

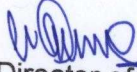
ANDAMAN AND NICOBAR ADMINISTRATION
DEPARTMENT OF FISHERIES

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Port Blair, dated the 8th January, 2008

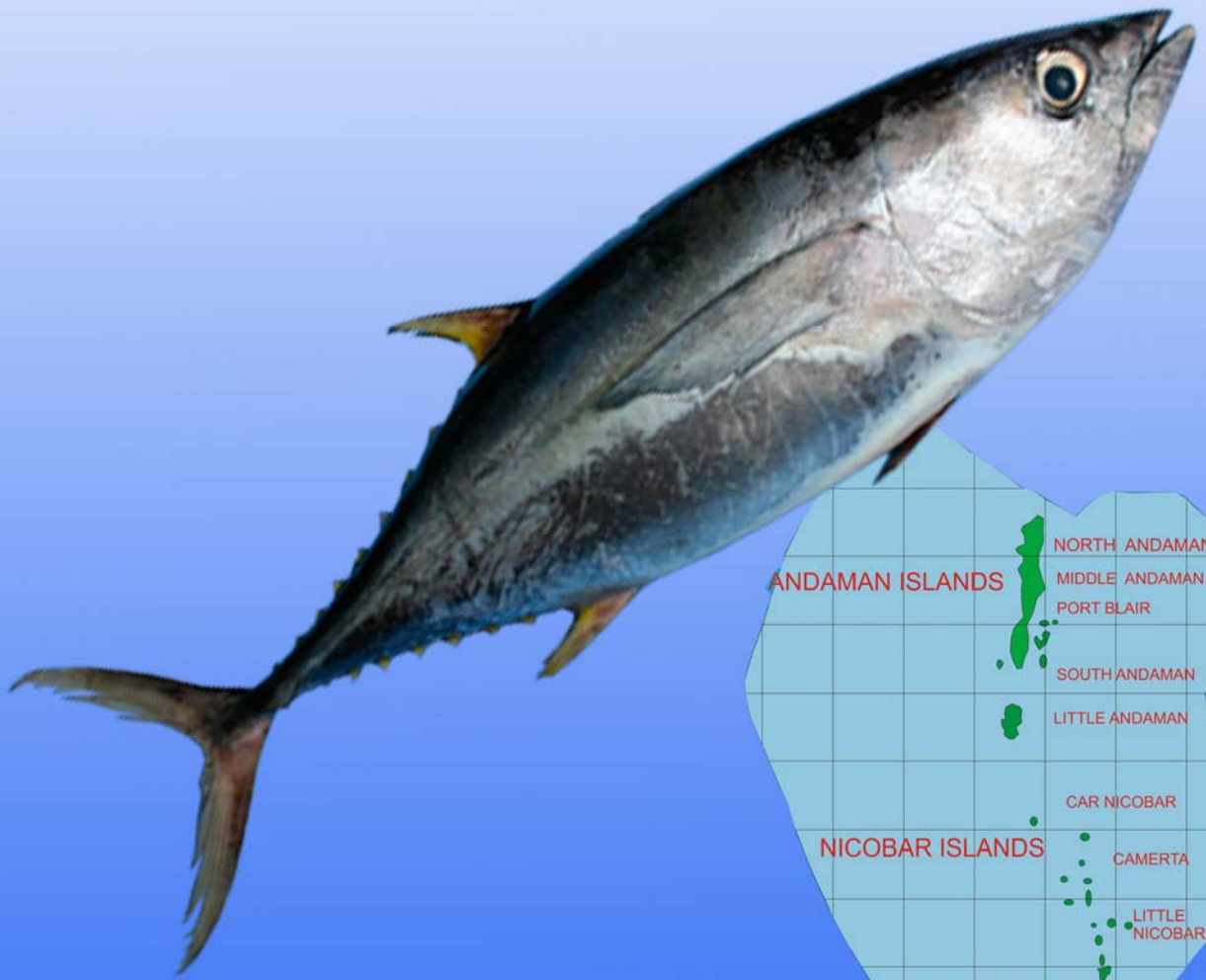


The proposal/Action Plan for the development of Tuna Fisheries in Andaman and Nicobar Islands released by the Hon'ble Minister for Commerce, Shri Jairam Ramesh on 6th January, 2008 is hereby published. The Stakeholders and interested groups/ individuals are requested to go through the document and furnish their views/comments/suggestions/objections if any, to the Director of Fisheries latest by 31-01-2008.


Director of Fisheries 8.1.08

State Informatics Officer, NIC

PROPOSAL FOR THE DEVELOPMENT OF TUNA FISHERIES IN ANDAMAN & NICOBAR ISLANDS



THE MARINE PRODUCTS EXPORT DEVELOPMENT AUTHORITY

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FOREWARD

Indian EEZ has a resource potential of 213,000 tons of Oceanic Tuna, of which the present exploitation is only around 50000 tons. Exploitation of tuna resources is identified as one of the thrust areas for increasing export of Indian marine products from the present level to US \$ 4 billion by 2012. Since the Andaman & Nicobar Island encompasses 28% of the total Indian EEZ, and the current exploitation of oceanic resources from these Island groups is negligible, it is proposed to develop the tuna fishing industry in a big way.

A stakeholders workshop on the development of tuna resources in A&N Island was held on 6th July 2007 in Port Blair to discuss various strategies to achieve this goal. The workshop was chaired by Shri. Jairam Ramesh Hon'ble Minister of State for Commerce, Govt. of India and attended by Shri C Targay, Chief Secretary, A&N Administration, Smt. Bharati S Sihag, Jt. Secretary, MoC&I, Govt. of India. Shri G Mohan Kumar, Chairman, MPEDA, Shri M K R Nair Fisheries Development Commissioner, Scientists from FSI, CMFRI and CIFT, Shri Kuruvilla Thomas, Director (M), MPEDA and Shri Janak Digal, Development Commissioner cum Secretary (Fisheries), A& N Administration. The workshop was also attended by various industry stakeholders and interested parties. There was lengthy and detailed discussion which resulted in the identification of key issues relating to the development of tuna fishing in the islands.

It was also decided that MPEDA would identify a Tuna expert and prepare an action plan for the development of Tuna resources in A & N Islands. Accordingly this road map for development of Tuna Fisheries and export of Tuna have been prepared. I hope this will pave the way for the accelerated development of Tuna Industry in A & N Islands.

I wish to gratefully acknowledge the active interest and support received from Shri Jairam Ramesh, Minister of State for Commerce and the Anadman & Nicobar Administration. This ambitious point would not have been a reality but for them.

I wish to thank Mr. Kuruvilla Thomas, Mr. K J Antony, Assistant Director and Mr. George Skoutarides (Tuna Advisor) for the efforts made in preparing the report.

(G MOHAN KUMAR)
CHAIRMAN

CHAPTER - 1

TUNA FISHERY IN INDIA AND ANDAMAN & NICOBAR ISLANDS – CURRENT STATUS

1.1. Introduction

Andaman Nicobar Island is located in the Indian Ocean in the Southern reaches of the Bay of Bengal. It comprises of two island groups – the Andaman Islands and the Nicobar Islands, which separates the Andaman Sea to the East from the Indian Ocean. These two groups are separated by the 10⁰ N parallel, the Andaman lying to the North of Latitude and the Nicobars to the South. There are about 572 islands in the territory of which only 38 are permanently inhabited. Total area of the Andaman Islands is 6408 KM² and that of the Nicobar Islands is approximately 1841 KM². The total coastal line length is 1962 KM. which is about 1/4th of the coastline of India. The EEZ around the island encompasses an area of 0.6 million sq.km. forming about 28% of the Indian EEZ.

Fisheries is one of the major natural resources of the islands. The present level of marine fish production in the islands is 30,000 M.T. which is about 12% of the estimate potential. Most of the produce is consumed locally. There are 45 fishing villages and about 57 fish landing centers in Andaman & Nicobar Islands. The fishing crafts in operation are about 1810 of which 1568 are non-mechanized traditional crafts, 102 motorized crafts and 140 mechanized boats. The mechanized boats are of varying sizes engaged mainly in gill netting and hand line fishing. The main fishing gear used is drift gillnet which contributes over 40% of the marine fish landings. Other fishing gears commonly used are short seine, hook and line, cast net etc.

Ecosystem Characteristics

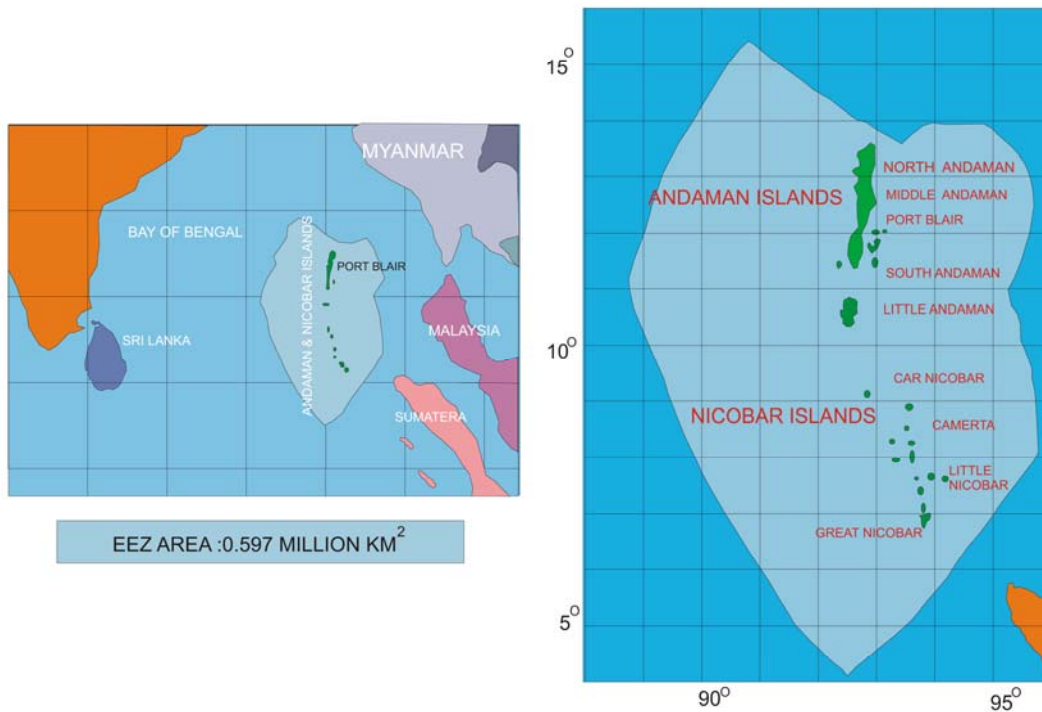
Three major ecosystems of the Andaman and Nicobar Islands are the forest ecosystem, the mangrove ecosystem and the marine ecosystem. The major rivers influencing the marine ecosystem, through their discharge to the Bay of Bengal are Ganga, Brahmaputra, Mahanadi, Godavari and Krishna from the Indian sub-continent and Irrawaddy and Salween from Myanmar. In Andaman and Nicobar there are no perennial rivers except Galathia in the Great Nicobar and Kalpang in North Andaman. The coral reefs and the associated systems are among the most well preserved marine habitats in this part of the world. The vast expanse of the reefs produces about 24,600 tones of biota per annum. The sea around the archipelago is endowed with rich fish fauna, represented by a tropical assemblage of finfishes, crustaceans and cephalopods. Among marine mammals, Dugong dugong appears in shallow waters while dolphins are often found around shoals of fish in the open sea. Four species of turtles frequent the sandy beaches to lay their eggs. The mangroves serve as the nursery ground for the coastal species of fish and shellfish sustaining natural production of these stocks.

During 1991, the Ministry of Agriculture constituted an expert committee to evolve a plan for deep sea fishing, processing and export of fish from these islands. The committee after considering the existing infrastructure and constraints in development of deep sea fishing, processing and export of fish from A & N Islands made a number of recommendations which inter-alia include the following:-

- Training of local people in fish handling and processing
- Establishment of cold storages, ice plants, chilled storages, processing plants, ice crusher, blast freezer.
- Exploitation of the tuna and tuna-like fishes and the establishment of tuna canning plant on the basis of the tuna catch; and
- Introduction of fishing vessels capable of judiciously exploiting the deep-sea resources with equity participation from the private and public sector.

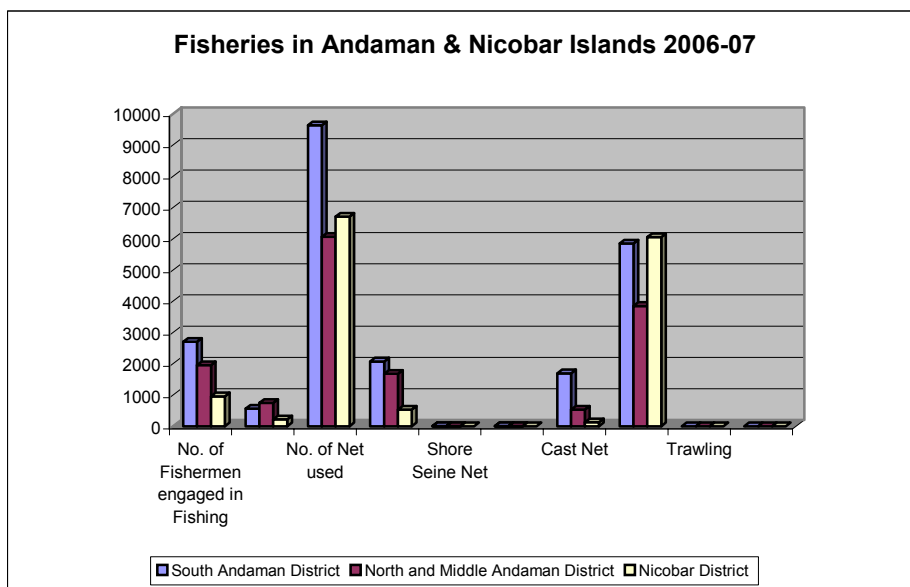
It is estimated that more than 1.48 lakh M.T of pelagic, demersal and oceanic fishery resources available in EEZ around the islands but at present only about 20% of the estimated potential is harvested. This indicates that there is tremendous scope for developing fishery as one of the leading sectors for boosting the socio-economic status of A&N Island. Among the potential fishery resources, oceanic tuna and tuna like fishes are estimated to be around 0.673 lakh tones and hence special efforts have to be initiated to tap these resources.

EEZ AREA AROUND ANDAMAN & NICOBAR ISLANDS



Facts and Figures of Fisheries in Andaman & Nicobar Islands

In all the three districts of A & N Islands a total number of 5617 fishermen are engaged in marine fishing. The total numbers of country crafts employed are 1524 and hook and line is the major gear used followed by gill net and cast net. Out of the 1524 country crafts nearly 1279 traditional vessels are motorized. The number of mechanized boats are almost negligible. In order to exploit the enormous potential resources of Island mechanization of vessels are to be taken on war footing basis. Details of facts and figures are given in Appendix-1.



1.2. Tuna fishery in India

Tuna is the third major fish commodity traded internationally after shrimp and ground fish. It constitutes 9% of the international fish trade in terms of value. World catch of tuna ranges between 3.7 to 3.8 million tones annually and constitutes 5% of the marine fish landings. Commercially important species contributing to the world landings are skipjack (50%), Yellow fin (30%) Big eye (10%) and others (10%). Almost 50% of the tuna landings are from Pacific Ocean which is the largest fishing region for skipjack where as Indian Ocean is the largest fishing region for yellow fin tuna. In the case of tuna fishery Japan continues to be the major fishing country followed by Taiwan and Spain.

The tuna fishery in India can be grouped broadly into two ie (1) Fishery for Coastal tuna or tunnies & (2) Fishery for Oceanic tuna. The targeted fishery for coastal tuna has been in existence only in limited centres as tunnies are not preferred in many of the centres in India and therefore fetch comparatively low unit value. However, annual landings of tunnies is fairly high.

Fishery for oceanic tuna is in developing stage in India. Landings have been continuing to be low. However, increased landings are reported occasionally in drift net/ purse seine operated from mechanized boats in some centers.

Coastal tuna fishery

The estimated resource potential of coastal tuna in the Indian EEZ is around 65,000 tonnes consisting of mainly skipjack, bullet tuna, longtail, little tuna, bonito, etc. The average annual landings of coastal tuna in India is around 49,000 tonne and proportion of important species is as follows:

Little tuna	49 percent
Frigate & bullet tuna	23 percent
Longtail tuna	13 percent
Skipjack	6 percent
Others	9 percent

More than 80 percent of the landings are on the West coast and in Lakshadweep.

The only organized fishery for tuna in India is the Pole & Line fishery in Lakshadweep Islands for skipjack. The species enjoy fairly good demand in the region.

Oceanic tuna Fishery

The fishery resource potential of oceanic tuna in the Indian EEZ is 213,000 tonne with estimated composition of yellowfin at 54 per cent, skipjack at 40 per cent and Big-eye at 6 per cent. Landings of oceanic tuna in India has been negligible. However, during the last couple of years landings in drift net, hook and line and trolling lines operated by small and medium mechanized vessels are reported to have increased marginally.



Yellowfin Tuna



Estimated potential resource of pelagic resources of A&N Islands.

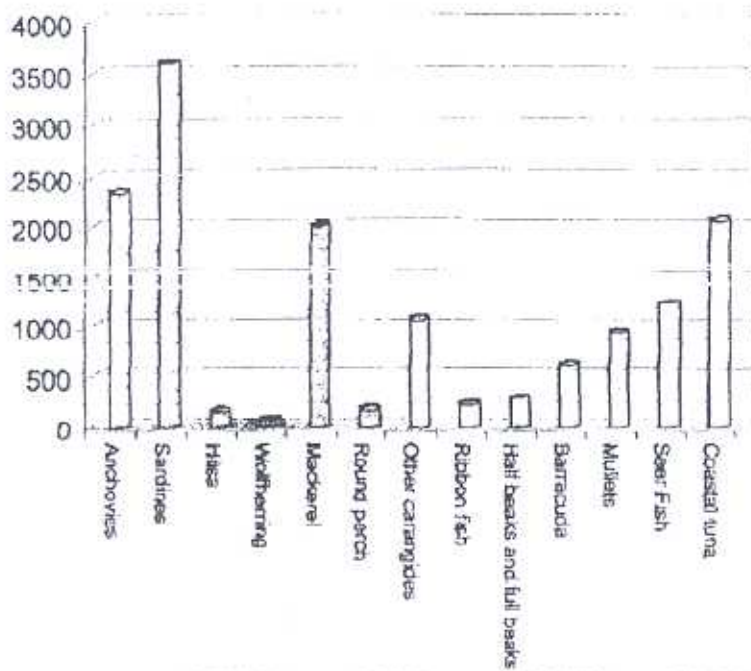
Exploitation is mainly restricted to coastal waters. There are about 2973 active and full time fishermen and the present level of exploitation is around 30,000 M.T.

The tables-2, 3 and 4 in Appendix-2 provide an idea of estimated potential and present level of exploitation in the island groups.

It is seen that average 19% of the pelagic resources are only exploited.

The marine fish production in Andaman and Nicobar since the early eighties is given in Table-3. The production is more or less static, hovering around 25-30 thousand tonnes for the last one decade. The highest catch ever recorded was 30,339 tonnes in the year 2000. Region-wise, South Andaman accounts for over 70% of the landings, followed by Ranngat, Diglipur, Little Andaman and other areas. The species-wise details of catch landed during the last five years (1998-2002) are given in Table 2 and the average catch composition is given in Fig. 2. The major resource groups contributing to the landings are perches (16.5%) and sardines (13.3%) followed by carangids, mackerel, tunas, mullets, silver bellies, anchovies etc.

Species wise landings in A&N Islands 2006-07 (Pelagic Resources)



Besides the local fishery, few deep-sea shrimp trawlers from mainland had been operating some voyages in Andaman waters during the nineties targeting deep sea lobster resource. The catches were landed at the ports on east coast of mainland. Further, some of the foreign tuna long line vessels operated under charter and leasing schemes had been fishing in the EEZ area around the Andaman and Nicobar Islands harvesting deep-swimming tuna resources. Another group of leased vessels for hand line fishing operated on the continental shelf and slope for perch resources.

1.3. Tuna Exports from India

Export of tuna was recorded at 23788 tonnes valued Rs. 13038.30 lakh and \$29.54million during 2006-07 compared to the exports effected during 2005-06 at 16627 ton. and value Rs 6931.07lakh /US\$ 15.68 million. The export realization recorded a rise of more than 88% in 2006-07. The major product forms of tuna exported are given in Appendix-3 – Table 5.

Item wise export

Chilled tuna is the highest unit value-earning item, but large quantities of tuna are exported in frozen form. Detailed item wise export during 2006-07 is given in Appendix-3 – Table 6.

Country wise exports

The top group country importing tuna from India in terms of value was EU, followed by South East Asia, Japan, Middle East etc., as given in Appendix-2.

Port wise exports

Kochi is the main port of export, followed by Pipavav, Chennai, Mundra, JNP etc., as given in Appendix-3 – Table 8.

Chilled Tuna (Sashimi) Exports

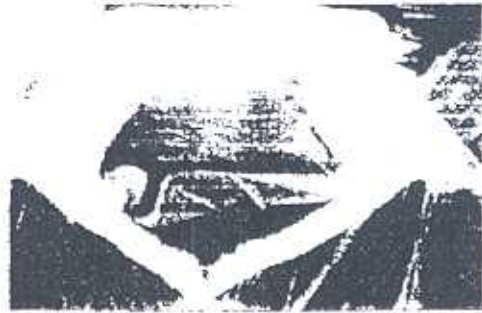
Export of chilled tuna was recorded at 758 ton valued Rs. 1345.21 lakh and \$3.54 million during 2006-07, as against very negligible exports effected during the previous year. The major form of chilled tuna exported is given in Appendix-3 – Table 9.

Port wise Exports

Chennai was the largest airport to export chilled tuna in terms of both quantity and value. Other airports to handle the item were Trivandrum, Kochi and Mumbai, as given in Appendix-3 – Table 10.

Country Wise Exports

Japan was the main country to import the item from India, followed by the distant Sri Lanka, as given in Appendix-3 – Table 11.



Tuna loins



Tuna Fillets

Tuna Skewers



CHAPTER - 2

TUNA LONG LINE FISHING

Monofilament Long Line fishing is the latest method of fishing oceanic tuna resources all over the world. Line fishing is basically composed of a line and a hook. Long lines are passive fishing gears and it is highly fuel efficient, eco friendly and species selective compared to fishing methods such as trawling. Long lines are used for both pelagic and demersal fishes covering the entire water column.

Main Line

Long line consists of main line to which number of branch lines are connected. A hook is attached to the end of the branch line. Other accessories connected to the main line are floats, float lines, swivels and connectors, flag poles, light buoys, radio buoys and reflectors etc. Main line is made up of high specific gravity material such as polyamide, polyvinyl chloride etc. Total length of the monofilament main line will vary according to the fishing ground, scale of operation, and other considerations. Usually the length of main line vary from 20 – 75 Kms. Typical long line system is shown in Appendix 4.

Branch Line

Branch Lines which are also known as snood are connected to the main line at appropriate branch line intervals. In modern tuna long lines, branch line may consist of the following parts.

1. Snap
2. Box Swivels
3. Nylon Filament
4. Wire Leader
5. Sinkers
6. Hook etc.

Other Items used in the Main line

- a. Floats and float lines
- b. Flag poles
- c. Light buoys
- d. Radio buoys
- e. Radar reflectors etc.

Types of Long Lines

1. Drift long line
2. Vertical lone line



CHAPTER - 3

DEVELOPMENT OF TUNA FISHERIES IN ANDAMAN & NICOBAR ISLANDS

Strength, weakness and opportunities for the development of deep sea fishing in the A&N Island

Strength

- An EEZ encompassing 0.6 million square km which is nearly 28 percent of the Indian EEZ
- A coastline of 1,912 km. which is nearly 25 percent of Indian total coastline.
- Rich fishery resources including pelagic, demersal, off shore and deep sea fishes to the tune of 1.48 lakh tonne.
- Relatively unpolluted coastal waters

Weakness

- Remoteness of the island – more than 1000 KM. away from Mainland
- Many coastal areas are inaccessible.
- Lack of indigenous expertise/technology and trained personnel in the Island.
- Lack of entrepreneurs interested in capital investment on high cost activities.
- Lack of infrastructure or large-scale fishing and coastal/off shore aquaculture.
- Lack of reliable data on resource potential of exploitable/cultivable marine resources.
- Inadequate infrastructure for fish processing and marketing.
- Lack of comprehensive policy for fishing promotion and regulation for sustainability

Opportunities

- Enormous scope for commercial exploitation of fishery resources
- Availability of pollution free waters
- Scope for production and export of tuna and marine ornamental fishes
- Employment opportunities in the fisheries and related sectors

Comprehensive Marine Fishing Policy of A & N Islands (extract) is given in Appendix-8.

Strategy

1. To build fishing capacity
2. Capacity building among fishermen and stakeholders
3. Building infrastructure facilities for handling chilled tuna
4. Export facilitation



CHAPTER - 4

DEVELOPMENT OF FISHING CAPACITY

4.1. Introduction of Tuna Long Liners in A & N Islands

Almost all deep sea fishing vessels and majority of mechanized fishing vessels operating in the Indian waters are trawlers and are therefore not equipped for resource specific operations such as long lining for tuna fishing. Since there was no specialized fishing fleet in India for tuna harvesting, MPEDA has started implementing a scheme for assisting the conversion of existing fishing vessels to tuna long liners for augmenting production of oceanic tuna since 2006. Though there is good response from the Industry in this direction the conversion of vessels to real tuna long liners is not taking place at the desired pace. The modification of vessels for operating monofilament long line system includes modifying the deck layout, rearranging the position of certain equipment, strengthening of certain parts of the vessel, modifying and compartmentalization of the fish hold for storing chilled fish etc. The monofilament long line system to be installed consists of spool for the main line, line setter, line hauler, hook tub, main line, branch line, hooks, float line, radio buoys etc. It is necessary to develop the technology for the design and construction of tuna long liners in the country. During the 11th plan period, MPEDA propose to convert at least 800 fishing vessels to tuna long liners and increase the export of tuna to US \$ 500 million.

Promotion of long lining in deep-sea water for tuna resources is another area to be focused for increasing the production of yellow fin tuna. For this purpose, the fishing policy of the island has to be modified suitably for attracting private parties for venturing into the field. Being close to the main land there are plenty of opportunities in bringing the vessels operated from East and West Coast of India to the EEZ of the island for fishing. It is reported that introduction of 45 tuna long liners is envisaged in a phased manner during the 11th plan period by the A&N Administration. This should be done in a systematic and scientific manner.

There has been considerable interest expressed by mainland fishermen already engaged in long lining to access the A&N waters for tuna fishing. Under the MPEDA scheme for assisting the conversion of fishing vessels to tuna long liners, a number of vessels in the mainland are in the process of conversion and these vessels will be launched for commercial tuna fishing within a couple of months. Some of these vessels may be permitted to fish in the EEZ of A&N Islands in the initial stage and getting encouraged by this, local investors could be persuaded to launch few vessel from the Island itself. To begin with, it is proposed that some 50 fishing vessels be introduced from the mainland (which includes 30 mechanized fishing vessels and 20 deep sea fishing vessels) to tap the oceanic resources of these islands. The boats will be operated from the Junglighat Jetty, the catch will be packed at the newly constructed packing centre and the product will be air freighted from Port Blair Airport. Local investors can be encouraged to enter the tuna fishery individually or through joint venture with main land partners once the possible earning are demonstrated. There will be boost in the local economy through sales of stores and produce, sales of fuel, bait



supply and creation of employment. The two processors located in Port Blair will also have an additional supply of raw material for their export.

The fishermen community in the A&N Island consists of migrants from West Bengal, Andhra Pradesh, Tamil Nadu and Kerala. Presently, the majority of local fishermen use wooden dinghies for fishing and on an average they get a catch of 100 to 150 Kg. fish per trip. The fishing gears used are gillnets, hook and lines, cast nets, shore seines, long lines, trawl nets etc. Upgradation/replacement of traditional crafts are essential to meet the new challenges in harvesting oceanic tuna. At present, there are very few mechanized boats operating in the islands. This can be increased in a phased manner for exploitation of fishery resources from the water between 10 and 24 nautical miles.

The introduction of mainland vessels to the A&N waters is necessary to impart the initial momentum to tuna fishing. Tuna has to be exported by air and for this to happen there has to be a critical volume. Since there are only a few mechanized vessels operating in A&N Islands, there will not be sufficient catch to facilitate airlifting. Therefore the operation of main land vessels is necessary to build up the volume of exportable cargo.

4.2. Upgradation of Motorized Fishing Crafts for Tuna Fishing

Presently a majority of fishermen use non motorized and motorized fishing crafts for exploitation of pelagic resources from the coastal area. With little upgradation it is possible to convert and use these vessels for tuna fishing by using vertical long lines. At present the fishermen goes within the territorial limit (within 6-7 KM from the shore) and catch on an average of 100 Kg. Fish. The lifespan of the country craft is reported to be about 5 years after which they have to be completely overhauled or replaced.

There are 703 motorized traditional local artisanal vessel in the South Andaman District. The vessels are typically 10-12 Mtrs. in length and each is fitted with a small diesel engine for propulsion. There are some with rudimentary catch storage facilities as an integral part of the vessel but most rely on removable insulated boxes of various sizes and construction materials.

When taken for modification, these vessels will require an insulated box or built in compartment of 2 mtrs X 1.2 mteres x .7 mtrs. with a removable longitudinal divider for catch storage. The capacity of the box will be about 1.25 cubic metres (after allowing for 50 mm of eurethane form insulation) and will hold 4-5 good-sized tuna (40 Kg.+) in slurry. A flat deck area of 2 x 1 metres covered with a rubber or foam mattress is also required for the processing of the catch.

A diagram of the box/compartment is given as Appendix-6.

About 100 numbers of such boats could be converted initially for long lining. 20% of the potential oceanic resources could be exploited by the deployment of such crafts as given in Appendix-7.



4.3 Fish Aggregating Devices (FAD)

It is known that drifting objects such as logs, branches, rafts, ropes or dead whales, etc. aggregate fish around them. Fishermen have since long used this knowledge of the behaviour of fish to associate themselves with floating objects. In the South East Asian area and in the Western Pacific, large quantities of fish are caught during well-known seasons of drift of flotsam.

Locating such objects has an element of chance and extending their use over long periods is almost impossible. Consequently, fishermen have been driven to construct their own rafts and have anchored them so that they remain accessible. These rafts are commonly known as Fish Aggregating Devices (FADs), or Payaos (Philippines).

The use of FADs to attract and hold schools of pelagic fish like tunas and dolfinfish is one of the significant recent developments in the tuna fisheries of many countries.

It is understood that the A&N Administration is planning to anchor 10 FADs fabricated by the National Institute of Ocean Technology (NIOT). The converted motorized country crafts will be advised to fish by using vertical long lines in the areas where Fish Aggregating Devices (FAD) are anchored. Deployment of such FADs increases the number of fishing locations, holds migrating tuna like fishes in the area and thus increases the overall catch rates of the operating vessels. Permanent, temporary low cost FAD can be tried at A & N Islands.

4.4 Capacity Building

4.4.1. Tuna on board handling

The appearance of tuna in the market is an important factor in the price which can be obtained for it. There are many ways of handling tuna on board vessels. However, the method employed in killing the fish and its subsequent preservation is of great significance. In India there is not much expertise in on-board handling of the catch which ultimately results in the lower price realization of catch. Hauling the fish from waters, killing the fish, gutting, cleaning and on board storage are the important steps to be undertaken with great care and professionalism. Tuna are warm-blooded animals having internal temperature of about 28 °C for their whole life. The temperature can rise for short periods of time up to 35 °C or more under certain conditions (stress, struggle during capture etc.) Elevation of body temperature along with the production of lactic acid at the time of struggling on board will trigger off the production of histamine – a biological hazard which is harmful to the consumer. Only with proper handling methods can the quality of tuna meat can be preserved. In order to keep the fish in best condition the internal temperature must be lowered as quickly as possible to 1 °C and then maintained at that level during all the stages of production. Details of processing of value added tuna products are given in Appendix-5.

4.4.2. Quality Requirements

The raw material must be handled carefully so as to prevent bruising and damage to the flesh. Thus long lining is the best method of catching tuna for export since damage is



minimal. The flesh of fish killed under stress undergoes chemical changes – a condition called ‘burning’- which causes the flesh to become mushy and inedible. Speed and accuracy are needed in processing tuna for export. Fish has to be bled, gilled, gutted and chilled rapidly. Tuna for the sashimi market is graded not only on visual characteristics (such as bright/clear appearance of the skin, clear moist eyes, elastic skin and undamaged smooth abdominal walls) but also on the fat content of the flesh. Sampling for fat content is done by cutting a small flap in the tail region to inspect the colour and feel for the oil content.

In most buyer countries tuna imports are generally covered by food safety regulations applicable to fresh/frozen fish. Limits for heavy metals vary: In Italy the upper limit for mercury is 0.7 mg/kg. In Japan it is 0.4 mg/kg. The permissible limit for cadmium is 0.5 mg/kg in most buyer countries while lead levels vary from 0.5-2.0 mg/kg. Internationally traded tuna is also tested for histamine, a tuna muscle protein, which causes vomiting, diarrhea, and skin irritation if ingested at high levels. For most buyer countries the permitted levels vary from 200-500 mg/kg.

Training of Fishermen

The introduction of tuna long line vessels and the commencement of fishing, handling, packing and export operations will require training to be provided to local personnel. In the case of fishermen it will relate to on board activities and post harvest handling of catch. Scientific and commercial tuna long lining is not popular in India. The packing facility staff will be trained to grade export quality tuna and to follow the correct packing procedures. There fore it is necessary to develop a core of expertise in this field by getting technical assistance from overseas experts. MPEDA has appointed a tuna long line/processing expert recently and his service will be utilized for capacity building at the national level including for A&N Islands.



CHAPTER - 5

DEVELOPMENT OF INFRASTRUCTURE AND EXPORT FACILITIES IN ANDAMAN & NICOBAR ISLANDS

5.1. Extension of Junglighat Jetty

In order to facilitate the operation of 30 – 50 vessels from Junglighat jetty (this number includes 10-15 deep sea vessels initially with additional vessels in the 15-20 M. range joining the fleet progressively) following facilities are required at this landing centre.

1. Extension of the Junglighat Jetty on either side to a minimum 75 Mtr. to allow the berthing of more number of fishing vessels. At present the jetty can only accommodate one 25 Mtr. vessel along side.
2. Provision of bulk fuel storage at the landing facility with a pipeline and pump for delivering fuel directly to berthed vessels.
3. Provision for supply of potable water for the use in making ice, supplying the vessels and for plant maintenance must be established. The catchment and storage of rainwater is an option to be considered when trying to overcome the shortfalls in the municipal supply. A central storage tank of not less than 100,000 litres should be provided with additional 5000 litre feeder tanks adjacent to the various buildings. The average annual rainfall of 3000 mm should be enough to maintain an adequate supply. A pressure pump and pipeline to supply water to the berthed vessels will also be required. The existing water supply should be maintained for use by the local fishermen or by the plant in emergency situations.
4. Provision should be given to the construction of slipway facilities large enough to accommodate vessels of up to 25 mtr. in length. The facility should include workshops and be supplied with the equipment necessary to carry out major hull and machinery repairs.
5. An emergency diesel powered generating set of suitable KVA will be required to ensure that power supplies for ice manufacture and cold storage are maintained.
6. The access roads, drainage and electrical systems external to the landing centre will require up gradation to cope with the increase in large vehicle traffic.

Lay out of proposed facilities at Junglighat Jetty is given in Appendix-6.

The photograph of the facilities available at Junglighat Jetty is given in Appendix-6 along with the lay out of the proposed packing centre.

5.2. Establishment of Chilled Tuna Packing Centre at Junglighat Jetty

Since fishing and processing of tuna in India is in its infancy stage, to begin with packing fresh chilled tuna from Port Blair for export to major overseas market. Chilled fish tuna



commands premium prices in the overseas market. For packing chilled fish tuna, it is very essential to take adequate steps to preserve its freshness at the handling centre so as to ensure that only premium quality product is reaching the overseas consumer. At present, there is no infrastructure in Port Blair or anywhere else in A & N Islands for undertaking such work. Once main land vessels are permitted to operate in the EEZ around A&N Islands, the catches will have to be landed at a place where they can be packed for export. Easy access to the fishing harbour and airport is also necessary.

Construction of a cold storage and packing facility on the vacant land available at Junglighat landing centre is an ideal set up to promote the export of chilled sashimi grade tuna from Port Blair. This site is close to the Port Blair Airport and is easily accessible by road within 5 minutes. The Junglighat landing centre is already having sufficient facilities such as sorting hall, net mending halls, water tank, provision for workshop, toilet blocks etc. to cater to the demand. The one lakh litre capacity water tank and suitable sump could be utilized fully once the packing centre is set up. A model diagram of the proposed packing centre/cold storage/ice plant is attached. When constructed, this facility will have a 30 MT. capacity chilled room and 60 MT. cold storage. The facility will also contain a 20 MT. per day flake ice plant with a 100 MT. ice storage room. The packing material will have to be imported from main land. The approximate cost of construction of chilled packing centre will be Rs. 5 crore.

5.3 Development of Processing infrastructure-Modification of Andaman Fisheries Limited - Processing Plant

The processing plant of Andaman Fisheries Limited will be required as a temporary packing facility if the tuna long line fishery, in A&N waters, is to be launched in the near future. The plant is not particularly suitable but with some small modifications it can be utilized. Installation of new stainless steel tables, an insulated sliding door in place of an existing window in the raw material receiving room, air conditioning of all rooms, provision of forklift truck for unloading tuna deliveries and improvement of access road are the improvements to be made in the plant to make it suitable for Tuna handling.

The plant at present is largely in operative due to the non-availability of sufficient quantity raw material. Once the supply of raw material generated from the fisheries is ensured, the capacity utilization of the plant can be enhanced suitably.

The plant can also be used for the storage of imported local frozen bait.

A lay out of the proposed chilled tuna packing facility inside the processing plant is in Appendix-6.

5.4. Export Shipment

Port Blair is the only airport in A & N Island having connection with main land and passenger flights are operated to the destinations like Chennai, Kolkata and Delhi. Once tuna fishing and processing are developed, sashimi quality chilled products could be air freighted to various international destinations like Bangkok, Hong Kong and Japan. The only issue involved here other than the permission required for operating international cargo flights including chartered flights is the assurance of providing the



minimum cargo requirement when the flight is landed. The cargo flights can lift the cargo from Vizag or Chennai and come to Port Blair for collection from here enroute to foreign destinations.

Other facilities required are the opening of offices of Export Inspection Agency and Customs in Port Blair.



CHAPTER - 6

POLICY & OPERATIONAL ISSUES

6.1. Policy issues involved

For the development of tuna industry in the island it is essential to have policy changes according to the need of the hour. The two vital issues are;

1. Permission to mainland vessels for fishing in the EEZ of A&N Islands.
2. Permission for charter cargo flights to operate from Port Blair to International Destinations.

6.2. Operational issues involved

- Introduction of 50 tuna long liners from the main land.
- Introduction of more mechanized vessels for native fishermen through a financial assistance package.
- Recruitment of technical experts and training of trainers
- Provide training on board and ashore in all aspects of tuna fishing, handling, grading, and packaging.
- Tie up logistics for export including airlifting.
- Provide customs services
- Provide export certification services through Export Inspection Agency.



CHAPTER - 7

PROPOSED ACTIVITIES TO BE UNDERTAKEN FOR DEVELOPMENT OF TUNA FISHERIES IN A & N ISLANDS

7.1. Short Term Activities

Sl. No	Activities	Time Frame	Cost (Rs. lakh)	Implementing Agencies
1	Permission for fishing and berthing of main land vessel	30 days	-	A & N Administration
2	Modification of processing plant of AFL	60 days	15	ANIDCO & MPEDA
3	Permission for air freighting	30 days	-	A&N Administration, Ministry of Civil Aviation & MPEDA
4	Conversion of 100 country crafts for tuna fishing	12 months	40	A & N Administration & MPEDA
5	FAD	12 months	100	NIOT
6	Handling facilities at Port Blair Air Port	12 months	150	Air Port Authority of India & A & N Administration
7	Capacity Building	12 months	50	MPEDA

7.2 Medium Term Activities

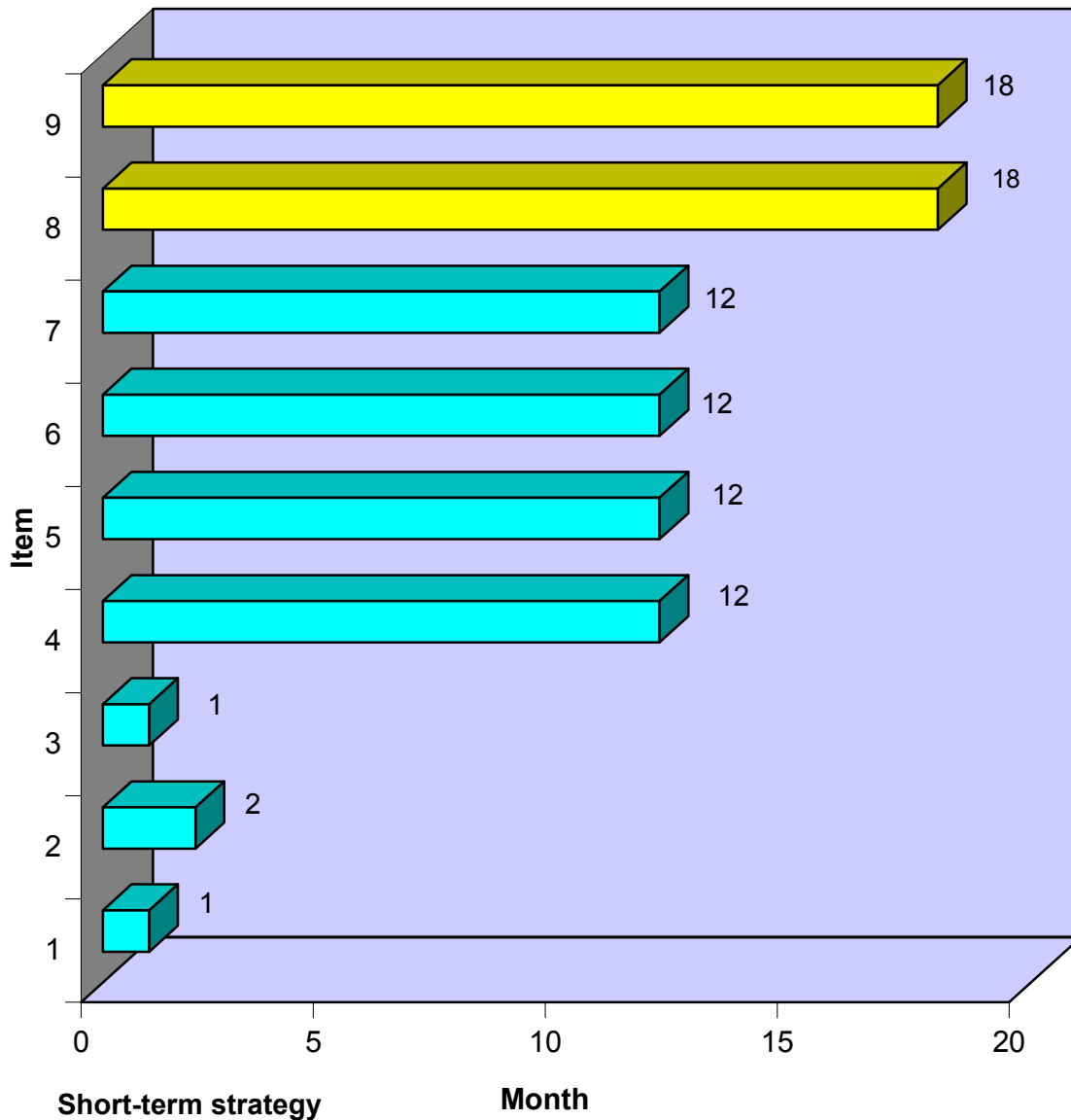
Sl. No	Activities	Time Frame	Cost (Rs. in lakh)	Implementing Agencies
1	Extension of Junglegat Jetty	18 months	500	A & N Administration
2	Establishment of chilled tuna packing facility at Junglegat jetty	18 months	500	A & N Administration & MPEDA

7.3 Fund requirements

Work	Cost (Rs. in lakh)	Source of fund
Modification of processing plant of AFL	15	ANIDCO
Establishment of chilled tuna packing facility at Junglegat jetty	500	MoCI/ASIDE
Conversion of 100 country crafts for tuna fishing	40	MPEDA
FAD	100	NIOT & A&N Administration
Capacity Building	50	MPEDA
Extension of Junglegat Jetty	500	NFDB
Handling facilities at Port Blair Air Port	150	ASIDE
Total	1355	



7.4 Time Frame for Project Implementation



Short-term strategy

Item No.1: Permission for fishing and berthing of main land vessel
 Item No.2: Modification of processing plant of AFL
 Item No.3: Permission for airfreighting
 Item No.4: Conversion of 100 country crafts for tuna fishing
 Item No.5: FAD
 Item No.6: Handling facilities at Port Blair Air Port
 Item No.7: Capacity Building

Medium-term strategy

Item No.8: Extension of Junglighat Jetty
 Item No.9: Establishment of chilled tuna packing facility at Junglighat jetty



7.5. Outcome

Expected outcome of the project-

Sector	Employment Generated (in Man days)	Additional Income to Fishermen	Export Income
Traditional	100000	Rs. 10 croes	Rs. 32 crores
Mechanized	60000	Rs,45 lakh	Rs.128 Crores
Allied Sectors	1000		

Assumptions: 50 mechanized vessels and 100 traditional vessels fish for 200 days

7.6. Benefits and Impacts

Once the project is implemented, it will have a long lasting impact on the technological, social, environmental and economic development of the Islands. Introduction of modern fishing crafts and environment friendly fishing gears in the Island is another advantage. Capacity building of fishermen and other local people connected with fishing, fish processing and marketing will bring a lot of opportunities for the local population. The enhanced fish production coupled with more employment generation and flourishing of other related ancillary industries will definitely open a new era in the history of A & N Islands. The expected outcome will overweigh the expenditure being incurred for the introduction of all these facilities and this will attract entrepreneurs from main land for investment in the Island. Opening up of exports from the Islands with the introduction of international air cargo flights from the island will be a major break through.

APPENDIX - 1

Chapter-1. - Table-1: Detailed facts and figures of fishing operation in Andaman & Nicobar Islands

Sl. No	Item	2006-07			
		South Andaman District	North and Middle Andaman District	Nicobar District	Total
1	No. of Fishermen engaged in Fishing	2705	1957	955	5617
2	No. of Fishing Country Craft	561	746	217	1524
3	No. of Net used	9633	6065	6710	22408
a)	Gill Net	2075	1680	532	4287
b)	Shore Seine Net	8	5	0	13
c)	Anchor Net	5	3	0	8
d)	Cast Net	1695	527	128	2350
e)	Hook & Line	5850	3850	6050	15750
f)	Trawling	0	0	0	0
g)	Disco Net	0	0	0	0
4.	Mechanized Fishing Vessels (No.)				
a)	Country Craft	561	746	217	1524
b)	Mechanized Boats				
i)	Motorized Traditional Fishing	703	267	309	1279
ii)	Mechanized Boat.	10	0	0	10
5.	Average Fuel Consumption per vessel per day (in litre).				
i)	Motorized Boat	20 ltr/day	20 ltr/day	15 ltr/day	18.33 ltr/day
ii)	Mechanized Boat	0	0	0	0
6.	Fishermen Families Settled till end of March (No.)	187	116	19	322
7.	Fisheries Requisites Distributed during the year (Rs. in lakh)	0.75	0.25	1.93	2.93

APPENDIX - 2

Chapter-1. - Table-2: Pelagic resources

Sl. No.	Fish group	Potential (in M tones)	Present harvest (in M tones)
1	Mackerel	5000	3000
2	Lesser Sardines	10000	5736
3	Anchovies	1000	153
4	Other clupeids	10,000	7337
5	Carangids	1000	1070
6	Seer fish	5000	1236
7	Pelagic sharks	5000	7000
8	Coastal tunas	100000	2068
9	Others	2000	1000
	Total	139000	28600

Chapter-1. - Table-3 Marine fish landing in Andaman & Nicobar: 1981 – 2006

Year	Fish Landing (tones)
1981	1910
1982	3879
1983	3868
1984	6226
1985	4458
1986	10638
1987	8865
1988	11210
1989	14818
1990	13530
1991	22339
1992	25406
1993	23334
1994	26695
1995	26120
1996	26551
1997	24974
1998	28983
1999	26873
2000	30339
2001	27173
2002	25561
2003	26731
2004	26300
2005	27000
2006	28600

Chapter-1 - Table-4: Species wise fish landings in A & N Island 2006-07

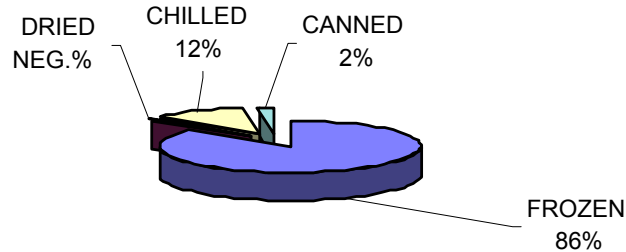
Sl. No	Species/group	Metric Tonne
1	Elasmo branches	2220
2	Silver bellies	2962
3	Perches	5537
4	Pomfret	309
5	Cat Fish	270
6	Thread fins	80
7	Croakers	890
8	Goat fish	9
9	Silver grunt	8
10	Threadfin breams	247
11	Lizard fish	10
12	Flat fish	10
13	Cephalopods	45
14	Peneaid shrimps	565
15	Crab	513
PELAGIC RESOURCES		
16	Anchovies	2337
18	Sardines	3600
19	Hilsa	153
20	Wolfherring	75
21	Mackerel	2000
22	Round perch	175
23	Other carangides	1070
24	Ribbon fish	235
25	Half beaks and full beaks	294
26	Barracuda	611
27	Mullets	938
28	Seer Fish	1236
29	Coastal tuna	2068
OCEANIC RESOURCES		
30	Yellowfin tuna	2
31	Skipjack	1
32	Bill fishes	1
33	Pelagic shark	7
	Total	28600

APPENDIX - 3

Chapter-1. - Table-5: Tuna exports in major product forms

	2006-07			2005-06		
	Qty	Value	\$	Qty	Value	\$
Item Name	Tons	Rs.Lakh	MIL.	Tons	Rs.Lakh	MIL.
Frozen	22765	11406.58	25.36	16617	6913.34	15.64
Dried	18	39.82	0.09	2	6.94	0.02
Chilled	758	1345.21	3.54	9	10.79	0.02
Canned	248	246.65	0.55	0	0.00	0.00
TOTAL	23788	13038.30	29.54	16627	6931.07	15.68

Item No. 1.5. - FIG-1: Major product forms exported 2006-07 in \$ earnings



Chapter-1 Table-6: Item wise export of tuna during 2006-07

	2006-07				2005-06		
	Qty	Value	US \$	UNIT VAL	Qty	Value	US \$
Name	Tons	Rs.Lakh	MILLION	\$ PER KG.	Tons	Rs.Lakh	MILLION
CHILLED TUNA	625.3	1082.44	2.95	4.72	9.00	10.79	0.02
CHILLED YELLOW FIN TUNA	108.74	206.99	0.46	4.26	0	0	0
CHILLED YELLOWFIN TUNA LOINS	18.5	47.89	0.11	5.77	0	0	0
CHILLED TUNA (GUTTED)	5.14	7.89	0.02	3.48	0	0	0
CHILLED TUNA TOTAL	758	1345.21	3.54	4.67	9.00	10.79	0.02
FR. TUNA (YELLOW FIN)	13669	7097.38	15.7	1.15	9311	3978.95	9.01
FR. TUNA (SKIP JACK)	5814	2,339.19	5.24	0.9	5774	1982.46	4.50
FR. TUNA (BIG EYE)	147	60.3	0.13	0.9	233	79.93	0.18

FR. TUNA (LONG TAIL)	489	221.4	0.5	1.02	322	112.77	0.25
FR. TUNA (WHOLE)	1092	605.13	1.35	1.24	817	605.12	1.36
FR. TUNA (TONGGOL)	56	25.03	0.05	0.97	71	25.32	0.06
FR. TUNA (LOINS)	201	283.86	0.64	3.16	25	58.61	0.13
IQF FISH STEAK (TUNA)	50	50.88	0.11	2.26	1	1.14	0.00
FR. TUNA (CUBES)	1	0.58	0	2.6	0	0.15	0.00
IQF TUNA (SKIPJACK)	535	218.4	0.49	0.91	0	0	0
IQF YELLOW FIN TUNA	450	316.8	0.72	1.6	0	0	0
FR TUNA BELLY FLAPS	2	1.31	0	1.48	0	0	0
FR. TUNA(GUTTED)	259	186.36	0.42	1.63	0	0	0
FR.TUNA FILLET	0	0	0	0	63	68.88	0.15
FROZEN TUNA TOTAL	22765	11406.62	25.35	1.11	16617	6913.34	15.64
SMOKED FR. YELLOW FIN TUNA LOINS	18	39.78	0.09	4.97	0	0	0
CANNED TUNA	248	246.65	0.55	2.22	0	0	0
DRIED TUNA FLAKES	0	0.04	0	2.25	2	6.94	0.02
TOTAL	23788	13038.3	29.54	1.24	16627	6931.07	15.68

Chapter-1. - Table-7: Country wise export of tuna during 2005-06 & 2006-07

	2006-07			2005-06		
	Qty	Value	Dollar	Qty	Value	Dollar
Country Name	Tons	Rs.Lakh	Million	Tons	Rs.Lakh	Million
JAPAN	618	1090.09	2.96	326	350.55	0.78
USA	117	261.41	0.59	86	144.60	0.32
EUROPEAN UNION	2813	1825.37	4.08	282	133.66	0.30
CHINA	111	42.64	0.09	12	9.64	0.02
SOUTH EAST ASIA	3132	1773.25	3.91	7573	2996.47	6.81
MIDDLE EAST	2077	1048.30	2.34	334	131.54	0.30
OTHERS	14921	6997.24	15.57	8014	3164.62	7.15
TOTAL	23788	13038.30	29.54	16627	6931.07	15.68

Chapter-1 - Table-8: Port wise export of tuna during 2005-06 & 2006-07

	2006-07			2005-06		
	Qty	Value	US Dollar	Qty	Value	US Dollar
Port Name	Tons	Rs.Lakh	Million	Tons	Rs.Lakh	Million
KOCHI	11888	6752.28	14.94	7718	3208.92	7.28
PIPAVAV	5971	2610.53	5.87	4050	1490.84	3.37
CHENNAI	2323	1680.18	4.29	1507	826.40	1.86
MUNDRA	1467	619.58	1.38	1652	618.69	1.39
J N P	1318	579.10	1.28	529	197.69	0.45
TRIVANDRUM	161	386.30	0.86	6	6.47	0.01
VIZAG	539	319.53	0.71	960	433.85	0.98
MANGALORE/ICD	105	71.89	0.16	34	13.69	0.03
MUMBAI	15	17.83	0.04	0	0.00	0.00
TUTICORIN	1	1.05	0.00	162	125.80	0.28
CALICUT	0	0.02	0.00	0	0.00	0.00
CALCUTTA	0	0.00	0.00	11	8.72	0.02
TOTAL	23788	13038.30	29.54	16627	6931.07	15.68

Chapter-1 - Table-9: Item wise export details of chilled tuna

	2006-07			2005-06		
	Qty. Tons	Value Rs.Lakh	U S \$ (Mln)	Qty. Tons	Value Rs.Lakh	U S \$ (Mln)
Item Name						
CHILLED TUNA	625	1082.44	2.95	9	10.79	0.02
CHILLED YELLOW FIN TUNA	109	206.99	0.46	0	0.00	0.00
CHILLED YELLOWFIN TUNA LOINS	18	47.89	0.11	0	0.00	0.00
CHILLED TUNA(GUTTED)	5	7.89	0.02	0	0.00	0.00
TOTAL	758	1345.21	3.54	9	10.79	0.02

Chapter-1 - Table-10: Port wise export details of chilled tuna

	2006-07			2005-06		
	Qty. Tons	Value Rs.Lakh	U S \$ (Mln)	Qty. Tons	Value Rs.Lakh	U S \$ (Mln)
CHENNAI	446	660.86	2.01	1	0.44	0.00
TRIVANDRUM	161	385.55	0.86	6	6.46	0.01
KOCHI	140	284.74	0.64	2	3.89	0.01
MUMBAI	12	14.06	0.03	0	0.00	0.00
TOTAL	758	1345.21	3.54	9	10.79	0.02

Chapter-1 - Table-11: Country wise export of chilled tuna

	2006-07			2005-06		
	Qty Tons	Value Rs.Lakh	Dollar Million	Qty Tons	Value Rs.Lakh	Dollar Million
Country Name						
JAPAN	539	992.03	2.75	7	8.49	0.02
SRI LANKA	162	153.19	0.35	1	0.41	0.00
SINGAPORE	14	83.83	0.19	1	1.76	0.00
USA	17	51.05	0.11	0	0	0
FRANCE	19	49.59	0.11	0	0	0
NETHERLANDS	4	10.87	0.02	0	0	0
U A E	2	3.52	0.01	0	0	0
U K	0	0.81	0.00	0	0.09	0.00
GERMANY	0	0.18	0.00	0	0.00	0.00
AUSTRIA	0	0.09	0.00	0	0.00	0.00
SWITZERLAND	0	0.05	0.00	0	0.00	0.00
THAILAND	0	0.03	0.00	0	0.00	0.00
MALDIVE ISLANDS	0	0.01	0.00	0	0.00	0.00
TOTAL	758	1345.21	3.54	9	10.79	0.02

APPENDIX - 5

Chapter-4- Table-12: Details of crafts ready for tuna long lining conversion

Potential yield	Present Harvest	Details	Nos.	Av.Catch/ vessel/trip	Av.catch per vessel/year for 10 months)	Total catch
Pelagic tuna 100000 MT	(20%) 20000MT	Existing craft: upgradation to FRP coated motorized craft for vertical tuna long lining.	100	70 Kg.	7 MT	1400 MT

Assumptions:

Upgraded motorized crafts ply 20 trips per month and catch about 70 Kg/trip on an average, i.e. 20 trips x 10 months x 70 Kg - 14 MT/vessel/year.

Chapter-4- Details of processing of value added tuna products

The tuna processing Industry has grown very rapidly in the last decade. In addition to conventional processed products such as smoked, canned or frozen products there is an increasing demand now for prime quality fresh tuna meat for sashimi and sushi products which commands much higher prices especially in Japanese market. Sashimi is a popular Japanese dish of bite-sized pieces prepared from prime quality tuna meat. Sashimi itself means much more than raw sea foods since it is also refers to appearance, freshness, texture, flavour and presentation. The most common fish used for sashimi is yellow fin tuna and big eye tuna. Only prime quality selected tuna are suitable for sashimi production. The method of fishing of tuna and its handling play an important role in deciding the quality of the tuna meant for sashimi production. Tuna has to be killed immediately and preserved properly to maintain its freshness. Immediate killing is essential to ensure the rapid destruction of the central nervous system, which controls body temperature, so that the temperature of the fish can be go down very quickly during chilled/frozen storage.

Currently, Sashimi grade tuna fetches an average price of US \$ 10-12 in the Japanese market. However, the main hurdle for the packing of chilled sashimi quality tuna is the lack of handling infrastructure at major landing centers. Chilled sashimi quality tuna should be preserved at a temperature of 2 – 3⁰C till it reaches to the ultimate consumer.

Chapter-4- Preparation of Sashimi

The best quality sashimi is derived from tuna properly chilled soon after being caught until final consumption. Fresh chilled sashimi fetches higher prices compared to ultra-low temperature frozen tuna. Under proper handling and chilling, fresh tuna fillet can be stored and remain acceptable for sashimi up to 3 weeks. It is essential to keep the whole piece chilled in an insulated box until ready for cutting.

Chapter-4- Dressing of Tuna

Dressing of Tuna is carried out as follows: -

- Place the fish on a clean cutting-board on one side with the head.
- Hold the pectoral fin and raise it slightly. Insert knife near the base of pectoral fin and cut down towards the dorsal line, and move the knife gently following the line of the operculum.
- Cut just behind the isthmus to the base of the pectoral fin also following the line of the operculum to complete the cut. Sometimes, the pelvic fins are removed at this stage by cutting from the isthmus. Turn the fish onto the other side, and repeat the above steps, followed by chopping the backbone by holding the head and using a heavy knife or hacksaw until the head is cut.
- The fully dressed tuna is then quarter filleted by inserting a sharp knife through the back until reaches the backbone, and cutting along the dorsal line.
- The four quarter-fillets are then carefully sliced into thinner fillets, or directly cut into blocks of 300-400 mm. In length for the wholesale market. Under proper chilling condition, these blocks can be stored up to one week.

Fresh tuna fillets meant for sushi on the other hand, are cut about 10 mm from left end, and sliced diagonally down from right to left.

Care should be taken during cutting and slicing to prevent these thin slices breaking

Chapter-4- Internationally Traded Tuna Products

- Chilled, Deheaded and gutted or Gilled and Guttled (Sashimi)
- Frozen, Deheaded and Guttled or Gilled and Guttled (Sashimi)
- Canned, "Solid packs" (a mixture of pieces of tuna).
- Canned, "Chunks" (a mixture of pieces of tuna).
- Canned, "Flakes" (smaller pieces of tuna).
- Canned, "Grated" (packed pieces of tuna flesh).

Canned products are packed in oil, brine or sauce, in canning including salt, monosodium glutamate, hydrolyzed protein, and various species.

Chapter-4- Other Value Added Tuna Products

<ul style="list-style-type: none">• Frozen cooked tuna loins• Fresh/frozen tuna steak• Tuna Burgers• Tuna Jerky• Tuna Candy• Tuna Ice-cream• Tuna bone-powder• Tuna floss• Tuna bits• Tuna casserole/pie• Tuna sausage	<ul style="list-style-type: none">• Tuna bologna• Tuna ham• Tuna stock• Tuna sauce• Dried Tuna• Tuna loaf• Salted tuna• Pickled tuna• Tuna paste• Smoked tuna.
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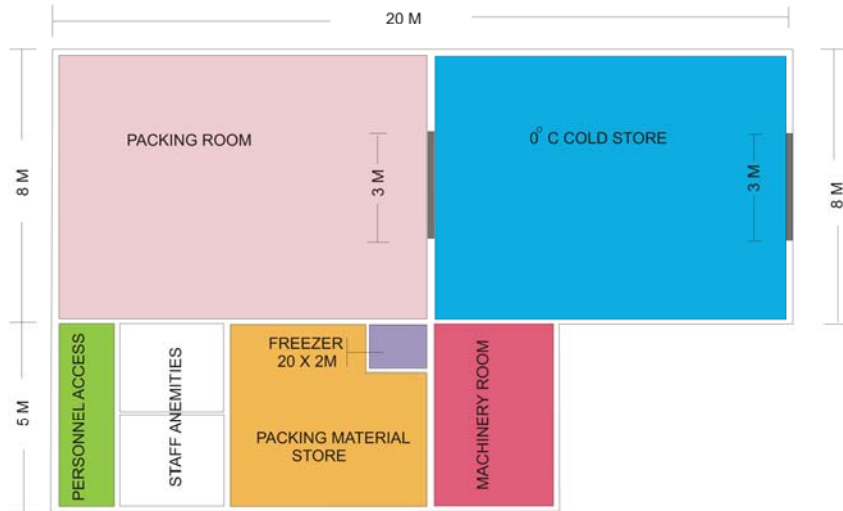
Chapter-5

JUNGLIGHT LANDING FACILITY



Proposed packing centre at Juglighat Jetty

PROPOSED PACKING CENTRE



APPENDIX - 7



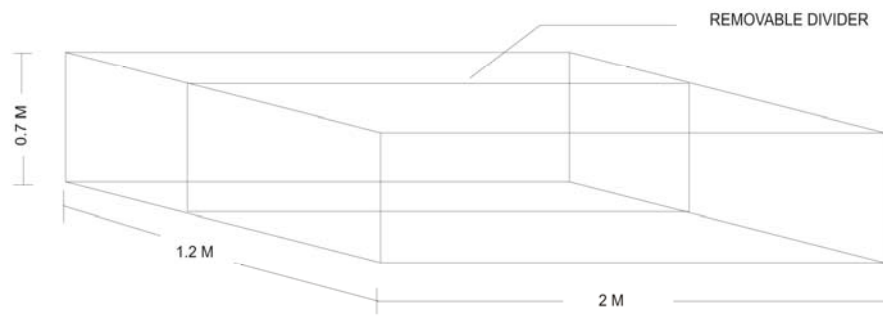
Junglighat landing center



Motorised country craft



INSULATED TUNA BOX FOR MOTORISED BOATS A SCHEMATIC DIAGRAM



TUNA BOX FOR MOTORISED TRADITIONAL VESSELS

Constructed of plywood, Eureka foam insulation and Fiberglass insulated lid in two longitudinal sections required (not shown)



APPENDIX - 8

Comprehensive Marine Fishing Policy of Andaman & Nicobar Islands (Extract)

- In contrast to the Lakshadweep the A&N Islands are typically oceanic in nature, volcanic in origin, characterized by low range of hills and valleys. The Islands have a coastline of 1912 Km. and the continental shelf has an area of 3500 sq. Km. The EEZ around the Islands measuring about 6 lakh sq.km accounts for 28% of the total EEZ of the country. Out of a total population of 3.56 lakh, about 2500 full time fishermen and 400 part time fishermen are engaged in marine fishing. The present landing of 28000 metric tones forms only 11% of the exploitable fishery potential of 2.43 lakh tones.
- Apart from the large gap between the potential and production, the strength of the Island group lies in its rich marine biodiversity, strategic geographic location, nearness to the Southeast Asian markets and entrepreneurship.
- Further development of coastal fisheries could be achieved through introduction of improved type of fiberglass craft and improved gear and introduction of intermediate class of fishing vessels.
- Offshore fisheries could be developed through introduction of large deep-sea fishing vessels.
- Infrastructure needs for harvest and post harvest operations could be developed in identified Islands.
- Joint venture initiatives may be allowed for package proposals consisting of harvest and post harvest operation to be based in the Islands with a view to improving the employment potential.
- A major fishing harbour and processing complex need to be set up at Campbell Bay to attract investment.
- Fishery resources survey needs to be conducted systematically to continuously monitor the fishery resource and its state of health.
- Human resources development in the sector needs to be given priority to develop skilled manpower needed for meeting the specialized requirement.

Salient Points in the MFR Act of A & N Islands

Registration of fishing vessel

- a. Owner of every fishing vessel kept in the Union Territory and/or used or intended to be used for the purpose of fishing in a specified area, specified under sub-rule (a)



of Rule 5 of these rules shall get the vessel registered under section 9 unless the vessel is already registered as a fishing vessel under any other law for the time being in force.

- b. All class or classes fishing vessel shall have the prescribed life saving and fire fighting appliances while at sea as prescribed by the Govt.

Licensing of fishing vessel

1. No fishing vessel shall undertake any kind of fishing activity without a valid fishing license granted under section 6 of the MFR.
2. No fishing license shall be granted to a vessel unless the vessel is registered as a fishing vessel for the purpose of the Regulation.
3. No fishing license shall be granted to a mechanized fishing vessel unless it is covered by adequate insurance coverage against loss arising out of professional hazards.
4. The owner of a fishing vessel, irrespective of whether the said fishing vessel is mechanized or non mechanized shall not engage or carry or allow to be engaged or allow to be carried any fishermen or crew unless the said fisherman or crew is covered by adequate insurance coverage against professional hazards.

Specified area for fishing by different classes of fishing vessels

Table-12: Specified area for fishing in A & N Islands

	Specified area for fishing	Class of fishing vessels for plying	Type of gear/mesh size to be used
(i)	Fishing Zone – A (Territorial waters up to 6 nautical miles from appropriate base line)	Vessels fitted with 30 HP engines including traditional and non-mechanized boats	i. Gill net not below 25 mm mesh (knot to knot diagonally) ii. Hook & Line iii. Shore seine/drag net of mesh size not below 25 mm. iv. Fish traps
(ii)	Fishing Zone – B (Territorial waters beyond 6 nautical miles from appropriate base line).	Vessels fitted with engines of more than 30 HP.	i. Gill net below 25 m m mesh ii. Trawl net of standard mesh size fitted with turtle excluder device suitable to the trawl net. iii. Long line, purse seine, squid jigger. iv. Hook and Line.



Leasing of sea area for fish culture or installation of Fish Aggregating Devices (FAD)

The Director of Fisheries, A&N Islands shall be the leasing officer for lease of sea areas on the basis of recommendation of the committee constituted for the purpose.

Terms and Conditions of lease and condition for implementation and monitoring of the project shall be specified by the Director of Fisheries while leasing the sea areas to the selected persons, firm and organization.

Transportation of fish or fish products from the islands

1. Any person, trader, fish vendor or any organization engaged in transport of fish or fish products outside the jurisdiction of the islands shall register his or her name with the Authorized Officer of his respective area and shall pay royalty to the Director of Fisheries as prescribed in Schedule-VI annexed with these rules.
2. 100% Export Oriented Units (EOU's) possessing valid green card issued by the Madras Export Processing Zone (MEPZ) having their establishment of project base in the islands shall be exempted from payment of royalty. However, such units shall furnish the details of export consignment and obtain No Objection Certificate from the Director of Fisheries on consignment basis.
3. All Deep sea fishing vessels when engaged in fishing within the territorial waters of Andaman and Nicobar Islands on the basis of fishing license issued under these rule shall sell prescribed quantity of their catch after each voyage to the Andaman and Nicobar Fisheries Cooperative Federation Ltd. or Fish Processing Industries established in the islands at the prevailing wholesale market price in the local market, unless they are exempted by the Administration of Andaman and Nicobar Islands.

Closed season for fishing

- a. The following periods shall be a closed season for fishing in the Territorial Water of Andaman and Nicobar Islands.
- b. The period commencing from 15th day of April to 31st day of May every year (inclusive of the day of commencement and day of expiry) shall be a closed season for fishing vessels employing bottom trawling gear and for shark fishing.
- c. The period commencing from 1st day of May and expiring on 30th day of September (inclusive of the day of commencement and day of expiry) during every year shall be the closed season for fishing seashells.

Terms and condition for obtaining permission for deep-sea fishing in Andaman waters



- Application to be given to Director of Fisheries for grant of fishing and vessel license.
- The company shall deposit Rs.1 lakh in the shape of fixed deposit, which shall be refundable at the end of season/license period.
- The company shall produce the fishing vessel and gear at Port Blair for inspection.
- The company shall be permitted to operate their fishing vessel only beyond six nautical miles from the high tide level in every point of the island.
- No vessel shall fish within the six nautical miles from the shore and enter into the creeks of the island.
- No fishing shall be allowed in coral reef areas.
- A minimum of 20% of the total catch should be given by the Company to M/s Andaman Fisheries Limited at the rates fixed by the Director of Fisheries or mutually agreed upon by the parties at Port Blair.
- No catch shall be transferred by the fishing vessel to any other vessel in the sea.
- The company shall not engage any foreign national on board the fishing vessel during the period of license.
- The catch details of each voyage shall be submitted to the Director of Fisheries.
- The company shall obtain no objection certificate in respect of fish/fish product they intend to transport from the island to mainland/ and foreign country after paying the royalty as per the rules.
- The company should provide adequate opportunity for the local youth to work and gain experience in deep sea/off-shore fishing vessels and during the period of such engagement, the local youth should be paid monthly salary and food free of cost on board the vessel.