited (WBFC). Organisational set up is shown in *Appendix-2.1*.

2.3 Audit Objectives

The Performance Audit aimed to ascertain whether:

- Planning and steps taken by the Department to develop pisciculture were adequate and effective;
- Projects for infrastructure development in respect of production, storage, processing and marketing were implemented economically, efficiently and effectively; and
- Monitoring and internal control mechanisms were adequate and effective.

2.4 Audit Criteria

Audit criteria adopted for assessing the achievement of audit objectives were derived from:

- West Bengal Inland Fisheries Act 1984 and Rules made there under;
- West Bengal Marine Fishing Regulation Act 1993 and Rules made there under;
- Coastal Aquaculture Authority Act 2005;
- Guidelines issued by National Fisheries Development Board (NFDB);
- Rashtriya Krishi Vikas Yojana (RKVY) scheme provisions;
- Guidelines and instructions by Government of India, State Government and premier institutes working in the field of fishery sector;
- West Bengal Financial Rules and West Bengal Treasury Rules.

2.5 Scope and Methodology of Audit

The Performance Audit for the period 2010-11 to 2014-15 was carried out during February to July 2015 through test check of records maintained by the Department, Directorate, Fisheries Mapping Centre, WBFC, SFDC, BENFISH and their field offices/project offices in nine¹⁴ districts, selected through simple random sampling without replacement technique. The methodology adopted for achieving audit objectives with reference to audit criteria consisted of scrutiny of records, analysis of data with reference to audit criteria, issue of audit queries, joint site visit *etc.*

Audit objectives, criteria, scope and methodology were shared with the Department during an Entry Conference held on 28 April 2015. An Exit Conference was also held in November 2015 with the Principal Secretary of the Department and other officers wherein audit findings were discussed and views expressed by the Department were included in the report.

¹³ This is a society and is not under audit jurisdiction of this office.

¹⁴ South 24 Parganas, Purba Medinipur, Paschim Medinipur, Bankura, Purulia, Murshidabad, Nadia, Malda and Dakshin Dinajpur

Audit Findings

The factors relevant for increasing fish production in the State are more culturable water bodies, availability of quality seed and other inputs¹⁵, efficiency in production system, ecological sustainability, maintenance of biodiversity and funding. Audit noticed several deficiencies in these regards in addition to deficiencies in planning, maintenance of database, diversion of fund, utilisation of water bodies *etc.*, which are discussed in the succeeding paragraphs.

2.6 Planning

2.6.1 Lack of database for planning

Data related to all fishery resources *i.e.*, water bodies, fishermen, fish consumption, co-operatives, markets, sellers, craft and gear, industry, hatchery *etc.* are essential for policy making as well as for implementation of fishery oriented programmes¹⁶. A strong real-time and reliable database on various aspects of fisheries is essential for effective decision making. It was, however, observed that:

- The database of water bodies was not updated since 1976. The Department, with a view to identify the smaller water bodies in the State, took up (October 2009) the work “Mapping of smaller water bodies and development of Geographical Information System (GIS) based fishery Management System” under central sector scheme during 11th and 12th Five year Plan periods. Scrutiny, however, revealed that as of March 2015 the work was still ongoing. The status of different component of the scheme is given in the Table no. 2.1 below:

Table No. 2.1 : Status of Mapping of water bodies and Geographical Information System (GIS) based fishery Management System

Components of the scheme	Target coverage	Achievement
Mapping of smaller water bodies	18 districts	18 districts
Development of GIS application	-do-	12 districts
Hosting the GIS application in the web	-do-	2 districts

(Source: Records of Fishery Mapping Centre)

- The Department, with a view to prepare a total inventory of fisheries resource in the State, took up the work of ‘Complete Enumeration of Fishery Resources’ in 22 (December 2012) and 18 blocks (December 2013) out of total 341 blocks in the State at a cost of ₹ 98.68 lakh. The work was to be completed within three months from its commencement. Audit observed that the work was completed only in 33 blocks as of August 2015. Delay was stated to be mainly due to non-availability of enumerators and non-cooperation from district fisheries offices.

¹⁵ Supply of fish feed, water purifier, net *etc.* to fishermen.

¹⁶ Memo No 232-Fish/C-IV/6D-15/2014 dated 2nd February 2015

- The Department in February 2015 submitted a proposal of ₹ 22.02 crore to Ministry of Agriculture, Government of India for conducting Fishery Census-2016 during the 12th Plan period. However, the proposal was not approved till the date of audit (July 2015) .

The Department stated (December 2015) that the land records are kept with Land and Land Reforms (L&LR) Department. The Fisheries Department consults these records to reconcile them with GIS mapping. The Department also stated that the project was not completed due to shortage of funds as well as manpower. The reply needs to be seen in light of the fact that the application with regard to GIS mapping of smaller water bodies is yet to be completed.

Thus, data related to all fishery resources were not available with the Department which affected policy making as well as effective implementation of fishery oriented programmes.

2.6.2 Preparation of plans

Department did not prepare any long term comprehensive plan for development of pisciculture in the State. Scrutiny, however, revealed that Annual Plans of the State were prepared during the period 2010-15 without considering the inputs from all the districts. Records of the seven test checked districts regarding preparation of Annual Plans were shown in Table no. 2.2 below:

Table No. 2.2: Status of preparation of Annual Plans in the test checked districts

Name of district	Status of preparation of Annual Plans
Bankura, Malda, Nadia, Purba Medinipur and Purulia	No Annual Plan was prepared during 2010-15.
Murshidabad	Annual Plans were prepared for 2011-12 and 2012-13 after delay ranging between two and four months, no Annual Plan prepared for 2014-15.
Dakshin Dinajpur	Though Annual Plans for 2010-15 were stated to be prepared and submitted through e-mail, no records were furnished in support of the preparation and submission of the document.

(Source: Records from the district fisheries offices)

Thus, it is evident that inputs from the field units for preparation of Annual Plans were incomplete and as a result, the Annual Plans were a top down exercise. Moreover, the Annual Plans prepared by the Department did not have any information on specific targets and means to achieve them.

The Department stated (November 2015) that Annual Plans were prepared with the help of the Fisheries Directorate and other implementing agencies within the budgetary allocation of the Department. The reply is, however, not tenable as majority of the selected districts did not furnish any inputs to the Directorate for preparation of Annual Plans. Regarding long term plan, the Department stated that a visionary long term plan was always desirable, however, the same was not prepared by the Department exhaustively.

2.6.3 Implementation of the recommendations of the Task Force

A Special Task Force on Fisheries (Task Force) was constituted by the State Government in April 2013 to examine all issues relevant to rejuvenation of the fisheries sector and to suggest a road map for the future. The Task Force submitted its report in July 2013 and suggested Immediate Action Plan, Short-Term Action Plan and Long-Term Action Plan to ensure the integrity and expansion of fish seed and fish production. However, the Department had not issued (October 2015) any notification/Government order for implementation of the recommendations of the Task Force.

The Department stated (November 2015) that they had started implementing some recommendations of the Task Force wherever feasible. It further stated that the recommendations were visionary and suggestive and substantial funds were required for implementation of the recommendations of the Task Force in view of the present budgetary constraint of the Department. However, the fact remains that the department has not estimated the amount of funds it would require to implement the recommendations.

2.6.4 Estimation of fish production

Central Inland Fisheries Research Institute (CIFRI) at Barrackpore provides guidelines for estimations of inland fish catch. As per the guidelines, the whole State is to be divided into three strata on the basis of climate, rainfall, soil quality etc. From each stratum, 25-30 per cent of districts are to be selected for collection of information from inland water bodies classified into three Groups¹⁷. The information obtained from districts (fisheries statistics) is to be compiled by Monitoring Evaluation & Marketing Statistics (ME&MS) Wing of the Fisheries Directorate.

During the period 2010 -15, except the year 2011-12, districts were selected from only two strata and fish catch information was collected from only 50 per cent of selected districts. Audit further observed that fish catch information for water bodies falling under Group-II and Group-III were not considered. The data compiled for estimations of inland fish catch was, therefore, not complete.

Marine Fish production is estimated as per the 'Methodology for the estimation of marine fish landings in India' by Central Marine Fisheries Research Institute (CMFRI), Kochi. For collection of information regarding marine fish production, fishing harbours/landing centres are to be divided into zones¹⁸. Audit observed that the Department did not follow this methodology for estimation of marine catch in the State. Data was collected from the single Centre Zone for 6 -10 days against the norms of 16 -18 days in a month. In Purba Medinipur district only one landing centre was selected from a zone of 40 landing centres against the

¹⁷ Group I (Water bodies up to 10 ha) consisting of aqua culture pond and tanks, brackish water impoundments and Water logged areas, Group II (Water bodies above 10 ha area at full storage level) consisting of large irrigation tanks, Reservoirs and check dams, lakes and Ox bow lakes/ Meanders/Channel etc. and Group III consisting of rivers, canals, estuaries, lagoons and back waters.

¹⁸ Out of total 68 fish landing centres/harbours situated in two coastal districts of the State viz South 24 parganas and Purba Medinipur, seven major landing centres are treated as single centre zone and other 61 fish landing centres/harbours are divided into four zones.

norm of at least nine landing centres. No data was collected in Purba Medinipur district after October 2014. In South 24 Parganas district, the same landing centres were selected repeatedly in deviation to the methodology. ME&MS Wing stated (July 2015) that due to shortage of manpower *etc.*, estimations could not be done as per guidelines.

Deviations from guidelines to estimate fish production raises doubt about the validity of the entire exercise of estimation of fish production. Further this may also have an impact on the quality of plans made for augmentation of pisciculture in the State.

2.7 Financial Management

Sound financial management ensures availability and utilisation of funds in time and expenditure in conformity with the financial rules, regulations and orders. Scrutiny revealed that there were persistent savings, non-surrender of savings, parking of fund in Local Fund (LF) Account, delay in utilisation of fund and diversion of fund as discussed in following paragraphs:

2.7.1 Budgetary support *vis-à-vis* actual expenditure

Budget provision *vis-a-vis* expenditure of the Department during 2010 -15 is as under the Table no. 2.3:

Table No. 2.3 : Year-wise total grant *vis-à-vis* expenditure

(₹ in crore)

Year	Revenue				Capital			
	Total Grant	Expenditure	Saving(-) Excess(+)	Percentage of Savings/ Excess	Total Grant	Expenditure	Saving(-) Excess(+)	Percentage of Savings/ Excess
2010-11	135.12	136.07	(+) 0.94	1	69.53	47.78	(-) 21.75	31
2011-12	172.27	144.67	(-) 27.60	16	76.36	64.07	(-) 12.29	16
2012-13	219.29	128.80	(-) 90.49	41	67.01	51.29	(-) 15.72	23
2013-14	238.05	157.55	(-) 80.50	34	58.65	30.47	(-) 28.18	48
2014-15	247.14	206.86	(-) 40.28	16	66.05	43.32	(-) 22.73	34
Total	1011.87	773.95			337.60	236.93		

(Source: Appropriation Accounts)

From the above table it is observed that:

- The Department expended ₹ 773.95 crore and ₹ 236.93 crore against the budget provision of ₹ 1011.87 crore and ₹ 337.60 crore under Revenue and Capital heads respectively during the last five years. There was persistent savings under revenue and capital heads (except in 2010-11). Savings under the revenue head ranged from 16 to 41 *per cent* whereas savings under the capital heads ranged from 16 to 48 *per cent* which indicated unrealistic budgeting. Reasons for savings were not furnished to audit though called for. As per Appropriation Accounts, Department did not surrender such savings except in the year 2010-11. The Department did not provide any reason for non-surrender of savings.
- During 2010-11, revenue expenditure exceeded the grant by ₹ 94.69 lakh, the excess was yet to be regularised.

2.7.2 Utilisation of fund transferred to Local Fund Deposit Account of Fish Farmers Development Agency (FFDA)

West Bengal Treasury Rules 2005 (WBTR) (Rules 4.004) *inter alia* stipulated that no money should be drawn from the Consolidated Fund unless it is required for immediate disbursement and the money should be spent for the purpose for which it was provided in the Appropriation Act.

For implementation of different schemes in a district, Department places funds with Chief Executive Officer (CEO) of FFDA of the district. CEO withdraws fund from the Government Account through transfer credit to its Local Fund (LF) account which is outside Government Account. While transferring the fund to LF accounts, the amount was booked as expenditure in the Government Account. Audit observed that ₹ 94.86 crore remained unutilised in LF accounts as of March 2015 as shown in the Table no. 2.4 below for a long period in violation of the WBTR.

Table No. 2.4 : Age analysis of fund kept in LF account by FFDA

(₹ in lakh)

Year	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Total
Balance fund	0.76	5.10	17.92	234.67	272.24	351.76	1918.89	6684.51	9485.85

(Source: Compiled from balance fund statements obtained from CEO/FFDA of selected districts)

The Directorate admitted the fact and stated (August 2015) that fund meant for different schemes under FFDA remained unutilised for considerable period due to delay in selection of site and beneficiaries.

2.7.3 Diversion of fund

According to Marine Fisheries Census 2010 conducted by CMFRI, Kochi for West Bengal, there are total 833 habitations in 188¹⁹ marine fishing Gram Panchayats in four districts²⁰ of the State. Test check of records revealed that the Department diverted ₹ 13.27 crore meant for development of infrastructural facilities in marine fishing villages to non-marine villages/areas. Further, ₹ 2.08 crore related to development of infrastructure in inland fishing villages was diverted to 35 works in three municipalities viz. Kamarhati, Krishnanagar and Egra which had no fishing village. These instances of diversion of fund would have an impact on development of pisciculture in the State.

2.8 Development of Pisciculture

2.8.1 Pisciculture through utilisation of available water bodies

The goal for the fisheries sector for the 11th Five year Plan is “Strengthening of rural and urban economy through sustained piscicultural development” which means more production by bringing in more water areas under intensive pisciculture, diversification of activities, value addition, processing, more infrastructural development and exploring the means for earning more revenue

¹⁹ South 24 Parganas-68, North 24 Parganas- 30, Howrah -23 and Purba Medinipur-67

²⁰ South 24 Parganas, North 24 Parganas, Howrah and Purba Medinipur

for the State. Approach to 12th Five year Plan of the Department also aims at exploiting all available water resources in the State for pisciculture development at the optimum level. The State has 8.16 lakh hectare (ha) of different inland water resources which consists of impounded²¹ water system and open²² water system. During the period of audit, utilisation of water resources for fishing increased from 3.32 lakh ha in March 2010 to 3.49 lakh ha in March 2015. Utilisation of beels and baors²³ and reservoirs was 50 and 11 *per cent* respectively whereas rivers, canals and estuaries were not utilised for pisciculture, as of March 2015. Audit noticed following deficiencies in utilisation of available water bodies.

2.8.1.1 Utilisation of beels and baors

There are about 150 beels and baors in the State, covering an area of 42000 ha. In addition to their role in ensuring environmental sustainability and providing habitat for various flora and fauna, these beels form important fishery resources for the State. The beels are connected with their adjacent rivers through natural waterways and channels, but siltation of linking channels gradually led to stoppage of the natural flow of water from river to the beels. To increase the production of fish, during 2010-15, the Department took up desiltation of only four beels (out of total of 150 beels) at a cost of ₹ 61.13 crore. Audit, however, observed that even after incurring such huge expenditure, fish production from these beels was much below the projected production as detailed in the Table no. 2.5 below.

Table No. 2.5 : Status of fish production after dredging against projected production

Name of the beel	Date of completion of work	Production before dredging (MT)	Projected production as per DPR (MT)	Production after dredging (MT)
Kulia beel	June 2009	16.415	82.075	21.710
Gazna beel	June 2010	15.979	160.000	13.988
Amdah beel	September 2011	25.555	258.704	22.840
Palda beel	October 2011	15.5865	Not available	16.989
Total		73.5355		75.527

(Source: Records of BENFISH)

Reasons for such short production were stated to be shortage of nets, boats, withdrawal of water from beel for cultivation *etc.*

2.8.1.2 Utilisation of reservoirs

As per National Fishery Development Board (NFDB) guidelines²⁴, annual average productivity of reservoirs can be increased to 100-500 kg per ha through stocking of fingerlings²⁵. Departmental records revealed that annual fish production from reservoirs was only 57 kg to 67 kg per ha during 2010-15. The reasons for such low production were due to their depth, non-uniform contour, distance from the fisher folk habitations *etc.* Audit observed that to increase productivity of the reservoirs and rivers, the Department stocked only 21.64 lakh fingerlings

²¹ Tanks/ponds, beels & baors of 3.94 lakh ha

²² River, Reservoirs, canals and estuaries of 4.22 lakh ha

²³ A baor is an ox bow lake. A beel is usually a depression or topographic low. Beels are smaller than baors.

²⁴ Guidelines for Fisheries Development in Reservoirs

²⁵ A very young fish of the size of a human finger (greater than 100 mm)

in reservoirs and rivers during the period 2010-14. This was in deviation from NFDB guidelines which specified minimum requirement of 5.61 crore fingerlings for reservoirs only. NFDB also specified the use of cage culture²⁶ to increase productivity which was also not introduced to increase productivity.

2.8.1.3 Utilisation of Government water bodies

As per Handbook of Fisheries Statistics 2013-14, there were 1181 Government water bodies²⁷ (area having five acre and above) under five Departments²⁸, over 28610 ha in the State. As most of these water bodies were not being utilised for fisheries, Fisheries Department decided (August 2014) that all Government Departments having water bodies under them should practise pisciculture by Department itself or through lease²⁹. Fisheries Department was to ensure supply of quality fish seeds and provide other inputs including technical assistance for pisciculture in these water bodies. It was observed that out of 1181 Government water bodies, only 393 water bodies were leased out to fishermen co-operative societies/fish production groups for pisciculture. Status of utilisation of remaining 788 Government water bodies for pisciculture was not available with the Fisheries Department.

Thus, although the 12th Five year Plan aimed at exploiting all available water resources in the State for pisciculture development at the optimum level, the State was unable to utilise its water optimally to increase fish production.

2.8.2 Development of water area through FFDA

To augment fish production/productivity as well as putting sustained efforts on development of Pond Fisheries, Jhora Fisheries and Ornamental Fisheries, schemes under Fish Farmer Development Agencies (FFDA) was brought (1980-81) under Centrally Sponsored Scheme with funding 75:25 as Central and State share. Against the target of development of 9391 ha of impounded water area for pisciculture under 'Development of Aquaculture under FFDA Programme' during 2010-15, actual achievement was only 4650.26 ha. Reasons for shortfall in achievement was attributed by the Department to setting of higher targets, selection of ineligible beneficiaries, non-sanctioning of loan by banks in favour of sponsored beneficiaries *etc.* However, the fact remains that the targets and selection of beneficiaries were made by the Directorate itself.

2.8.3 Operation of Government fish farm

Government fish farms play an important role in introduction of new technology, production of quality seeds and fish. Out of 29 fish seed farms/fish farms under the control of the Department, 15 farms were being operated by the Department itself (12 by SFDC³⁰ and three by Directorate), 10 fish farms/fish seed farms

²⁶ Rearing of fish in an enclosure, which permits water exchange and waste removal into the surrounding water.

²⁷ Water bodies under the control of different departments of the Government of West Bengal

²⁸ Fisheries, Irrigation and Waterways, Land and Land Reforms, Agriculture and Refugee Relief and Rehabilitation

²⁹ In terms of L&LR Rule

³⁰ State Fisheries Development Corporation

were leased out to private societies and the remaining four farms were not in operation. Audit noticed following shortcomings in utilisation of fish farms:

2.8.3.1 Utilisation of fish farms by SFDC

Audit observed that during 2010-15, Department released ₹ 32.88 crore to SFDC for pisciculture, renovation of ponds and construction of hatcheries against which ₹ 23.19 crore was expended and the balance amount of ₹ 9.69 crore was lying with SFDC as of March 2015. Test check of records of nine³¹ farms revealed that against overall annual target of fish production between 1319.55 MT and 1923.50 MT, actual production ranged between 962.12 MT and 1362 MT during the period 2010-15. As a result, there was short production of fish (3065.49 MT) by these fish farms during 2010-15. Project-in-charge of the farms stated that reasons for shortfall in actual production against target were harvesting of small size fish, siltation of ponds, lower water level, shortage of manpower, non-availability of seeds in proper time, less release of fish seed in the pond, deficiency in water inlet and outlet system, poaching *etc.* Thus, SFDC failed to remove deficiencies and meet production targets despite expenditure of ₹ 23.19 crore.

2.8.3.2 Non-operational Government farms

Test check of two non-operational fish seed farms (Basanti and Joypur) revealed that Basanti Fish Seed Farm (area 12 ha) was encroached upon by local people since 2004. Department's attempt (May 2010) to lease out the farm to a fishermen's society failed due to encroachment and the farm remained non-operational. ADF, Purulia incurred a sum of ₹ 69.18 lakh under RKVY (2010-11) for development of the Joypur fish seed farm which had been inoperative since 1996-97. This included setting up of an endangered fish hatchery in the farm. In spite of expenditure of ₹ 69.18 lakh, the farm remained non-operational (October 2015) for want of manpower and funds for operation of the farm. Thus, Department failed to utilise these two farms for fish seed production.

The Department accepted (December 2015) the audit observation.

2.8.4 Production and supply of quality fish seed

Availability of quality fish seed is very important for increasing fish production and also for export. Fish seed is produced in hatcheries. Departmental records revealed that fish seed production in the State had increased from 13453 million to 16717 million during 2010-15. However, Audit observed following lacunae of the Department in production of quality fish seed:

2.8.4.1 Setting up Certification & Accreditation Centre

Government of India issued (November 2010) guidelines for setting up fish seed certification and accreditation centre in the states. The guidelines also stipulated setting up an Accreditation Body at the apex level, consisting of five members

³¹ *Alampore, Alampore (UNDP), Digha, Frazerganj, Goltala, Henry Island-A, Henry Island-B, Krishnabandh and Nalban*

including Chairman, inland fisheries expert, marine fisheries expert, representative of fish seed trade and a member secretary. The Accreditation Body was to be supported by an effective fish seed law and was required to prepare a detailed manual on brood stock selection/maintenance, seed production practices and testing procedures through expert groups.

Department set up (September 2013) a Seed Certification & Accreditation Committee³² for issue of Certificate of Accreditation to hatcheries opting for certification. Certificates are to be issued by the Committee on the basis of minimum infrastructure³³ of the hatcheries which approached the Committee for accreditation. Audit observed that no fish seed law was framed as of October 2015. No representative of fish seed trade was included in the committee in violation of the guideline. Audit further observed that no manual was prepared on brood stock selection/maintenance, seed production practices and testing procedures through expert groups as mandated in the guidelines.

It was observed that certificates of accreditation were issued to only 108, out of 621 private hatcheries in the State due to failure of the Department to make accreditation of hatcheries mandatory. Although the system of accreditation is applicable to both government and private seed production units, no certificate was issued to any government hatcheries, which should have been a priority. As such, the government failed to effectively put in place a system for ensuring quality of fish seeds.

2.8.4.2 Setting up and functioning of hatcheries of endangered fish species

The Department took (2010-11) the work of construction of three³⁴ new hatcheries for endangered fish species under RKVY at an estimated cost of



Damaged Hatchery at Junput



Damaged fish hatchery at Joypur

₹ 42.18 lakh. Scrutiny of records related to two test checked hatcheries—one at Government Fish Technological Station (GFTS), Junput and another at Joypur Fish Farm, Purulia revealed that though expenditure of ₹ 24.13 lakh had been

³² Chairman- Additional Director of Fisheries (Technical), Member Secretary- Joint Director of Fisheries (ME&MS), Member- Director Joint of Fisheries (Hq), Member- Deputy Director of Concerned Zone, Member- one nominated member from the "West Bengal University of Animal and Fisheries Science"

³³ Overhead tank, quality water, seed production capacity, Brooder's Tank, Nursery Tank, Laboratory etc.

³⁴ At Junput, Purulia and Coochbehar

incurred, both were lying in damaged condition. Concerned ADFs stated (August 2015 and July 2015) that the hatchery at Junput could not be used due to defects in construction and the hatchery at Joypur was lying idle due to lack of manpower in the fish seed farm. No action was taken till June 2015 to make these hatcheries functional. Thus, the objectives of the production of seeds of endangered fish species could not be achieved in spite of expenditure of ₹ 24.13 lakh.

2.8.5 Production and supply of quality fish feed

Fish nutrition has advanced with the development of new and balanced commercial feeds that promote optimal growth and health of fish. Fish feed is produced by West Bengal Dairy and Poultry Development Corporation (WBD&PDC) and some private agencies. Against annual requirement of 50000 MT fish and prawn feed in State, actual production from WBD&PDC was 7000 MT and 6000 MT from private agencies. Gap in demand of 37000 MT was met from import of fish feed from other States. Audit observed following deficiencies with regard to fish feed production in the State:

2.8.5.1 Construction and utilisation of feed plants

Feed plant at Kanti Ganga Beel

Department decided to set up a fish feed plant³⁵ (capacity one ton per day) at an estimated cost of ₹ 67.47 lakh in September 2011 under RKVY (2010-11). Audit noticed that in spite of expenditure of ₹ 17.80 lakh on construction of a godown (in June 2012) and a work shed (in June 2014) for the feed plant, the feed plant could not be made operational as of March 2015. The concerned ADF stated (March 2015) that the plant could not be made operational due to non-provision of the required 11 KWV electric line in the estimate. As a result, the plant could not be made operational even after four years of sanction and fund of ₹ 49.67 lakh³⁶ was lying idle in the LF Account of FFDA.

Fish feed mills at Junput

Department constructed (2010) a fish feed mill³⁷ of capacity 25 tonnes per month in the campus of Government Fish Technological Station (GFTS) Junput under RKVY (2008-09) at a cost of ₹ 13 lakh. The mill was to be operated by a local fishermen's co-operative society for one year under Departmental supervision and thereafter, the mill was to be independently operated by the cooperative society. Audit observed that the mill was handed over (February 2011) to a women's co-operative society for operation after a year. During inspection of office of ADF (GFTS), Junput (May 2015), Audit noticed that the mill was lying in abandoned condition and records related to operational performance was not available in ADF office. ADF (GFTS), Junput stated that the responsibility to run the mill rested with the co-operative society and no information regarding output of the mill was available. The reply is not tenable as the mill was created out of government funds and thus, the Department should have reviewed its utilisation on a regular basis.

³⁵ *Kanti Ganga Beel in Murshidabad district*

³⁶ *Machineries: ₹ 24.99 lakh, electrification work: ₹ 4.37 lakh, recurring expenditure: ₹ 18.56 lakh and others: ₹ 1.75 lakh*

³⁷ *Plant for production of fish feed*

Procurement and supply of fish feed

To encourage fish farmers to use fish feed for enhancement of production and productivity, Department decided (May 2014) to procure feed centrally through SFDC which engaged a private agency (September 2014) for supply of fish feed. As of August 2015, SFDC had paid ₹ 21.57 crore to the agency for supply of fish feed of 6019.69 MT.

Directorate instructed (September 2014) all Zonal Dy. Directors of Fisheries to collect two samples of feed supplied by the agency from each district to check and verify composition of feed supplied. As of May 2015, only 14 feed samples were collected from five districts. These were tested by Central Inland Fisheries Research Institute, Barrackpore. As per test reports, percentage of protein contents in feed samples ranged between 17.18 and 25.51 against standard of 28-30. Further, percentage of fat contents ranged between 1.16 and 2.49 against the standard of four to eight. It was observed that till date (August 2015), the Department had not informed the results of the tests to SFDC, despite the fish feed not meeting standard specified in the NIT. It was also observed that the agency continued supplying this feed even after the test results (August 2015) not conforming to the standard.

Further as per the supply order, fish feed should last a maximum period of 6 months (*i.e.* 180 days). During site visits with Departmental staff, Audit observed that “best before 120 days from the date of manufacture” was written on each fish feed packets without mentioning manufacturing dates. Thus, not only was fish feed supplied with lesser shelf life, but the actual life of the supplied fish feed could also not be determined in the absence of date of manufacture being stamped on the fish feed packets.

Audit further observed that of 119.38 MT fish feed out of 165.375 MT fish feed supplied (between October and November 2014) to three Government Fish Farms had expired and was lying in godowns of these farms as of May 2015. Reason for non-utilisation of feed in time and supply of feed in excess of actual requirement were not on records.

The Department stated (November 2015) that actual protein content of the fish feed was as per the norms and the growth of fish was reported to be good and healthy, however, protein content in the feed was found to be lower in the test reports due to presence of moisture in the sample. The reply is, however, not tenable as moisture content of the feed sample was lower than the prescribed percentage in the test reports.

2.8.6 Implementation of schemes for expansion of pisciculture

With a view to increase fish production, Department undertook different schemes during 2010-15 like culture of monosex tilapia, distribution of minikits³⁸ to fish farmers having water bodies (area below 1 ha), aquaculture through integrated approach, composite fish culture *etc.* Audit, however, observed that these schemes were not taken up in planned manner and were discontinued after one or two

³⁸ Containing fish feed, lime and fish seed

years, as discussed in the succeeding paragraphs. Reasons for discontinuation of the scheme were not available in records.

2.8.6.1 Model project on culture of Monosex Tilapia

Monosex (male) Tilapia is a hardy, fast growing species which is disease resistant, has tolerance for poor water quality and reaches marketable size in a short time. Department took up (2010-11) 'Model project on culture of Monosex Tilapia' under RKVY to popularise Monosex Tilapia culture in and around Kolkata urban area, especially where waste water fish farming was practised.

Department sanctioned (December 2010) funds amounting to ₹ 35 lakh for implementation of 10 units³⁹ (unit cost ₹ 3.5 lakh each) in four⁴⁰ districts. However, in violation of the guidelines, four units of tilapia culture were implemented in fresh water in Purba Medinipur district.

The Department stated that they implemented tilapia culture in fresh water to show the result of Monosex Tilapia production in fresh water and the result was good and encouraging. The reply is, however, not acceptable as the objective of the project to popularise Monosex Tilapia culture in waste water was frustrated due to implementation of tilapia culture in fresh water.

2.8.6.2 Renovation of Kulia beel

To increase the productivity of Kulia beel, the Department took up (2013-14) renovation and up-gradation⁴¹ of the beel at an estimated cost of ₹ 1.10⁴² crore under RKVY. The work of re-excavation was awarded (January 2014) to a contractor at a tendered cost of ₹ 64.70 lakh for completion within 90 days. The concerned agency abandoned (November 2014) the work after completion of only 50 *per cent* of the work (the contractor was paid ₹ 29.99 lakh). During joint site visit⁴³ (March 2015) of the beel, Audit noticed that the entire surface area of the beel was covered with submerged/floating weeds which resulted in non production of fish during 2014-15. Thus, even after incurring expenditure of ₹ 59.53 lakh⁴⁴, the beel could not be put to use for production of fish.

2.8.6.3 Composite fish culture

Department formulated "Composite Fish Culture" scheme for economic upliftment of tribal people in which inputs like fish seed, fish feed, lime *etc.* along with training were to be provided to tribal fishermen. During 2010-15, Department incurred ₹ six crore for implementation of the scheme in the

³⁹ *The scheme for implantation was broken up into parts called units and each unit can be a beneficiary like government farm, cooperative society etc.*

⁴⁰ *North 24 Parganas-2 units, South 24 Parganas-3 units, Purba Medinipur-4 units and Jalpaiguri-1 unit*

⁴¹ *For saving the Kulia beel, development of scientific beel-fishery, enhancing its fish yielding capacity and enhancing the experimental efficacy.*

⁴² *Excavation work - ₹ 64.73 lakh and up-gradation work - ₹ 45.73 lakh*

⁴³ *Conducted by the Deputy Director of Fisheries, FFRTC, the Senior Audit Officer and Assistant Audit Officers of the Performance Audit Team*

⁴⁴ *Including expenditure of ₹ 29.54 lakh on fish landing platform, watcher sheds, maintenance of godown etc.*

State. As per the scheme guidelines, the culture period was to be nine months and targeted fish production was 720 kg per beneficiary.

During 2011-12, expenditure of ₹ 99.82 lakh was incurred in 10 districts covering 337 beneficiaries. From the available records, Audit observed that fish production fell short of the target⁴⁵ in respect of 121 beneficiaries out of total 141 beneficiaries in six districts⁴⁶. As per report of ADF, Bankura, main reasons for short production was seasonal nature of ponds selected as these ponds had effective water retention capacity only for six months. The reply of the ADF is not tenable in view of the fact that at the time of selection of beneficiary, availability of water during the period of culture (nine months) in the pond was not considered.

2.8.7 Research Activities

According to the 11th Five year Plan, vision for the fishery sector includes “Strengthening of research and development activities for bringing in qualitative improvement in the culture of species with the object of attaining increase of productivity with reduction in cost without compromising with quality for competing in the domestic as well as in the international markets”. In this context, audit examined the two research institutes viz. ‘Fresh water Fisheries Research and Training Centre (FFRTC)’, Kulia and ‘Aquatic Research & Health Management Centre’, Pailan under the Directorate. FFRTC was established for research/experiment on fresh water fisheries. Aquatic Research & Health Management Centre was established to provide extension support and services to fish farmers towards soil water analysis, disease diagnosis and remedial measures *etc.*

2.8.7.1 Experimental work at FFRTC

FFRTC, Kulia campus was used for experimental fish farming, culture of different fish species along with conservation of the endangered fish species. Deputy Director of Fisheries, FFRTC stated (July 2015) that no research project was taken up during the period of 2010-15 due to shortage of manpower, uneven bottom ponds, siltation of ponds, lack of infrastructural facilities *etc.* Audit, however, observed that 22 personnel including four Assistant Research Officers were posted in FFRTC against total sanctioned strength of 40 (including five assistant research officers). The Department did not take any action to remove the bottlenecks and facilitate research and utilise the research infrastructure meaningfully. Also, in the absence of research being conducted in FFRTC, the un-utilised manpower was not deployed to Pailan Research Centre, where research work was hampered due to non availability of research scholars, as discussed in the succeeding paragraph.

2.8.7.2 Research works at Pailan Research Centre

Pailan Research Centre took up (2009-10) a research project ‘Impact of climate change on marine and coastal fish production of the State and options for

⁴⁵ Actual fish production was upto 200 kg for 15 beneficiaries, in between 201 kg and 500 kg for 87 beneficiaries and in between 501 kg and 700 kg for 19 beneficiaries and production data of remaining.

⁴⁶ Bankura, Birbhum, Coochbehar, Jalpaiguri, Malda and North 24 Parganas

adaptive measures' at a cost of ₹ 10.10 lakh under funding from the State Plan. Objectives of the research project were to assess changes in commercially important fish catch, migration route/breeding ground of Hilsa fish and to suggest adaptation/mitigation measures to cope with the effects of climate change, besides proposing alternative livelihood measures for coastal fishermen *etc.* Audit observed that only ₹ 5.29 lakh was incurred (during 2009-11) on the research work as the temporary contractual research scholar engaged for the job had left midway. The Department, however, did not engage any research scholar to complete the research work, instead it abandoned (November 2012) the project. The Centre in charge stated (June 2015) that data collected from field survey had been compiled and kept in the office. The reply is not tenable as the research project was terminated without achievement of the objectives.

2.8.8 Implementation of welfare scheme for fishermen

National Scheme for the Welfare of Fishermen provides for welfare of fishermen by ensuring minimum social security to the fishermen in the event of occurrence of accident while fishing, along with relief measures during the lean season. Audit noticed several deficiencies in its implementation, as discussed below:

2.8.8.1 Group Accident Insurance for Active Fishermen

GoI introduced (2006-07) "Group Accident Insurance for Active Fishermen" for insurance cover of ₹ 1 lakh⁴⁷ in case of death and ₹ 0.50 lakh⁴⁸ in case of permanent disability to licensed/identified/registered fishermen. Annual premium of ₹ 28 per head was to be shared by Centre and State equally. Department entrusted responsibility for implementation of the scheme to the West Bengal State Fishermen's Co-operative Federation Ltd (BENFISH)⁴⁹ after identification of fishermen. During the period 2010-15, BENFISH received ₹ 44.80 lakh per year from Department for payment of insurance premium. In this regard, audit noticed the following:

- BENFISH selected United India Insurance Company Limited (UIICL) without any market survey or invitation of tenders. Annual premium was fixed at ₹ 28 per fishermen and 1.6 lakh fishermen were covered during 2010-14. In 2014-15, Central Government conducted open tender in which Oriental Insurance Company offered ₹ 20.27 per fisherman as premium which was reduced to ₹ 20.22 per fisherman, after negotiation by BENFISH, thus extending the coverage to 2.22 lakh fishermen. Thus, if the competitive rate had been obtained earlier (during 2010-14), more fishermen could have been covered.
- Fishermen population of the State was approximately 29 lakh. However, Department did not have any database of the above population. Even the database of the 1.6 lakh to 2.22 lakh fishermen covered under insurance during 2010-15 was not maintained, in

⁴⁷ ₹ two lakh from the year 2014-15

⁴⁸ ₹ one lakh from the year 2014-15

⁴⁹ An organisation under the Department of Fisheries

the absence of which, it was not possible to authenticate beneficiaries. Department accepted (August 2015) the audit observation.

- According to extant Rules any claim for insurance was to be settled within 45 days from the date of submission of claim. During 2010-15, BENFISH raised 130 claims with the Insurance Company against which only 49 cases were settled. Audit noticed that 32, 5, 4 and 40 claim cases relating to 2011-12, 2012-13, 2013-14 and 2014-15 respectively remained unsettled, reasons for which were not on record.

2.8.8.2 Saving-cum-relief Scheme

Saving-cum-Relief (SCR) Scheme is a centrally sponsored welfare scheme to provide sustenance to active fishermen during lean/ban period of three months. Active, below poverty line marine fishermen, of age below 60 years who were members of fisheries cooperative societies and did not possess any mechanized fishing boat were eligible for receiving benefits under the scheme. Selected beneficiaries were to deposit ₹ 75 per month in savings account of post office/bank during the eight fishing months with State and Central Government depositing an equal amount in savings account of each beneficiary. The accumulated amount of ₹ 1800 was to be paid to each beneficiary in three equal installments during the lean/ban period. In 2011-12, State and Central Government released a further ₹ 1.20 crore to BENFISH for distribution to 10000 fishermen during the year. Audit observed the following irregularities:

- During 2010-15, BENFISH disbursed ₹ 1.15 crore among 10559 beneficiaries leaving a balance of ₹ 1.07 crore undisbursed as of March 2015. BENFISH could not provide details/basis of selection of 10559 fishermen who benefited under the scheme. Thus, genuineness of the fishermen selected could not be ascertained in audit.
- Audit observed that none of the 2503 beneficiaries under ADF/Contai had deposited their contribution for any month in violation of conditions⁵⁰ of administrative approval. Information in this regard was not made available to audit for ADF/Diamond harbour who disbursed relief amounts to the remaining beneficiaries. Thus, BENFISH distributed ₹ 1.15 crore between 2010-11 and 2014-15 to all these 10559 beneficiaries without ensuring deposit of the contribution by them.
- Audit observed that BENFISH had received (February 2012) funds from the Central Government and submitted (May 2012) utilisation certificate of the entire amount, although ₹ 1.07 crore remained undisbursed till March 2015.

As such, the welfare schemes for fishermen suffered from infirmities relating to selection, lack of matching deposits and poor financial planning.

⁵⁰ *The conditions of the administrative approval also stipulated that in case of defaults of fishermen in payment of contribution, the Government's matching grant will be limited to the number of months for which he has actually subscribed.*

The Department stated (December 2015) that compilation of fresh list of beneficiaries is in progress based on the Government of India guidelines. The problems of collecting the beneficiaries' contribution will be streamlined after compilation of the list of beneficiaries under this Scheme.

2.9 Development of Infrastructure

Creation and regular maintenance of infrastructure like fishing harbours, fish landing centres, laboratories, fish markets, training centres, fish processing plants, ice plants, cold storages *etc.* are essential for development of pisciculture. Prior to creation of any infrastructure, assessment of its requirement, preparation of feasibility report, selection of site *etc.* are to be completed for optimum utilisation of scarce financial resources. However, Audit observed the following deficiencies in respect of creation and utilisation of infrastructure related to development of pisciculture.

2.9.1 Construction and utilisation of fishing harbours

To provide safe landing of fish catch and berthing facilities for the fishing fleet, infrastructure facilities like fishing harbours and fish landing centres⁵¹ are constructed. Fish harbours also include facilities like auction hall, radio communication station, boat repairing shed/dry dock, net mending shed, ice plants *etc.* Annual Plans (2010-11 and 2011-12) of Department had set a target for construction of five new fishing harbours, but construction of not even a single fishing harbour was taken up as of July 2015. Reasons for not taking up construction of new harbours were not available on record. Audit conducted (April and July 2015) joint physical inspections⁵² of all the six⁵³ existing fishing harbours and observed the following:

- Audit observed that though auction sheds were constructed in all the six harbours, facilities were not utilised. This was due to the fact that two fish markets already existed near the harbours and were frequented by fishermen from all six harbours. As such, the boat owners unloaded fish in these six harbours but did not use constructed auction sheds.
- Jetty of Sultanpur fishing harbour constructed in February 2001 was damaged in October 2010 which hampered the operation of the harbour. Consequently, petrol pump, packing room, auction rooms, net making yards are not in use for fishing purpose. The Department did not take any action to repair the damage. As a result, livelihood of 13000 fishermen dependent on this harbour was hampered.
- Audit noticed that ice plants in Digha, Shankarpur, Petuaghat, Kakdwip and Frazerganj fishing harbours operated at 23, 60, 23, 50 and 56 *per cent* of capacity respectively. Harbour officers attributed under performance of ice plants due to the fact that the rates were not competitive. Fishermen resorted to buying ice from

⁵¹ *Fish landing centres are comparatively smaller facilities for landing of catch from traditional fishing crafts*

⁵² *Conducted jointly by audit team, Special officer and Accounts officers of the Harbours or Harbour-in-charge.*

⁵³ *Shankarpur- phase-I and II, Petuaghat, Sultanpur, Kakdwip and Frazerganj*

private ice suppliers due to credit and discount facilities offered by these suppliers. Thus, without assessing the feasibility, Department constructed the ice plants, which were being used at a reduced capacity.

- Audit observed that boat repairing facility or dry docking facility at Frazerganj was not in operation since 2009-10 as BENFISH did not undertake repair work. BENFISH stated that the dry dock was damaged during dredging of the adjoining creek.



Figure : Dilapidated dry dock at Frazerganj

Thus, in absence of regular maintenance and upkeep, various facilities created in the harbours were not utilised optimally to cater to the need of the fishermen. The Department accepted (December 2015) the audit findings.

2.9.2 Construction and utilisation of fish markets

Domestic markets play a very crucial role in the development of fisheries sector in the country. Apart from ensuring nutritional and food security, it also helps in minimising post-catch losses, increase revenue and enhance employment opportunities.

2.9.2.1 Construction and utilisation of Fish and Ornamental Fish Markets

With the objective of creating infrastructure for sale/export of fish, BENFISH constructed (between January 2011 and August 2013) seven market complexes⁵⁴ for fish/ornamental fish at a cost of ₹ 24.60 crore in seven districts. Scrutiny of records and joint site visit with the Departmental officer revealed that all the seven completed fish markets were lying idle as of July 2015 due to lack of demand. Audit observed that BENFISH had not undertaken any feasibility studies or survey to assess demand before constructing the market. This resulted in unfruitful expenditure of ₹ 24.60 crore.

Audit further observed that to facilitate marketing of ornamental fish, nine marketing outlets were constructed in nine districts⁵⁵ under RKVY at an aggregate cost of ₹ 54 lakh. However, in five test checked districts⁵⁶ these markets were not being utilised. Audit observed that these marketing outlets were constructed within the campus of district offices without ascertaining the demand for construction of such outlets in office campus.

⁵⁴ Nalban at Kolkata, Raiganj (Uttar Dinajpur), Malda (Malda), Lalgola and Berhampur (Murshidabad), Bagula (Nadia), Sabang (Paschim Medinipur)

⁵⁵ Birbhum, Dakshin Dinajpur, Darjeeling, Hooghly, Murshidabad, Nadia, North 24 Parganas, Purba Medinipur and Paschim Medinipur.

⁵⁶ Purba Medinipur, Paschim Medinipur, Nadia, Murshidabad and Dakshin Dinajpur

The Department stated (December 2015) that in future, efforts would be taken to find suitable places in vicinity of the existing markets to avoid such problems.

2.9.2.2 Construction and utilisation of Fish Seed Market

WBFC constructed two fish seed markets at Rajendrapur, North 24 Parganas and at Sinhati, Bankura. While the fish seed market in Rajendrapur was operating, the market at Sinhati was not in operation. The market at Sinhati was constructed (January 2014) at a cost of ₹ 10.65 crore and handed over (May 2014) to a co-operative society for its operation and maintenance. Audit observed (May 2015) that even after passage of one year from the date of handing over, the market remained unutilized as local fishermen did not come to the market to conduct business. Audit observed that the Department constructed the fish seed markets without assessing the need for it. This resulted in unfruitful expenditure of ₹ 10.65 crore.

Thus, all the fish markets constructed by the Department were lying unutilised, leading to wastage of scarce government resources.

2.9.3 Measures to ensure quality of fish catch

Water and soil quality conditions affect overall health conditions and growth of fish. Although facilities for analysis of physical and chemical parameters of water and soil were available with Departmental district laboratories and block level laboratory cum training centres, these laboratories were not equipped to check parameters like presence of chemical preservatives in fish, quality of fish produced in sewage fed fisheries, quality of fish feed *etc.* Further, infrastructure like landing centres, regular inspections to prevent use of harmful chemicals to preserve fish *etc.* were not in place to ensure health of consumers of fish.

2.9.3.1 Check on quality of fish reared in municipal sewage/water

As per Guidelines issued by GoI, quality of fish reared in municipal sewage/water should be assessed to ensure that such fish do not pose any health hazards. In the State, 4253 ha of sewage fed water area is used for production of 2700 MT of fish annually, which is consumed in the State.

A study report⁵⁷ published in 2012 pointed out higher concentration of metals like copper, lead, zinc and cadmium in the fish cultured in waste water in shallow ponds in East Kolkata Wetlands. This is a significant health hazard as these metals can cause diseases and affect human health. During 2010-15, 3631.35 MT fish was produced by two sewage fed fisheries of SFDC. However, it was observed that no quality testing was done by SFDC prior to selling these fishes in wholesale markets for human consumption to check whether these fishes were safe for human consumption. As a result, health of unwary consumers of fish reared in these sewage waters could be compromised.

2.9.3.2 Use of harmful chemical for preservation of fish

Harmful chemicals like formalin (Formaldehyde which is a cancer causing chemical) are widely used by fish traders in lieu of ice during transportation

⁵⁷ Conducted by Paulumi Maiti and Samar Banerjee (*International Journal of Scientific and Research Publications, Volume-2, issue-6, June 2012 ISSN 2250-3153*)

and selling of fish to extend the shelf life of fish. Regular consumption of formalin-laced fish increases chance of malignancy and other health hazards.

A committee under the chairmanship of Additional Director of Fisheries (Tech) was formed (February 2014) to visit fish markets in and around Kolkata at random on a regular basis and collect fish samples for testing of presence of any chemicals used for the purpose of preservation of fish. Test report was to be submitted to the Director of Fisheries within seven days from the date of collection of the sample. Scrutiny of records revealed that upto April 2015, only one sample was collected by the Committee but the results of test were not available on record.

The Department stated that the matter was related to the Department of Health and Hygiene and that it did not have any records to show how chemicals acted upon human bodies and their metabolism. The reply is, however, not tenable as the Department itself formed a committee for regular testing of presence of any chemicals used for the purpose of preservation of fish.

2.9.3.3 Unhygienic condition of fish landing and drying centres

Fish landing and drying centres (khuties) serves as secondary fish landing centres and fish drying centres. As per NFDB guidelines, due to poor sanitary and hygienic conditions there is substantial reduction in quality of the fish landed. Provision of clean and sanitary building with ancillary facilities like potable water and ice, fly-proofing arrangements and chilled storage at fishing harbours are essential requirements to maintain quality and safety requirements for the fish landed. Marine fish suffer from contamination of pathogenic bacteria⁵⁸ due to their natural habitats, unhygienic handling practices, time lag between fish catch, icing and proper preservation, use of contaminated ice, use of poor quality water for washing, poor hygiene of the market place, lack of maintenance of cold chain *etc.* There are 53 khuties in the State. Marine fishermen assemble at these centres every year from July to March for fish catching/drying activities. Scrutiny revealed that most of khuties lacked basic amenities for providing hygienic condition of fish as detailed below:

Scrutiny of records revealed that in most of the khuties there were no arrangements for cleaning and washing fish after bringing to the centres. Further, in absence of any permanent structures, improved drying method could not be adopted. Joint site visit conducted (May 2015) with the Fishery Extension Officer (Marine) of four khuties⁵⁹ in the district of Purba Medinipur. In absence of these basic amenities, fish were being dried on sandy beach in unhygienic way which resulted decomposition. This could affect the quality of fish available to the consumer.

⁵⁸ As per research paper ISSN:2319-8753, "Management Strategies for Minimising the Incidence of Pathogenic Bacteria in Seafood at Kolkata Fish Market" published in *International Journal of Innovative Research in Science, Engineering and Technology*, Vol-1, Issue-1 November 2012

⁵⁹ Chawasuli No.1, Dadanpatrabar (Kharpai), New Jaldha and Tajpur Jaldha

2.9.3.4 PCR Laboratory at Contai

White Spot Syndrome Virus (WSSV) is a major disease which has the potential to infect cultured prawn and result in 100 per cent mortality of the entire population within three to 10 days. Polymerase Chain Reaction (PCR) is a test used for detection of WSSV infected seed. The Department sanctioned (March 2007) setting up of a PCR testing laboratory in the Digha Prawn Hatchery. The laboratory was later (February 2010) shifted to the campus of Meen Bhawan, Contai citing demand of prawn farmers for this test. Audit observed that laboratory equipments/kits worth ₹ 5.47 lakh were procured (between January 2009 and July 2011) but were not installed (May 2015) and were lying in packed/unusable condition. This was due to lack of expertise to handle/install equipments, shortage of space, non-procurement of all necessary equipments and chemicals etc. As a result, the objective of setting up of a PCR lab at Contai for helping prawn farmers could not be achieved.

2.10 Environment sustainability issues

Accelerated pace of human interventions and unplanned development of aquaculture led to adverse impact on the fisheries resources as well as environment as a whole. To draw the economic, social and nutritional benefits from fisheries and aquaculture in a sustainable manner, it is essential to adopt effective regulatory framework, eco-friendly fishing and aquaculture practices.

2.10.1 Absence of permit system for checking over exploitation of inshore area

As per Guidelines issued by GoI⁶⁰, licensing and registration of motorised boats should be made mandatory to curb unchecked growth of such craft and rent should be fixed on such registered boats in accordance to the types of boats and gear, and average anticipated fish catch per boat per day. Bottom trawling destroys the sea bed resulting in ecological devastation⁶¹.

Marine fisheries in the State are regulated by West Bengal Marine Fishing Regulation Act 1993. The existing Act did not provide any means like issue of permits for restricting the number of traditional craft and limiting the quantity of capture to check over-fishing in a particular zone. As per records of the Department, unplanned fishing in the coastal areas (upto a maximum distance of 50-75 kms from the shore line) and its over exploitation has resulted in a low yield (from 1.82 lakh MT in 2011-12 to 1.79 lakh MT in 2014-15) for the last several years. Scrutiny also revealed that number of registered fishing boats including trawlers had increased over the years from 5895 in 2011-12 to 12415 in 2014-15. There was no system in place to regulate the amount of catch as well as species of fishes caught. Thus, in the absence of any provision in the Act to control and regulate marine fishing, it remains unabated, posing threats to biodiversity.

⁶⁰ for framing a legislation on inland fisheries and aquaculture for their sustainable development and management inventory.

⁶¹ According to "The Status of the Marine Fisheries of West Bengal Coast of the Northern Bay of Bengal and its Management Options: A Review (March 2015)" by Sachinandan Dutta, Kunal Chakraborty and Sugata Hazra.

2.11 Monitoring and internal control mechanism

Monitoring at various levels of governance provides assurance of reliability of reporting. Further, internal controls enable the Department to identify the key problem areas, constraints and managerial needs for improvement in policy formulation, allocation of resources and setting of performance standards. The following deficiencies in monitoring were observed in Audit:

2.11.1 Monitoring and Evaluation of schemes

The overall objective of Department is to enhance fish and fish seed production through distribution of inputs and creation of infrastructure along with implementation of welfare schemes to fish farmers. Audit, however, noticed that the Department did not evaluate the impact of any scheme/program/initiative. For supervision and monitoring various schemes of Directorate and their evaluation, ME&MS Wing was created under Directorate which, however, remained engaged only in the compilation of statistics.

2.11.2 Inadequate manpower for monitoring and surveillance

Performance of any organisation and efficient implementation of programmes depends on availability of qualified and trained manpower. Scrutiny of records of the Directorate revealed that there were vacancies in key posts. Audit observed that there was acute shortage of Fishery Extension Officer (FEOs), Fishery Development Assistants and Fishery Field Assistant responsible in the field for implementation/monitoring. FEOs posted under Block Development Officer, in addition to their normal duties had to perform various work of Block Office which hampered the implementation and monitoring of fishery related works. In reply to audit query, concerned ADF stated that vacancies in the post of Block FEOs were hampering implementation of schemes, supervision, monitoring and enforcement of regulations, liaison work with the local Panchayat bodies, interaction with farmers at the time of crisis *etc.*

2.11.3 Non-maintenance of Log books of fishing boats

As per the West Bengal Marine Fishing Regulation Rules 1995 (amended in 1998), every fishing vessel shall, before starting voyage, enlist its particulars in Master Log Book to be maintained by the Fishermen Associations in all harbours/landing centres in the prescribed format. Audit, however, observed that no log books were maintained at test checked Shankarpur and Petuaghat Fishing Harbours which depicts deficiency in the system of monitoring of movement of fishing boats and their fishing operations.

2.11.4 Monitoring of brackish water farms

As per guidelines of the Department and the Coastal Aquaculture Authority (CAA), Department was to monitor stocking density, inappropriate and excess use of chemicals, waste water management, maintenance of the prescribed distance between two brackish water farms *etc.* to check environmental hazards associated with these water farms. Fish producers of brackish water

aquaculture are also required to obtain a certificate of registration from Coastal Aquaculture Authority which remains valid for a period of five years from the date of issue. A majority of these farms are situated near tidal canals and their branches and fishermen siphon saline water from tidal canals for shrimp culture. Waste water from farms is also discharged into the same canals. This method of water exchange enhances the risk of viral propagation, destruction of ecology and is the prime reason for disease outbreak.

As per the records of ADF (Brackish water), Contai, number of brackish water farms increased in Purba Medinipur District due to conversion of agricultural fields into brackish water fish farms, but without obtaining the required permission. It was observed that out of 1562 brackish water fish producers in two test checked districts, only 678 farms (486.35 ha) had valid CAA registration and the remaining 884 (573.63 ha) farms were in operation without any registration which points to the deficiencies in monitoring and functioning of brackish water farms. This does not take into account those farms which have not sought licences. Thus, lack of monitoring and supervision regarding existence of such farms poses great risks to health and sustainability of fish species.

2.12 Conclusion

With regard to steps taken to develop pisciculture, Department did not have updated database of water bodies, reliable estimates of production and policy to drive fish production. Steps taken for expansion of pisciculture like ensuring optimum utilization of water bodies, setting up of fish farms and supply of quality fish seed was inadequate. Specific schemes taken up by the Government for expansion of pisciculture were ineffective. The schemes did not meet their objectives and funding on them was rendered wasteful. Implementation of welfare scheme for fishermen was also poor with no details about selection of beneficiaries, poor fund utilisation and violation of norms. With regard to creation of infrastructure, no new harbours were constructed and there was poor maintenance of existing infrastructure. Fish markets constructed at considerable cost were lying unutilised. Infrastructure for testing was inadequate which posed danger to fish survival as well as posed health hazards to consumers. With regard to monitoring, Department did not carry out monitoring/evaluation of schemes to assess effectiveness on fish production. It had totally inadequate manpower for monitoring and surveillance at the field level, impacting effectiveness. Departmental staff did not monitor fishing of banned species/periods, fishing operation by illegal fishing boats, use of banned fishing gears/nets *etc.* Fish reared in brackish water farms were not regularly tested for levels of harmful metals. As such, the Department did not adequately achieve its objective of development of pisciculture in the State.

2.13 Recommendations

- Department should ensure that its water resources are optimally utilised for production of fish through renovation of beels, stocking of fingerlings and cage culture in open water system, pisciculture through FFDA and leasing out of Government fish farms.

- Department should strengthen the system of accreditation for ensuring availability of quality fish seed.
- Department should conduct demand survey and feasibility study prior to construction of infrastructure and should ensure utilisation of idle infrastructure by removing existing constraints.
- Government should ensure regular monitoring and testing of fish grown in brackish water to ensure that they do not pose any health risks to consumers.
- The government should put in place a licencing system to regulate deep sea fish trawling as per GoI guidelines.

