

Design Dissertation

REVIVAL OF FISHING PORT IN MIRKARWADA, RATNAGIRI



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ABSTRACT

The fishing port may be considered as the connection between the netting of fish and its consumption. The purpose of the study is to identify the problems and redesign the program of a fishing port. This will upgrade the design the facilities like auction hall, ice storage, shades, parking, etc. are also included in the design. Tourism is also included in the design. The proposal is given by the government of India for the upliftment of the society.



AKNOWLEDGEMENT

I would like to express my great appreciation to **Ar.Sandeep Prajapati** for guidance and supervision as well as providing necessary information regarding the project and his support in completing the dissertation. He inspired me greatly to work in this research. His willingness to motivate, contributes tremendously to my project. I would also like to thank him for helping me to find some examples that related to the topic of my research.

I take this opportunity to offer my thanks to the dean **Ar. Swapna Joshi** and all the faculty members for their comments and support. I would also like to acknowledge with much appreciation my Dissertation Coordinators **Ar.Raj Mhatre** sir and **Ar.Raj Singh** sir for their support and for giving me a good guideline for this research throughout numerous consultations.

My deepest thanks to **Shayan Bamne** who was moral support and helped me throughout the journey of research. She encouraged me and believed in my abilities.

This dissertation would not be complete without the acknowledgement of the support and encouragement of my friends Diksha Bamane, Asmita Beloshe, Omkar Satam and Shaikh Sharukh.

Finally, I would like to thank **Nadim Budye** and the heartiest to **my parents** and family, without their continuous support and encouragement I never would have been able to achieve my goals.

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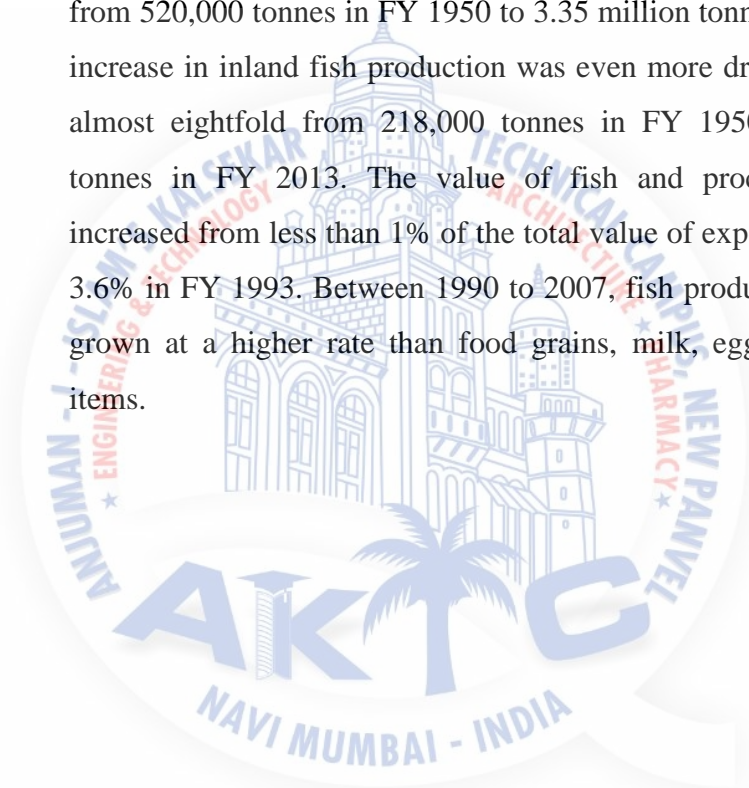
earning over \$ 1.8 billion. Shrimps are one of the major varieties exported. The giant tiger prawn is the Dominant species chosen for agriculture, followed by the Indian White Prawn Shrimp production from coastal aquaculture during 2004 stood at approximately 120,000 tonnes. Farmed shrimp accounted for about 60% of Shrimp exported from the country.

Fisheries sector play an important role in the socio-economic development of farmers in the country. The sector has been recognized as a major income and employment generator as it stimulates growth of a number of a subsidiary industry, and it's a source of low cost and nutritious food besides being a foreign exchange earner. Most importantly, it is the source of livelihood for a large section of economically backward population of the country.

The challenges facing fisheries development in the country includes accurate data on assessment of fishery resources and their fish production, development of sustainable technologies foe fin and shell fish culture, harvest and post-harvest operations, landing and berthing facilities for fishing facilities for fishing vessels and welfare of fishermen.

GROWTH

It rose from only 800,000 tonnes in FY 1950 to 4.1 million tonnes in the early 1990s. From 1990 through 2010, Indian fish industry growth has accelerated, reaching a total marine and freshwater fish production to about 8 million metric tonnes. Special efforts have been made to promote extensive and intensive inland fish farming, modernize coastal fisheries, and encourage deep sea fishing over joint ventures. These efforts led to a more than fourfold increase in coastal fish production from 520,000 tonnes in FY 1950 to 3.35 million tonnes in FY 2013. The increase in inland fish production was even more dramatic, increasing almost eightfold from 218,000 tonnes in FY 1950 to 6.10 million tonnes in FY 2013. The value of fish and proceed fish exports increased from less than 1% of the total value of exports in FY 1960 to 3.6% in FY 1993. Between 1990 to 2007, fish production in India has grown at a higher rate than food grains, milk, eggs and other food items.



PROGRAMMES

The Government of India launched National Fisheries Development Board in 2006. Its headquarters are in Hyderabad, located in a fish shaped building. Its activity focus areas are as follow

- Intensive Aquaculture in Ponds and Tanks
- Fisheries Development in Reservoirs.
- Coastal Aquaculture
- Mariculture
- Seawood Cultivation
- Infrastructure: Fishing Harbours & Landing Centers
- Fish Dressing and Solar Drying of Fish Centers
- Technology Upgradation
- Domestic Marketing
- Deep Sea Fishing and Tuna Processing

The implementation of two programs for the National Programme of Fish Seed Development-has led to encouragingly increased production and inland fisheries-establishing fish farmers development agencies, which reached 1.5 million tonnes during FY 1990, up from 0.9 million tonnes in FY 1984. A network of 313 fish farmers development agencies was functioning in 1992. Under the National Programme of Fish Seed Development, 40 fish-seed hatcheries were commissioned. Fish-seed production doubled from 5 billion fry in FY 1983 to 10 billion fry in FY 1989. A new program using organic waste for aquaculture was started in FY 1986. Inland fish production as a percent of total fish production increased from 36 percent in FY 1980 to 40% by FY 1990.

MAJOR HARBOURS

Apart from five main fishing harbours-Manglore (Karnataka), Kochi (Kerala), Chennai (Tamil Nadu), Vishakhapatnam (Andhra Pradesh), and Raichak in Kolkata (West Bengal) twenty-three minor fishing harbours and ninety-five fish-landing centres are designated to provide landing and berthing facilities to fishing craft. The harbours at Vishakhapatnam, Kochi and roychowk were completed by 1980; the one at Madras was completed in the 1980s. A major fishing harbour was under construction at Sassoon Dock in Mumbai in the early 1990s, as were thirteen additional minor fishing harbours and eighteen small landing centres. By early 1990, there were 225 deep sea fishing vessels operating in India's exclusive economic zone. Of these, 165 were owned by Indian shipping companies, and the rest were chartered foreign fishing vessels.

The government provides subsidies to poor fishermen so that they can motorize their traditional craft to increase the range and frequency of operation, with a consequent increase in the catch and earnings. A total of about 26,171 traditional craft had been motorized under the program by 1992.



ii. WORLD FISH PRODUCTION

YEAR	CATCH	AQUACULTURE
1950	18685.87	603.941
2000	95609.61	35477.41
2001	93045.82	37955.18
2002	93197.99	40388.87
2003	90353.97	42682.15
2004	94363.64	45924.28
2005	94200	48500
2006	92000	51700
2007	90100	50300
2008	89700	52500
2009	89700	54000
2010	89600	55700

RESOURCES

Coastline	8129 kms.
Exclusive Economic Zone	2.02 million sq.kms.
Continental Shelf	0.506 million sq.kms.
Rivers and Canals	1,97,024 kms.
Reservoirs	3.15 million hectares
Ponds and Tanks	2.35 million hectares
Oxbow lakes and derelict waters	1.3 million hectares
Blackish waters	1.24 million hectares
Estuaries	0.29 million hectares

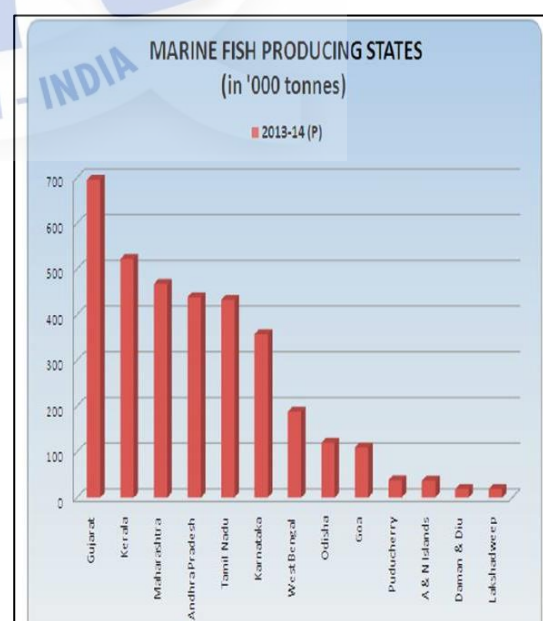
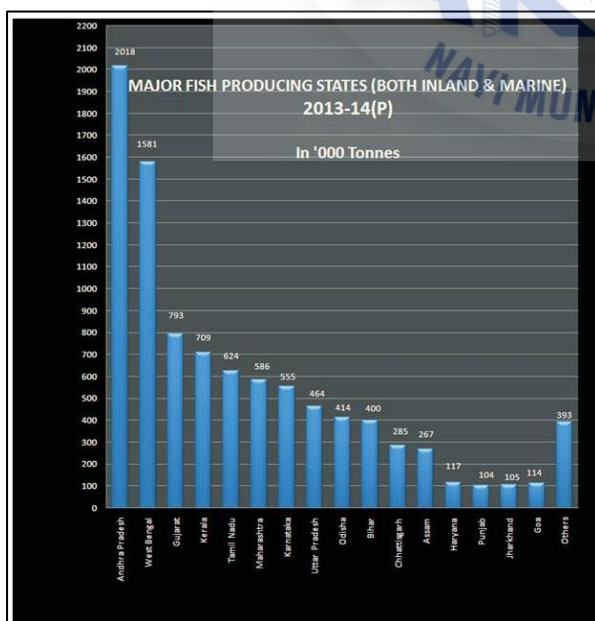
SOME FACTS

Present Fish Production	6.4 mmt.
Inland	3.4 mmt.
Marine	3.0 mmt.
Potential Fish Production	8.4 mmt.
Fish Seed Production	21,000 million fry
Hatcheries	1,070
FFDA	422
BFDA	39

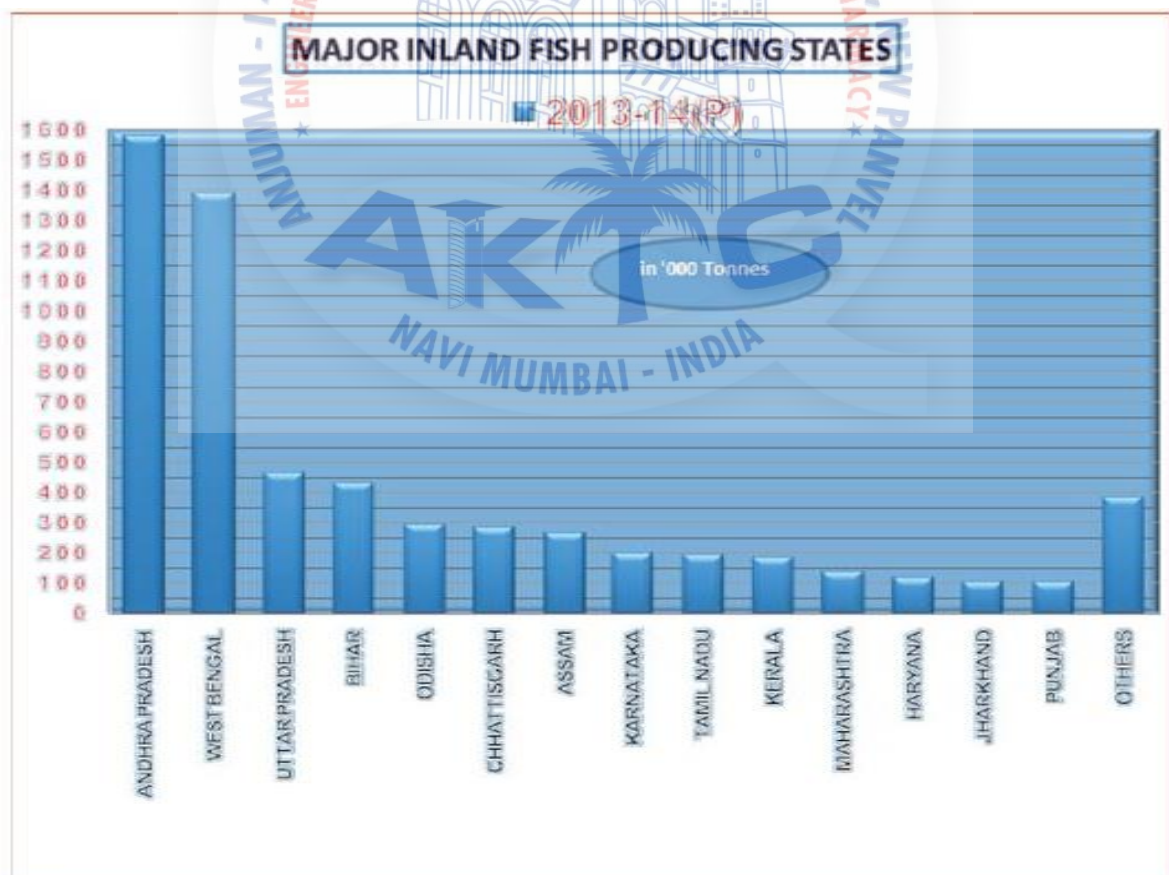
Table 1.1 Fish production in India and world, 1950-51 to 2001-02

Year	World (million tonnes)	India (million tonnes)	India's share (%)
1950-51	23.50	0.75	3.19
1960-61	43.60	1.16	2.66
1970-71	66.20	1.76	2.66
1980-81	72.30	2.44	3.37
1985-86	85.60	2.88	3.36
1990-91	97.97	3.84	3.92
2001-02	129.00	5.96	4.62

Source: Fisheries Statistics, 2000 FAO; Handbook on Fisheries Statistics, 2000. Ministry of agriculture, Government of India and unpublished data from Department of Annual Husbandry and Dairying, Ministry of Agriculture, Government of India.



From the below statistical data, we can conclude that fishing sector. Andhra Pradesh leads in the major fish production and Gujarat leads in the marine fish production, whereas Maharashtra leads Andhra Pradesh in marine fish production and has an Average overall (incl. inland and marine) fish production has almost negligible amount inland.



iii. FISHING CULTURES IN INDIA

COMPOSITE FISH CULTURE:

The composite fish culture is a technology, Developed in India by the Indian council of agricultural Research in 1970's, in this system both local and important Fish species, a combination of five or six fish spp, is used in a single fish pond. These species are selected so that they do not compete for food them having different types of food habitats.

Fish used in this system includes catla, and Silver carp, which are surface feeders, rohu a column Feeder and mrigal and common carp which are bottom Feeders.



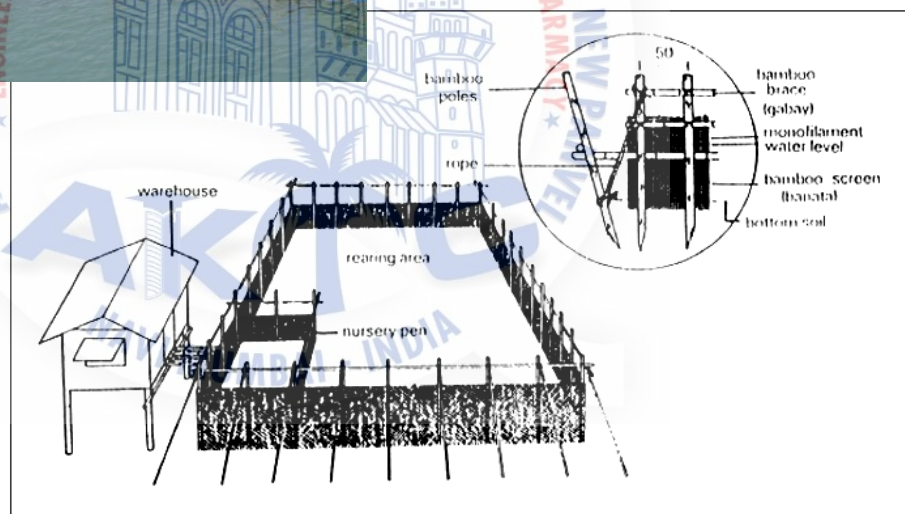
CAGE CULTURE:

The Cage Culture originated about 200 years ago in Kampuchia (Cambodia) from where it has spread to Indonesia, Thailand, India and other Asian countries. This culture practice is quite particular in that the fish to be cultured are kept in cages of mesh, or nylon mesh left in the flowing water. In the past few decades it has become a major source of aquaculture production, particularly highly esteemed, salmon, trouts, yellow tail, sea bass, grouper app, etc.



PEN CULTURE:

Pen Culture was first started in Indonesia. The Pen is considered as transitional Structure between ponds and cages. The enclosures Should be relatively small (2.0 to 7.0 hectars). The Area with too much slit and decomposing organic Matter should be avoided.

MONO SEX CULTURE:

In this case, only one member of the sex either male or female is cultured obvious advantage of such a practice is that all the energy of the fish is utilized growth.

iv. SOCIAL ISSUES IN FISHING

ENVIRONMENTAL ISSUES:

- Typical smell of fish in nearby area.

To avoid the above issues, the site should be choosing which is located in path of the wind flow away from the village to town

Some kind of vegetation around this structure can improve on the environment.

ECONOMICAL ISSUES:

- Employment
- Health of fisheries research

EMPLOYMENT:

People are willing to have delicious fish in their dinner. But they do not even know what it takes before it comes to their dinner table.

An additional 40 million tons of fish will be required 2030 just to maintain current levels of consumption, according to the report. To meet this demand several efforts are being made so that Fishery production can go up and will increase the export also.

When it comes to improvement of our export, at the same time some employment will be created in the fields. Government is undertaking some programs to create employment and is encouraging the people to open their own business.

Fishery is a field in which income and price elasticity's increases with fish demand. One can build their career in fishery production and export business. Aquarium and information Centre for fisheries will be the main local point of design which are significantly used by the regional people for their development..

HEALTH OF FISHERIES RESOURCE:

Fisheries business is mostly dependent on fishing in the oceans, rivers.

Today our falls of salvage, release of chemicals effluents and dumping of the water in these fishery resources is still going on which started undergone the process of industrialization. Over fishing was again one of their destruction. If oceans, rivers etc. Are really to be enjoyed by

our future generation and if these fishery resources are really to be maintained, its health must be given first priority.

GENERAL ISSUES:

In today's competitive economic world, fisheries products and export business is required to be given a new competitive nature with which it can stand in the global market and bring in more foreign currency to the country.

Every koli settlement has its own settlement like lifestyle, dressing, food, culture, etc. which were safe only till unionization and which are constant threads since the past few years, hence in resistance to these changes this colony has restricted itself to themselves.

In order to preserve their every character they have ended up as an introverted community restricting their interaction with the changing rural fabric.

This makes them a very private community introverting from the rest of the city.



v. TYPES OF FISHING PRACTICES

The job of catching fishes by means of traditional crafts, traditional fishing vessel and the traditional knowledge of fishing is known as traditional fishery.

Traditional fishery holds up only 8% of its gdp share from overall fishing sector, whereas the 92% of share is from marine and inland fishery.

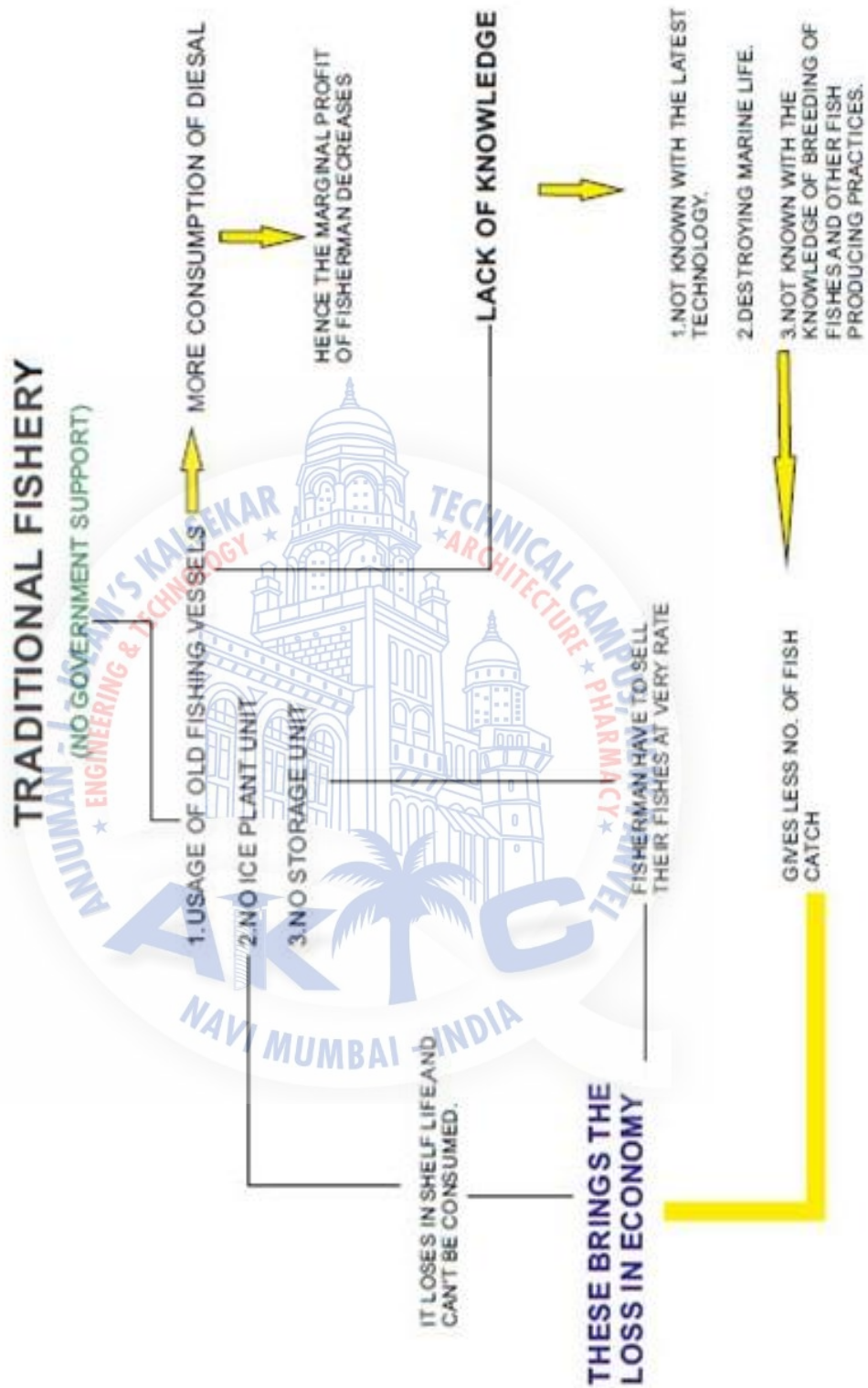
Traditional fishery doesn't meet up its marginal share because of the following reason:-

- 1) Lacks in infrastructure:
 - Ice plant unit
 - Storage unit
 - Food processing unit, etc
- 2) Modernized and mechanized boats
- 3) Knowledge of fishing.

Since this fishing sector holds up only a very little share in gdp, hence no measures are taken by the government to upgrade it.

Traditional fishing provides employment to large no. of people through its long business chain. The above stated issues leads to other issues in different divisions, (explain through the flowchart on the next page) which ultimately makes a loss in economy of traditional from the above statistical data; we can conclude that fishing sector.

ISSUES



There are basically 2 types of fishing practices:

- 1) Inland fishery
- 2) Marine fishery

INLAND FISHERY:

The inland fishing practices primarily include various crafts and gears.

The simplest and most primitive types of crafts used for fishing in inland waters are the rafts and dongas, operated in calm waters.

In the larger rivers and estuaries, subject to strong current and tidal movements, sturdier planks built boats are used and its mostly been handled by the traditional community (Kolis).

MARINE FISHERY:

Artisan crafts include; catamarans, dugout canoes, plank-built canoes, FRP canoes, motorized crafts.

Small outboard crafts (fitted with one OB engine) include; plank-transom canoes (mini/ pelagic trawl units), plank-built canoes, dugout canoes, catamarans, small plywood boats, FRP crafts, and beach landing crafts.

Large outboard crafts (fitted with more than one outboard engine) include; ring seine units, large plywood boats, and beach landing crafts.

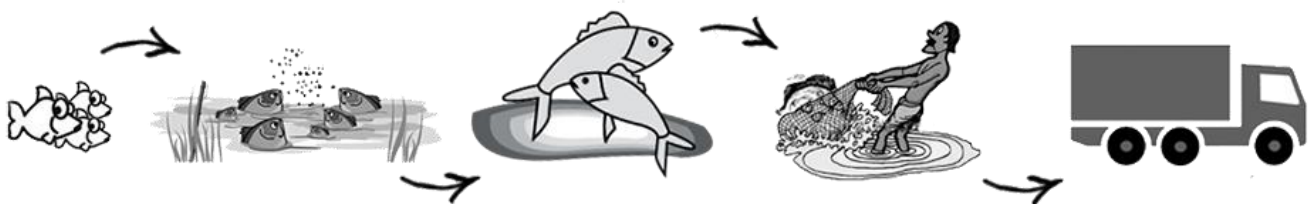
Mechanized crafts involve dol netters, trawlers, ring seine units with inboard engine, mechanized gill-netters, purse seiners, pole and line, and long lining.



vi. WHAT IS FISHING PORT?

A port is a location on a coast or shore which contains one or more harbors on which ships can dock and transfer people or cargo to or from land. Port locations are selected to raise access to land and navigable water, for commercial demand, and for shelter from wind and waves. Ports with deeper water are rarer, but can handle larger, more economical ships.

A fishing port is a port or harbor which is used for landing and distributing fish. It is commercial. A fishing port is the only port which depends on a marine product, and reduction of fish may source a fishing port to be uneconomical. In recent years, rules and regulations to save fishing stock may limit the use of a fishing port, perhaps effectively closing it.



vii. AIM

To design and create fishing port keeping in mind the comfort and needs of the employees and common people.

viii. OBJECTIVE

The key objectives are:

- (1) To increase marine fish production of the country up to the sustainable level to boost export of sea food from the country and also to increase per capita fish protein intake of the masses
- (2) To ensure socio-economic security of the fishermen whose livelihood solely depends on this occupation.
- (3) To ensure sustainable development of marine fisheries with due concern for ecological integrity and bio-diversity.
- (4) To improve the standard of living of the people working in this field.

ix. NEED

The role of the fishing port is considered as the interface between the netting of fish and its consumption.

In many cases, the fishing harbor is also the focal point of pollution both of the surrounding environment and the fishery products it produce.

Many fishing harbors are also the source of major impacts on the physical and biological coastal environment.

Fish landed in fishing harbors in many countries is destined for the local markets, it is every country's wish to improve the health hazard-free quality of its catch in order to increase exports of seafood products to more sell over sea markets.

Fisheries departments worldwide generally have to manage and maintain harbors and landing places.

x. JUSTIFICATION

Recently the vacant spaces in the surrounding (site) are not functional. Some part of the land is acquired by the users in term of making shades, storage, net repair area, etc. Due to fish landing on port the huge amount of waste is generated on the site which is thrown in the water or some part of the site. This affects the biodiversity of the context and gives rise to the unhygienic problems. There is no proper space allotted for the fishing activities like Auction of fish, cold storage, boat repair area, etc. There is no proper access to the port. There is no linear circulation for the user so as to guide them to their destination.

The solutions can be designed in order to cater all the problems related to fishing activity considering the users comfort which will benefit the fishing community. It also includes multifunctional spaces which can be active in all seasons.

THEROETICAL BACKGROUND

i. BACKGROUND STUDY

India is one of the largest peninsula. Its boundaries are faced by Arabian sea. And Bay of Bengal. There are many metropolitan cities, towns, villages along the coast. On the periphery of the coast fishing is one of the important business. One of the five maritime districts in Maharashtra is Ratnagiri. Out of 184 fish landing centres there are only three harbors; Sason Dock, New Ferry Warf and Mirkarwada. First two are in Mumbai of which case studies is done further and the third one is in Ratnagiri; which is to be redesigned. It is constructed by the State Fisheries Department. Ratnagiri district has a long coastline of about 167 kms. The ichthyologic fauna of Ratnagiri district is ver rich comprising of prawns, tuna, sardines, mackerals, surmai, tuna, pomfret, karel, catfish, shell fish, etc. Fishing season is from September to May. During monsoon is at halt except in creeks.

Mirkarwada harbor is the major fish landing and assembling centre , whereas Rajiwada is the satellite landing centre in Ratnagiri town. The harbor at a cost of Rs. 344 lakhs was sanctioned by the Central Government of India in 1976, and the entire construction was to be completed within 2 years, however is was delayed on account of various difficulties. The construction of break water walls, jetties, quays, slopping hard etc. were completed by 1987- 88, but works such as internal roads, water supply, drainage, leveling are yet to be completed. The local fishermen started using harbor when it was constructed. About 10,000 people's livelihood is dependent on fishing activity and there are over 600 fishing vessels operated on this harbor.

ii. RESEARCH METHODOLOGY

a. Socio-Economic Profile of Fishing Communities in Ratnagiri Town

In Mirkarwada, Rajiwada and Bhatkarwada of Ratnagiri town, about 10,000 fisherfolk population lives. There are 600 fishing vessels of which 66 are non-mechanised and 534 are mechanized. In the ofseason fishermen prepare their nets, maintain trawlers and boats. Fishermen of this town do marine fishing mostly. Loading, unloading and transportation of fish is done on landing sites and jetties. Since there were no government owned or sponsored cold storage facilities and ice factories, private sectors have started at present and now there are 12 ice factories and 4 cold storages in Ratnagiri.

Table 1: District Profile

District	Landing Centres	Fishing Villages	Fisherman Families	Traditional Fisherman Families	BPL Families	Fisherfolk Population
Thane	28	77	26,821	26,331	4,231	121,869
Greater Mumbai	18	30	9,304	9,138	624	40,953
Ratnagiri	36	98	14,064	12,541	2,089	66,685
Raigad	36	168	24,026	20,448	5,864	123,574
Sindhudurg	34	83	7,277	5,745	2,701	33,178
Total	152	456	81,492	74,203	15,509	386,259

Table 2: Fishing Craft in the Fishery

District	Trawlers	Gillnettes	Dolnetters	Lines	Purse Seiners	Others	Total Mechanised	Motorised	Non Motorised	Total
Thane	16	206	1,613	0	0	0	1,835	773	247	2,855
Greater Mumbai	2,849	551	1,236	5	228	26	4,895	0	830	5,725
Ratnagiri	2,015	620	31	0	142	3	2,811	49	796	3,656
Raigad	207	1,181	1,093	0	65	0	2,546	135	505	3,186
Sindhudurg	526	403	0	0	0	0	929	606	405	1,940
Total	5,613	2,961	3,973	5	435	29	13,016	1,563	2,783	17,362

Table 3: Fishing Craft in the Fishery

District	Landing Centres	Trawlers	Gillnetters	Dolnetters	Lines	Purse Seiners	Others	Total Mechanised	Motorised	Non Motorised	Total
Ratnagiri	Mirkarwada	330	7	0	0	110	0	447	30	16	493
	Rajiwada	60	27	0	0	0	0	87	5	15	107
Total		390	34	0	0	110	0	534	35	31	600

Table 4: Infrastructure-Fishery Related

District	Boat Yards	Ice Factories	Cold Storage	Freezing Plants	Curing Yard	Peeling Sheds	Processing Plants	Fish Meal Plants	Total
Thane	4	11	10	3	1	0	3	0	0
Greater Mumbai	0	4	11	36	9	9	34	9	9
Ratnagiri	0	18	4	4	0	0	4	6	0
Raigad	1	7	0	1	0	0	11	0	0
Sindhudurg	0	9	8	1	0	0	1	0	0
Total	5	49	33	45	10	9	53	15	9

Table 5: Fishermen Families in Different Settlements

Name of the Fishing Area in Ratnagiri Town	Fishermen Families	Traditional Fishermen Families	BPL Families	Fisherfolk Population
Mirkarwada	405	405	00	2340
Rajiwada	675	675	23	3004
Bhatkarwada	59	59	04	276
Total	1139	1139	27	5620

b. User brief

Fishing is practiced by traditional fisher folk communities. Out of 10,000 fishermen some have adopted modern technology in their profession. Fishing is expanded due to modern infrastructure such as cold storage, fish processing plants, ice factories and transport network. The speed has increased by the use of diesel. Also use of modern technology helps to generate more revenue. Fish finder technology, GPS, mobile, wireless network are included in modern technology. Due to good transport network market has expanded. Local markets to global market (export) have gone up over the years. It has expanded beyond traditional boundaries. Fishing is now more driven by market force rather than traditional communities. There are many seasonal migrants workers who work on trawlers during fishing. Many of the fishermen want to discontinue this profession as the wages are low and work time is more; 14 to 18 hours a day. Also, there is lack of facilities like toilet, water supply system, health care and housing near harbor. Also, there are license issues and harassment by patrolling police and custom staff.

c. Policy & institutional mechanisms: Role of state fisheries department

The constitution of India allowed permission for fishing upto 12 nautical miles from shore; and its responsibility is given to State government. If extended beyond this limit called deep sea fishing, it comes under central government authority. The state government of Maharashtra has strengthened its role over marine fisheries through the passing of legislation of Maharashtra Marine Fish Regulation act in 1981. The government of Maharashtra has assigned this implementation of this act to State Fisheries Department. The power of State Fisheries Department under this act are prohibition of use of fishing vessel in opposition of any order made under section 4, licensing of fishing vessels, prohibition of using non licenced ; suspension, cancellation and amendment of licenses; giving information to Registration Officer about moving of fishing vessel, registration of vessel, seized fish disposal, imposition of penalty and adjudication, constitution of Appellate Board and appeals to it and others



In 2004, the Central Government of India introduced another policy to protect and improve marine fisheries in Comprehensive Marine Fishing Policy. Realising the importance of Marine Fisheries Sector extends the security of fisherfolk population to food security of thousands of people and generating foreign exchange for the country. It was found that the strength of the sector for employment generation through allied activities and empowerment of coastal womenfolk is significant. However, this policy has pointed out that the global marine fisheries, especially the coastal sector has been under constant threat due to depleting resources, pollution and upheaval in climatic conditions. Threat over this in international forum have given rise to agreement and procedure that are sincerely implemented by Governments and diligent practice by the stake holders so as to ensure sustainability in fisheries. The effort of the Union Government in this regard has resulted in introducing Comprehensive Marine Fishing Policy. It seeks a focused to achieve something from the coastal States and Central Departments with full appreciation of the international convention in force for management, conservation and sustainable utilization of our invaluable marine wealth, with winning its relevance to the livelihood and food security of the coastal communities.

d. Role of Municipal Council of Ratnagiri

The Development Plan is required to be made by Municipal council for the physical development of the town. The Development Plan for Ratnagiri town has been revised and partly approved in 1996 and the remaining part is still to be approved by the State Government. The municipal council is assigned with the implementation of development plan. It prepares rules and regulations for city development, governance, oversees its implementation and directs the management of the town. However, it is assisted by the State Government's town planning department since the council is not expertise.

The role of local municipal council is to strengthen and sustain this important economic activity and success of people dependent upon fishing activity. However, it seems to be sparse. An analysis of policy decisions of Ratnagiri Municipal Council (RMC) shows how the local institution has failed to recognize the importance of fishing activity as major economic activity.

e. Fishing Activities and CRZ Constraints

The land use map of Ratnagiri Town has been subjected to many restrictions. The total area of Ratnagiri Town is 8.5 sq.km. Around 33% of Ratnagiri comes under CRZ II which forbids any development activity in this area. And in remaining land there is hardly some space for development. There are many proposal for redevelopment but due to CRZ constraints, plans have not been implemented. The new CRZ plan emphasize on livelihood of fishing and other communities living in coastal areas. There has not been a proper report by coastal management authority nor any other agencies to work towards this objective. On the other hand, it is seen that the reclaimed land is seized by local powerful fisherman groups who don't allow other fishermen to do any allied activities at that place. It is also observed that they rent this place to other less powerful traditional boat owners. Similarly, there are many illegal structures in coastal areas which have been overlooked by state administration. The 1991 CRZ notification pursued to regulate all development activities in the inter- tidal area and within 500m on landward side. No steps were taken by the council against pollution emanating against land based ctivities. Also, th state pollution control board failed to control discharge of untreated sewage by municipal effluents, council and the disposal of solid waste as it endangers marine ecosystem. As it resulted in decline of fish catch near sea shore ; affecting traditional fisherman.

f. Economic Aggression

With the establishment of mechanised boats and the increasing expansion of their activities, it is presumed that in coming years the pressure of fishing activity in Mirkarwada harbor will increase. The over misuse of coastal resources need to be regulated in effective way which is exploited by the new entrants without permission of artisanal fishing communities. Further in the last two decades, all most all the fishermen has started using nylon nets or purse seine net instead of gill nets. And also the number of mechanized boats and fishing nets have increased significantly. Given the current state of affairs, the coastal area should be examined carefully by the state fisheries department. Against the overexploitation of coastal resource protective action to be taken to ensure that even if there is short term loss, long term sustainable yield should not suffer. It is seen in survey, that there is no protective step is taken by the state fisheries department to maintain long term sustainability yield. Not withstanding the threat of over fishing , the state government has allowed and encouraged large number of operators to fish in Mirkarwada coastal areas.

g. Monopolistic Fishing Societies

Mirkarwada Rajiwada Machimar Society, Bhagwati Bandar, Adarsh Machimar society, Rajiwada Bhagwati Bandar Machimar society, Mahila Machimar society, Rajiwada and Mahila Machimar society in Bhagwati Bandar are the six fishing societies in Ratnagiri Town. These fishing societies play the role of facilitator between fishing community people and various state fisheries departments. If a person is engaged in traditional fishing then they have the right to be a member of fishing society. These members are entitled to get government subsidies and welfare schemes made for the protection and upliftment of fishing community through fishing society.

Centralization of power and decision making of fishing society is one of the reasons for increasing number of fishing societies; which is supported by few rich trawlers and politically affiliated members in the society. It is noticed that the fishing society has not been working for traditional and common fishing community members. It has been exclusively controlled by a group of people who have been actively diverting resources and making decisions for their benefits. Many members of the committee have accused that the Adarsh Machimar society in Mirkarwada is not democratic and transparent as it is controlled by the rich politically affiliated members. There is barely any scope for addressing the problems of traditional boat owners, who are facing the major problem from mechanized boat owners. Traditional boat owners in Mirkarwada have not got any scheme benefit and government subsidies like loans to buy or repair his boat or to buy a net. Many traditional boat owners have lost their fishing activities as they do not get any support from these societies. They prefer to do other works like net preparing, daily wage worker in local ice factory and cold storage factories.

h. Multiple Authorities

Perhaps the most important and crucial challenge of fishing activity has been the presence of multiple authorities without any coordination. The nodal agency of marine fishing regulation is given by the state fisheries department of Maharashtra. Over the years, with the endorsement of a number of economic and environmental policies, a number of agencies have been involved in implementation process at the most basic level. The agencies which are involved include Coastal Regulation zone authority, Pollution Control board, Port Authority, Town Planning Department, Customs Office, State Fisheries Department, Police Department, District development officer, Harbor Engineer Department, Local Municipal Council and District Collector Office. All though all agencies are not directly related to fishing activities, the power expressed to each authority without any institutional mechanism to coordinate among these agencies. However it creates confusion and delays in implementation of facilities related to fishing activity. There are also proposal to redirect more reclaimed land for non-fishing activities. The infrastructure facilities for fishing activity are not effectively implemented because the plan is proposed by state fisheries department without involving other departments.



i. Issues need to be resolved

The concerned authorities, in this case, the state fisheries department and district collector officer and coastal authority need to urgently resolve issues still hindering fishing related activity in the reclaimed land, particularly occupied by fishing community for various activities like cold storage, fish drying, cutting, supplying and selling in the local market. The reclaimed land should be used for common interests of fishing community and rights to use the reclaimed land should remain vested with the local fishing community. Titles to reclaimed land should be given to local fishing community so that their livelihood and other economic activities related to fishing sector can be protected. Basic amenities like water, sanitation and health facilities should be provided near the Mirkarwada jetty side. It is important to ensure that the access to basic services is available so that the fishing community can avail these services and their right to life can be protected. It is important to involve local fishing community in the redevelopment/reconstruction of the Mirkarwada Port so that their requirements can be taken care of. Also, it is important to ensure the process of redevelopment is democratic and transparent. No doubt, the state fisheries department and NCDC have been very useful to protect and improve the interests of fishing community across the state of Maharashtra but these institutions should adopt a broader development approach, and should aim to improve the quality of life and livelihood of fishing communities in a sustained manner. The interventions of these institutions should not be piecemeal and inconsistent. Most importantly, the local municipal council should ensure basic facilities for fishing activity in the town, including incentive for fishing industries and market space for fishing activity so that it can enhance the economic activity of the town.

j. Infrastructure needs assessment

The role of the fishing port may be considered as the interface between the harvesting of a fish and its consumption; thus the type and size of a fisheries port and its infrastructure greatly influence the way and rate at which a country's living marine resources can be exploited. The perceived need for a fishing port, however, is likely to originate from a combination of fisheries management planning and pressure from the industry to meet local consumption needs and of the export market. In order to plan and design a fishing port that is commensurate with the targeted resources (not too large, not too small, but just large enough), a fishing port planner needs the full cooperation of fisheries managers, hydrographers and those responsible for coastal area management, fishing industry leaders and fishing communities. In particular, the port planner would need to know and understand the resources that have to be exploited (low-value high-volume or high-value low-volume), the catch potential, including seasonal variations, the local or proposed marketing systems, including export potential and consumer preferences (fresh, frozen, salted, smoked or canned fish).



iii. LITERATURE REVIEW

Technical problem on site

The major problem faced in the smooth running of this harbour is excessive silting. Recently, the State Department has approached the Dredging Corporation of India for exploring the possibility of undertaking dredging work. The estimated cost of dredging is likely to be around Rs. 200 lakhs. When the fish is caught in such large quantities and many fishing vessels operate regularly, it is imperative that landing and berthing facilities be developed. This becomes more significant because in addition to the safety of the vessels, facilities should also be there for adequate storage, transportation and hygienic handling. All these facilities are supposed to be provided by the fisheries harbours. In addition to this there are a number of governance challenges for fishing activity in Ratnagiri which include: lack of implementation, presence of multiple authorities and lack of coordination among them, impact of CRZ notification, encroachment of common land by vested interests, apathy of town planning department, failure of state fisheries department and local municipal council in providing basic facilities and infrastructure, monopoly of trawlers and domination of powerful groups over fishing society.



affectionately called Nana or Bhau were. One of such places is the Bhaucha Dhakka.

Bhaucha Dhakka of ferry wharf was built by Lakshman Hari Chandarjee Ajinkya .(1789-1858). He belonged to the Pathare Prabhu community (one of the original inhabitants of Bombay). He was affectionately addressed as Bhau or big brother by the local people. His family had estates at Naigaum and Parel and he worked as Chief Clerk in the Gun Carriage Factory in Colaba, information given in the Govt. archives and in the Marathi book 'Pathare Prabhuncha Itihaas' by Pratap Velkar reveal that Bombay did not have a regular pier or wharf till 1835 for either goods or passengers. The government started leasing out land on the Bombay frontage to private individuals to build wet docks and basins. Lakshman Hari Chandarjee Ajinkya alias 'Bhau' was the first local to take this opportunity. He thus constructed Bombay's first wet dock in 1841 for the convenience of the passengers and incoming ships to load, embark and berth. These included Carnac and Claire Bunder. Today, the passenger terminal at the Bhaucha-Dhakka is still used to ferry people to Mora and Rewas for their onward journeys to Uran and Alibaug.

View of fishing trawlers which are docked on the Bhaucha dhakka jetty which shows the density of trawlers for unloading of fish.



View of passenger terminal on Bhaucha Dhakka.







Next is the office building housing the Port Directorate. The Port Directorate includes offices for the port manager, work department, coastal engineer and port trust club. The Directorate supervises the port activities including fishing. It was also served as the office for Frank Shipping Corporation formerly providing catamaran services between Mumbai and Goa. However currently used as an office for Samlink Cruises which provide cruise facilities from Ferry Wharf. The building is a three storey reinforced concrete structure, partly doubleheight in areas having ticketing counters. It has a kotah stone paved waiting area with check-in counters , kiosks and toilet facilities. These facilities however are currently underused and the building is lying vacant.

Last was the Fosma training centre. There were different types of indoor training equipments for the seamen, changing rooms for the officers as well as rooms for training staff.



A two way four lane leads to a point from where the fish jetty is placed diagonally and the passenger terminal is placed perpendicular on the southern side. A small parking lot for about 12 cars (taxi and private) is provided outside the passenger terminal shed. It also has a bus stand for best buses.

The shed of the passenger terminal is a structure of around 100m x 24m. The structure is a steel portal frame with asbestos roofing and cladding on the both the sides.

The shed houses booking counters, waiting areas for about 150 passengers and food stalls such as:

Ice-cream stalls - 2(3.5sqm.each)

Fruit stalls - 2(2.5sqm.each)

Pan stalls - 2(1.5sqm.each)

Flower stalls - 2(4.5sqm.each)

Bhelpuri Stalls - 2(3.5sqm.each)

Canteen - 4(4.4sqm.each)

Restraunt - 13.5sqm total

Tea stalls - 2(3sqm.each)

Toilets - 4.5sqm total

It also has a public toilet at its far end. Stepped embarkation, disembarkation platforms or concrete piles have been provided to take care of low and high tide levels.

At present the service run from Ferry Wharf to Mora (year round), Rewas (fair whether), Mandwa (fair whether) and Uran (year round).

There are 8 private companies owning 2-3 launches each, 26 in total. The largest having a capacity of 225 and the smallest of 40 capacity. These companies have their offices in the terminal building each about 1.5m x 3m. It also has the office of the Traffic Inspector and Assistant Port Supervisor.

The fish jetty has a hall of around 85m x 12m on stilts with the jetty around its sides. An average of around 35 launches carry out their trade daily on this jetty, in total 213 launches are operational here. The stilts houses various activities such as food stalls weighing and sorting of fish hold and a public toilet. There are 3 major companies which carry out this weighing and exporting activity. Though it is not physically demarcated, distinctive separation of the sales can be seen as per the quality and type of fish hold in the local market or for export. The hall above is used as a resting place and for storage of equipments used for loading, unloading and transportation of fish holds. the hall is a reinforced concrete structure with steel truss as roofing members with asbestos roofing and steel grill all around its side.

The jetty also has offices for the customs and the port trust. Each of these offices houses around 5 people. A separate waiting area for one van is provided for the Yellow Gate Police. The jetty also holds a water tank used to provide drinking water to the crew on these ships. The access which connects the fish jetty to the main access also holds various supporting activities and is converted into a hawking zone along the footpaths. The site also has 2 petrol pumps, one belonging to a private company and the other owned by the government, which are engaged in supplying fuel to the vessels from both the areas, the ferries and the fishing.

Fresh water has been provided their ducts laid out under the pier. Electricity and telephone facilities have also been provided.

Other activities such as ice crushing and filling are carried out in Malet basin. Also other supporting activities creates a considerable time lag and ultimately leading to chaotic situation. And further nature also adds to the situation as leaving or entering the Malet basin is possible only high water, that is a time period just before or after high tide as less draught is available there.



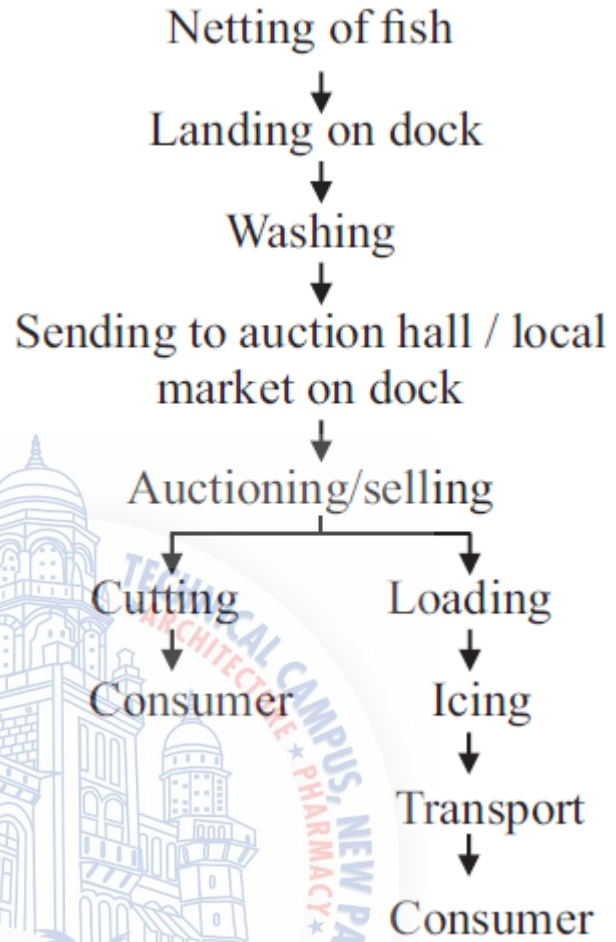
TOTAL AREA=3,61,404sq m.

PASSENGER TERMINAL= 175 X
40= 700sq m.

FISH JETTY= 122.33 X 36=
4404.6m

OTHER STRUCTURES= 500 X
703,50,000sq m.

BUILT UP AREA=10,420sq m



Site Issues-

- A common road leads to the fish jetty and the passenger terminal. This creates smelly and unpleasant condition for the people travelling daily.
- Inadequate parking space. for a daily rush of about 2000 people only 12 car park including taxi stand has been provided and 3 bus stands.
- Lack of vegetation. The entire site is a concrete jungle with very little greenery.
- The type of mooring provided for the ferries is "along side quays jetties or potoons". It causes a lot of inconvenience as the crew from the outer yachts have to climb over inner berthed yachts.
- Number of mooring not sufficient for the number of vessels.
- Fisher men align themselves along the road leading to the fish jetty thereby blocking the way and creating a chaotic situation. waiting hall provided for the passengers is too small for the increasing crowd.
- Queue space allotted is too small.
- Too many kiosks which are not properly planned thus disrupting the circulation space.
- Area quite dark. Roof has skylights but sides of the structure has open faces.
- Spaces not used properly except for store purpose.
- ÿ



a

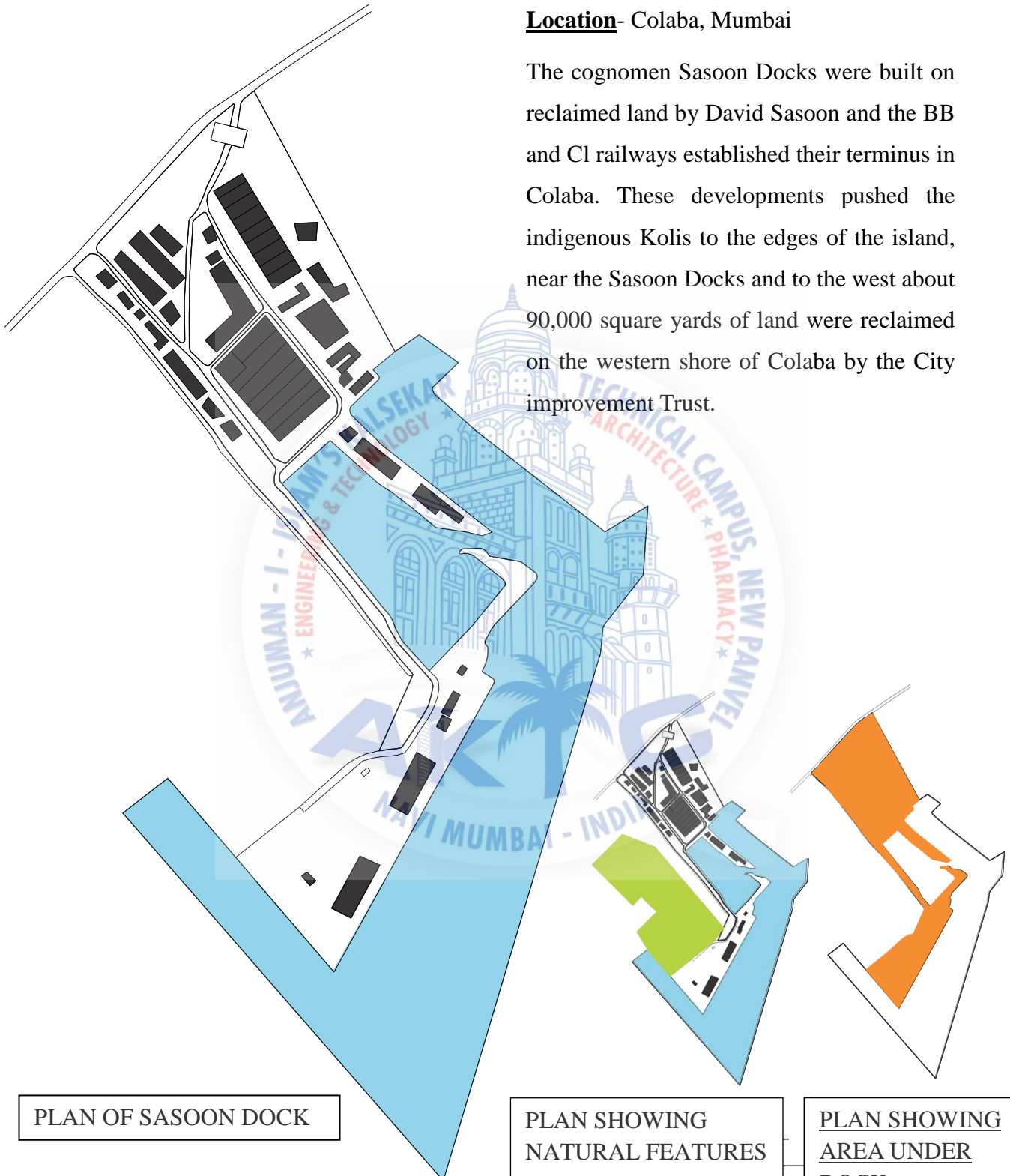
- No adequate architectural interpretations made for number of requirements.
- No rest rooms for yatchments.
- The walls along the road leading to the site are 3m to 6m in height for security purpose. Thus the entire journey to the site is dull and boring.
- No garbage bins are provided in the site leading to dirty and smelly conditions.
- Maintenance of roads and structure not taken care of.
- The advantage of the sea view around has not been taken into consideration.
- Water front areas for the general public have not been created.



ii. SASOON DOCK

Location- Colaba, Mumbai

The cognomen Sasoon Docks were built on reclaimed land by David Sasoon and the BB and CI railways established their terminus in Colaba. These developments pushed the indigenous Kolis to the edges of the island, near the Sasoon Docks and to the west about 90,000 square yards of land were reclaimed on the western shore of Colaba by the City improvement Trust.



PLAN OF SASOON DOCK

PLAN SHOWING
NATURAL FEATURES

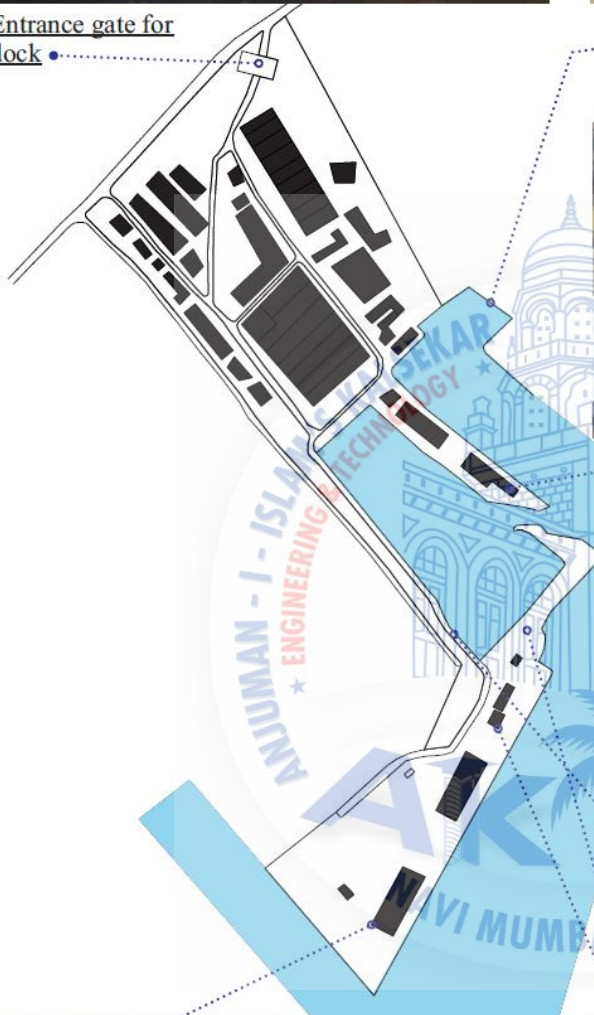
PLAN SHOWING
AREA UNDER
DOCK



Entrance gate for dock



Shipping yard



Auction hall



Fueling station



Water tank



Auction hall



Jetty used as Net repairing area





Facilities-

The ice factory cannot provide enough for daily requirement.

The cold rooms and other storage are also less to meet the need of the people.

There is no proper facility for ship repair and maintenance.

Loading and unloading happens manually for lack of any mechanization with regards to such facilities.

Fuel oil and bunker oil subsidized by the government.





There are also cold storage places where you can buy the cleaned and filleted variety that is earmarked for export. The auction of the day's catch takes place early in the morning around 5:30am bargaining is noisy and mandatory.



iii. KARANJA PORT

Location-Uran, Raigadh

The karanja alone carries 500 boats including small, medium and larger size boats, and hence karanja leads 1st in Fishery production in Raigad district.

Out of the total fisherman working at Sasson Dock, 80% of fishermen comes from karanja.

However the export of fishes to foreign countries takes place from Sasson dock where the fishes get auction to the agents and from agents it goes to fish processing factories and then to fish packaging unit and it gets exported.





FISHERMAN



AGENTS



FOOD PROCESSING UNIT



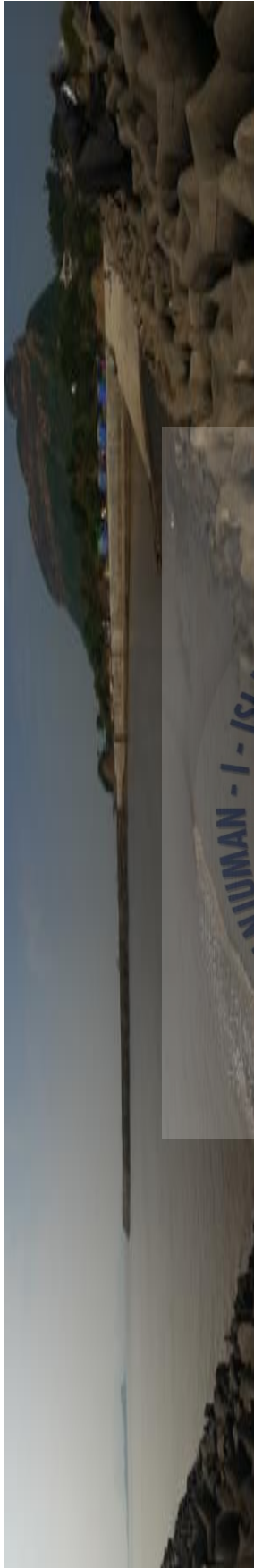
FOOD PACKING UNIT



EXPORT CENTRE



REVIVAL OF FISHING PORT IN MIRKARWADA, RATNAGIRI



Current senario of karanja and adjacent koliwadas

Basically karanja port serves only for boat repair activity.

There are also subsidiary business happen at the port like weaving of net, scrap shop for rusted motors and machines, selling of fishes within village, making of boats.

Karanja consists of 11 villages where kasavlapada and navpada holds up large no. of kolis.

There is no ice plant unit, cold storage unit, storage unit, fishery based schools for the fisherman, no recreational space for the festivals and cultural activity, no export centre for inland fishery export.

Karanja either has to seek this facilities either at uran or at Colaba.

There is no community space at karanja for the interacion of Koliwadas such mora, hanuman, panjes as the meeting related to fishery is conducted by karanja machhimar society.

Since new fish landing centre is about to come in karanja, hence it could be the magnetizing place in terms of empowering employment and thus could reduce the imbalance in economic status growing within the koli community in raigadh district.

The proximity of karanja to mumbai is well defined with the sanction of the proposed mumbai trans harbour link project that will connect sweri to uran in navi mumbai across thane creek.

The region falls under the sez which provides industries and export trade.

The jnpt is also closely located to facilitate fishing exports and boost the overall trade in fisheries.



Fishing community and business centre

Objectives:

- The topic aims at providing infrastructure relating to fishery in karanja that going to deal with all the business relating to fisheries.
- It aims to provide an export centre that going to deal with inland and fishery export.
- To update the fishermen with the latest fishing technology and to impart them with the corresponding knowlede, the thesis aim at to provide fishery institute
- Also the new fish landing port going to bring the lot many boats to karnja, hence the thesis aims at providing centre for repairing of boats,motors, machines etc.

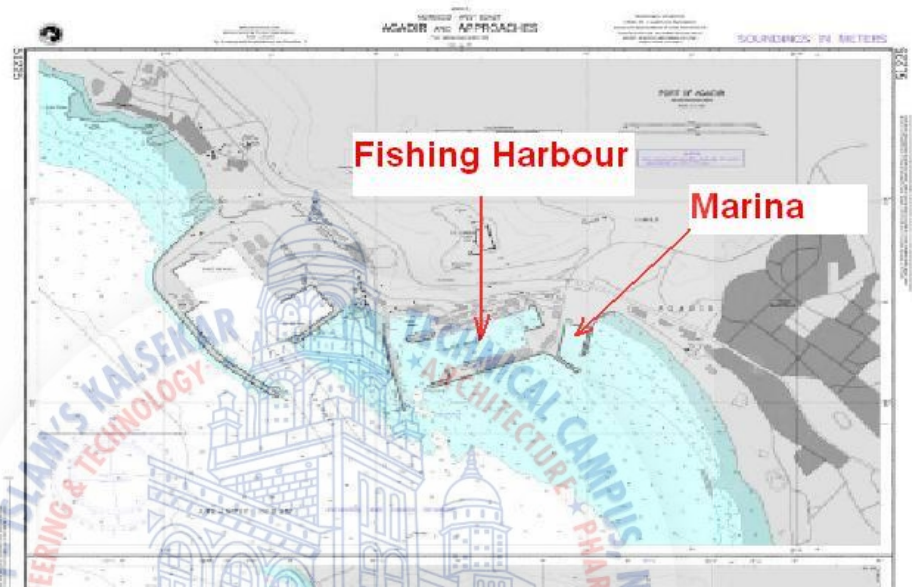


- Also the thesis aims at providing the fish based food producing unit.
- Also objective of thesis is to provide community spaces for the fishing community for the interaction and the celebration of fest, cultural activities.
- The hotels based on seafood cuisine will serve not only to people coming there for business activity but will serve for the tourist attraction too.



iv. PORT OF AGADIR

Port of Agadir is the one of largest fishing harbour on the African Continent. Agadir has had several ports: two fishing ports, a major trading port, and the recent port for leisure boats with its marina.



Huge fleet of small wooden coastal fishing boats.



These boats catch many different types of fish - Dorades, Red Snappers, Jack Dories etc



Seeing the sheer no. of these coastal boats made us feel thankful we had arrived here when we did - when they were all safely out of our way in port - the thought of having to wend our way through them and their floating nets at night is a bit of a nightmare.



WITH PILES OF NETS DRYING ON THE ROCKS



NET REPAIRING CARRIED OUT ON DOCK



The fisherman below had agreed to take me with him on his next fishing trip - however, I unfortunately decided to cancel as the weather looks as though we may have to bring forward our trip to the Canaries and there are many other things we wish to do



Down the harbour wharf, the boats get bigger. On the right are various warehouses and workshops



Including a very large ice making plant - below are the stainless steel shuts for loading the ice Lorries from a hatch in the ceiling



The larger boats, which stay at sea for a few months at a time, have onboard refrigeration. The smaller boats rely on ice which they were busy taking on board



Hawkers serving lunch for the workers who are busy on the dock.

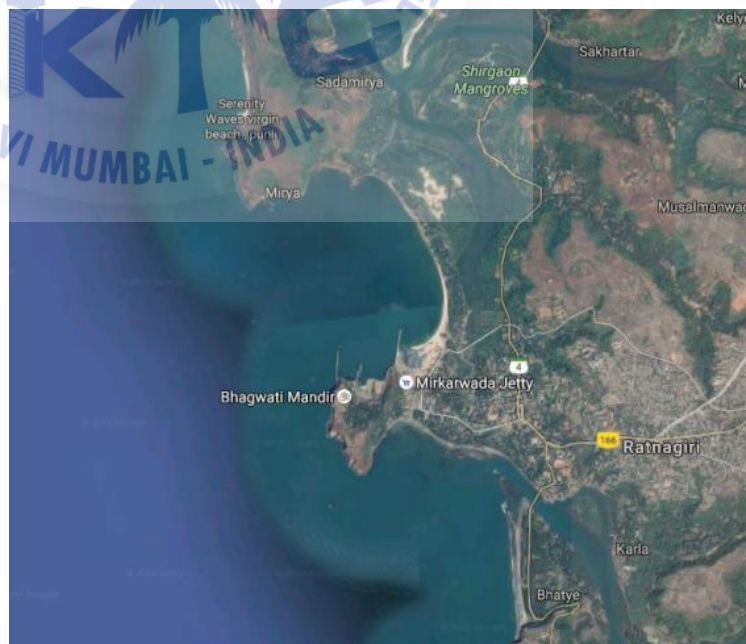
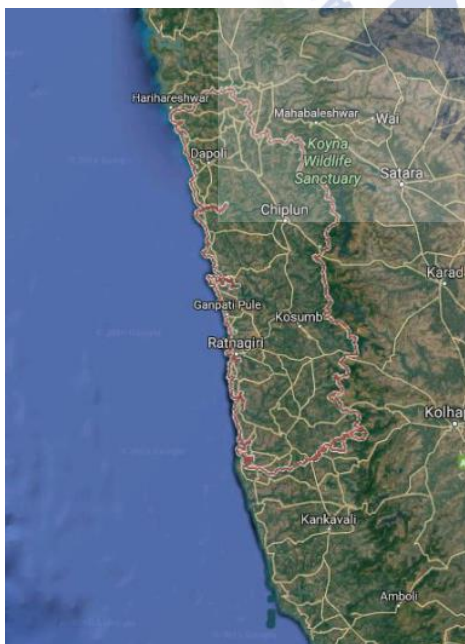
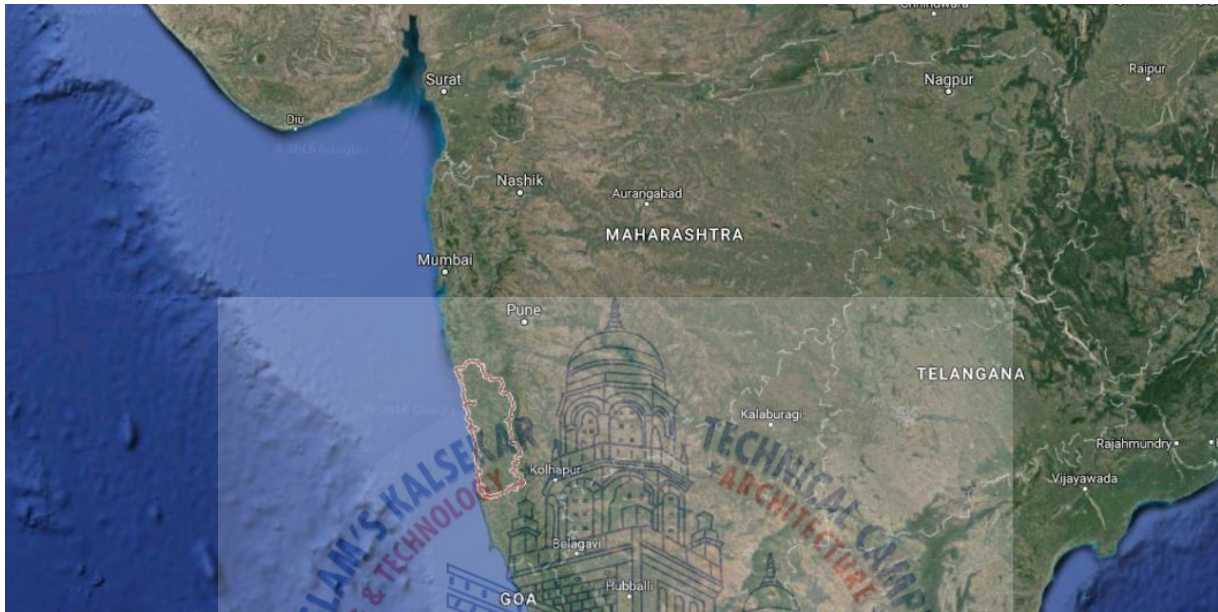


Restraunt/canteen inside the dock premises which is used by the visitors as well as workers over there.



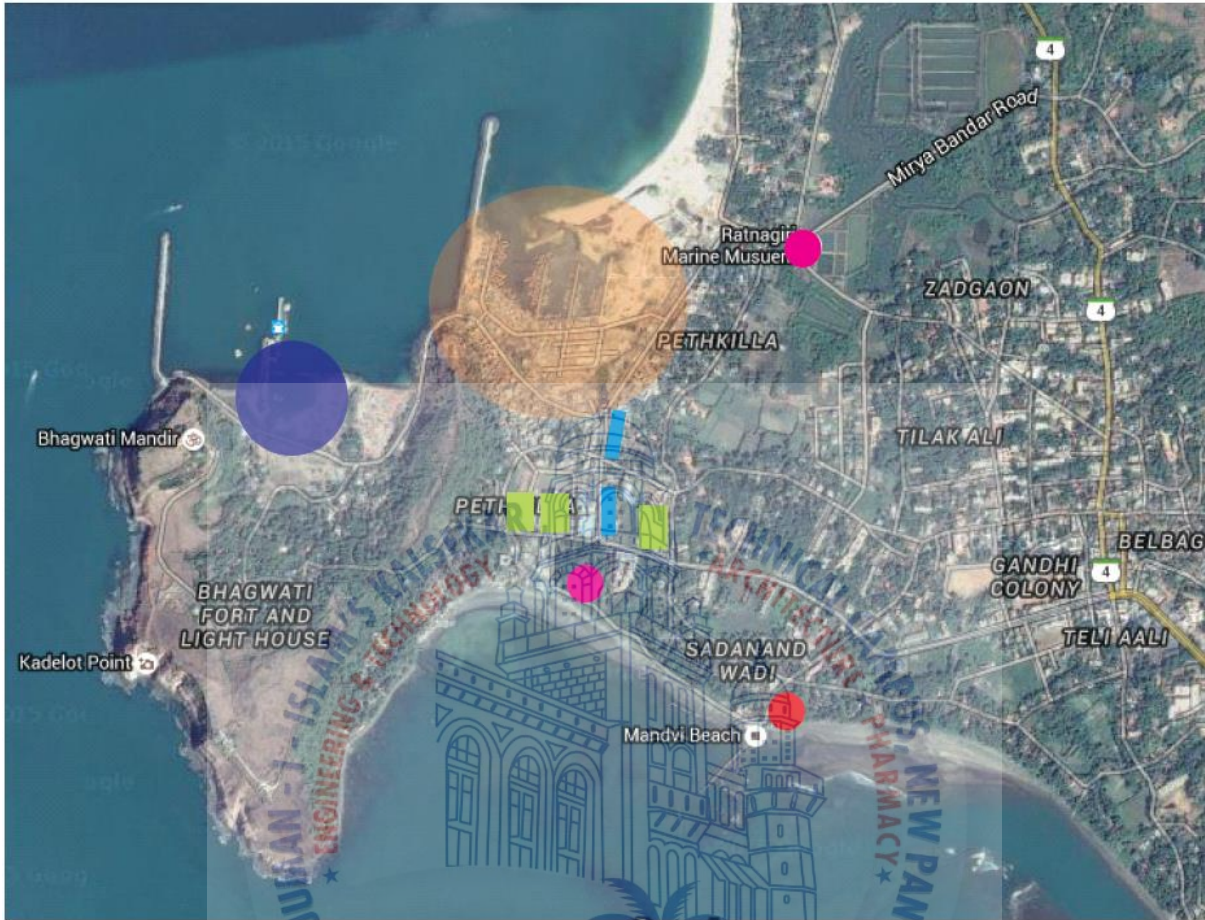
SITE ANALYSIS

Location- Mirkarwada, Ratnagiri.





Near By Landmarks

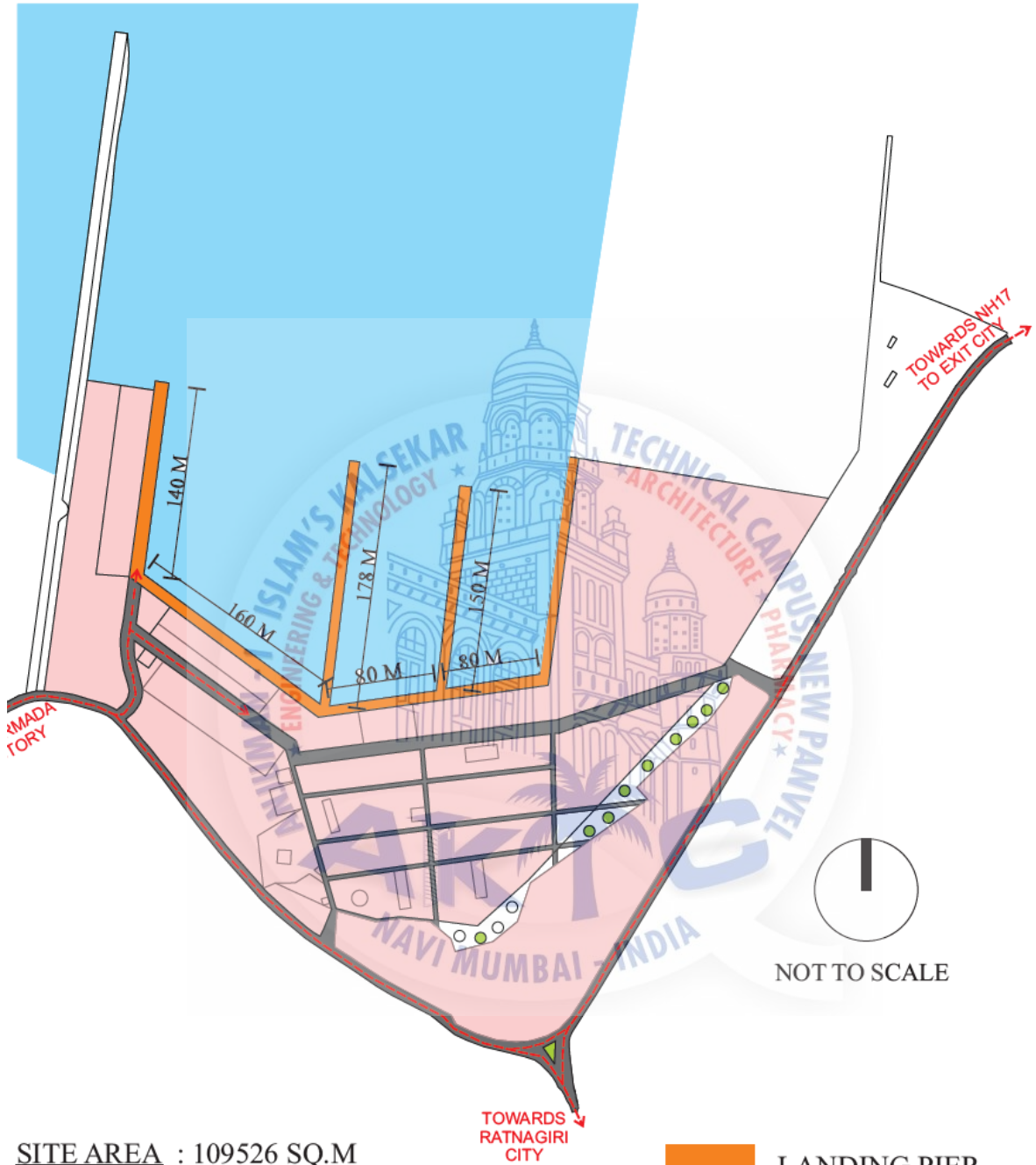


- FISHING PORT
- FISHERIES OFFICE
- COAST GAURD
- ICE PLANTS
- MUSEUM
- FISH PROCESSING UNITS

Satellite Map Of Mirkarwada Fishing Port



Site Plan



SITE AREA : 109526 SQ.M
27.06 ACRES

LANDING AREA : 7380 SQ.M
1.82 ACRES

TOTAL SITE AREA : 116906 SQ.M
28.88 ACRES

- LANDING PIER
- AREA UNDER PORT
- ROAD
- HEAVY VEHICULAR CIRCULATION

Site Views



A

ENTRANCE GATE

- No proper constructed entrance gate.
- Narrow entrance which allows only one truck to enter at a time.
- No security check at the entrance.
- There are 3 entrances for the port.
- Gate no 2 has a open market at the entrance which results in no vehicular circulation from that gate.



C**SHADES AND PARKING**

- The vacant land in the site is used for parking near to the shades.
- Shades are used to store equipments of the fishing trawlers and packing tubs which are used for exporting the fish.
- Place is also used for fishing net repair at the time of boat maintenance.

**D****NET REPAIRING**

- The net repairing process is carried out on landing pier itself.
- It helps the workers in terms of no transportation as well as under their surveillance visually.
- It affects the vehicular traffic at the peak hours when the boat return back to the port to unload their catch.

**E****UNMECHANIZED BOAT REPAIR AREA**

- This area is used by the unmechanized boat for their maintenance.
- There is no permanent place allotted by the fisheries department for the fishermen.



F**VEHICULAR CIRCULATION**

- Parking is done on landing pier itself which occupy half the way.
- The small trucks are allowed to supply the required thing for fishing boats like ice, fuel, water, etc.
- No heavy vehicle is allowed on the pier which will create traffic.

**G****FUELING STATION**

- No shades on the fueling tanks which becomes difficult for the users with respect to climate changes.
- Lack of security as well as safety for the exposed fuel tanks.
- Lack of fuel pump which becomes difficult for the provider to measure the fuel.

**H****LAND SILTING PROBLEMS**

- Land silting problem creates dead corners on the port due to which the boats cannot reach there and space remains unused.



I**UNPLANNED SHADES**

- The shades are built on encroached land by the user in the site.
- Temporary shades are built on that land which are unplanned.
- The materials used for shades are light which can be easily dismantle.

**SURFACE DRAINAGE**

- The drain are filled with the waste thrown on the dock which does not allow water to drain down to the sea.
- There is no other drain on the site which result in silting as small small pockets on the site.





N
 VIEW SHOWING THE
 VACANT LAND ON SITE
 OCCUPIED FOR THE TRUCK
 PARKING AND INTERNAL
 ROAD.



J
 VIEW FROM THE
 STARTING CORNER OF
 THE PORT.





K
 VIEW FROM THE
 CENTER OF THE
 PORT SHOWING
 ARMS RUNNING IN
 BOTH THE
 DIRECTIONS.



L
 VIEW FROM THE
 END CORNER OF
 THE PORT.



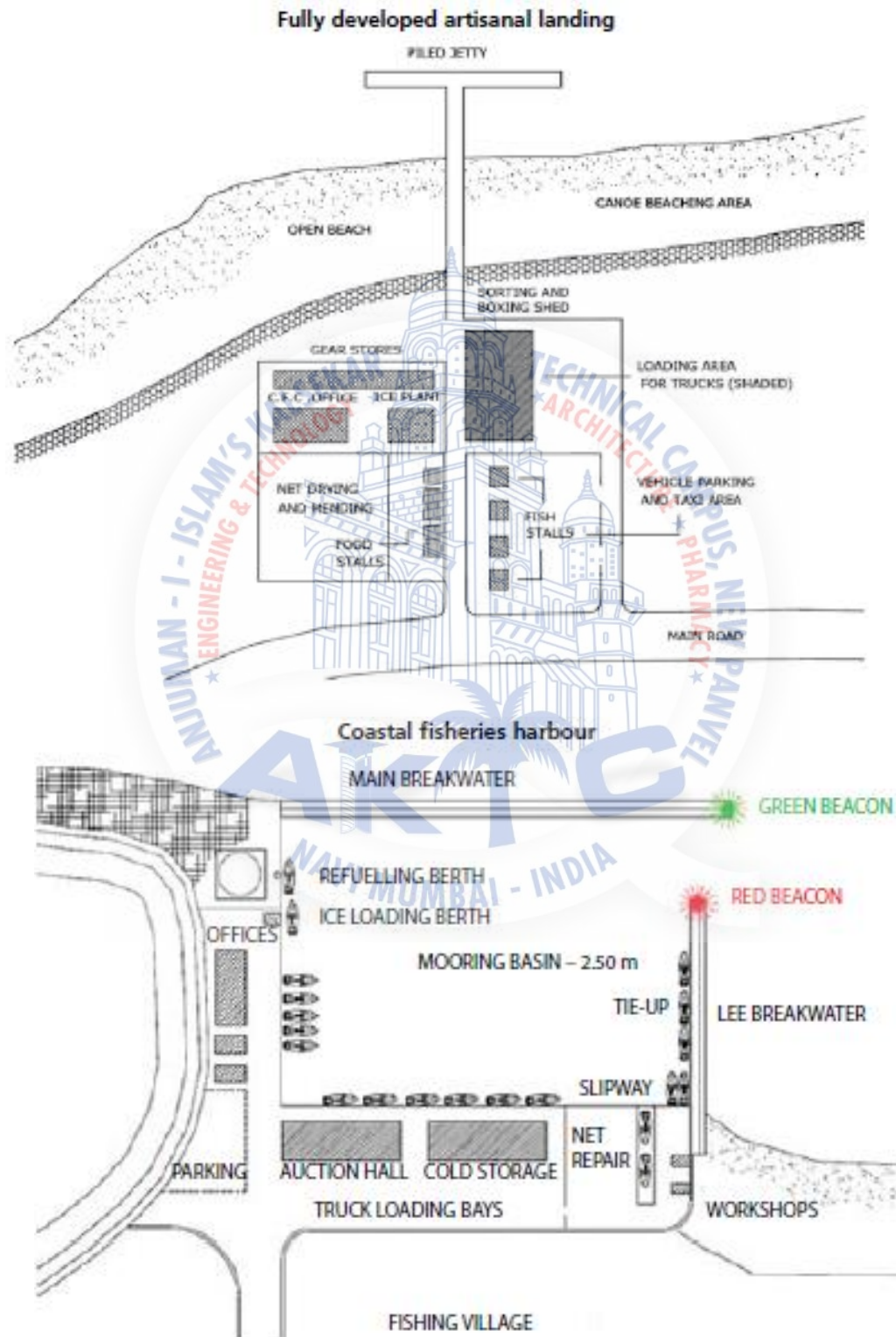


M
VIEW SHOWING
THE CONDITION OF
INTERNAL ROAD
NETWORK
WITHIN THE SITE
AND THE SHADES

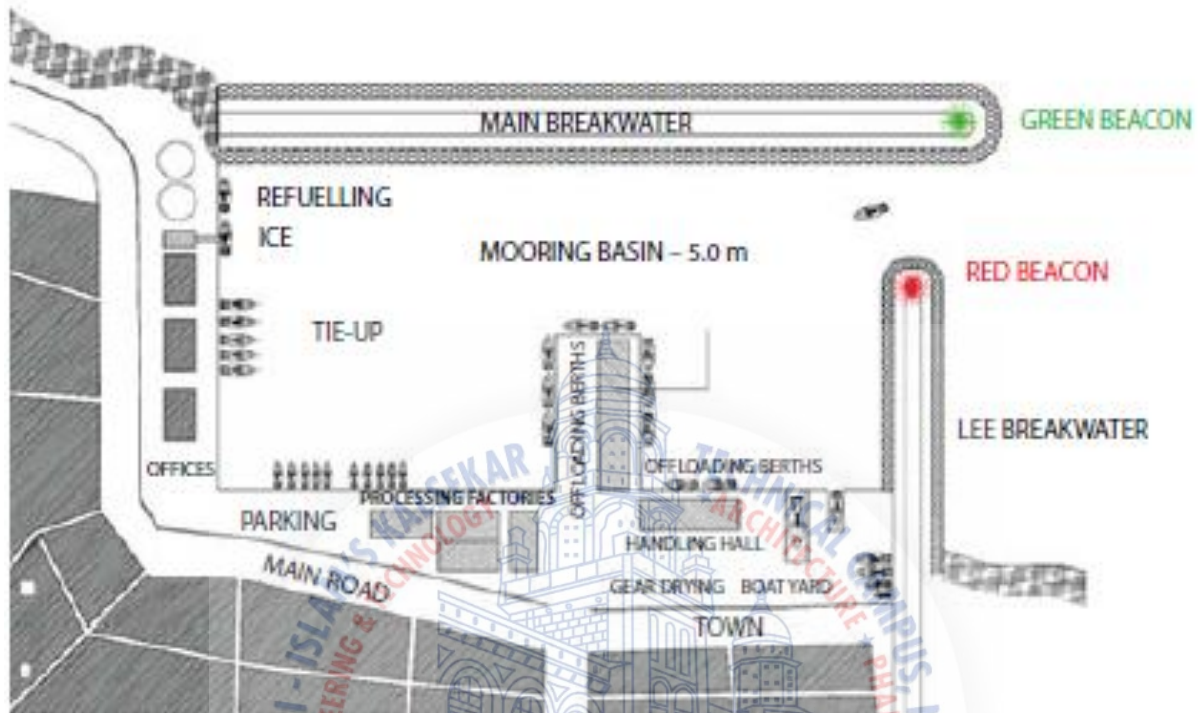


DESIGN PROGRAM AND REQUIREMENT

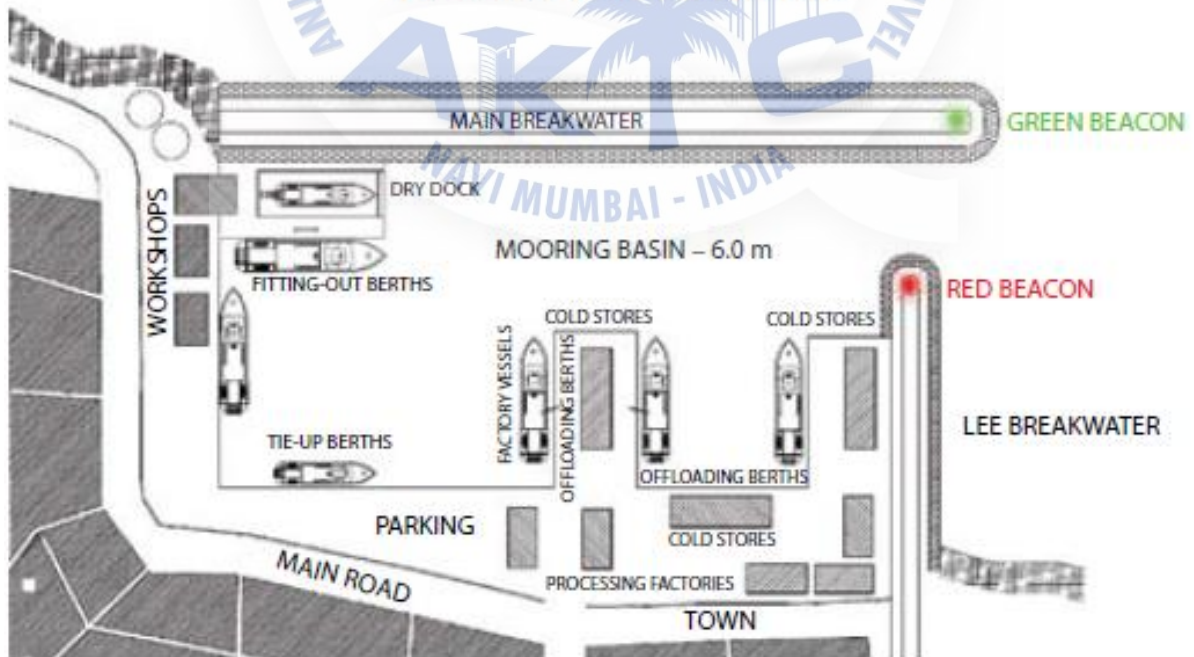
TYPES OF FISHING PORTS ACCORDING TO ITS LOCATION



Offshore fisheries harbour



Distant-water fisheries harbour



SPACES WITH ITS CHARACTERISTICS

Location of fishing grounds Offshore and far coastal, steaming distance up to 1 week.

Typical fishing trip Anywhere from 2 to 4 weeks.

Type of vessels handled Large motorized canoes, purse seiners and trawlers. Vessels up to 100 tonnes in weight. Fishing gear purse seine and trawl nets.

Type of landed products Mainly iced but also frozen pelagics, shrimps and other high-value species.

Typical shore processing Canneries, fishmeal, salting, drying and smoking.

Minimum water depth required At least 5.0 metres below Lowest Astronomical Tide level.

Breakwater protection Generally required unless port is inside a river estuary but breakwaters on beaches are reactive and unsustainable.

Auction – sorting hall A sorting hall and auction area is required in all cases.

Utilities Mains power only and town supplied water. Boreholes and seawater systems acceptable in areas of low rainfall.

Ice production Of primary importance. Should only be mains powered otherwise delivered from nearest supplier.

Cold storage Cold storage required for buffer stocks. Chilled storage on ice (3 oC) is acceptable in some cases.

Refuelling Large sized installation (up to 1 000 tonnes in weight) is the most suitable.

Bowser service also acceptable in some cases.

Dry docking – slipways Slipway to handle vessels up to 500 tonnes in weight normally required.

Transport links The port is only feasible if road already exists.

Workshops Proper engine and hull workshops required in loco. Steel or GRP hulls may need extra workshop area.

Net repair areas Required in all cases. A minimum of 1 000 m² required. Area should drain surface water away and be part covered.

Fishermen's/seamen's facilities A cooperative with full facilities (banking and wholesale supplies) is required. Full toilet and shower facilities as well as canteen services must be included.

Open storage and parking Enough area should be set aside for parking and storage of seasonal fishing gear, as well as for dry boat storage in areas where monsoons are active.

Ancillary services Port may also act as base for coastguard, SAR centre, oil spill combat and fishery protection vessels.

Hinterland A town community nearby is desirable with full facilities, including hotels, hospitals, banking, shipping agents.

REQUIREMENT OF FISHING PORT WITH AREA STATEMENT

1. Pier-unloading area.	7380 sq.m
2. Auction hall.	600 sq.m
3. Loading area for buyers.	800 sq.m
4. Loading of provision to boats.	500 sq.m
5. Fish market.	5000 sq.m
6. Fish processing units.	10000 sq.m
7. Boat repair areas.	5000 sq.m
8. Fueling stations.	400 sq.m
9. Net repair area.	10000 sq.m
10. Cold storage area.	4000 sq.m
11. Ice plant.	6000 sq.m
12. Multi-purpose hall.	1000 sq.m
13. Fish drying areas	1000 sq.m
14. Other facilities	
• Restraunts /canteens	125sq.m
• Security.	50 sq.m
• Public toilets	70 sq.m
• Parking areas.	4500 sq.m
• OHWT / water supply.	75 sq.m
• Waste treatment / disposal	1000 sq.m
TOTAL	<u>57500 sq.m</u>

TOTAL SITE AREA	116906 sq.m
CIRCULATION (30%)	35071 sq.m
BUILTUP AREA	37820 sq.m

DETAILS OF THE PROPOSED FACILITIES

Proposed Facilities	Department/User	Operational Requirements	Population of accommodation
Wholesale Marine Fish Market	Fish Marketing Organisation	5000 sq.m. (GFA) (including parking for 40 lorries)	440 persons
Community Hall	Home Affairs Department	1000 sq.m. (GFA)	500 persons
Other Possible Community Uses	To be confirmed	3500 sq.m. (GFA)	400 persons
Refuse Collection Point (RCP) / Marine Refuse Collection Point (MRCP)	Food & Environmental Health Department (RCP) / Marine Department (MRCP)	800 sq.m. (GFA)	10 persons
Marine Management Office	Agriculture, Fisheries and Conservation Department	200 sq.m. (GFA)	10 persons
Spectator Stand	Home Affairs Department	Roof of wholesale fish market	1000 persons
Public Toilets	Food & Environmental Health Department	–	–

COASTAL AREA CLASSIFICATION AND DEVELOPMENT REGULATIONS

CLASSIFICATIONS OF COASTAL REGULATION ZONE

For regulating development activities, the coastal stretches within 500 meters of High Tide Line on the landward side are classified into four categories, namely:

CATEGORY I (CRZ-I)

Areas that are ecologically sensitive and important such as national parks/ marine parks, sanctuaries, reserve forests, wildlife habitats, mangroves, coral/ coral reefs, areas close to breeding and spawning grounds of fish and other marine life, areas of outstanding natural beauty/ historically/ heritage areas, areas rich in genetic diversity, areas likely to be inundated due to rise in sea level consequent upon global warming and such other areas as may be declared by the central government or the concerned authorities at the State/ Union Territory level from time to time.

Area between the Low Tide Line and the High Tide Line.

CATEGORY-II (CRZ-II)

The areas that have already been developed upto or close to the shore line. For this purpose, "developed area" is referred to as that area within the municipal limits or in other legally designated urban areas which is already substantially built up and which has been provided with drainage and approach roads and the other infrastructural facilities, such as water supply and sewerage mains.

CATEGORY-III (CRZ-III)

Areas that are relatively undisturbed and those do not belong to either Category-I or II. These will include coastal zone in the rural areas (developed and undeveloped) and also areas within Municipal limits or in other legally designated urban areas which are not substantially built up.

CATEGORY-IV (CRZ-IV)

Coastal stretches in the Andaman and Nicobar, Lakshadweep and small island, except those designated as CRZ-I, CRZ-II or CRZ-III.

NORMS FOR REGULATION OF ACTIVITIES:

The development or construction activities in different categories of CRZ area shall be regulated by the concerned authorities at the State/ Union Territory level, in accordance with the following norms:

CRZ-I

No new construction shall be permitted within 500 meters of the High Tide Line. No construction activity, except as listed under 2 (xii), will be permitted between the Low Tide Line and High Tide Line.

CRZ-II

Building shall be permitted neither on the seaward side of the existing road (or roads proposed in the approved Coastal Zone Management Plan of the area) nor on seaward side of existing authorized structures.

Building permitted on the landward side of the existing and proposed road/ existing authorized structures shall be subject to the existing local town and Country Planning Regulations including the existing norms of FS/FR.

Reconstruction of the authorized buildings to be permitted subject to the existing FSVFAR norms and without change in the existing use.

The design and construction of buildings shall be consistent with the surrounding landscape and local architectural style.

CRZ-III

The area up to 200metres from the HTL is to be earmarked as 'No Development Zone' No construction shall be permitted within this zone except for repairs of existing authorized structures not exceeding existing FSI, existing plinth area and existing density. however, The following uses may be permissible in this zone-agriculture, horticultural, garden pastures, parks, play fields, forestry and salt manufacture from sea water.

Development of vacant plots between 200 and 500 meters of high tide line in designated areas of CRZ-III with prior approval of ministry of Environment and Forests (MEF) permitted for construction of hotels/beach resorts for temporary occupation of tourists/ visitors subject to the conditions as stipulated in the guidelines at Annexures-II

Constructor/reconstruction of dwelling units between 200 and 500 meters of the HTL permitted so long it is within the ambit of traditional rights and customary uses such as existing fishing villages and gaothans. Building permission for such construction/ reconstruction will be subject to the conditions that the total number of dwelling unit shall not be more than twice the number of existing units, total covered area on all floors shall not exceed 33 percent of the plot size; the overall height of construction shall not be more than 2 floors (ground floor plus one floor).

Reconstruction/ alterations of an existing authorized building permitted subject to (i) to (ii) above.

CRZ-IV

ANDAMAN AND NICOBAR ISLAND

No new construction of buildings shall be permitted within 200 meters from the High Tide Line shall not have more than 2 floors (ground floor and first floor), the total covered area on all floors shall not be more than 50 percent of the plot size and the total height of construction shall not exceed 9 meters;

The design and construction of buildings shall be consistent with the surrounding landscape and local architectural style. Corals and sand from the beaches and coastal waters shall not be used for construction and other purposes;

Dredging and underwater blasting in and around coral formation shall not be permitted; and

However, in some of the islands, coastal stretches may also be classified into categories CRZ-I or II or III, with the prior approval of Ministry of Environment and Forests and in such designated stretches, the appropriate regulations given for respective Categories shall apply.

LAKSHADWEEP AND SMALL ISLAND

For permitting construction of buildings the distance from the High Tide Line shall be decided depending on the size of the island. This shall be laid down for each island, in consultation with the experts and with approval of the Ministry of Environment and Forests, keeping in view the land use requirements for specific purposes vis-a-vis local conditions including hydrological aspects erosion and ecological sensitivity.

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- District Census Handbook, Ratangiri (1996), The Maharashtra Census Directorate, Mumbai
- For more details, see State Fisheries Department Website, Government of Maharashtra
- Information obtained from Regional Fisheries Department Office, Ratnagiri
- Information obtained from Adarsh Machimar Society, Mirkarwada, Ratnagiri
- Information shared by the local fishing community members
- Information shared by the Port Inspector, Ratnagiri
- This is a major concern as expressed by local fishing community members.
- Source: Marine Fisheries Census 2010, Maharashtra
- See Article 246 and Item 21 in the State List (list 2) of the 7th Schedule to the Constitution.
- See Deep Sea Policy of Government of India, New Delhi
- For more details, See Maharashtra Marine Fish Regulations Act 1981, Government of Maharashtra
- Comprehensive Marine Fishing Policy, 2004, Ministry of Agricultural Department of Animal Husbandry Dairying, Government of India, New Delhi
- For more details, see Deep Sea Fishing Policy like creating Exclusive Economic Zone in 1976 of Ministry of Agricultural Department of Animal Husbandry Dairying, Government of India, New Delhi

- Comprehensive Marine Fishing Policy, 2004, Ministry of Agricultural Department of Animal Husbandry Dairying, Government of India, New Delhi, p.5
- Information shared by the ice factory owners, and fish processing unit managers
- Interview with Naik Processing Unit Manager, Ratnagiri
- Information obtained from fishing community people in Mirkarwada and also observed during field survey.
- Information obtained from discussion with State Fisheries Regional Office, Ratnagiri
- Interview with Adarsh Machimar Fishing Society, Secretary, Mirkarwada
Interview with President of Adarsh Machimar Society, Mirkarwada
- Interview with Mr. Faqir Mohammad Hodekar, Traditional Boat Owner, Mirkarwada
- The district coastal zone management committee was constituted in 2011 but has met only once. The first meeting was more about to know each other than any constructive discussion about the coastal issues.
- Interview with regional training officer, Ratnagiri. The regional training office in Ratnagiri lacks both human and technical resource. At present, there is only one training officer who has to carry out six-month training programme for the whole Ratnagiri district.