DRAFT POLICY ON COMPREHENSIVE DEVELOPMENT OF FISHERIES IN A&N ISLANDS

Department of Fisheries, A&N Administration

SRI VIJAYA PURAM
A&N Islands

1. Executive Summary

1.1 The Policy document is a perspective master plan for the sustainable development of fisheries in the Andaman and Nicobar Islands prepared by the Department of Fisheries in consultation with various organizations/Expert InstitutessuchasICAR-CMFRI,ICAR-CIFT,ICAR-CIBA,ICAR-CIARI,MPEDA,EIA,FSI, NIOT, BOBP beside incorporating inputs from various departments of Andaman and Nicobar Administration The document covers developmental aspects of coastal and oceanic fisheries, fishing technology, post-harvest handling and processing, aquaculture, Capacity Building and Fisheries management. This strategic plan takes into consideration the recommendations of various earlier committees and working groups. The primary focus of the policy to utilize the unexplored potential of Marine Fisheries Resource and for augmentation of fish production by promoting modern aquaculture practices in A&N Islands for the welfare of Fishermen and fish farmer's community and to invite investments in fisheries aquaculture development of the islands with new initiatives especially in brackish water aquaculture and Mariculture of high value species.

1.2 Various sub-committees were constituted vide A&N Admin. Order No. 194 dated 13.03.2023 under the leadership of different Organization and expert Institutes to formulate recommendations on the below mentioned verticals: -

a. Policy & Roadmap – led by Department of Fisheries.
b. Infrastructure & Logistics – led by ANIIDCO Ltd.
c. Augmentation of fish production – led by ICAR-CIARI & FSI
d. Fisheries Management – led by Department of Fisheries
e. Capacity Building – led by Department of Fisheries

1.3 The present document is the outcome of recommendations of these committees and working groups on fisheries development in the islands.

2. Introduction:

2.1 Andaman and Nicobar Islands (ANI) is one of the Union Territories of India, located in the South East of Bay of Bengal as a linear strip of emerald Islands in close proximity to South East Asian countries. The ANI archipelago consists of 836 Islands and Islets, having an aggregate coastline of 1962 km which accounts for one fourth of India's coastline and the Islands are also known as Bay Islands. The Islands are spread over8200 Sq.km of geographical area and encompasses 0.6 million km2 of Exclusive Economic Zone (EEZ), which accounts for 30% of India's total EEZ. The continental shelf forms nearly 6.60% of the total Indian Continental shelf that is about 34965 Sq.km.

2.2 The presence of diverse marine ecosystems and habitats like mangroves, creeks, lagoons, estuaries, muddy shores and coral reefs are the major reasons for enormous diversity of finfish and shellfish resources. Around 1434 fish species were reported from the Island water bodies including marine and freshwater habitats, among which, 400 species are of commercial importance as food fishes.

2.3 The freshwater aquaculture is the most vibrant aquaculture sector that provides livelihood, food security, and employment to the local communities in the archipelago of Andaman and Nicobar Islands. There is an increasing demand for freshwater fish in the local market, due to which the food fishes are also being imported from mainland India for consumption purposes. At present, approximately 2500 minor irrigation ponds are available in the Andaman and Nicobar Islands which are used for irrigation purposes as well as aquaculture. There are 57 freshwater fish species reported from the Islands of which 30 were native and the rest have been brought from mainland India for aquaculture purposes. Indian Major Carps such as Catla (*Catla catla*), Rohu (*Labeo rohita*), Mrigal (*Cirrhinus mrigala*), and Chinese carps, namely silver carp (*Hypophthalmichthys molitrix*), common carp (*Cyprinus carpio*) and grass carp (*Ctenopharyngodon idella*)are some of the important fishes that were transported to the Islands for aquaculture purposes. Such diversification practices also paved the way for the entry of other fish species such as Magur (*Clariasmagur*), Singhi (*Heteropneustus fossilis*),Tilapia(*Oreochromis sp*), Pangas (*Pangasius pangasius*), pacu (*Piractus brachypomus*), etc.

2.4 The market demand for the freshwater aquaculture sector is huge due to which food fishes were imported from mainland India. The sector also confronts various issues that need to be addressed by engaging various stakeholders working in fish farming, research, extension, and development departments. The sector needs reformatory approaches to augment fish production at the Island level to limit the dependency on mainland markets. Further, the fish farmers should be sensitized for the adoption of better management practices and their importance on yield and production improvement.

2.5 Brackish water resources of Andaman and Nicobar Islands are very limited. Although around 33,000 hectare of land is available, majority of the areas are under mangrove and reserve forests. About 618 hectares had been identified as suitable for development of brackish water aquaculture, at present only 10 hectares is currently under culture. Since, availability of suitable area of farming is limited, it was decided that to promote the farming activities additional 70-hectare area would be brought under brackish water aquaculture to encourage the farmers/entrepreneurs. Some beneficiaries have already taken up shrimp farming under PMMSY which is giving encouraging results.

Establishment of shrimp hatchery by utilizing the *Penaues monodon* Broodstock of Betapur area also needs to be prioritized for greater coverage of shrimp farming in Andaman and Nicobar Islands. The technical expertise of RGCA, Kodiyaghat is to be utilized for setting up of such facility in the Islands.

2.6 Though there is a vast scope for Mariculture/open sea cage culture, this is yet to be tested at the field level. The Directorate of Fisheries in collaboration with NIOT, CMFRI and other expert organizations are establishing open sea cage for Mariculture programme and the candidate species to be taken up for the purpose are Cobia, Pompano, Seabass, Groupers etc., on pilot basis. A training in this regard has already been conducted with the help of NIOT, Dollygunj. For any sustainable commercial venture, the availability of Fish seed and feed needs to be ensured.

2.7 The Andaman and Nicobar Islands fisheries export scenario will have a major shift in terms of scales after operationalization of international flights and

transhipment ports in the Islands. The existing infrastructure is not adequate for initiating direct export. Most of the cold chain infrastructures created in recent past are in public sectors funded by Govt.of India. This is created for the support of local fishers, vendors of the Islands to facilitate domestic marketing. The direct seafood export can be initiated only after creation of such infrastructures in private sectors by meeting international standards.

3. Rationale behind policy on comprehensive development of fisheries in Andaman and Nicobar Islands.

3.1 Currently capture fisheries is the major contributor to marine fish production as Mariculture activities are yet to take off on commercial scale to realise fish production potential in the Islands. The estimated marine fisheries potential of the Island is 1.48 lakh tonnes, which includes approx. 65,000 MT of tuna and tuna-like resources. In spite of the huge potential, the fish harvest stands at 44,000 MT during 2022-2023. The reasons for lower harvests are mainly attributed to the lack of efficient fishing fleet, lack of offshore fishing crafts, infrastructure facilities and skilled manpower besides inadequate geographical connectivity.

3.2 Diverse fishery resources are available in the Island waters but majority of these resources are not properly exploited, especially the oceanic resources which has not been harnessed to its potential.

3.3 As per the export statistics, Groupers, Snappers, Emperors, Mackerels, Crabs, Tunas, Shark & Rays etc. are the major commodities transported from the Islands. There is no direct export due to absence of any international connectivity. The Seafood is transported from Islands to Mainland in chilled/frozen form by ship/air and then it is exported from Mainland to various countries. Tuna and Mackerel of A&N waters have the potential to contribute for the direct export considering the availability and present level of exploitation.

3.4 To tap the potential of relatively un-polluted coastal waters for developing coastal aquaculture and Mariculture activities in the form of Cage culture and Seaweed cultivation for Aquaculture production the policy formulation will act as an catalyst.

3.5 The creation of marketing channels for seafood trade of fish and fishery products from the Islands needs to be established.

Apart from this, skill upgradation through training, adoption of best practices of the global industry and sharing of experience needs to be expounded.

3.6 The proportionate development of post-harvest facilities like Fish processing plants, Ice Plants, Cold Storages, Fish Value Addition units etc. for optimal utilization of fisheries resources needs to be outlined.

3.7 The Policy is aligned with the National Policies for fisheries sector by Govt. of India, key Frameworks under Pradhan Mantri Matsya Sampada Yojana and UT Plan schemes to ensure a unified approach to sustainable fisheries development. Any other scheme introduced by the Govt. of India will be adopted from time to time.

3.8 Expansion of sea-based aquaculture (Mariculture) activities such as cage culture, seaweed farming, shellfish culture, pearl farming and other sustainable

marine farming techniques offers alternative livelihood avenues, reduces fishing pressure on nearshore waters, and contributes to climate-resilient food production.

4. Vision

To create conducive environment for development of commercially and economically viable Fisheries and Aquaculture including Mariculture sector which is environmentally friendly as well as socially inclusive to contribute towards economic prosperity and wellbeing of fishers and fish farmers through trade and export of Seafood from Andaman and Nicobar Islands in a sustainable and responsible manner.

5. MISSION

The sustainable utilization of marine fisheries resources and the potential areas of Mariculture, freshwater and Brackishwater aquaculture by developing, managing, regulating and conserving responsibly and sustainably the available resources. The whole exercise aims at harnessing recourses for improving livelihoods, generating employment, enhancing incomes, food and nutrition security, economic prosperity and socio-economic well-being of stakeholders of Andaman and Nicobar Islands through appropriate strategies and building partnerships in a participatory manner.

6. OBJECTIVES

6.1 The policy and roadmap aims at quality development of the fisheries and aquaculture sector of A&N Islands through the interventions and support of A&N Administration to address the critical gaps in infrastructure and logistic support with a futuristic target for growths in fisheries and aquaculture product exports, increase in fishers/farmer's income, expansion of domestic market and better availability for consumers.

The broad objectives of the policy are:-

- Sustainable harnessing of the fishery resources of Andaman and Nicobar Island waters and culture fisheries potential especially Mariculture and coastal aquaculture through private participations and collaborations for enhancing fish production and export.
- Promote sectoral support services including hatchery development, insurance coverage, quarantine facilities, and seed transportation logistics.
- Modernization of existing fisheries and aquaculture infrastructures adopting suitable models and structures considering the geo-climatic conditions of Andaman and Nicobar Islands.
- To propound robust management and regulatory framework with necessary legal backing for effective fisheries resource management through an Ecosystem Approach of Fisheries(EAF) management within the overall framework of relevant national and international instruments, policies norms and standards.

- Creation of freshwater aquaculture with the aim of improving fish production, increasing water shed areas in the Islands
- Development of Mariculture activities for utilization of vast productive sea area of the Islands.
- Formulation of policies for bringing non-native fish seeds to the Islands and conservation of fish genetic resources of the Islands.
- Creation and strengthening the value chain and marketing infrastructures in private sector.
- Popularizing game fishing and concept of catch, photograph and release Scheme (CPR).
- Popularize ecotourism or fisheries tourism.
- Promotion of trade and marketing of seafood/aquaculture produce to the neighbouring countries adopting global standards.
- Motivating and establishment of fishermen community partnerships, private participation and effective cooperative movement in fisheries sector.

Chapter - I: INFRASTRUTURES &LOGISTICS

7.1 The present status of infrastructure facilities vis-à-vis fish landing centres, fishing fleet, ice plants, cold storages, processing units and the quantum of seafood transported to mainland is detailed as under:

7.2 Fish landing centres in A&N Islands.

Sl. No.	Location of FLC	District	Capacity (MT perannum)	Capacity Utilization(%)	Facilities
1.	Junglighat	SouthAndaman	1200	100	2,3,4,5,6,7,8,9, 10,11,12,13
2.	Wandoor	SouthAndaman	3750	30	1,12,5
3.	Guptapara	SouthAndaman	2150	100	1,2,4,5,8,11,12,13
4.	Panighat	SouthAndaman	1730	100	1,2,4,5,12,13,14
5.	NeilIsland	SouthAndaman	585	100	1,4,5,8,12,13
6.	Swaraj Dweep	SouthAndaman	1030	100	1,3,5,12,13
7.	Uttara	North&Middle Andaman	880	100	1,5,12,13
8.	Yerratta	North&Middle Andaman	750	60	2,4,12,13
9.	RangatBay	North&Middle Andaman	4000	100	1,2,5,8,12,13,14

10.	Betapur	North&Middle Andaman	760	30	2,4,5,8,12,13,14
11.	Pokkadera	North&Middle Andaman	2500	30	2,4,5,12,13,14
12.	Durgapur	North&Middle Andaman	4500	100	2,4,5,12,13,14
13.	Campbell Bay	Nicobar	3440	100	2,4,5,12,13
14.	Katchal	Nicobar	900	20	2,4,5,12,13
15.	Teressa	Nicobar	760	40	2,4,5,12,13
16.	Tee-Top	Nicobar	3395	20	2,4,5,8,12,13,14
17	HutBay	SouthAndaman	2415	100	2,4,5,8,12,13,14
18	V.KPur	SouthAndaman	1550	-	Work yet to start
19	Kamorta	Nicobar	3910	-	Work yet to start

Facilities: 1. Multipurpose Hall, 2. Net Mending Shed, 3. Administrative building, 4 Toilet block, 5. RCC Landing Ramp, 6. R.C.C Jetty, 7. Approach Jetty, 8. Security room, 9. 5MT Ice Plant, 10. 10MT Cold Storage, 11. Diesel Bunk, 12. Approach Road, 13. Electricity & Water Supply, 14. Fish Drying.

7.3 Capacity Augmentation for Fish Landing Centres (FLC): Capacity augmentation of Fish Landing Centres is most important logistical infrastructure to augment fish production and creation of infrastructure is a necessary pre-requisite for any development in the fisheries sector.

7.3.1 Capacity augmentation of fish landing centres in the Government sector will entail setting apart of revenue land by the concerned Deputy Commissioner of the District after approval of Hon'ble Lieutenant Governor allowing development of land for fisheries purposes on case by case basis. The development can be carried out in both purely Government sector from the UT Plan funds and on PPP mode after preparing DPR by the Directorate of Fisheries.

7.3.2 Capacity augmentation of fish landing centres in the Private sector will entail required permission issued by the concerned Deputy Commissioner of the District after approval of Hon'ble Lieutenant Governor allowing development of land for fisheries purposes only on case by case basis

7.4 Fishing Craft (as on 31st March-2023): The status of fishing craft is given in the table below. Modernization and mechanization of the fishing craft and conversion of old vessels to new one is a need of hour. Schemes of Government of India under PMMSY and UT Administration in UT Plan Schemes needs to be implemented for this purpose.

Area/Island	**Total Fishing Craft (Nos.) (2023)**
North & Middle Andaman	
Diglipur	835
Mayabunder	287
Billiground	64
Rangat	275
Kadamtala	100
Total(A)	**1561**
South Andaman	
Sri Vijaya Puram (Urban & Rural)	1379
Swaraj Dweep (Havelock)	231
Shaheed Dweep (Neil Island)	50
Hut bay (Little Andaman)	90
Total (B)	**1746**
NICOBAR	
Car Nicobar	32
Kamorta/ Nancowrie	82
Teresa/ Chowra	46
Katchal	24
Campbell Bay	146
Total (C)	**332**
A&N Islands(A+B+C)	**3639**

7.4.1 Capacity Augmentation for Fishing Crafts: Capacity augmentation for fishing crafts shall be achieved by expeditious processing of the application of beneficiaries both at the District Level and at the UT level under the PMMSY and UT plan schemes. The applications shall be processed within a time frame of 30 days, so that beneficiaries avail the subsidy timely.

7.4.1.1 Fishing craft repair facility in Jetties of PMB: Fishing craft repair facility is being created at appropriate locations of A&N Islands as per requirement and the same shall be operated as per the norms stipulated by the PMB for the optimum utilization of the existing infrastructure.

7.4.1.2 Fishing craft repair facility in FLCs: Fishing craft repair facility in the existing and to be constructed FLCs shall be given for development to private sector

on PPP mode following prevailing rules and regulation and after obtaining approval of Competent Authority.

7.5 Ice Plant facilities: The status of existing ice plants is given in the table below. Creation of new ice plants and optimum utilization of existing ones is a need of hour. Schemes of Government of India under PMMSY and UT Administration in UT Plan Schemes need to be implemented for this purpose.

Location	Numbers	Capacity(MT/Day)
Departmental /ANIIDCO		
Rangat	1	10
Hut Bay	1	10
Campbell Bay	1	10
Mayabunder	1	10
Chunnabhatta/ Panighat	1	5
FLC Junglighat	1	5
Swaraj Dweep (Havelock)	1	5
Durgapur (Diglipur)	1	5
SubTotal (A)	8	60
Private		
SouthAndaman	8	127
Mayabunder	1	15
SubTotal(B)	**9**	**142**
Total(A+B)	**17**	**202**

7.5.1 Capacity Augmentation for Ice Plants: Capacity augmentation for ice plants shall be achieved by expeditious processing of the application of beneficiaries both at the District Level and at the UT level under the PMMSY and UT Plan Schemes. The applications shall be processed within a time frame of 30 days, so that beneficiaries avail the subsidy timely.

7.5.2 Processing of application for construction of Ice Plants in Private Sector: **Any new Ice Plant shall only be created on land parcel after obtaining a land use permission from concerned Deputy Commissioner of the District consequent to the approval of HLG on case to case basis only for fisheries purposes. If the beneficiary violates the land use permission the limited conversion allowed shall be withdrawn.**

7.5.3 Capacity augmentation of Ice Plant infrastructure in the Government sector: Capacity augmentation of Ice Plant infrastructure in the Government sector will entail setting apart of revenue land by the concerned Deputy Commissioner of the District after approval of Hon'ble Lieutenant Governor allowing development of land for fisheries purposes on case by case basis. The development can be carried out in both purely Government sector from the UT Plan funds and on PPP mode after preparing DPR by the Directorate of Fisheries.

7.6 Cold Storage: The status of existing cold storage infrastructure is given in the table below. Creation of new cold storage and optimum utilization of existing ones is a need of hour. Schemes of Government of India under PMMSY and UT Administration in UT Plan Schemes need to be implemented for this purpose.

Location	**Numbers**	**Capacity(MT)**
Departmental/ANIIDCO		
Sri Vijaya Puram	1	15
Rangat	1	15
Hutbay	1	15
CarNicobar	1	10
CampbellBay	1	15
FLCJunglighat	1	15
Durgapur(Diglipur)	1	10
SubTotal(A)	7	95
Private		
SouthAndaman	**7**	**555**
SubTotal(B)	**7**	**555**
Total(A+B)	**14**	**650**

7.6.1 Capacity Augmentation for Cold Storage: Capacity augmentation for cold storage shall be achieved by expeditious processing of the application of beneficiaries both at the District Level and at the UT level under the PMMSY and UT Plan Schemes. The applications shall be processed within a time frame of 30 days, so that beneficiaries avail the subsidy timely.

7.6.2 Processing of application for construction of Cold Storage in Private Sector:: Any new cold storage shall only be created on land parcel after obtaining a land use permission from concerned Deputy Commissioner of the district consequent to the approval of HLG on case to case basis only for fisheries purposes. If the beneficiary violates the land use permission the limited conversion allowed shall be withdrawn.

7.6.3 Capacity augmentation of Cold Storage infrastructure in the Government sector: Capacity augmentation of Cold Storage infrastructure in the Government sector will entail setting apart of revenue land by the concerned Deputy Commissioner of the district after approval of Hon'ble Lieutenant Governor allowing development of land for fisheries purposes on case by case basis. The development can be carried out in both purely Government sector from the UT Plan funds and on PPP mode after preparing DPR by the Directorate of Fisheries

7.7 Fish processing units: The status of existing fish processing unit infrastructure is given in the table below. Creation of new fish processing unit infrastructure and optimum utilisation of existing ones is a need of hour. Schemes of Government of India under PMMSY, Ministry of Food Processing Industries and UT Administration in

UT Plan Schemes need to be implemented for this purpose.

Sl.No.	Name of the existing processing plant units (private) as on date of notification of policy	Capacity (MT/day)
1.	Era Fishery Product Private Ltd., Dollygunj	06
2.	Rubin Sea food,Sippighat	06
3.	Monsoon Fisheries, Dhanikari	10
4.	BRR Sea Foods,Dollygunj	02

7.7.1 Capacity Augmentation for fish processing unit infrastructure: Capacity augmentation for fish processing unit infrastructure shall be achieved by expeditious processing of the application of beneficiaries both at the District Level and at the UT level under the PMMSY, schemes of MoFPI and UT Plan Schemes. The applications shall be processed within a time frame of 30 days, so that beneficiaries avail the subsidy timely.

7.7.2 Processing of application for construction of fish processing unit infrastructure in Private Sector: Any new fish processing unit infrastructure shall only be created on land parcel after obtaining a land use permission from concerned Deputy Commissioner of the district consequent to the approval of HLG on case to case basis only for fisheries purposes. If the beneficiary violates the land use permission the limited conversion allowed shall be withdrawn.

7.7.3 Capacity augmentation of fish processing unit infrastructure in the Government sector: Capacity augmentation of fish processing unit infrastructure in the government sector will entail setting apart of revenue land by the concerned Deputy Commissioner of the district after approval of Hon'ble Lieutenant Governor allowing development of land for fisheries purposes on case by case basis.

The development can be carried out in both purely Government sector from the UT Plan funds and in private sector as per the prevailing Rules & Regulations and after obtaining necessary clearance and approval from Competent Authority.

7.8 Transportation of Fisheries products from the A &N Islands : The transportation of fisheries products is the most critical infrastructure which requires immediate attention in context of Andaman and Nicobar Islands considering its insularity. The Fisheries products are transported first to mainland and from there they reach the domestic and foreign markets. Despite the proximity of Andaman and Nicobar Islands to South East Asia the cost advantage is not realized by the fishers and the fish farmers owing to non- existence of direct transportation services to these countries by Air and Sea. The Port handling infrastructure also needs to be strengthened for both domestic transportation and direct exports from the Islands.

The status of transportation of fisheries products is given in the Table below:

Transportation from A&N Islands (in MT)			
Crab	88.875	143.542	130.006
Lobster	7.598	17.358	13.066

Fish	1877.363	3192.058	2203.210
SharkFin	2.807	3.417	16.881
SharkFlesh	347.328	490.108	394.865
DryFish	0	4.052	0.200
Tuna	111.508	188.717	172.686
ChilledPrawn	0.185	0	-
Total	**2435.664**	**4039.252**	**2930.914**
Production	**42775.00**	**44305.00**	**46596.00**

(Less than 10% of the total catch is exported outside A&N Islands)

7.8.1 **Domestic Transportation of Fisheries Products from Andaman and Nicobar Islands:**

The transportation of fisheries products from Andaman and Nicobar Islands both by air and sea route shall be market driven in consonance with the regulations and rules of the Government of India and UT Administration as applicable. In case of any difficulty faced by any fisherman/ fish farmer/ firm/ fisheries cooperative, the matter may be brought immediately before the Director (Fisheries), Directorate of Fisheries, Andaman and Nicobar Administration for speedy resolution.

7.8.2 **Export of Fisheries Products from Andaman and Nicobar Islands**: The export of Fisheries Products from Andaman and Nicobar Islands, both by air and sea route, shall be market driven in consonance with the regulations and rules of Government of India and UT Administration as applicable. The fisher/ fish farmer/ firm/ fisheries cooperative shall be registered with Marine Products Export Development Authority (MPEDA) and the products shall be certified by Export Inspection Agency (EIA). The freight transportation, both by air and sea, shall comply with statutes, regulations and rules of Customs, Ministry of Shipping, Ports and Waterways, and norms of RBI for payment purposes as issued by Government from time to time. A single window clearance cell to be established by the Department of Fisheries for expediting proposals related to fisheries, aquaculture, export, etc.

7.8.3 Quality Control: The Department of Fisheries, Andaman and Nicobar Administration shall create awareness among stakeholders regarding hygiene practices, temperature control and packaging standards to ensure that the fishery products are being transported from the islands under appropriate conditions.

7.9 Role of Fisheries Cooperatives in Comprehensive Fisheries Development: The procedure for infrastructure creation, expansion, modernization etc will remain the same for the Fisheries Cooperatives, however Directorate of Fisheries, Andaman and Nicobar Administration shall give top priority in processing all cases in time bound manner.

7.10. Resilient Infrastructure: The Department shall promote the development of resilient and sustainable infrastructure, particularly focusing on critical facilities such as ice plants, cold storages, fish landing centres, and related amenities. Emphasis shall be laid on adopting eco-friendly and energy-efficient technologies, including the

integration of green energy sources such as solar power, thermal insulation systems, and energy- saving equipment. Efforts shall also be made to upgrade existing infrastructure in a phased manner to meet green and resilient standards. This initiative is aimed at supporting long-term sustainability, reducing carbon footprint, and enhancing the overall efficiency and reliability of post-harvest fisheries infrastructure.

Chapter II: Segments of Fisheries Development in Andaman and Nicobar Islands

8.1 Aquaculture: Aquaculture practices encompasses Freshwater Aquaculture, Brackish Water Aquaculture, Mariculture including ornamental fish culture both in Marine and Freshwater environment. The overall development of fisheries sector in the Islands is contingent on harnessing the potential in each of the sub-segments of Aquaculture.

8.1.1 Aquaculture basically involves the use of land, water, sea area, and fish species, thus raises legal and institutional issues and the use of natural resources. Andaman and Nicobar Administration, with its constituent Departments, shall approve issues pertaining to land use, sea/inundated areas use, species determination etc. Any issue concerning change of land use, allocation of sea area/inundated area for Mariculture use shall be placed before A&N Administration for consideration.

8.2 Fresh Water Aquaculture: The status of current availability of Aquaculture ponds and hatcheries is given in the table below:

Details of Aquaculture ponds and hatcheries

Sl.No.	District	Pond Area(Ha.)	No. of ponds
1	South Andaman	76.34	950
2	N&M Andaman	115.083	1536
3	Nicobars	2.24	31

Freshwater Finfish Hatchery

Sl.No	District	No. of hatcheries & Production capacity
1.	South Andaman	01
2.	N&M Andaman	01

8.2.1 The Directorate of Fisheries, Andaman and Nicobar Administration shall develop an inventory of available resources related to freshwater aquaculture and its mapping through geo spatial tools. The directorate shall make action plan to strengthen the farm infrastructure, harvesting, storage marketing, and logistics for robust production both in ponds belonging to fish farmers and panchayats.

8.2.2 Fresh Water Aquaculture in Private Ponds: The Directorate shall

ensure technical support to the fish farmers along with provisioning of fish seeds.

8.2.3 Fresh Water Aquaculture in Ponds belonging to Panchayats developed under Amrit Sarovar Mission: The management of the ponds shall be done in accordance with the rules and guidelines framed by the Department of Rural development and Panchayats. The Directorate of Fisheries, Andaman and Nicobar Administration shall ensure technical support to the Fish Farmers along with provisioning of fish seeds.

8.2.4 Fresh Water finfish hatchery shall be developed to meet the growing demand in the Islands for fish seed. The establishment of nuclear seed production or brooder collection Centres shall be encouraged in the private sector to meet the current seed demand in different districts. Directorate of Fisheries shall support the endeavours of private enterprise through Govt. of India schemes such as PMMSY and technical support. Proposals for large commercial multispecies finfish hatchery to be established in private sector/Directorate of Fisheries/Research Organizations shall be processed on a fast track basis in time bound manner. The Directorate of Fisheries shall take up the case with NFDB, Hyderabad for having such facilities in the Islands.

8.3. Mariculture

8.3.1 Open-sea cage culture

8.3.1.1 The list of designated sites notified by Department of Fisheries will be allotted by the Sea Area Leasing Committee constituted as per the provision in the A&N Marine Fishing Rules, 2004 for fish culture and installation of fish aggregating devices.

8.3.1.2 The Department will invite application of sea area leasing as per the terms and conditions approved by the competent authority.

8.3.1.3 A Single Window Mechanism will be created by Directorate of Fisheries for allocation of the suitable sites.

8.3.1.4 The Terms & Conditions of Sea Area Leasing will be reviewed by the Sea Committee constituted in the A&N Marine Fishing Rules, 2004 from time to time, atleast half-yearly basis.

8.3.1.5 The lessee will be allowed to construct temporary roof structure on cage platforms as well as a temporary shore-based facility near the cages for watch and ward as cage culture activities are prone to vandalism.

8.3.1.6 The Directorate of Fisheries, A&N Administration in consultation

with Research organizations such as NIOT, CMFRI, CIARI, RGCA etc. shall identify new sites that are suitable for open sea cage culture using in-situ surveys and geospatial tools. For declaration of new sites in future, a committee chaired by the Director of Fisheries shall carry out the site suitability studies and furnish the list of new sites to the A&N Administration for requisite development. Following sites have so far been identified for this purpose:

1. Shoal Bay
2. North Bay
3. Chidiyatapu
4. Minnie Bay

Adequate care will be taken by the survey team in the criteria selection for cage culture considering the ecological and environmental factors in the Islands. Periodic assessment of the selected sites shall also be carried out periodically with the assistance of expert agencies to ensure continuing environmental and operational viability of the locations.

8.3.1.7 The sea area from the new sites identified shall be made available to a farmer/entrepreneur bidder depending upon the total area of the suitable site and after notifying the list of areas by Department of Fisheries, A&N Administration.

8.3.1.8 The Department of Fisheries shall undertake systematic **zoning and mapping of suitable coastal and off shore sites** for the promotion and regulation of Mariculture activities including cage farming, seaweed cultivation, Shell fish farming, Pearl culture, and other allied activities. The zoning process shall be based on scientific assessments, environmental suitability and carrying capacity, while ensuring minimal conflict with traditional fishing grounds and marine protected areas. The mapped zones shall be classified according to the type of permissible Mariculture activities and the scale of operations, thereby facilitating transparent allocation and monitoring of Mariculture spaces.

8.3.1.9 Type of Open-sea cage culture: Andaman and Nicobar coasts experience extreme climatic events such as heavy rainfall, cyclones, storm surges etc. Under such a scenario, HDPE/GI cages would be robust and sturdy to withstand such extreme events in comparison to wooden cages. However, the choice of cages to be deployed will be with the lessee. The size and shape of the cages shall be determined by the farmer based on the investment, site and as per the technical guidance from Directorate of Fisheries, NIOT, CMFRI, CIARI, RGCA, etc.

8.3.1.10 Open-sea Cage management practices: Training and capacity-building programs shall be organized by the Directorate of Fisheries in collaboration with the research institutes on cage fabrication, culture, and management practices. Department of Industries shall also actively involved in cage fabrication-related training. The Directorate of Fisheries shall develop a Reporting Mechanism for the allottee for submitting a Record Management sheet for fair and transparent management in cage farming

practices.

8.3.1.11 Finfish hatchery requirements:

Marine finfish hatchery shall be developed to meet the growing demand in the Islands for fish seed. The establishment of nuclear seed production or brooder collection centers would be encouraged in the private sector to meet the current seed demand in different districts. Directorate of Fisheries shall support the endeavours of private enterprise through Govt. of India schemes and technical support. Large commercial multi-species marine finfish hatchery will be encouraged to be established by private sector/Directorate of Fisheries/Research Organizations. The Directorate of Fisheries shall take up the case with NFDB, Hyderabad for having such facilities in the Islands. At present, marine finfish seeds are produced by research organizations like ICAR-CMFRI, ICAR-CIBA, RGCA, etc. Apart from these research organizations, private entrepreneurs like Canneries Aquaculture LLP, Kumta, Karnataka and Billion Aqua Inc., Machilipatnam, Andhra Pradesh are also producing seeds of seabass and pompano on a commercial scale. The technologies available for finfish breeding and seed production of commercially important fish species such as Asian Sea bass *(Lates calcarifer*), Cobia (*Rachycentron canadum*), and Indian pompano (*Tracynotus blochii*) shall be adopted.

To ensure high survival and quality of stocked fish, hatchery-produced seeds shall undergo nursery rearing and quarantine protocols before stocking in grow-out systems. These measures will help reduce mortality from transport stress, diseases, and predation. The Directorate of Fisheries shall also encourage the establishment of intermediate-level nursery facilities by the private sector and cooperatives to condition fish seed to stockable size before deployment in cages or ponds. The use of advanced hatchery technologies for improved larval survival, disease resistance, and faster growth rates shall be promoted in collaboration with national research institutions and private innovators.

8.3.1.12. Fish Seed transportation:

Fish seeds that are required to be stocked in the open sea cages are to be procured from the mainland hatcheries/hatcheries to be established in the Islands that could be either from Government or private sources. The Government or private hatcheries shall also provide a quarantine health certificate on the status of the fish seed along with the consignment. The details shall be verified by a nominated staff from the Directorate of Fisheries for further clearance of the culture operations. The period for clearance shall be kept at a minimum considering the stress associated with mortalities in fish seeds.

The list of Government as well as private hatcheries that shall supply the fish seeds for rearing in open sea cages shall be enlisted by the Directorate of Fisheries and may be updated on a time-to-time basis for the benefit of the stakeholders. Import of smaller size fish seeds are prone to high mortality during rearing due to cannibalism, diseases, microbial load, and water quality issues till it reaches to 100g size (stockable). Therefore, intermediate-level arrangements may be made by private firms to reduce the mortality or for rearing up to stockable size. Such intermediate-level arrangements may also be undertaken through Government-supported facilities or authorised private operators, allowing import of smaller seed, rearing to stockable size, and subsequent resale to farmers.

Fish seeds procured from mainland hatcheries need to be conditioned in nurseries for further stocking in the cages. The cages fabricated shall also have a provision to hold nurseries. The seed in rearing facilities shall have quarantine facilities to avoid disease transmission.The Directorate of Fisheries in collaboration with NFDB, Hyderabad shall work out incentives or subsidies that could reduce the cost of transportation.

In general, an Aquatic Quarantine Facility (AQF) with a PCR lab shall be developed at Sri Vijaya Puram by the Directorate of Fisheries in collaboration with Research Institutes to rapidly diagnose any possible diseases.

8.3.1.13 Insurance to climate-driven vulnerabilities: Andaman and Nicobar archipelago is highly vulnerable to extreme events and uncertain weather conditions that prevail over a period considering the Southwest and Northeast Monsoon. Such events could potentially disrupt the culture operations leading to loss of infrastructure as well as farmed fish. Insurance for Mariculture-related activities shall be pursued in consultation with the lead bank and other banks.

8.3.1.14 Exotics/Non-natives : Introduction of non-natives, hybrids, or species having invasive nature that could potentially disrupt the ecological balance shall be carefully examined prior to introduction in the Islands. A Risk Intelligence Team headed by Director of Fisheries, A&N Administration with representatives of Department of Environment & Forests, Department of Science &Technology, Research Organizations like ICAR-CIARI shall be constituted by the Directorate of Fisheries to examine the case of the introduction of exotics/non-natives in the Islands. The findings of the same shall be submitted to Aquaculture Authority of India and MoEF&CC for recommendations before allowing/not allowing any particular exotic /non-native species.

8.4 Marine ornamental fish culture

Marine ornamental fishes like anemone fishes in the coral reef areas offer tremendous scope for breeding, seed production and entrepreneurship activities in the Islands. The technologies available with institutes such as CMFRI, CIBA, CIARI shall be

popularized through training programmes in the Islands. Entrepreneurs shall beidentifiedintheIslandsandthepromisingtechnologiesshallbecommercialized to the private investors. Research and development activities shall be promoted by research institutes and small fund grants can be encouraged by the Directorate of Fisheries, NABARD, etc to promote programmes and for studying the feasibility of allowing marine ornamental fish brooder collection for ornamental fish culture activity and may consider the Amendment of A&N Islands Marine Fishing Rules accordingly as per the outcome of study.

8.5 Seaweed aquaculture

8.5.1 The following sites have so far been identified for the purpose of seaweed cultivation:
i. Shoalbay
ii. North Bay
iii. Chidiyatapu
iv. Minnie Bay
v. South Point

The sites shall be notified by the Department of Fisheries and shall be made available for seaweed cultivation.
The list of sites as notified by the Department of Fisheries, A&N Administration will be allotted to the private sector as per the terms and condition of the sea leasing by the sea leasing committee.

8.5.2 The introduction of *Kappaphycus alvarezii* shall be withheld considering the ambiguity in its environmental impacts, especially on coral reefs. An Environmental Impact Assessment (EIA) for the introduction of this species shall be conducted, and the prospects of its introduction shall be examined by the Directorate of Fisheries.

8.5.3 The locally available seaweeds such as *Gracilariaedulis*, *Acanthopora sp.* could be tried for aquaculture. Research institutes shall focus on standardizing aquaculture techniques of Gracilaria and Acanthopora species biomass production in the Islands.

8.5.4 The culture technology of brown seaweeds such as *Sargassum sp.* is not standardized as of date. However, they have potential in industrial applications. Efforts shall be promoted to standardize the localized culture technology of the species.

8.5.5 Considering the sensitive ecological habitats of seaweeds, their wild harvesting for commercial/industrial purposes shall be prohibited until proper stock assessments are conducted for each area. Only after such assessments, annual harvesting quantities may be authorised for that area. On allowing the annual harvest, the Private parties engaged in seaweed culture shall submit monthly harvest quantity reports to the Department of Fisheries.

8.5.6 The Department of Fisheries shall facilitate the allocation of a common land for the beneficiaries for developing a seed bank to support seaweed farming.

9. Brackishwater aquaculture:

The potential of brackish water aquaculture in strategic locations like Andaman and Nicobar is enormous, however, yet to gain a nation-wide attention. The National Action Plan on Mission Saline/Brackishwater aquaculture-2022 was developed for the period 2017-22 by the Government of India. This Policy therefore addresses significance for the allocation of funds by Govt. of India and resource deployment for development of this sector in A&N Islands.

9.1 Post-tsunami and earthquake of 2004, there had been a widespread inundation/submergence of land area by sea water which can be suitably utilized for brackish water aquaculture activities in the Islands. The list of identified sites suitable for the purpose is given as under:

Sl.No.	Village	Survey No.	Area (in hectares)
1.	Ograbraj	176	3.3800
		177	1.9500
		179	1.4300
		183/2	1.0
		181	1.54000
		182/2	0.6975
		Total	**9.9975**
2.	Wandoor	165/1	2.8214
		165/3	7.5879
		181/1/P	1.2966
		186/1	0.8400
		186/3	0.800
		193/P	0.7680
		Total	**14.1139**
		Grand Total	**24.1114**

Additional sites may be identified in consultation with technical agencies and added to the inventory upon approval.

9.2 For declaration of new suitable sites, survey number wise inventory of such suitable site will be made by Directorate of Fisheries in consultation with Revenue Department, NIOT and NCCRR after completing the detailed survey by a Joint Inspection team headed by Joint Director (Fisheries) and representative of Organizations mentioned above.

9.3 The detailed list of suitable site along with survey number, area in eachsurvey number, ownership of the land etc. shall be furnished to the Director of Fisheries for taking measures for allocation of the submerged land for Brackishwater Aquaculture activities.

9.4 The list of sites would be put to Auction on PPP mode on No-cost to A&N Administration and will be allocated to H1 bidder through an Open e-Tender. The allocation will be done by execution of Leasing Agreement for a lease period of 10 years.

9.5 Preference to Categories: To ensure optimal resource allocation and stakeholder benefit, sites will be allotted through bidding. In the first round, eligible categories will include Individuals, Fishermen, Fish Farmers, Aquaculture beneficiaries under Govt. scheme, local SHGs and Cooperative. In case of non-participation in the first round, second round will be made open to the remaining categories which includes Entrepreneurs, Firms, Corporations and Companies of A&N Islands.

9.6 A Single Window Mechanism the Directorate of Fisheries shall process the bidding for leasing of the suitable sites.

9.7 A minimum land area of 1.00 hectare shall be made available to a farmer/entrepreneur bidder depending on the total area of the suitable site. This would ensure that multiple stakeholders shall be engaged to undertake brackish water aquaculture activities in the allocated sites. Sites shall be accordingly earmarkedbytheDirectorateofFisheriesandallocatedafterbiddingthrough PPP Mode.

9.8 The successful bidders will be allowed to construct temporary structures for watch & ward other purposes related to brackish water aquaculture activities.

10. Shrimp farming

10.1 Shrimp farming activities is governed by the latest norms of the **Coastal Aquaculture Authority (CAA), Chennai.** Directorate of Fisheries, Andaman and Nicobar Administration to mandatorily register the new and existing shrimp farms or hatchery as per Act, Rules and Guidelines issued by Coastal Aquaculture Authority from time to time . No shrimp farm operations shall be allowed without the Registration.

10.2 As per ICAR-Central Institute of Brackish Water Aquaculture (CIBA), culture technology in shrimp farming has been well standardized in India for species such as *Litopenaeus vannamei*, *Penaeus monodon*,and *Penaeus indicus*.(Annexure- I) The shrimp farmers shall adopt the culture practices for shrimp farming accordingly.

10.3 Directorate of Fisheries with technical support of RGCA/CIBA to establish shrimp hatchery for seamless distribution of shrimp seeds to farmers in A&N Islands. Directorate of Fisheries will regulate the breeding of any one or combination of the above said variety of shrimp in Andaman and Nicobar Islands.

10.4 CIBA has standardized feeds for shrimp culture activities. Directorate of fisheries will publish the shrimp feeds details on its official website for the ease of procurement by shrimp farmers.

10.5 Directorate of Fisheries to regulate the use of banned antibiotics. A list of such banned items is available on CAA and shall be made available in the Official website of Directorate of Fisheries, Andaman and Nicobar Administration. Also Probiotics recommended by CAA used for soil and water conditioning is to be mandatorily regulated by Risk Intelligence Team constituted in the Directorate under the current Policy. Directorate of Fisheries will conduct monthly awareness drives regarding use of such banned anti-biotics.

10.6 Fisheries along with Drug Control Department will ban import of these anti- biotics in Andaman and Nicobar Islands.

10.7 Disease management in shrimp farming: To reduce the risks of introduction and spread of aquatic animal diseases, species specific awareness drives forGood Aquaculture Practices (GAPs) are developed and implemented. To reduce the risks of introduction and spread of aquatic animal diseases, species-specific Good Aquaculture Practices (GAPs)/Best Management Practices (BMPs) shall be made amongst the Aquaculture farmers. Regular training shall be organized by Directorate of Fisheries in coordination with Research Organizations both at National level and International level.

10.8 Use of medicines in all aquaculture activities including Shrimp Farming will be in accordance with per CAA norms 2024 (amendment) that ensure effectiveness, safety of public and animal health and protection of the environment.

10.9 Directorate of fisheries shall establish Proper quarantine and biosecurity should be ensured with advisory/guidelines for any kind of disease outbreak in A&N Islands.

10.10 Shrimp seeds should be procured only through the hatcheries enlisted by the Coastal Aquaculture Authority. The Directorate of Fisheries shall ensure the same in the verification process prior to clearance of seed import from mainland. An Aquatic Quarantine Facility (AQF) and PCR Laboratory for disease management shall be established at the Island level. The existing facilities of RGCA, ICAR-CIARI, through programs such as National Surveillance for Aquatic Animal Diseases, shall be utilized for testing the diseases as per OIE list.

10.11 Seed import formality as per the existing scenario shall be continued however, the source hatchery for procurement should be as per the list identified by CAA.

10.12 **Shrimp hatcheries:** Establishment of private hatcheries for shrimp seed production shall be entertained as per the guidelines of

Coastal Aquaculture Authority in consonance with the requirements of Andaman and Nicobar Administration along with Rajiv Gandhi Centre for Aquaculture (RGCA).

10.13 Shrimp farming is identified as a key driver for boosting seafood trade in Andaman & Nicobar Islands and hence, the Administration shall provide all possible support for establishment of shrimp hatcheries with a single window clearance through the Directorate of Fisheries.

10.14 Production of SPF (Specific Pathogen Free) shrimp seeds shall be promoted to reduce the risk of disease incidences and for that RGCA and Directorate of Fisheries shall be regulating.

11. Mud Crab farming/fattening

11.1 Mud crab (*Scylla spp*) fattening is one of the active brackish water aquaculture sectors in the Islands. For mud crab farming, proper pond preparation procedures should be followed as per the **CAA Act/Rules/Guidelines**.

11.2 Fattening of mud crabs in pen cages, bamboo, GI or FRP cages will be promoted by Department of Fisheries, private enterprises, SHGs and Cooperatives.

11.3 Vertical farming units of mud crab shall be promoted in A&N Islands considering the existing land-based constraints and limitations.

11.4 The water crablet are collected from estuarine waters and are used for fattening purposes. For better regulation and protection of juvenile population, the Directorate of Fisheries shall regulate the collection of baby crablet (less than 200g) to be prohibited as a punishable offence. The export of mud crabs less than 300g and harvesting of berried crabs is also prohibited for sustaining population.

11.5 Mud crab hatchery technology has been developed and standardizedby RGCA. As a long-term strategy, the technology shall be promoted by establishment of a hatchery in the Islands through private investors with Govt. incentives. Till such facility is developed and operational, import of mud crab seeds following quarantine guidelines, certification norms through the Directorate of Fisheries.

11.6 Coastal area / Mangrove area mud crab sea ranching shall be initiated by Directorate of Fisheries for replenishment of depleting mudcrab resources.

11.7 Directorate of Fisheries along with ICAR-CIARI, NIOT and CMFRI will conduct joint training programmes for Farmers, SHGs, Enterprise etc on Mud crab fattening.

12. Mussel culture practices

12.1 Mussels are known to have a limited wild distribution in Andaman Islands in the tidal creeks.

12.2 Culture of mussel (*Perna Spp.*) has been standardized for commercial scale in India and few experimental trials were undertaken by Research Institutes in Andaman to harness the potential of green mussel. Green mussel culture in submerged creek areas shall be promoted upon undertaking a preliminary survey in identification of green mussel seeds in South Andaman creeks.

12.3 Joint team involving Department of Fisheries, ICAR-CIARI, NIOT, RGCA will be identifying the suitable sites where green mussel resources are located so as to determine its extent and abundance so that its culture activities shall be planned.

13. Regulatory framework of Mariculture activities:

Mariculture in open sea conditions and coastal areas often generates pollutants that might have adverse environmental impacts if unregulated. The case would be more pertinent in the Andaman and Nicobar Islands due to the vast spread of coral reefs across the archipelago. Marine National parks and sanctuariesalsoneedtobedealtwith carefully considering various factors as they are ecologically sensitive areas. Site selection studies using multi-criteria-based methods are crucial in mitigating ecosystem adverse impacts. For open sea cage culture, seaweed aquaculture, and brackishwater aquaculture (shrimp, crab, and fish culture), GIS-based site suitability studies should be employed taking multiple criteria that are essential to determine a site suitable for Mariculture without compromising the environmental factors. Coastal Aquaculture Authority (CAA) regulates the activities connected with coastal aquaculture in coastal areas of India. In the case of coastal aquaculture activities like Mariculture, Shrimp farming, brackishwater finfish culture and crab fattening in ANI, the guidelines outlined by Coastal Aquaculture Authority (CAA), Chennai shall be implemented by the stakeholders. The Department of Fisheries, Andaman and Nicobar Administration shall ensure that the farms operated in the Islands are registered and operated as per the guidelines of the Coastal Aquaculture Authority. A separate guideline for leasing out the sites for coastal aquaculture activities shall be developed for the benefit of stakeholders. In the case of open sea cage culture, the escape of farmed fish from cages could be detrimental to native species through competition for food, space, spread of diseases, and the chemical effluent discharge from farms.

Hence the species introduction for aquaculture purposes should be cleared up with the approval of the Risk intelligence team constituted by the Department of Fisheries. Open sea cage culture practices near coral reefs could have adverse impacts due to heavy nutrient discharge from aquaculture activities. Multi-criteria based site selection studies should consider these factors while choosing the culture site in the archipelago. Other regulatory actions shall be governed by the stakeholders from different Government departments and private parties related to Mariculture activities in open sea conditions as well as estuarine, creek, and nearby shore regions.

The regulatory framework for commencement of Mariculture and Brackishwater Aquaculture activities with multi-agency rolesand responsibilities are detailed below.

Sl. No.	Activities/ Regulating frameworks	Associated Departments/ institutions	Role of Departments/ institutions
1.	**Environmental Impact Assessment (EIA)** • Site selection and carrying capacity estimation • Environmental im	Department of Environment & Forests, A&N Administration ACOSTI-NIOT,Dollygunj ICAR-CARI, Garacharma. Department of Fisheries, A&N Administration	The Institutions/departments has to conduct detailed Environment Impact Assessment for undertaking Mariculture by analysing the probable ecological impacts of proposed endeavours taking also into account the inter connected social economic, cultural and human health impact both beneficial and adverse.

	pact assessment • Prediction, precaution and adaptation of environmental impact.		
2.	**Site allotment and licensing** • Demarcation of identified sites • Formulation of licensing/ allotment criteria and duration. • Periodical review of allotted sites a	The Committee for sea area leasing for Fish culture will be as per A&N Marine Fishing Rules,2004 and for brackish water aquaculture, a separate committee to be constituted under the chairmanship of Director of Fisheries with the following Departments: District Administration, Port Management Board, Environment & Forests, Shipping Services, ICAR-CIARI, ACOSTI NIOT.	Timely identification of the beneficiaries, finalization of sites, allotment with specific terms and conditions. Extension/cancelation of lease/licensing as per periodical review of joint committee for promotion of Mariculture activities.

	nd extension/ cancellation of allotment.		
3.	**Imports/supply if inputs and seeds** • Identification of Mariculture seed suppliers, Hatcheries • Identification of feed and other supply chain • Ensuring of entry of diseases free seeds to the islands and its prop	Coastal Aquaculture Authority, ICAR-CMFRI, ICAR-CARI, ACOSTI-NIOT, MPEDA-RGCA, Department of Fisheries	A high level technical committee to be constituted by involving the member institutes for procurement of disease free Mariculture seeds from Government hatcheries/Government approved hatcheries of mainland and approved hatcheries of neighbouring countries. The disease surveillance of cultured species will be the responsibility of these institutes / committee. The feed and other inputs of Mariculture activities to be procured as per the suggestion of Mariculture division ICAR-CMFRI Cochin/MPEDA-RGCA, Sirkali.

	er quarantine. • Exploring possibility of creation of hatcheries, seed banks and input manufacturing units in the Islands.		
4.	Post-harvest management and marketing.	Export Inspection Agency, KolkataMPEDA Cochin Major approved processing unit of India Department of Fisheries, A&N Administration.	To ensure timely harvest, processing, trade and transport/Export of the Produce for promotion of Mariculture and thereby fisheries and aquaculture Sector of A&N islands.
5.	Solid waste management, effluent treatment and its safe discharge.	Department of Environment and Forests, Department of Science and Technology, Coastal Aquaculture Authority, ICAR-CARI Department of Fisheries, A&N Administration.	For Effective management and disposal of waste and discharge from Mariculture sites by formulating a strict management protocol.
6.	Regulatory Monitoring Committee	Committees constituted as per Costal Aquaculture Authority Act.	To oversee the implementation of coastal aquaculture activities as per the guidelines of Coastal Aquaculture Authority and any other guidelines framed by A & N Administration.

14. **Resource allocation and Funding:**

To achieve rapid and sustainable Mariculture development, require more intensive and coordinated institutional support and direct involvement of

Fishermen, Fish Farmers and other stakeholder population of the Islands. The Mariculture projects to be categorized as Large, Medium and Minor activities for proper resource allocation and on boarding.

In the large projects, option to be provided for creation of Major Open Sea Culture, Seaweed Farming and Pearl culture parks to be run by private players includes National companies, Transnational corporations and Mainland entrepreneurs. For supporting larger projects, specific Sea areas and adjoining facilities to be identified as Special Fisheries Economic Zones and the suitable parties for undertaking such private sector projects to be identified by conducting National and International conclaves in Sri Vijaya Puram and Mainland India. The Department of Fisheries along with other technical agencies will facilitate for all required statutory clearances through single window systems.

Whereas the medium Mariculture projects to be allocated to the NGOs, Cooperatives and custom-made Self-Help Groups wherein the Department of Fisheries will play a major role in identifying/forming such groups and suitable sea area, getting statutory clearances and for resource identification to start such ventures. In addition to this, the Department of Fisheries to ensure coverage of such groups in appropriate Entrepreneurship scheme of Pradhan Mantri Matsya Sampada Yojana(PMMSY) or any existing Centrally Sponsored Scheme for availing Financial assistance. The National Fisheries Development Board(NFDB), Hyderabad will act as the point of contact for availing such financial assistance. The individual entrepreneurs and local population to be hand-holded from the beginning by imparting appropriate intensive skill development programmes and to be encouraged for availing assistance for the No. of units of Mariculture activities and as per the area allotted to each beneficiaries.

The assistance will be imparted as per the existing patterns under Govt. of India for commencing the minor activities without delay after receipt of the applications. The beneficiaries under general category to be covered by extending financial assistance @40 % and the women beneficiaries @60 % as per the existing guidelines of PMMSY. Convergence of Large, Medium and Minor Mariculture projects with loan assistance from Banking institutions is very much required for initial thrust in development of the Mariculture sector of A&N Islands and the A&N Administration will facilitate for providing such loans from the banks.

1 5 . Key areas identified for Mariculture and Brackish Water Aquaculture sectoral development with details on implementation and timeline

Programme	Activity	Implementationagency	Locations	Timeline
Conduct studies on site suitability for Mariculture in submerged and open sea conditions	Demarcation of sites suitable for open-sea cage culture, and seaweed culture; Identification of submerged inundated waters suitable for shrimp/crab culture; Developing geospatial maps for public use.	ACOSTI/NIOT/CIARI/Dept. of Disaster Management/ Marine Biology, Pondicherry University	South Andaman (First phase) North & Middle Andaman (Second phase)	To be initiated in 2024. To be completed in a year from the date of publication
Preparation of leasing guidelinesfor Mariculture activities	A comprehensive list of guidelines to be enumeratedfor sea-based and land-based leasing guidelines	Andaman and Nicobar Administration (Office of the Deputy Commissioner of districts; Dept. of Environment & Forest – Lead initiative by Dept.of Fisheries	Andaman and Nicobar Islands	Six months from the date of publication
Establishment of hatcheries for seed production of fin fishes, Mud crabs, and shrimps	Identify the Investors through business meet-ups at mainland India in association with NFDB, CMFRI ,NIO T , RGCA; enumerate the incentive and benefits	Coordinated by the Dept. of Fisheries; site identification by investors, Land allotment protocols as per norms by the office of the Deputy Commissioner	South Andaman district	To be organized upon publication of this policy document ;the Outcome of the Investormeet,and entrepreneur meet shall be submitted.
Monitoring theseed introduction/exotics f	Constitute a Risk Intelligence team to make decisions	Lead by the Andaman and Nicobar administration with a team of	Andaman and Ni	As and when required

or a quaculture purposes		experts from CIARI ,NIOT,RGCA, Pondicherry University, ZSI, FSI, etc.	cobar	
Promote Marine Ornamental Fish Culture activities in the Islands	Capacity building programme for local entrepreneurs, encourage commercial scale operators to set up ornamental units.	Led by the Andaman & Nicobar Administration through CMFRI, CIARI, CIBA	South Andaman district	As and when required.

16. Funding Research programs

16.1 Directorate of Fisheries, Andaman and Nicobar Administration shall earmark funds that would facilitate Aquaculture research and development activities in the Islands.

16.2 The Research Organizations working in the Islands shall be encouraged to avail the facility by undertaking the R&D activities for sectoral development in the Islands.

16.3 The fishermen/fish farmer community will be involved in the technical demonstration/pilot projects undertaken by Research Institutions.

17 Good governance principles

17.1 An Andaman and Nicobar Island Mariculture and Brackishwater Aquaculture Authority shall to manage the development of Mariculture sector in accordance with the guidelines outlined under the Chairmanship of Secretary (Fisheries) with members as concerned Deputy Conservator of Forests, Chief Port Administrator, concerned Deputy Commissioner, Member Secretary, ANPCC, Director of Industries, Deputy Director, RGCA, Officer-In-charge, ACOSTI-NIOT with Director of Fisheries as Member Secretary.

17.2 Aquaculture activities are subjected to regulatory frameworks including the need for license or registration to undertake culture activities with appropriatestandardsasperInternationalorNationalDevelopmentplans. The Authority shall ensure that the entire Mariculture activity and brackish water aquaculture are practiced as per prescribed International norms and Govt. of India norms.

17.3 The Authority shall ensure a robust monitoring and evaluation process through quarterly review process to ensure the implementation process of instant Policy.

18. Linkages and collaboration

18.1 Organizations such as Central Marine Fisheries Research Institute (CMFRI), Central Institute of Brackish water Aquaculture, National Institute of Ocean Technology (NIOT), Central Institute for brackish

water Aquaculture (CIBA), National Institute of Ocean Technology (NIOT),Central Salt and Marine Chemicals Research Institute (CSMCRI) and Rajiv Gandhi Centre for Aquaculture (RGCA), have significant roles in technology development and promotion of Mariculture.

The Directorate of Fisheries will work closely with these organizations and with the private sector, fishermen co-operatives and Self-Help groups (SHGs) in a synchronized manner to promote Mariculture. Andaman and Nicobar Islands are located in proximity to Southeast Asian countries like Thailand, and Indonesia where Mariculture and hatchery technologies were well developed. Establishing regional linkages with the neighbouring countries with a broad vision of boosting seafood export and trade could benefit the Mariculture sector in the Islands.

18.2 National institutes of repute in aquaculture like CMFRI, CIBA, RGCA, and NIOT shall be consulted to nominate a link officer with desired specialization to whom the Andaman and Nicobar Administration shall coordinate the aquaculture development projects.

Chapter IV: Capacity Building

19.1 The Directorate of Fisheries shall undertake annual exercise in analysis of aquacultureandfisheriesknowledgeinfrastructureofA&NIslandsincludinggap analysis. The gap analysis shall include a report on manpower and resource, facility to conduct field level programmes in Fisheries Department, Scientific Institutes and KVKs, existence of Fisheries and Aquaculture based vocational course, adoption of Fishermen/Fish Farmers /villages by expert institute in development of skill and capacity building, of data on need assessment of fish farmer /fishermen training including the expert requirement, thematic area in Fisheries and Aquaculture sector in the Islands for conducting skill development programmes andLimited off-campus training programmes by Mainland based Fisheries institutes.

19.2 Identification of future needs and recommend improvements in terms of capacity building.

19.3 Conducting hands-on training for a sustainable Fisheries and Aquaculture and there by Seafood export promotion in A&N Islands.

19.4 Framing of capacity building guidelines and recommendations in Public and Private sector.

19.5 Skill development among rural youths including fishing communities and tribes. Placement linked skill development programmes for children of traditional fishermen.

19.6 Training programmes for women entrepreneurs. Capacity Building on Value addition of fish and shrimp products for women.
19.7 Capacity building programme for fish processing.

19.8 Training of trainers in Fisheries and Aquaculture.

19.9 Development of entrepreneurship in integrated fish farming systems for sustainable livelihood generation.

19.10 Training and capacity building programme in Mariculture and Coastal Aquaculture.

19.11 Training and hand-holding for potential/interested small scale entrepreneurs. Capacity building programmes for office-bearers of fishing cooperative societies.

19.12 Development of managerial skills of fisheries extension workers.

19.13 Technical training on fixing communication/navigational equipment and Marine Engines.

Chapter V: Fisheries Management Practices

The objective of Fisheries Management is to produce sustainable, biological, environmental, and socioeconomic benefits from renewable aquatic resources. Fisheries management employs activities that protect fishery resources so that sustainable exploitation is possible. Fisheries management also emphasizes on proper management of the harvested fishery resources to obtain maximum quality and value. Modern Fisheries management is often referred to as a Government system to implement the rules which are put in place by a system of monitoring, control, and surveillance.

The A&N Marine Fisheries Regulation and Rules there under have notified the prohibited areas of fishing and protects the areas falling under Port limits, PAT regulations, wildlife Areas Protected or Prohibited in the Islands under the Wildlife (Protection) Act, 1972. Further fishing zones have been classified for traditional and motorized/mechanized fishing boats along with the permitted fishing gears thus protecting the fishing grounds of the small scale fishing.

20.1 Fisheries Resource Management: The pelagic & demersal fishes are consumed in local market and only 9.11% is transported to mainland. In A & NIslands during 2019 operation of Bottom Trawlers has been banned. Only Pelagic trawlers & Gill netters are operating in Andaman and Nicobar Islands waters.

20.2 The catch and discard method of fishing will have to be stopped for

conservation of Fishery Resources as it destroys marine ecosystems. Accordingly, the Directorate of Fisheries Andaman and Nicobar Administration shall regulate the entire fishing operations for the purpose.

20.3 The Directorate of Fisheries Andaman and Nicobar Administration shall ensure installation of bycatch reduction device (BRDs), and Turtle excluder device(TEDs) to reduce the by catch in all mechanized boats.

20.4 The Directorate of Fisheries Andaman and Nicobar Administration shall encourage the local exporters on adopting advanced food safety certifications for better market exposure. Quality Control of the harvested Fish by following Food Safety Management practices. Collaboration with Food Safety Department for inspection of Raw and value added fishery products against any adulteration.

20.5 The Department of Fisheries, in collaboration with local bodies, shall ensure adequate allocation of trained human resources and financial support to implement and monitor waste management practices effectively at various stages of the value chain, including fish landing centres, processing units, and fish markets. Active involvement of key stakeholders such as fishermen cooperatives, processors, market associations, and local bodies shall be ensured through awareness campaigns, training programmes, and participatory waste management models.

20.6 IUU norms shall be adopted by the Department of Fisheries Andaman and Nicobar Administration for stronger enforcement against illegal and un- regulated fishing.

20.7 The Department of Fisheries under relevant schemes of Government of India will support the fishermen during the ban period.

20.8 The Department of Fisheries will support the fishermen in providing insurance for loss of fishing gears & boats due to weather conditions as per the schemes of Government of India.

20.9 The Department of Fisheries shall promote the active participation of fisherwomen in fisheries-related economic activities, including processing, value addition, marketing, and allied sectors.

20.10 The compensation for lost fishing days during fishing ban period, financial assistanceforpurchaseoffishingequipmentandinsuranceforaccident/lossof life shall be considered as per the schemes of Government of India. Further a DisasterresponseteamshallbeestablishedbytheDepartmentofFisheriesfor the safety of fishers at Sea.

20.11 Fishing activities in tribal areas will be strictly regulated as per the A&N Marine fishing Rules and as per other relevant Laws and rules.

21 Fisheries Management Committee:

The provision in the A&N Marine Fishing Rules for constitution of a Management Committee, upkeep, and smooth operation of fish landing centers will be adhered to. Apart from this, a Village Level Fisheries Promotion Committee shall be constituted comprising PRI (Pradhan), Department Official not below the level of Sub Inspector Fisheries, Fishermen Group, Fishermen SHG, etc. The Committee shall serve as a bridge between the local fishing communities and the Directorate of Fisheries, by providing regular feedback, ground-level insights, and practical suggestions related to challenges faced by small-scale fishers.

Chapter VI: Strategies

22.1 **Infrastructure and Logistics:** The fish landing centre at Junglighat handles major portion of the marine products which needs further upgradation:

- Proper all-weather Motorable road.
- Sufficient fresh water supply.
- Diesel dispenser on the jetty.
- Electrical plug points on use and pay basis.
- Cleanliness and garbage collection for the entire area.
- Decongestion of the landing centre by removal of unserviceable vessel.
- Audit of existing fish landing centres and improvement in infrastructure of other existing fish landing centres.
- Construction slipways for fishing vessels on PPP.
- DPR by IIT, Chennai/Central Institute of Coastal Engineering for Fishery (CICEF), Bangalore/Harbour Engineering Department, Kerala/Cochin Ship Yard.
- Engaging Transaction Advisor for the project on Annuity model/ Hybrid Annuity model.
- Exploring the possibility of utilizing Cluster Development Programme of MSME for setting up of slipway.
- Capacity building of human resource.
- Assistance in subsidy/loans to avail schemes
- Single window clearance for setting up of fish processing facility for export, licensing and registration of vessel.
- Direct connectivity with the international market for export.
- Improvement in monitoring & surveillance including implementation of vessel tracking system for fishing crafts.
- Improvement in port infrastructure including berthing slots for bigger fishing vessels.
- Focus on PMMSY scheme of GoI for infrastructure creation, extension services and modernization through technological

intervention.

- Setting up of integrated aqua parks.
- Traceability, certification, accreditation and building brand for Andaman marine sea food.
- Freight subsidy for transportation of seafood by air & sea**.**

22.2 Augmentation of Fish Production:

22.2.1 Freshwater Aquaculture:

- Efforts shall be made by line departments and research institutes to determine the seed requirement based on standard stocking densities and to formulate appropriate management and production strategies.
- Geo-spatial planning of inland water bodies shall be worked on in collaboration with research institutes for modelling the fish production from different water bodies.
- The Department of Fisheries shall popularize the National flagship schemes such as PMMSY and encourage private entrepreneurs to invest in finfish hatcheries with financial support through Government schemes.
- Pond-based aquaculture to be practiced following Best Management Practices.
- The National Surveillance Program for Aquatic Animal Diseases (NSPAAD), Mobile testing vans and private laboratory to be promoted for better disease surveillance of Freshwater Aquaculture.
- Input for Aquaculture to be made available in A&N Islands.
- Formulation of strict protocol for non-native species for Aquaculture.
- Use of permitted genetically improved strains of Govt. of India to be promoted for better growth and disease resistance.
- Subsidies and credit lending facilities are to be continued for supporting fish farmers of A&N Islands.
- Crop insurance to be introduced for building confidence among fish farmers.
- Leasing of Govt. owned land for aquaculture purpose.

22.2.2 Mariculture- Open Sea Cage Culture

- The Department of Fisheries to take necessary initiatives for leasing of Sea areas to undertake Fish Culture and installation of FADs as per A&N Islands Marine Fishing Rules, 2004.
- The Department of Fisheries in collaboration with research organizations such as NIOT, CMFRI, CIARI, RGCA, etc. shall identify the new sites that are suitable for open-sea cage culture using in-situ surveys and geospatial tools.
- Adequate care should be taken in the criteria selection for cage culture considering the ecological and environmental factors and safety concerns in the Islands.
- The Department of Industries shall facilitate cage fabrication establishments by training the local people and integrating such establishment in ongoing Government of India schemes.
- The Department of Fisheries shall develop a record management sheet for fair and transparent management in cage farming practices. The sheet shall encompass details such as feeding, stocking density, mortality, disease incidences, treatment provided, etc. This would ensure a fast-track management of on-going activities.
- The record sheets shall be verified from time to time by the Department of Fisheries or a committee duly constituted by the local administration.
- Lobster fattening in sea cages shall also be promoted based on the wild stock assessment and availability of juvenile lobsters.
- As a long-term strategy marine finfish hatchery shall be developed to meet the growing demand in the Islands. The establishment of nuclear seed production or brooder collection centers would be encouraged by private entrepreneurs to meet the current seed demand in different districts.
- The private sector shall be responsible for the commercial-scale production of fish seeds to cater to the needs.
- Seed banks for nursery rearing of marine finfish seeds shall also be established in Sri Vijaya Puram. Private investors shall be pursued to set up the facility that may benefit the needy farmers on a timely basis.

22.2.3 Mariculture- Seaweed farming

- The introduction of *K. alavarezii* shall be withheld as a short-term strategy considering the ambiguity in their environmental impacts, especially on the coral reefs. On a long-term strategy, EIA shall be conducted, and the prospects of their introduction shall be examined.
- The locally available seaweed such as *Gracilaria edulis and*

Acanthophora spp. And other native species could be triedfor aquaculture however, their natural stock availability is sparse. Research institutes shall focus on standardizing aquaculture techniques of *Gracilaria* species biomass production in the Islands.

- Efforts shall be promoted to standardize the localized culture technology of Sargasam species.

22.2.4 Other areas in Mariculture

- Research and development to be promoted for breeding standardization of Marine ornamental fishes.
- Establishment of multi-species marine finfish hatcheries and polyculture to be promoted.

22.2.5 Brackishwater Aquaculture

- The submerged areas in the Islands shall be mapped using geospatial tools to analyze the feasibility for utilizing such lands for aquaculture purposes.
- Research institutes in the Islands should collaborate with institutes such as NCCR, NIOT, NCSCM, to map the sites available for aquaculture through multi-criteriastudy and decision-making tools.
- Commercial shrimp farming to be promoted in Tsunami inundated areas and guidelines to be formulated for regulation of shrimp farms in the Islands.
- Shrimp seeds should be procured only through the hatcheries enlisted in the Coastal Aquaculture Authority (CAA)website. The Department of Fisheries shall ensure the same in the verification process prior to clearance.
- An Aquatic Quarantine Facility (AQF) and PCR Laboratory for disease management shall be established at the Island level. The existing facilities of RGCA, ICAR-CIARI through programs such as National Surveillance for Aquatic Animal Diseases shall be utilized for testing the diseases as per OIE list.
- Seed import formality as per existing scenario shall be continued; however, the source hatchery for procurement should be as per the list identified by CAA.
- Production of SPF (Specific Pathogen Free) shrimp seeds shall be promoted through establishment of hatcheries to reduce the risk of disease incidences.
- Fattening of mud crabs in pen cages, bamboo, GI or FRP cages shall be promoted.
- Vertical farming units of mud crabs shall be promoted in A&N Islands

considering the existing land-based constraints and limitations.

- Coastal area/Mangrove are a mud-crab sea ranching should be initiated for replenishment of depleting mudcrab resources.
- Mud crab fattening training should be conducted by CSIR-CIARI, NIOT and CMFRI in Andaman and Nicobar Islands.
- Research institutes under ICAR shall identify the prospective sites where green mussel resources are located so as to determine its extent and abundance so thatits culture activities shall be planned.
- Andaman and Nicobar Administration shall earmark funds that would facilitate Aquaculture research and development activities in the Islands.
- The research organizations working in the Islands shall be encouraged to avail the facility by undertaking the R&D activities for sectoral development in the Islands.
- Regional cooperation with Southeast Asia and expert guidance of mainland ICAR institutes of the sector to be facilitated in the Aquaculture sector.
- Insurance of Aquaculture stocks to be prioritized for minimizing the risk of stakeholders.

22.3 Capacity Building:

21.3.1 The aspects of capacity building programmes shall focus on various fisheries and aquaculture areas which requires capacity building, resource, no. of persons to be trained and need of upgradation in case of facility and manpower to achieve this within a span of 03 years. On completion of this capacity mission, special programmes to be introduced for attracting investment in the areas of Mariculture, Shrimp Farming, Innovative intensive freshwater aquaculture, Fish Marketing and Seafood export. (check with original)

22.3.2 The Directorate of Fisheries, Andaman and Nicobar Administration to ensure adoption of various innovation and activities in Fisheries and Aquaculture and there by Entrepreneurship development.

22.3.3 Creation of full-fledged facilities with smart classrooms, Aquaculture water/soil quality parameter lab/Fish value addition facility, demonstration units of Fisheries and Aquaculture activities and hostel facilities in Fisheries Training Centre, Marine Hill for phase lifting it into a State/UT level Fisheries Training Centre.

22.3.4 Induction of qualified professional manpower from the level of Inspector of Fisheries to Assistant Fisheries Development Officer in Directorate of Fisheries, Andaman and Nicobar Administration.

22.3.5 Strengthening of Fisheries and Aquaculture activities of KVKs of

South Andaman, N&M Andaman and Nicobar by initiating action for inducting more technical manpower.

22.3.6 Commencement of Short-term certification course in Fishing, Aquaculture, Fish processing and Seafood trading in consultation with various Fisheries research institutes under ICAR and CIFNET, Cochin.

22.3.7 Provision to be kept in the Annual Action plan for inviting experts from Mainland India for conducting Capacity building programme and implementing demonstration projects.

22.3.8 Identification and listing of various categories of stakeholders to be prepared for sponsoring in training and to make sure that each training is reaching to the right class of beneficiaries.

22.3.9 Directorate of Fisheries, Andaman and Nicobar Administration to prepare a comprehensive calendar for completion of identified programmes within a span of 03 years.

22.3.10 Demonstration unit on various innovations of Fisheries and Aquaculture to be set up by Directorate of Fisheries, Andaman and Nicobar Administration with the support of ICAR-CIARI, FSI, Sri Vijaya Puram, NIOT, Dollygunj and RGCA, Kodiaghat.

22.3.11 Keeping of record of trained manpower by Directorate of Fisheries, Andaman and Nicobar Administration for formulation of suitable financial support project to adopt various Fisheries and Aquaculture activities in Fisheries and Aquaculture.

22.3.12 Directorate of Fisheries, Andaman and Nicobar Administration shall form an association of regional cooperation of Southeast Asian Countries in Fisheries sector based in Sri Vijaya Puram.

22.3.13 An Expert Committee for Island Fisheries Development(ECIFD) to be constituted under the chairmanship of Chief Secretary, A&N Administration involving all the ICAR institutes under Fisheries and Aquaculture sector for seeking periodic report of development and upgradation of Fisheries and Aquaculture sector of Andaman and Nicobar Islands.

22.3.14 An extension Service Centre to be made functional as part of Fisheries Training Centre for adoption of Fishers/fish farmers and extending assistance till completion of project/crop.

22.3.15 Matsyaz Seva Kendras(MSKs) to be set up in all the three Districts (South Andaman, N&M Andaman & Nicobars) with trained manpower under PMMSY for improving the contact with stakeholders.

22.3.16 A career development and placement cell has to be established as a wing of Fisheries Training Centre for encouraging Island Fishers and Youth in taking various Fisheries courses and to undergo certification courses.

22.4 Management of Marine Fishery Resources: The Directorate of Fisheries,

Andaman and Nicobar Administration shall ensure adoption of below mentioned activities for managing of Marine Fisheries resources:

21.3.1 Fisheries data Collection: To strengthen the fisheries data collection mechanism for effective accountability of unreported fishing and to frame effective policy decision.

21.3.2 The management of fishing fleet (mainland mechanized vessels) will be done as per A&N Islands Marine Fishing Rules.

21.3.3 Management of fishing gears: Strict monitoring of usage of illegal and non- permitted fishing gears should be enforced and penal provisions also to be imposed.

21.3.4 Regulating mesh size of the fishing gears: To prevent juvenile fishing mesh size of the fishing gear to be increased.

21.3.5 Fishing Ban: During breeding season, fishing ban to be imposed, as per AMFR provisions.

21.3.6 Fish Size: The size of the targeted fishes/ Crustaceans to be regulated by imposing Minimum legal size.

21.3.7 By-catch: Introduction of By-catch reduction device in all mechanized boats to allow escape of non-targeted species.

21.3.8 Promotion of modern technologies/ fish finding equipment's/ mobile applications to capture targeted fishes.

21.3.9For Monitoring & surveillance of fishing activity the department of Fisheries to be strengthened with Enforcement staff, vehicles, & High speed surveillance boats.

21.3.10 Quality control standards to be imposed for the fishes imported to the islands.

23. Administrative Architecture:

22.1 The development of the fisheries sector of Andaman and Nicobar Islands requires development of shore based infrastructures, creation of processing capacity, credit lending schemes, promoting investment, research and development, innovation, quality improvement, food safety, testing, standardization, marketing support, skill training, up- gradation and focused attention for the promotion of unorganized segments of the sector. The Andaman and Nicobar Administration with its constituent Department shall steer the sustainable development of the Fisheries sector.

22.2 For comprehensive development of the sector a cohesive approach at the level of policy formulation and implementation is essential, across all segments for the growth of this sector. Therefore, the Directorate of Fisheries, Andaman and Nicobar Administration, along with constituent Departments of Andaman and Nicobar Administration shall work with Fisheries institutes of Islands like ICAR-CIARI, NIOT, FSI, Mainland fisheries institutes under ICAR(CMFRI, CIFA, CIBA, CIFRI, CIBA etc.) ,MPEDA, EIA, Commercial banks, NABARD, NFDB,

Hyderabad, Ministry of Fisheries, Animal Husbandry & Dairying and Stakeholders for greater engagements in terms of policy formulation and implementation of programmes.

22.3 The Government shall create a **single window system** for fishermen and fish farmers to easily access their entitled benefits, subsidies and reimbursements. This includes simplification of documentation, time-bound processing, use of digital platforms, and grievance redressal mechanisms to ensure transparency, accountability and timely disbursement of subsidy.

24. Regional Cooperation:

The geographical proximity of Andaman and Nicobar Islands to Southeast Asia is always an opportunity in initiating discussions and round table meetings for development of Fisheries and Aquaculture sector, Knowledge and technology sharing especially in the field of fish processing, value addition and Mariculture activities. The developmental models and technology to be introduced as an outcome of this policy to be inclined to the Southeast Asian Fisheries sector considering the geo-climatic similarity and its proximity. Directorate of Fisheries, Andaman and Nicobar Administration, shall ensure regional cooperation through sustained interaction, training, Fishers and Fish Farmers visits, to acclaimed Institutes/ Universities/Regional Organisations/ Governments for the purpose.

25. Expected Policy Outcome:

As a result of initiatives under this policy, the following outcome is expected in the upcoming 05 years

- Enhanced cooperation among various stakeholders including South east Asia.
- Market channel from Andaman and Nicobar Islands for direct export of Seafood products
- Technology Infusion for improvement of environment and disease control, breeding, seed rearing, feed production and culture systems.
- Private participation in hatcheries, nurseries, feed mills, breeding & multiplication centers and quarantine facilities to sustain and serve to farmers.
- Creation of post-harvest capacities through cold-chain facilities, processing andvalue addition will lead to reduction in wastage to <10% level.
- New initiatives in the form of clusters, zoning, certification, labelling and branding etc will improve product acceptability for export
- Improvement of life and Empowerment of fishers, farmers and fish traders of Andaman and Nicobar Islands
- Transforming of Andaman and Nicobar Islands into investment friendly zone and overall economic development of the Islands.

Review: The Comprehensive Policy shall be reviewed once in every five years. In addition to the five-year review, interim evaluations may also be considered as and when required. The Department shall prepare a comprehensive Action Plan comprising Short Term and Long Term Goals, which will serve as a guiding framework for effective and phased implementation of the Policy. The Action Plan will be periodically monitored to ensure alignment with the overall objectives of the Policy and to make necessary adjustments based on practical outcomes and feedback from the field.

(Annexure)

Committees Constituted by Chief Secretary, A&N Administration for Steering Fisheries Sector in A&N Islands

1.POLICY & ROADMAPS

i. Fisheries Department–**to Chair/lead**
ii. Industries Department
iii. Marine Products Export Development Authority(**MPEDA**)
iv. Fishery Survey of India(**FSI**)
v. National Institute of Ocean Technology(**NIOT**)
vi. Central Island Agriculture Research Institute(**CIARI**)
vii. Representative from Andaman Chamber of Commerce & Industry
viii. National Bank for Agriculture and Rural Development(**NABARD**)
ix. Lead Bank
x. Representative of M/S Monsoon Fisheries, Pvt. Ltd. & M/S ERA Fisheries, Pvt. Ltd. (Fish Processing Units).

2. INFRASTRUCTURE&LOGISTICS

i. ANIIDCO –t**o Chair/lead**
ii. Fisheries Department
iii. Airport Authority of India(**AAI**)
iv. Airlines (INDIGO & other entities)
v. Shipping Industries (TCI)
vi. Customs
vii. Port Management Board(**PMB**)

viii. Representative of NFDB

ix. Export Inspection Agency(**EIA**)

x. ALHW & APWD

xi. Sagar Fisheries Multi-Purpose Cooperative Society

3. CAPACITYBUILDING

i. Fisheries Department– **to Chair/lead**

ii. Cooperatives

iii. MPEDA

iv. ACOSTI-NIOT

v. ICAR-CIARI

vi. Fishery Survey of India(FSI)

vii. Bay of Bengal Programme(**BOBP**)

viii. Representative from Kalapani Fisheries Cooperative Society, Junglighat.

ix. Fishing Boat Owner Association.

x. Fisheries Co-operative Federation (South and N&M Andaman).

4.**AUGMENTATION OF FISH PRODUCTION**

A. SUB-VERTICAL: DEEP SEA FISHING

i. Fisheries Survey of India–**to Chair/lead**

ii. Fisheries Department

iii. MPEDA

iv. ACOSTI-NIOT

v. Fishery Survey of India(FSI)

vi. Representative of Mechanized Fishing Vessel Operators.

vii. Representative of Island Fisheries Cooperative Society.

B. SUB-VERTICAL: AQUACULTURE

i. ICAR-CIARI– **to Chair/ lead**
ii. Fisheries Department
iii. MPEDA
iv. ACOSTI-NIOT
v. Fishery Survey of India(FSI)
vi. Representative of Mechanized Fishing Vessel Operators.
vii. Representative of Island Fisheries Cooperative Society.

5. FISHERIES MANAGEMENT

i. Fisheries Department – **to Chair/lead**
ii. Forest Department
iii. Fishery Survey of India (FSI)
iv. Export Inspection Agency (EIA)
v. Home Department
vi. Coast Guard
vii. Police Marine Force (PMF)