सत्यमेव जयते

COLD CHAIN & POST HARVEST INFRASTRUCTURE DEVELOPMENT - 2022

Action Plan

Towards Blue Revolution

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

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July 2017

D.O. No. 1934 /AM

राधा मोहन सिंह
RADHA MOHAN SINGH

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

23 AUG 2017

Message

Fisheries and aquaculture are vibrant economic activities and have been one of the fastest growing food production systems during the last three decades in India. With about 10.76 million tonnes of fish production, India ranks second in global capture and culture fisheries production. Its significance and contribution towards agricultural GDP (5.4 per cent) and national economy (1.1 -per cent GDP), livelihood and nutritional security, employment generation (15 million people) and foreign exchange earning have been enormous, though understand so far.

Although India has a strong position in global fisheries trade, the sector faces numerous infrastructure challenges, especially across the domestic market value chain. The fisheries industry utilizes only one percent of the total cold storage capacity available in the country today.

It is the wake of this the domestic fish processing and marketing sector become more important, which so, far remained un-organized as compared to its marine or export oriented counterparts. The domestic fish processing needs more autonomous and user friendly techniques which bring in more economic returns to the fish seller and processors. This can be achieved only by when we have cost effective small scale machineries that can be placed in small fish selling kiosks and provide equipment with which a fish seller can process the raw material hygienically. In light of this, DADF has formulated an Action Plan for Cold Chain& Post Harvest Infrastructure Development to strengthen the post- harvest infrastructure such as chilled storage facilities, ice plants, cold chains and freezing/processing units, transportation facilities, modern and hygienic wholesale and retail market outlets etc., as well as effective marketing system in identified areas which are the key requirements for the development of this sector.

I complement the officials involved in the formulation of Action plan for Cold Chain & Post Harvest Infrastructure and hope that under the able guidance of Shri Devendra Chaudhry, Secretary, Animal Husbandry, Dairying and Fisheries, the concerned implementing agencies will work hard to promote quality assurance and better food safety standards for fish food for domestic consumers and also for the export market to achieve the specified goals in a timely manner.

Radha Mohan Singh

(Radha Mohan Singh)

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कृष्णा राज
KRISHNA RAJ

सत्यमेव जयते

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

संदेश

भारत की लगभग 8118 किमी लम्बी तटरेखा को देखते हुए यहां मात्स्यिकी की अपार संभावनाएं हैं। विभिन्न अंतर्देशीय जल संसाधनों, कैप्चर तथा कल्चर मात्स्यिकी, दोनों में ही अच्छा विकास हुआ है। कैप्चर मात्स्यिकी तथा जलकृषि दोनों ने ही न केवल खाद्य उत्पादक सेकटर में महत्वपूर्ण योगदान किया है।

पिछले कुछ वर्षों से मछली के स्वास्थ्य पर पड़ने वाले अच्छे प्रभाव को देखते हुए पूरे विश्व में इसकी मांग बढ़ी है। आधुनिक मत्स्यन प्रणाली में हो रही उन्नति तथा कल्चर पद्धतियों में हो रहे सुधार के कारण मछली उत्पादन में बहुत ही अधिक वृद्धि हुई, जिससे पोस्ट-हार्वेस्ट परिरक्षण तकनीको को अपनाना आवश्यक हो गया है। चूंकि मछली उद्योग अधिक विदेशी मुद्रा अर्जन करने वाला उद्योग है तथा जीडीपी में अत्यंत महत्वपूर्ण योगदान करता है, अत: अब समय आ गया है कि इस सेक्टर को महत्व दिया जाए। कैप्चर मात्स्यिकी से होने वाली कैच का लगातार ह्रास होने के कारण यह अत्यंत महत्वपूर्ण है कि इस कैच को विवेकशील रूप से प्रयोग किया जाए। यह उद्योग आपरेटिंग मार्जिन लुप्त होने के कारण भी संकट में है। इस उद्योग को मूल्य संवर्धन, लागत प्रभावी मशीनरी के माध्यम से अन्य देशों से मिलने वाली कड़ी प्रतिस्पर्धा से उभरने के लिए आयात करने वाले देशों की आशाओं को पूरा करना होगा।

यह प्रशंसा का विषय है कि डीएडीएफ घरेलू तथा मछली निर्यात उद्योग, दोनों के समक्ष आ रही प्रमुख चुनौतियों से निपटने के लिए शीत श्रृंखला तथा पोस्ट हार्वेस्ट अवसंरचना हेतु एक कार्य योजना कार्यान्वित कर रहा है तथा मात्स्यिकी सेक्टर के विकास हेतु हल खोजने का प्रयास कर रहा है। विभाग की इस पहल के कार्यान्वयन हेतु सभी पणधारियों को मेरी शुभकामनाएं

7/11/17

(कृष्णा राज)

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Devendra Choudhary, IAS
Secretary

सत्यमेव जयते

Department of Animal Husbandry, Husbandry, Dairying & Fisheries, Krishi Bhawan, New Delhi-110001

Message

Fisheries sector in India has made rapid strides in recent years. Its role in increasing food supply, generating job opportunities, raising nutritional level and earning foreign exchange has been continuously increasing. Fishing as an occupation is being practiced in India since time immemorial and has been regarded as a supplementary enterprise of the fishermen community on the subsistence level with little external input. At present growing urbanization, globalization and rapidly changing social structures have had a major impact on the fisheries structure in the country. Fisheries and aquaculture has emerged as an important commercial activity from its traditional role as subsistence supplementary activity.

Fish is an important source of protein –rich food, especially for poor people. Fisheries sector in India has made rapid strides in recent years. Indian fish processing industry is well established and is of international standards, mainly catering to the needs of export market. During 2015-16, 10 % of the total fish produced in the country was exported earning revenue of Rs. 33,442 crore. The fish production is not uniformly spread across the country. 70% of marine and 65% of inland fish production is from four States. Nearly 80% of shrimp in harvested from culture ponds during 4-5 months of the year. This is causing post- harvest losses, excess handling, and transportation costs resulting in inefficient marketing network in the interior part of the country.

Globally, fish is sold to consumers mainly in processed form. But in India about 80% of the fish is sold in fresh condition with very little processing and value addition. In order to achieve efficiency in handling, storage, transportation and marketing, it is necessary to process the fish and market it through cold–chain in the domestic market also. There is a strong need for the cold chain industry to come up with innovative & cost effective transportation and storage facilities to ensure supply of superior product to the consumer. In this context, DADF has formulated the Action plan for Cold Chain& Post Harvest Infrastructure to achieve innovative & integrated cold chain solutions across the domestic supply chain, which can act as a critical enabler to guarantee superior quality of fresh, chilled, frozen and processed fishery products across the country.

We hope that this action plan would help, guide and further facilitate the process of fisheries development in country with improved quality, sustainability and profitability.

Devendra Chaudhry

संयुक्त सचिव
भारत सरकार
कृषि एवं किसान कल्याण मंत्रालय
पशुपालन, डेयरी और मत्स्य पालन विभाग
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Joint Secretary
Government of India
Ministry of Agriculture & Farmers Welfare
Department of Animal Husbandry, Diarying & Fisheries
Krishi Bhawan, New Delhi-110001

MESSAGE

Fish is a cheap source of protein and can prevent malnutrition among the underprivileged people of this country. The fish and fishery products are rich in nutrients particularly proteins with essential amino acids, health beneficial omega-3 fatty acids, minerals and vitamins. However fish is highly perishable and undergoes rapid microbial and enzymatic spoilage, and therefore it has to be processed rapidly and stored in suitable ambient temperatures. Hence in order to sustain the aquaculture sector of the country, it is imperative to develop efficient postharvest infrastructure and marketing networks within the country.

Though, the domestic fish marketing holds huge potential, it is still highly unorganized and unregulated. It has long been neglected for various reasons and a serious effort has not been made for marketing of fishes as compared to its production. The improvement in postharvest infrastructure facilities and distribution would not only reduce the demand supply gap of fish across the country, but would also meet the need of the growing middle income population. It will also help to reduce post- harvest losses and increase the income of fishers and aqua-farmers. The continued supply of quality hygienic conditions is expected to increase the per capita fish consumption in the country.

In this regard, this Department has taken an initiative in formulating an Action Plan for Cold Chain & Post Harvest Infrastructure throughout the country by assisting various State Government Departments/Institute/ Private Entrepreneurs. During the year 2016-17, the Department under the Central Plan Scheme has already released an amount of Rs.4063 lakh to various State Governments/UTs for construction of 69 ice plants, 4 cold storages, 103 ice plant-cum -cold storages, 3091 fish transport vehicles and 83 mobile/retail fish outlets.

I am happy to bring out this Action Plan on Cold Chain & Post Harvest Infrastructure. I hope this document will serve as a guide to all those involved in maintenance and management of postharvest activities & marketing. I wish to express my gratitude to the entire team for their technical support in the preparation of this Action Plan.

Aditya Kumar Joshi

Contents

Executive Summary

Fisheries are a sunrise sector of our economy. It has immense in increasing food supply, generating job opportunities, and raising nutritional level and earning foreign exchange. Growing urbanization, globalization and rapidly changing social structure have had a major impact on fisheries structure in the country. Fisheries and aquaculture has emerged as an important commercial activity from its traditional role as subsistence supplementary activity.

India, contributing 5.7 percent to total global fish production, ranks second in overall fish production and is also the second largest producer of fresh water fish in the world. The Indian Fisheries Industry valued at over USD 15 Bn, has emerged as a significant high value contributor to Indian agriculture as well as a key enabler of diversified agriculture. The industry is a substantial foreign exchange earner, with exports of over USD 5 billion annually, and provides employment to more than 15 million people, directly or indirectly. Production in the last 14 years has more than doubled, i.e. from 4.2 million MT in 1991-92 to 10.07 million MT 2015-16.

Although India has a strong position in global fisheries trade, the sector faces numerous infrastructure challenges, especially across the domestic market value chain. While our ports & harbors require significant modernization and hygienic fish handling facilities coupled with robust food safety compliant mechanism in domestic wholesale or retail markets, the role of efficient and sufficient cold chain infrastructure is critical for the industry to consolidate the strong global position. Challenges in the sector necessitate the need for adopting innovative supply chain solutions from Boat to Fork, so as to ensure supply of safe, hygienic & nutritious fish to the consumer, at a reasonable price. With the growth of the modern retail market and increasing consumer awareness about fish as a healthier source of animal protein, the domestic fishery sector is well poised to grow at a faster pace along with the export sector.

The fish industry utilizes only one percent of the total cold storage capacity available in the country today. Further, while three-fourths of fish harvested in India is marketed in fresh form, there is a strong need for the cold chain industry to come up with innovative & cost effective transportation and storage facilities to ensure supply of superior product to the consumer. Innovative & integrated cold chain solutions across the domestic supply chain can act as a critical enabler to guarantee superior quality of fresh, chilled, frozen and processed fishery products across the country.

The main objective to implement of National Action plan for Cold Chain & Development is to strengthen the post-harvest infrastructure such as chilled storage facilities, ice plants cold chain and freezing/processing units, transportation facilities, modern and hygienic wholesale and retail market outlets etc., as the development of this sector. This would ensure higher profit margin to the producers enabling faster fisheries development. This will promote quality assurance and better food safety standard for fish food for domestic consumers and also for the export market.

Action Plan for Cold Chain & Post Harvest Infrastructure Development-2022

1. Background:

1.1 A fishery is one of the fast growing sectors generating income and employment. The sector is contributing considerably for food security, nutrition and health, lively hood security to rural population, and welfare of fishers. Thus fisheries sector is an important player in the overall socio-economic development of India which is well recognized. The fisheries sector has also been one of the major contributors of foreign exchange earnings.

1.2 As a result of various developmental measures so far undertaken, fish production increased to 10.07 million metric tones during 2015-16 as compared to only 1.05 million metric tonnes during 1960-61. Increased production has enabled stepping up of export of marine products to Rs. 33,442 crore during 2015-16. Apart from its contribution towards foreign exchange earnings, added production has also helped in augmenting protein rich food supply, generation of employment opportunities and raising incomes of fishermen who are among the disadvantaged sections of society.

1.3 Fishery is a state subject under the constitution of India but very few states have dedicated bodies for the regulation, management of fisheries development and in the state. Domestic market has the bulk share in context to the marketing of the fish produced in the country i.e. 85% of the produce which is highly unorganized and scattered. About, 70% of the fish harvested is marketed fresh and rest is consumed in the form of smoked, dried, processed fish meal and others. However, the harvested fish is not evenly distributed to interior areas due to lack of transportation and non-availability of proper storage facilities. Therefore, there is a need for balanced system of distribution to make fish available in the interior areas at reasonable rates.

1.4 Fish is highly perishable commodity. As spoilage of fish starts right from the time it is caught, proper storage, preservation and prompt disposal or transport services are essential. Various studies have pointed to the high levels of wastage in the Indian fish and fishery products due to spoilage. This is particularly acute during the monsoon, when up to 30 percent of the catch reported to be losted. This is a vital area to be addressed, and may result in increased economic returns to those dependent on the fishery without any increase in fishing effort. Therefore, strengthening of post- harvest infrastructure such as creation of chilled storage facilities, ice plants, cold chains and freezing/processing units, roads and transportation, modern and hygienic wholesale and retail fish market outlets etc., as well as effective marketing net work in identified areas are the key requirements for the development of this sector. This would ensure higher profit margins to the producers enabling faster fisheries development. This will also promote quality assurance and better food safety standards for fish food for domestic consumers and also for the export markets.

1.5 Presently, fish markets, both wholesale and retail in the country are in a pathetic condition. Besides, a larger volume of fish is sold through street markets, often on footpaths close to open drains. This unhygienic environment and the fact that fish is seldom kept in ice, results in fast deterioration of the quality of fish. Mostly whole fish is sold in the market and there is negligible processing/value addition. Further,

while marketing, transportation or storage of fish, the standard norms of hygiene and sanitation are least considered, leading to a product that is contaminated and unsafe from food safety point of view.

1.6 Further, the cold chain concept, which again is in rudimentary stages in the country, calls for provisions of integrated facilities to retain the quality of refrigerated or frozen fish from the time of harvesting till it reaches the consumers in distant parts of the country. The programs and strategies for fisheries and aquaculture development in the country under the Blue Revolution along with development of modern hygienic fish markets will improve the acceptability of fish food and also increase its consumption in the country. Greater emphasis will be on infrastructure with an equally strong focus on management and conservation of the resources.

2. Status of Fisheries infrastructure in India :

Several studies have shown that most of the landing centres and pre- processing centres in India lack many amenities for maintaining the requisite hygiene standards. Majority stakeholders are not aware of the importance of hygience maintaining of quality , which can be instilled through awareness campaign/ training. But it has to yield the intended results, the requisite infrastructure particularly for iced preservation also should come up. In addition to the deficiencies in cold chain , there are other aspects of such as supply of protablewaetr electricity, raised- platforms with roofing for auction , grainage, loading/ parking facility for vehicles, accessibility, pest/ bird protection, ETP/ sollid waste managemnt etc which are required to be addressed.

3. Post-harvest Technologies :

In the prioritization of post-harvest technologies, both traditional and modern technologies were included. The technologies that ranked high for the poor including drying, processing of fish products, salting and drying, boiling, drying and smoking (Table -1). Most of the traditional technologies received higher ranking, may be due to low investment, simplicity of technology, local availability and lack of cold chain system.

Table - 1 Prioritization of fisheries post-harvest technologies Technology Rank

Drying	1
Processing of Fish Products	2
Slating and Drying	3
Boiling, Drying and Smoking	4
Icing	5
Electrical Solar Drying	6
Chilling	7
Freezing	8
Canning	9
Fish meal Processing	10

Procurement--->Sorting--->Grading--->Washing--->Icing---> Transportation---> Chilling---> Washing---> Beheading / De-gutting ---> De-shelling / De-skinning ---> De-veining / De-boning -----> Trimming ------> Cooking/Blanching -----> Freezing -------> Glazing -----> Hardening -----> Unit / Collective Packaging ---> Marking ------> Storage------>Dispatch.

Fig. 1:Step involved during Processing Technology

4. Profile of Stakeholders in Post–harvest Fisheries

The post-harvest in fisheries sector consists of different types of functionaries working at different scale. Over the years, although the structure of fish marketing and the role of functionaries have changed, the basic supply chain has remained more or less the same. Some of the important stakeholders in the post-harvest sector along with their respective roles are shown in (Table: 2). These are broad categories and their role and functions were found to differ depending on the region, level and types of markets.

Table - 2 Stakeholder groups in Indian post-harvest fisheries

Player	Role
Fishermen's assistants	Mainly the wives of the fishermen are involved in helping the fishers in collecting the catches from the nets for sale after landing. No payment is involved.
Head loaders	Carry fish from the landing centres to the auctioning site, from auction site to go downs or transport systems. Some of them come from non-fishing communities.
Poor people extremely poor people	Collect fish from fishers either for free collecting fish or in a barter system involving sweetmeats, etc.; and either sell the fish for money or use for domestic consumption.
Money lenders	Lend money for business and personal purposes to the fishers and traders. Some moneylenders are involved only in moneylending activities, while others are involved in fish trade also.
Auctioneers	Auction catches which are landed. In traditional fish landing centres, in places like Chennai, it is exclusively women who act as auctioneers; in some others, it is only men. Some auctioneers are also moneylenders
Boat owners	Own different size boats, possibly driver-cum-owner. Operating major mechanized centres.
Companies/ or Exporters	Buyers of fresh fish from the port/landing centre for export sale within the country (>100 km).
Agents	Act on behalf of buyers of fresh/dry fish. Accumulate economic lots to be sent elsewhere. Some agents buy in bulk and retail to cycle/moped traders on credit.
Tricycle/rickshaw owners	Hired by the fishers for transporting fish to the wholesale and retail market
Cycle/moped traders	Buy from the landing centre and sell in markets in and around the site (up to 50 km) .
Petty traders (head load)	Buy and sell fish (fresh & dry) within 30 km of the site, mostly women, coming from the fishing caste.
Fish collectors	Appointed by the commission agents, they are paid employees for taking care of collection, storage and transport of the catches from the villages too difficult for the agent to access on a regular basis. Could be men or women, almost all of them are from non-fishing communities

5. Factors contributing waste of fish and fisheries by product

Factors that contribute to waste of fish & fisheries products range from mechanization of practices such as harvesting, handling, processing, to weather conditions, production practices, management decisions, transportation facilities, grading, infrastructure, consumer preferences and availability of financial markets. A typical post-harvest chain comprises of a number of stages for the movement of harvested output from the field to the final retail market. The losses incurred at each stage vary depending upon the handling and technologies used in the fish supply chain. Analysis of existing situation reveals that premature harvesting; poor storage facilities, lack of infrastructure, lack of processing facilities, and inadequate market facilities are the main reasons for waste of fish & fisheries by product along the entire fish supply chain (Fig. 1).

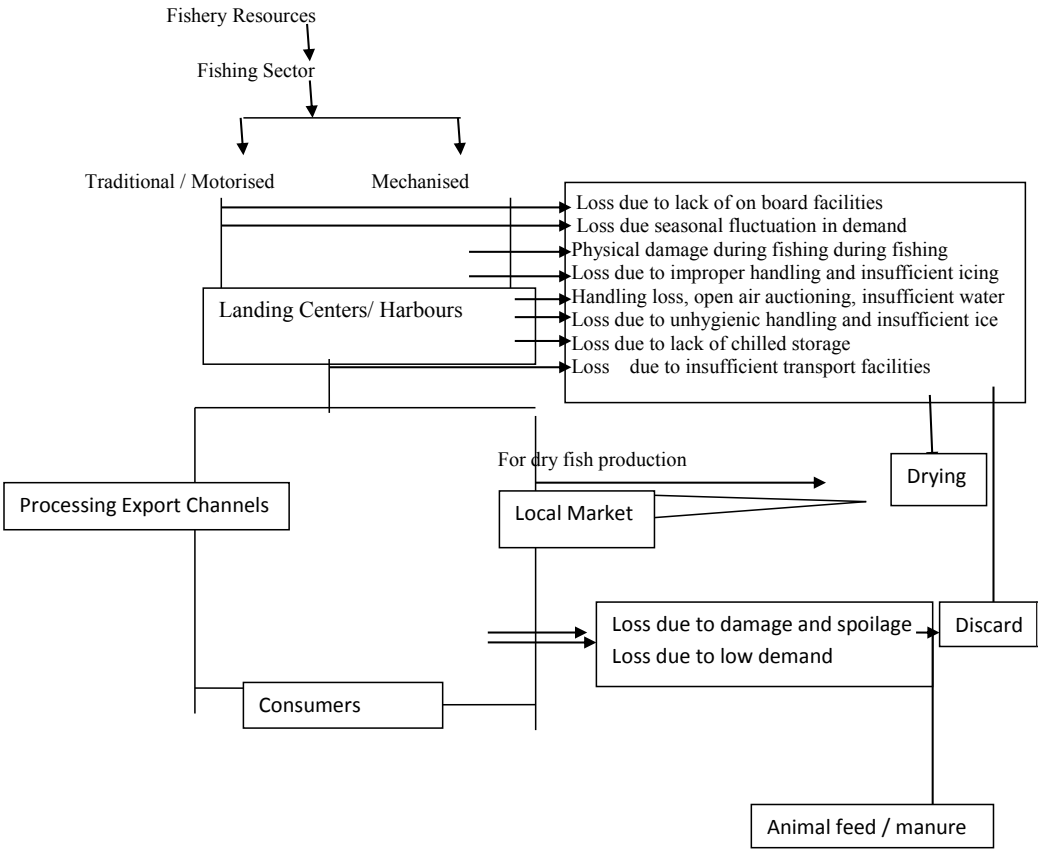


Fig. 2: Factors Responsible for post-harvest losses in Indian fisheries sector.

6. Requirements

Since fish is highly perishable commodity proper care must be taken to preserve it right from the point of each of fish catch to its final consumption. Hence any effort intended to minimize the loss must start from point of its harvest. Analysis of the existing situations reveals that majority of the post -harvest losses

occurs (i) on board – due to the dearth of ice and storage space particularly in single day fishing vessels. (ii) On shore –due to unhygienic handling, insufficient potable water, ice & storage facilities at the landing centers and (iii) due to lack of proper transport facilities. The gap in cold chain can plugged by supplying sufficient ice for onboard storage, equipping the landing centers with ample supply of ice, potable water, chilled rooms and insulated transport facilities.

7. Benefits of development of cold chain infrastructure

- ❖ To improve the nutritional status and food security by augmenting national fish production.
- ❖ To minimize post-harvest losses, improve quality and safety of fish products to acceptable standards.
- ❖ Improvements in fish preservation facilities to make the fish available almost round the year.
- ❖ To increase foreign exchange earnings from fish products
- ❖ To develop high profit margins to the producers.

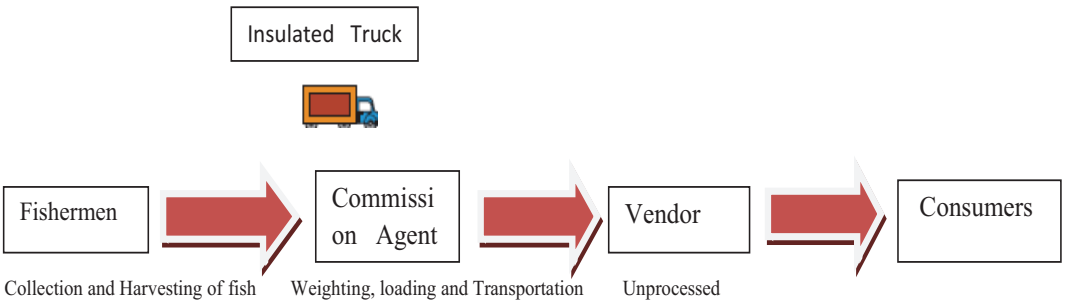


Fig 3 : Trends to promote the Value Chain for fisheries in India (domestic market).

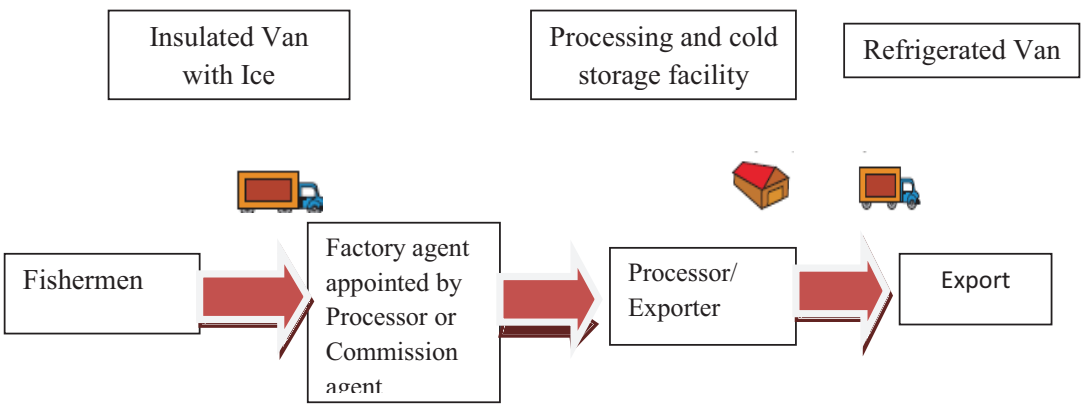


Fig 4: Trends to promote the Value Chain for fisheries in India (Export)

8. Strategy

Cold- Chain serves as a link between production centres and market. The following strategies involve under the mission cold chain infrastructure development:

i. Intensifying efforts on processing, storage and transportation.

ii. Enhancement in fluctuations occurs because of primary and intermediate inputs,

iii. Improved marketing efficiency (decline in the price mark-up).

iv. Inflation rates for non-fish consumer items.

v. Development Standards & protocol for fisheries product –To evaluate the implications of compliance of food safety measures, provisions concerning the use of HACCP requires significant.

vi. Tapping the vast potential for export of marine products.

vii. World prices on the import and export sides on rates for non-fish consumer items.

9. Action Plan

9.1 The targeted activities shall be taken up in a Mission Mode for timely achievements and generate the desired benefits to beneficiaries as well as to avoid cost escalations.

9.2. Duration: Four (5) Years [2016-17, 2017-18, 2018-19 , 2019-20 & 2021-22]

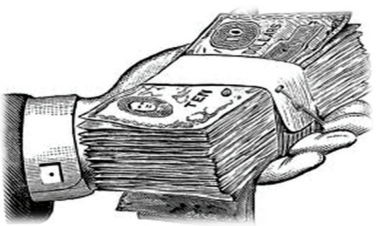
9.3. Time Frame for Implementation (Tentative): The schedule of activities for the year (2017-18) of the Action Plan shall be as mentioned below:

S. No.	Activity	Period
1	Review of Previous releases	As decided by the Department (ADF)
2	Identification of Beneficiaries	15th August, 2017
3	Submission of DPR	15th September, 2017
4	Technical appraisal, approval and release of 1st instalment	30th October, 2017
5	Commencement of project implementation	15th November, 2017

9.4. Work plan for 2016-17, 2017-18, 2018-19, 2019-20 & 2021-22 shall be planned/ started well in advance to ensure timely establishment of cold-chain.

10. Targets

10.1 Year-wise Physical and Financial targets fixed for Cold – Chain in the identified States under the Mission Cold Chain Infrastructure Development are as (Annexure 1, 2 &3 & 4)



11. Funding Pattern

11.1 Central Government will provide funds as admissible in the Blue Revolution guidelines.

11.2 State Governments shall try to dovetail additional funds (other than State share required for Blue Revolution funded projects) from State budget, RKVY, Sagaramala etc. or any other source.

11.3 Financial allocation will be made as per the above arrangements.

11.4 There will not be any funding for the operational costs.

11.5 The maximum expenditure on each activity/project will be as per unit cost fixed in Blue Revolution.

Establishment of Ice Plant	Grant-in aid @ 50% for General States, 80% for Himalayan States and 100% for UT of total cost Rs.100 laksh per unit
Establishment of Cold-Storage	Grant-in aid @ 50% for General States, 80% for Himalayan States and 100% for UT of total cost Rs.100 laksh per unit
Development Transport Facilities	Grant-in aid @ 50% for General States, 80% for Himalayan States and 100% for UT of total cost Rs.25 laksh per unit
Establishment of Integrated Cold Chain	Grant-in aid @ 50% for General States, 80% for Himalayan States and 100% for UT of total cost Rs.500 laksh per unit
Establishment of Retail Fish Market	Grant-in aid @ 50% for General States, 80% for Himalayan States and 100% for UT of total cost Rs.100 laksh per unit

12. Mechanism of Implementation

12.1 The Action Plan will be started in identified States immediately.

12.2 A Task Force will be constituted to ensure time bound progress, having members from DADF, NFDB, Central Inland Fisheries Research Institute, Barrackpore ICAR and CMFRI, Cochin.

12.3 In order review the project activities and issue necessary advisories, a three tier Task Force structure will be established as follows:

(a) At National Level

1. Secretary, DADF, GoI
2. CE, NFDB (Convenor)
3. JS (Fy)
4. DDG (Fy)- ICAR
5. Representative from CIFRI, Barrackpore
6. Representative from CMFRI, Cochin

(b) Technical Committee at National Level

(i) JS (Fy)
(ii) DDG (Fy)- ICAR
(iii) Executive Director, NFDB (Convenor)
(iv) FDC
(v) JC (Fy)
(vi) Representative from MPEDA

(c) At State Level

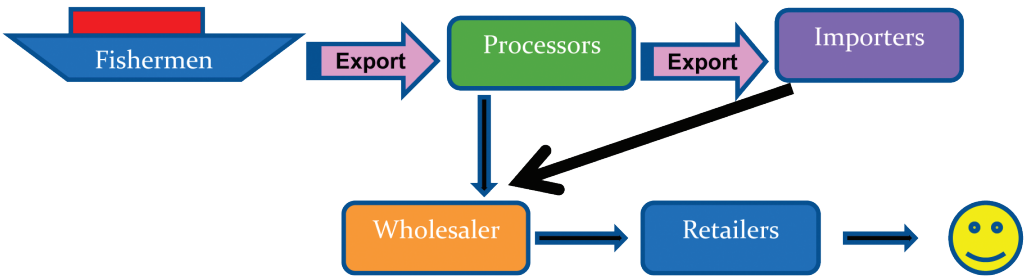
(i) Agriculture Production Commissioner/Equivalent.
(ii) Principal/Secretary Fisheries
(iii) Principal / Secretary Agriculture
(iv) Commissioner/ Director Fisheries (Convenor)
(v) MD, Fish. Corporation & Federation

Key role of Cold Chain in different types of global fishery marketing sequence

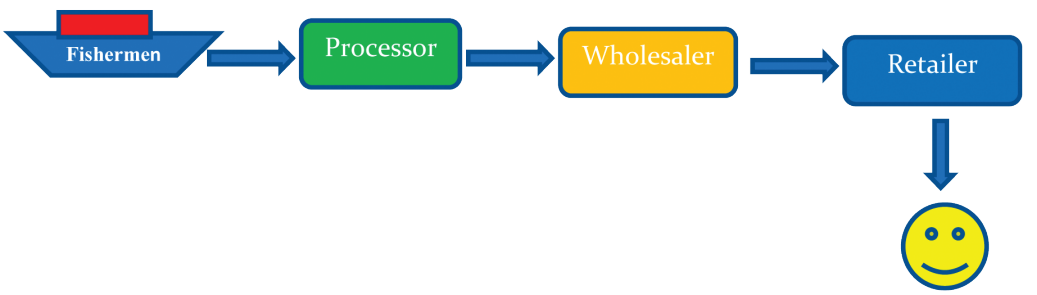
1.

2.

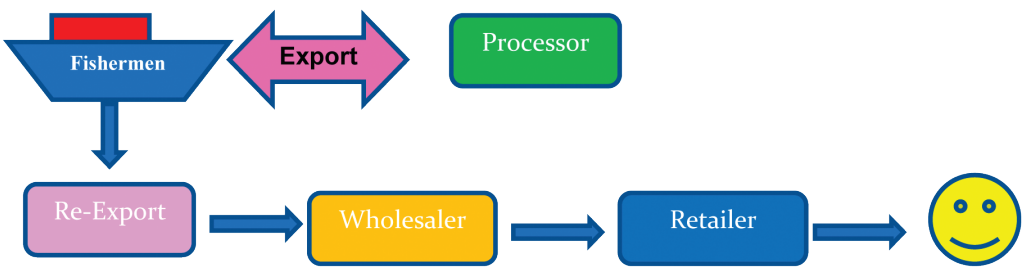
3.



4.



5.



EOP:Requirement of Post-Harvest Infrastructure and Cold Chain & Retail Market facilities for Inland &Marine Sector

INLAND SECTOR										Total Project Cost (Rs. in Lakh)	MARINE SECTOR						Total Project Cost (Rs. in Lakh)	Retail Market		Grand Total of Project (Rs. in Lakh)
Sl. No.	Year	Ice plant *(No.)	Project Cost (Rs.in Lakh)	Cold Storage* (No.)	Project Cost (Rs.in Lakh)	Trans-port facilities**	Project Cost (Rs.in Lakh)	Integ. cold chain (No.)	Project Cost (Rs.in Lakh)		Ice Plant (No.)	Project Cost (Rs.in Lakh)	Cold storage (No.)	Project Cost (Rs.in Lakh)	Trans-port facilities** (No.)	Project Cost (Rs.in Lakh)		Physial (No.)	Project Cost (Rs.in Lakh)	
1	2	3	4	5	6	7	8	9	10	11	11	12	13	14	15	16	17	18	19	18
1	2017-18	30	3000.0	22	2200.0	20	500.0	15	7500	13200.0	48	4800	21	2100	84	1680	8580	152	15200.00	36980.00
2	2018-19	30	3000.0	22	2200.0	20	500.0	15	7500	13200.0	48	4800	21	2100	84	1680	8580	148	14800.00	36580.00
3	2019-20	30	3000.0	22	2200.0	20	500.0	15	7500	13200.0	48	4800	21	2100	84	1680	8580	145	14500.00	36280.00
4	2020-21	30	3000.0	22	2200.0	20	500.0	13	6500	12200.0	48	4800	21	2100	84	1680	8580	145	14500.00	35280.00
6	2021-22	30	3000.0	22	2200.0	20	500.0	13	6500	12200.0	48	4800	21	2100	84	1680	8580	142	14200.00	34980.00
	Total	**150**	**15000.0**	**110**	**11000**	**100**	**2500**	**71**	**35500**	**64000.0**	**150**	**24000**	**105**	**10500**	**420**	**8400**	**42900**	**732**	**73200.00**	**180100.00**

** Unit Cost of transport facility Rs. 25 lakh / refrigerater of 10 ton capacity and Rs. 20 Lakh for insulated truck of 10 ton capacity.

* Unit Cost of Ice Plant and Cold Storage of 40 ton capacity is Rs. 1 Crore

EOP : Year Wise Distribution of Post Harvest Infrastructure

S. No.	State	Ice plants							Cold storage						
		Total Physical Target (No.)	Total Project Cost (Rs. In Lakh)	2017-18	2018-19	2019-20	2020-21	2021-2022	Total Physical Target (No.)	Total Project Cost (Rs. In Lakh)	2017-18	2018-19	2019-20	2020-21	2021-2022
1	Andhra Pradesh	5	500.00	1	1	1	1	1	10	1000.00	2	2	2	2	2
2	Arunachal	0	0.00						5	500.00	1	1	1	1	1
3	Assam	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
4	Bihar	5	500.00	1	1	1	1	1	10	1000.00	2	2	2	2	2
5	Chattisgarh	10	1000.00	2	2	2	2	2	5	500.00	1	1	1	1	1
6	Goa	0	0.00						0	0.00					
7	Gujarat	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
8	Haryana	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
9	Himachal Pradesh	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
10	Jammu &Kashmir	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
11	Jharkhand	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
12	Karnataka	5	500.00	1	1	1	1	1	0	0.00					
13	Kerala	5	500.00	1	1	1	1	1	0	0.00					
14	Madhy Pradesh	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
15	Maharashtra	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
16	Manipur	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
17	Meghalaya	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
18	Mizoram	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
19	Nagaland	5	500.00	1	1	1	1	1	0	0.00					
20	Odisha	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
21	Punjab	5	500.00	1	1	1	1	1	0	0.00					
22	Rajasthan	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
23	Sikkim	5	500.00	1	1	1	1	1	0	0.00					
24	Telangana	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
25	Tamil Nadu	5	500.00	1	1	1	1	1	5	500.00	1	1	1	1	1
26	Tripura	5	500.00	1	1	1	1	1	0	0.00					
27	Uttar Khand	5	500.00	1	1	1	1	1	0	0.00					
28	Uttar Pradesh	10	1000.00	2	2	2	2	2	5	500.00	1	1	1	1	1
29	West Bengal	10	1000.00	2	2	2	2	2	0	0.00	0	0	0	0	0
Total		**150**	**15000.00**	**30**	**30**	**30**	**30**	**30**	**110**	**11000.00**	**22**	**22**	**22**	**22**	**22**

Annexure-2

and Cold Chain facilities in Identified States (Inland Sector)

Transport							Integrated cold chain							Grand Total (Rs. In Lakh)
Total Physical Target (No.)	Total Project Cost (Rs. In Lakh)	2017-18	2018-19	2019-20	2020-21	2021-2022	Total Physical Target (No.)	Total Project Cost (Rs. In Lakh)	2017-18	2018-19	2019-20	2020-21	2021-2022	
5	125.00	1	1	1	1	1	5	2500.00	1	1	1	1	1	4125.00
0	0.00						0	0.00						500.00
5	125.00	1	1	1	1	1	0	0.00						1125.00
5	125.00	1	1	1	1	1	5	2500.00	1	1	1	1	1	4125.00
10	250.00	2	2	2	2	2	3	1500.00	1	1	1			3250.00
0	0.00						0	0.00						0.00
5	125.00	1	1	1	1	1	5	2500.00	1	1	1	1	1	3625.00
0	0.00						2	1000.00				1	1	2000.00
5	125.00	1	1	1	1	1	3	1500.00	1	1	1			2625.00
0	0.00						2	1000.00				1	1	2000.00
5	125.00	1	1	1	1	1	0	0.00						1125.00
5	125.00	1	1	1	1	1	5	2500.00	1	1	1	1	1	3125.00
5	125.00	1	1	1	1	1	0	0.00						625.00
10	250.00	2	2	2	2	2	3	1500.00	1	1	1			2750.00
5	125.00	1	1	1	1	1	5	2500.00	1	1	1	1	1	3625.00
0	0.00						0	0.00						1000.00
0	0.00						2	1000.00				1	1	2000.00
0	0.00						2	1000.00				1	1	2000.00
0	0.00						0	0.00						500.00
5	125.00	1	1	1	1	1	3	1500.00	1	1	1			2625.00
5	125.00	1	1	1	1	1	3	1500.00	1	1	1			2125.00
5	125.00	1	1	1	1	1	3	1500.00	1	1	1			2625.00
0	0.00						2	1000.00				1	1	1500.00
5	125.00	1	1	1	1	1	3	1500.00	1	1	1			2625.00
5	125.00	1	1	1	1	1	5	2500.00	1	1	1	1	1	3625.00
0	0.00						0	0.00						500.00
0	0.00						2	1000.00				1	1	1500.00
5	125.00	1	1	1	1	1	5	2500.00	1	1	1	1	1	4125.00
3	75.00	1	1	1	1	1	3	1500.00	1	1	1			2575.00
98	**2450.00**	**20**	**20**	**20**	**20**	**20**	**71**	**35500.00**	**15**	**15**	**15**	**13**	**13**	**63950.00**

EOP : Year Wise Distribution of Post Harvest Infrastructure and

S. No.	State	Ice plant							Cold storage			
		Total Physical Target (No.)	Cost (Rs. In Lakh)	2017-18	2018-19	2019-20	2020-21	2021-2022	Total Physical Target (No.)	Cost (Rs. In Lakh)	2017-18	
1	Andhra Pradesh	30	3000.00	6	6	6	6	6	30	3000.00	6	
2	Goa	10	1000.00	2	2	2	2	2	5	500.00	1	
3	Gujarat	15	1500.00	3	3	3	3	3	5	500.00	1	
4	Karnataka	60	6000.00	12	12	12	12	12	5	500.00	1	
5	Kerala	15	1500.00	3	3	3	3	3	5	500.00	1	
6	Maharashtra	15	1500.00	3	3	3	3	3	5	500.00	1	
7	Odisha	45	4500.00	9	9	9	9	9	10	1000.00	2	
8	Puducherry	5	500.00	1	1	1	1	1	5	500.00	1	
9	Tamil Nadu	15	1500.00	3	3	3	3	3	5	500.00	1	
10	West Bengal	15	1500.00	3	3	3	3	3	15	1500.00	3	
11	Daman & Diu	5	500.00	1	1	1	1	1	5	500.00	1	
12	Andaman & Nicobar	5	500.00	1	1	1	1	1	5	500.00	1	
13	Lakshadweep	5	500.00	1	1	1	1	1	5	500.00	1	
	TOTAL	**240**	**24000.00**	**48**	**48**	**48**	**48**	**48**	**105**	**10500.00**	**21**	

Annexure-3

Cold Chain facilities in Identified Maritime States (Marine Sector)

				Transport							Total Project cost (Rs. in Lakh)
2018-19	2019-20	2020-21	2021-2022	Total Physical Target (No.)	Cost (Rs. In Lakh)	2017-18	2018-19	2019-20	2020-21	2021-2022	
6	6	6	6	75	1500.00	15	15	15	15	15	7500.00
1	1	1	1	45	900.00	9	9	9	9	9	2400.00
1	1	1	1	45	900.00	9	9	9	9	9	2900.00
1	1	1	1	45	900.00	9	9	9	9	9	7400.00
1	1	1	1	30	600.00	6	6	6	6	6	2600.00
1	1	1	1	55	1100.00	11	11	11	11	11	3100.00
2	2	2	2	45	900.00	9	9	9	9	9	6400.00
1	1	1	1	5	100.00	1	1	1	1	1	1100.00
1	1	1	1	40	800.00	8	8	8	8	8	2800.00
3	3	3	3	25	500.00	5	5	5	5	5	3500.00
1	1	1	1	0	0.00						1000.00
1	1	1	1	5	100.00	1	1	1	1	1	1100.00
1	1	1	1	5	100.00	1	1	1	1	1	1100.00
21	**21**	**21**	**21**	**420**	**8400.00**	**84**	**84**	**84**	**84**	**84**	**42900.00**

Annexure-4

EOP : Year Wise Distribution of Retail Fish Market in States

S. No.	State	Retail fish Market						
		Total Physical Target (No.)	2017-18	2018-19	2019-20	2020-21	2021-2022	Total Project Cost (Rs. In Lakh)
1	Andaman & Nicobar	3	1	1	1			300.00
2	Andhra Pradesh	15	3	3	3	3	3	1500.00
3	Arunachal Pradesh	21	4	4	4	4	5	2100.00
4	Assam	34	8	8	6	6	6	3400.00
5	Bihar	40	8	8	8	8	8	4000.00
6	Chandigarh	1	1					100.00
7	Chhattisgarh	28	6	6	6	6	4	2800.00
8	Dadar & Nagar Haveli	1	1					100.00
9	Daman and Diu	2	1		1			200.00
10	Delhi	11	3	2	2	2	2	1100.00
11	Goa	2	1	0	1			200.00
12	Gujarat	34	8	8	6	6	6	3400.00
13	Haryana	22	5	5	4	4	4	2200.00
14	Himachal Pradesh	12	2	2	2	3	3	1200.00
15	Jammu & Kashmir	22	5	5	4	4	4	2200.00
16	Jharkhand	24	4	4	4	6	6	2400.00
17	Karnataka	30	6	6	6	6	6	3000.00
18	Kerala	14	2	3	3	3	3	1400.00
19	Lakshaweep	1	1	0	0			100.00
20	Madhya Pradesh	52	10	10	12	10	10	5200.00
21	Maharashtra	40	8	8	8	8	8	4000.00
22	Manipur	16	3	3	3	4	3	1600.00
23	Meghalaya	12	3	2	2	3	2	1200.00
24	Mizoram	8	1	1	2	2	2	800.00
25	Nagaland	12	2	3	3	2	2	1200.00
26	Odisha	30	6	6	6	6	6	3000.00
27	Puducherry	4	1	1	1	1		400.00
28	Punjab	22	5	5	4	4	4	2200.00
29	Rajasthan	33	6	6	7	7	7	3300.00
30	Sikime	4		1	1	1	1	400.00
31	Tamil Nadu	32	6	6	6	7	7	3200.00
32	Telangana	32	6	6	6	7	7	3200.00
33	Tripura	8	2	2	2	1	1	800.00
34	Uttar Pradesh	75	15	15	15	15	15	7500.00
35	Uttarakhand	13	3	3	2	2	3	1300.00
36	West Bengal	22	5	5	4	4	4	2200.00
Total		**732**	**152**	**148**	**145**	**145**	**142**	**73200.00**

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National Fisheries Development Board

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Sardar Vallabhai Patel National Police Academy (SVP NPA) Post
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