The international trade relations always remain limited with the existing coastal area in a country. The countries with sufficient coastal resources have more potential for the development of trade, commerce, industry. There are more than 2000 ports around the world. More than 80 per cent of the world trade is water born. Almost 50 per cent of the world population is living in cities and 50 per cent of that in the coastal cities. The trade through ports in developing as well as developed countries is increasing in geometrical proportion as the transportation through water is much economical compared to other mode of transport. Port harbor and similar maritime developments have a long term gains to the countries in the form of development of trade and commerce.

India being a strong maritime nation offers excellent prospectus at sea for its people. There is a vast potential along with the Indian coast; especially on west coast of India and to tap the full potential, there is a need for coordinated efforts from Central and State Government with political commitment and administrative will power.

In order to become a world class trader, India has to follow the policy adopted by many other countries where privatized ports or terminals are becoming wholly independent from the government in pricing, investment, employment and service decisions. They are only regulated in terms of safety, security and environment protection.

The amendments to the Major Port Trust Act, 1963 seeks to authorize the Central Government to transfer the undertaking of any major port to its successor company. It is proposed that all assets and liabilities of the board of these fees, except land and water front would be transferred to successor companies. The land and water front would be vested in the control of government and would be given on lease to the successor companies.

The major parts in India have always accounted for the bulk of cargo traffic. The major ports handled about 87 per cent of the traffic in 1980-81. Their share went
up to 93 per cent in the early nineties but had fallen to 88 per cent in 1999-2000. Currently 60 per cent of the total traffic was handled by major ports which were accounted by the four major ports of the country. Of which, 30 per cent was handled by Mumbai and Kandla on the west coast and 30 per cent by Vishakhapatnam and Chennai. Mumbai maintained in premier position among the Indian port for a long time. Its share in total traffic was 43 per cent in 1960-61 declined to 21 per cent in 1980-81 and further to only 16 per cent in recent years. The newest and most modern major port in the country is Jawaharlal Nehru Port at Nhavasheva near Mumbai in Maharashtra. It was commissioned in May 1989.

The private port terminals in India now are compared with international benchmarks in port productivity. For example the average turnaround time for vessels at Nhavasheva International Container Terminals (NSICT) is comparable to 6-8 hours at international ports. Even in terms of crane movement, the private Indian terminals are close to the figure of 25 to 30 movements per hour which was achieved in May by the East Asian Ports.

Minor ports are cornered to 25 per cent of the total cargo movement in the country. Most of the minor ports are concentrated in a few states which have progressive privatization policies. Development of minor port is hindered by lack of infrastructure such as rail and roads links. Recently, some states have taken steps to formalize maritime administration under their jurisdiction. The Maharashtra and Andhra Pradesh Governments are taking initiatives for the development of minor ports through private participation.

### 1.1 CONCEPT OF THE PORT

A port can be defined with allied terms like port authority, terminal harbour, major port miner port and the like. A port is a geographical area where ships are brought along side land to load and discharge cargos. Usually they are sheltered in deep water areas like bay or river mouth. (Martin Stopford, 2009)

Port is also defined as a town whose harbour is frequented by naval and merchant ships. A harbour offers accommodation (use or not) in which ships may remain in safety for any purpose. In case of emergency like storm, a ship is compelled of to find safe shelter. Such shelter place is called as haven. Thus, a port is both harbour as well as haven.
With the development of navigation ships, it is felt the necessity to find shelter during the cruise. To take the cargo in and to discharge passengers and goods under protected conditions, a place of refuge was selected, which is called as harbour. (Sharad Hebalkar, 2001)

The port authority is the organization responsible for providing various maritime services required to bring ships alongside land. Port may be the public bodies, government organization or private companies. One port authority may be controlled by several other stakeholders.

According to Article 364 (2) of Indian Constitution, “major port means a part declared to be a major part by or under any law made by parliament or any existing law and includes all areas for the time being includes within the limits of such port.” A port is declared as a major port under section 3 (08) of the Indian Ports Act 1908. The Article does not lay down specific criteria which will entitle a port to be regarded as a major port except that a port should be so declared by the Union Government which becomes directly responsible for its development. According to the Ports Technical Committee of India (1948), the facilities at a major port should include all weather sheltered harbour modern berths, which taken along side, steamers with at least 9.14 meter daft as also direct road and vail to the hinterland. Other ports called intermediate and minor which fall under the Concurrent List, that is List 3 in the Servants Schedule of the Constitution and are administratively under the control of State Government.

A terminal is the section of the port consisting of one or more berths devoted to a particular type of cargo handling. Thus, we have coal terminals container terminals etc. Terminals may be owned or operated by the port authority or by a shipping company which operates the terminal for its exclusive use. The definitions of major and minor ports are not strictly defined. This is roughly considered by the government from the point of view of administrative only. However, the report of S. Nanjundiah ( appointed by the Government of India, Ministry of Transport as officer an special duty for conducting a survey of the minor port in the country ) submitted in 1951 suggested a sub classification of ports coming under the category of minor ports. Ports handling annual cargo of one lakh tons or more or otherwise important could be classed as intermediate ports. Other ports with an annual cargo tonnage below one lakh, but not less than 1500 tons or which had importance for any other season such as passenger amenity customers or naval requirement could be classed as minor ports.
All the remaining port should class as sub ports or petty ports. (Ray Munashirammanoharlal, 1993)

The full fledged development of ports requires the following essentials:

(A) Secure location
(B) Investment in sea share based facilities
(C) For bigger ships port must be built with deep water in the approach channel and at the berths.
(D) Cargo handling facilities bulk, containers wheeled vehicles general cargo and passengers.
(E) Storage facilities for in bound and out bound cargos.
(F) Land transport system must be efficiently integrated into the port operation, railways, and roads with transport links managed efficiently.

Thus, seaports play a major role in promoting international trade by generating commercial and industrial activities, which directly assist the economic progress of the country. The history of many ports shows how a bold policy of extending and mechanizing ports can revitalize the economy of a region.

The primary observer of a major port is to provide adequate ship to share and port facilities to handle import and export trade expeditiously and economically. The port is expected to render efficient service to ship owners and to consigners and consignees in cargo handling. It has to provide adequacy of berth drafts, harbour draft, suitable mechanised cargo handling appliance and harbour shifts in order to ensure quick turn-round of ships. Once the cargo is safely unloaded there should be adequate provision for its transport in appropriate wagons or for scientific storage in ware house. Good synchronization has to be programmed between the arrival of cargo and its quick discharge so that limited storage space is not locked up with unwanted package awaiting clearance over long period causing under strain on security and wave housing.

Planning of major ports is done by the Ministry of Shipping and Transport on the basis of plans drawn up by Port Trust and in consultation with other organization like the Planning Commission, National Development Council, Ministry of Commerce and Ministry of Finance. Major Port Trust Act 1963 empowers the Central Government to constitute a Board of Trustees for each major port in India.

It is the port trust, which is responsible for the management of ports’ property, control, maintenance and operations at the harbour. It is also empowered to levy dues
on cargo along with controlling of the pilot services, conservancy, lighthouse, signal station, regulate harbour traffic, provide and maintain launches, barges and tugs, improve the harbour, prevent pollution and make regulations governing service conditions.

A Port Trust comprises a Chairman and a Deputy Chairman, if necessary appointed by the Centre, and not more than 19 other trustees in case of Mumbai, Calcutta and Madras ports, and not more than 17 for the remaining ports. The trustees represent major interests like port harbour, mercantile marine, customs, State Government representative, defense services, Indian Railways, ship-owners, owners of sailing vessels and shippers. A representative of the Ministry of Shipping and Transport is also appointed since 1980. Almost all major interest is represented on the port trust; what is called for is their coordinated effort to fulfill national objectives.

There are other authorities also at the port like health officer, customs mercantile marine and dock labour board. The health officer is responsible for the clearance of all ship entering the port so as to prevent the berthing of a ship where either passengers or crew are suffering from a communicable disease. Customs Officer at the docks, jetties or bonders, examines all good weather imported or awaiting shipment. Under the Customs Act, 1962 they are administered and collect revenue from duties levied on various cargos passing through the port. The port authorities can land and ship goods from places specified within the port area by the customs. The goods landed must await appraisal by the customs staff in accordance with the laid down procedures. These procedures are time consuming and sometime even irritating.

The Mercantile Marine Department of the Centre is to administer various merchant shipping laws and rules relating to the registration and tonnage measurement and crew accommodation of ship, survey of load line and safety of ship; inspection of statutory equipment including life saving appliances, wireless certificates of competency. The dock Labour Board constituted by the Centre is to ensure adequate supply and proper utilisation of dock labour. It also determines the wages and service conditions.

The financial resources of a port are raised through its own income, government loans and aid from international financial institutions like the World Bank. In all cases direct expenditure incurred by government as well as the loans drawn by the port authorities are required to be paid back from the port’s revenue
earnings. All major ports function on the basic of financial self sufficiency, they are expected to meet their current operational expenses, repay loans and interest thereon from the revenues earned. The capacity of different ports to bear the overall burden differs according to the pattern of traffic and its volume, cost of maintaining the port and debt burden. Bulk oil and other bulk goods are earning considerable revenue without involving corresponding maintenance expenditure. The new projects are faced with the problem of heavy capital outlays and the trade is being made to bear the cost of heavy debt servicing along with high operational expenses. Sometimes certain ports are called upon to handle unexpectedly heavy cargo traffic which is unable to bear.

Port facilities cannot be built overnight to meet sudden demands like the heavy import of food grains, through vital but low rated from the ports financial angle. The financial status of major ports can be evaluated in isolation since port is one of the instruments in building national economy, its financial perspective. A port might be running in to a loss but fulfilling an important development objective.

1.2 STATEMENT OF THE PROBLEM

The maritime industry plays a paramount role in Indian economy. International trade is carried out with the lion’s share of 95 per cent by volume and 70 per cent by value through maritime transport. Recognizing the importance the Government of India has launched the National Maritime Development Programme (NMDP 2005) involving a total investment of 100,335 crores. The total anticipated investment is Rs. 55,804 crores for 276 projects covering the entire gamut of activities namely, constructional up gradation of berths, deepening of channels rail road connectivity project equipment up gradations modernization schemes and other related schemes in the port sector. This speaks for itself the importance of ports.

The India Port Report 2003 through a wide coverage on the areas of maritime and logistic development in the country. The Indian target of two way trade US $ 500 million is recognized. The role of the State Maritime Board in the development of minor and intermediate part is also realized. The port infrastructure, regulatory framework, privatisation initiatives, the port reform process, role of information technology and modernization of ports speaks the importance of exploiting the tremendous potential in this sector. The role of ports in economic development is the issue of discussion in the thesis. The planning and the policy is also reviewed in view
of the development and employment generation in the coastal zones in the Maharashtra state.

To recognize a planned sustainable development of marine activities along the coast of Maharashtra, the Maharashtra Maritime Board was established in the year 1996. As a nodal agency that takes care of the regulatory and development framework of the state’s maritime activities. The Maritime Board in boosting the Maritime activities in the state is recognized through number initiatives taken to achieve the growth. MMB parts presently handle 10 per cent of the total cargo handled by minor parts in the country. The policy explore overall marine development strategy in the state.

To study the commercial traffic of the small ports in Ratnagiri and Sindhudurga districts is the thrust of this study. The business and financial performance of the ports selected is the focus of the study. Review of working of minor ports, creeks, rivers existed in Ratnagiri and Sindhudurga district is considered in the thesis for further development in the state.

1.3 OBJECTIVES OF THE STUDY

The development of minor ports is an utmost important to the Konkan coast so as to formulate plan for full fledged fishing and other activities for assessing the existing minor ports. The study is undertaken with the following objectives:

1. To reviewing the working of minor ports, creeks, rivers existed in Ratnagiri and Sindhudurga district for further development.
2. To study the ways and means to create infrastructure for the development of seaports.
3. To study potential and economic viability of development of commercial shipping.
4. To study the aspects of private sector involvement for utilization of coastal resources.
5. To study the potential for off shore industrial development (Off shore activities).
6. To study various aspects of maritime development such as efficiency, marketing and distribution pattern, creation of additional facilities for further development.
7. To study the aspects navigational safety and suggest ways ensure it.
8. To study the implications of maritime development on the aspects of environment.

1.4 HYPOTHESIS

In the light of the above objectives, the following hypotheses were tested on the basis of the field study.

1. There is enough literature to prove that the minor ports in the coastal regions are not well planned and due attention is required for their development.
2. The coastal line in the state of Maharashtra has enough potential for the development of commercial shipping.
3. The maritime development can be ensuring by way of adopting proper way of management standards adopted at the international level (international standards).
4. The development of sea shore activities will prove for improving employment opportunities and other benefits to the stake holders.
5. The development of maritime is boosting up to the private sector involvement.
6. The development of maritime can be undertaken with minimum risk and protecting environment damages.

1.5 LITERATURE REVIEW

The India Port Report 2003 widely covers the areas of maritime and logistic development in the country. The India’s target of two way trades with the trade value of US $ 500 million is attained. The State Maritime Board (MMB) has realized the development of minor and intermediate ports in the state. The port infrastructure, regulatory framework, privatisation initiatives, the port reform process, role of information technology and modernization of ports has envisaged the importance of exploiting the tremendous potential in this sector.

To recognize a planned sustainable development of marine activities along the coast of Maharashtra, the MMB was established in the year 1996. As a nodal agency that takes care of the regulatory and development framework of the state’s maritime activities. The MMB is encouraging the maritime activities in the state through number of initiatives. MMB parts presently handle 10 per cent of the total cargo handled by minor parts in the country. The policy explore overall marine development strategy in the state.
Hebalkar Sharad (2001) explained the geography and early history of ports in the Konkan region. The life in the region, marine culture, descriptions of ports are other area highlighted in his work along with commercial history of the ancient Konkan ports.

Singh Upender (2008) provides a detailed description of ancient Indian history with balanced coverage of all parts in India.

In an editorial volume of Mukhrjee Amitabh (1999) various articles published in the volume highlights the India’s maritime trade with western countries in the ancient period up to 19th century.

Ray Animesh (1993) elaborated the maritime history of ports and skipping efforts made in India for the development for intermediate and minor ports. He highlighted the recommendations of various committees and development of minor ports in Indian states.

Arunchalum B. (2007) work landmarks the early charting of a special study of Konkan and Gujarat, which highlights the importance of marine charts of sea trade.

Pendse Sachin (2011) described some aspects of seasons and landmarks for identification and location of maritime heritage in Konkan region. In his another study Pendse Sachin (2013) draws insights on associated geomorphic features to develop alternative port sites in Konkan. He suggested various measures for considering the physical aspects while selecting the location. Most of the sites selected are at estuary mouths or inside the estuaries in the protected bays. Therefore, selection of these sites will have to be investigated carefully keeping in mind the difficulties in operational feasibility.

Apte B.K. (1972) accounted the maritime activities in the ancient period. A detailed consideration and wide coverage of naval areas such as naval warfare coastal wars and the navy, warships, merchant ship building and naval administrations are described.

Narvane M.S. (2001) in the heritage sites of maritime Maharashtra described the heritage sites for the entire coast of Maharashtra. Beginning with the geographical portrait of the Maharashtra coast, the heritage sites are described with historical perspective.

Samanta P.K. and Mohanty A.K. (2005) have assessed the port infrastructure and economic development of the Indian ports. They have also described in detail the private sector policy of Government of India for upgrading the port sector. Their
study relates to para deep port in particular. The overall analysis is explained with
history, growth and future perspectives. Performance and operational analysis with
suitable parameters is analysed. The study reveals various parameters of port
development and suggests policy measures for higher operational efficiency and make
the port activities an active participation in economic development of the country.

Ali Nazarian (2011) examined how the port sector plays an important role in
increasing the economic efficiency of a nation in the present scenario of competitive
world. He shows with the inception of the policy of world trade organization, global
trends in policy and technology related fields which are rapidly reshaping the port
industry worldwide. By joining the World Trade Organization, the country like Iran
upgraded its maritime activities. This is proved with various parameters. The effect on
improvement of technology, port service quality, marine service quality, connection
routes in hinterland and effects on accelerating the competitiveness potential was
observed. The marine activities and major ports numbering in the Iranian economy
has efficiently improved its maritime transportations by joining the World Trade
Organisation. The port infrastructure is an important indicator of economic
development.

Kant M.S. (1998) described the shipping history of Maharashtra coast,
existing trends during the period and the transportation system. He also highlighted
the economics of shipping and shipbuilding activities.

Stopford Martine (2009) has provided a detailed and enlarged analysis of
economics of shipping. Beginning with the world seaborne trade he evaluated a
descriptive and elaborative significance of the maritime industry. The contents
analysed in the book are shipping market economics, shipping company economics,
seaborne trade and transport system, the merchant fleet and transport supply,
forecasting and planning.

Sundaram Satya (2009) described the development strategy of ports in India.
The major challenges and measures to mitigate these challenges are suggested in his
work.

Choubey U.D. (2010) brings out India’s maritime status in the international
arena of development. He explores the board areas of shipping history, new avenues
to be explored by the shipping industry, maritime training shipbuilding and ship
repair. The opportunities and avenues for inland water transport are explored.
Dawooddalavi (2012) insights on the maritime heritage of ancient Konkan. He analysed the rich maritime tradition over the Konkan coast. The Konkan coastline is connected by prosperous inland and overseas trade and commercial routes. He mentioned Satavahana period marked a flourishing economy based primarily on agricultural and development of various art stand crafts. The description of foreign travelers and writers mention close trade relations between the Konkan coast and inland cities with countries such as ancient Rome, Greece, Abyssinia, Arabia and the eastern coast of Africa.

Jalal Uddin Ahmed (2009) streets upon the Nile of Government in the transport infrastructure, expansion of railway network, constructions of weather roads and invitation of private sector for different costly transportations projects under build operator and transfer (BOT) scheme.

The Gazetteer of the Bombay Presidency (originally printed in 1980 published in 1996) for Ratnagiri and Swantwadi district is important source of information. It also sees the maritime activities and the geographical aspect as well.

Sadanand S. (2007) had an interview with captain J.S.Gill, a well known maritime experts and active speaker. A detailed focus on the concerns of marvel water transport is elaborate by him. Inland water transportation is an attractive option as it provides the cheapest per unit cost on the river leg. He stresses that no one will book cargo unless there is regular sailing and there is a positive laid down time frame for the journey. Creation of adequate depths of water should begin with right earnest for the start of playing inland vessels on a regular basis. He suggested that care must be taken to see that the railways and road ways do not kill the prospectus of inland transport.

Rohila J.B. (2002) draws up a closure look of Government of Maharashtra’s policy of creation of commercial and captive ports to supplement the existing major ports. The Government of Maharashtra desires to identify opportunities for development of the coast based economic activities such as fishing, fishery labourers, ship building, ship repairs, ship breaking, coast based support, offshore mining and oil production, tourist resorts and marines and passenger traffic. He also mentioned that using a port facility as tool for promotion of industrial and economical development is very costly project; hence a realistic development should be targeted for balancing the needs and resources on a long term basis.
Kumbhar A.K. and Thakur S.A. (2001) in their unpublished article described the relief drainage and slopes of the region and highlighted the stream orders and number with relation to their various lengths.

Marathe Shridhar (1999) insighted the history of Vengurla in detail and the socio-economic life of people, marine activities importance of Vengurla ports which helps to know the maritime activities in the vicinity of Vengurla port during the early period.

Sawant Surekha (2003) in her article presented in a state level seminar explained the importance of Bombay port and the historical review of the vital port like Bombay.

Bhatakar Dilip (2013) comes up with various facts and figures of seashores activities over the Konkan coast and suggested the various strategies for the further development in the region.

Bharadare Sunil S. (2013) revealed the crucial need of infrastructure development. He stated that, India’s economic performance has been severely impaired in recent years due to sub optional growth rate of overall infrastructure sector. He also explained the growing role of private investment in infrastructure development.

Deshmukh Atul (2002) reveals the fact that Indian ports are not performing efficiently. By considering the various parameters he compared the Indian port sector to international port like Singapore. He also explained the privatisation policy and suggests measure to improve the efficiency Indian port sector.

Pendse Sachin in his research (2012) described the potential sights suitable for port development by considering the dredging aspects. He stated that minor ports in the development stage will require high dredging cost and continuous maintainable of dredging since the approve channel is away and thus are interior with the exception of Dighi and JSW Jaigad ports which are in the month estuaries of the port the dredging aspects has to be taken in to consideration.

Ports Association are some other works which are referred for the analysis. The websites sources like;
www.marineBuzz.com,
www.tandfoneline.com,
http://mumbaiport.gov.in,
www.marinetimenews.com,
www.chougulebros.com,
www.mastermariners.com,
http://shipping.nic.in,
www.marineinsight.com,
www.investmentcommissionindia.gov.in,
www.Sindhudurga.gov.in,
www.indiastat.com,
provides a valuable data on the maritime, hence, they were referred. The data has been gathered with a feedback from various experts in the maritime and their representative persons, dialogue with the experts, workshops proceedings, e-mail interactions are helpful sources for the research work.

1.6 UNIT OF THE STUDY

The Ratnagiri and Sindhudurga districts were selected for the study. These districts are emerging with the development of maritime industry in the Konkan region. They are the representative of the study to understand the potentials of ports and creeks in Konkan. The ports in these districts will be helpful for further development of the state. These two districts are having 19 minor ports. The study covers the creeks like Jaitapur, Karli, Vijaydurg and the some creeks on the rivers like Shastri, Savitri, Vashishti, Muchkandi.

1.7 SIGNIFICANCE OF THE PORT DEVELOPMENT IN RATNAGIRI AND SINDHUDURGA DISTRICTS

The maritime industry plays a paramount role in Indian Economy. International trade is carried out with the lion’s share of 95 per cent by volume and 70 per cent by value through maritime transport. Recognizing the importance the government of India has launched the National Maritime Development Programme (NMDP 2005) involving a total investment of 100,335 crores. In the port sector the
total anticipated investment is Rs. 55,804 crores for 276 projects covering the entire
gamut of activities namely, constructional up gradation of berths, deepening of
channels rail road connectivity project equipment up gradations modernization
schemes and other related schemes. This speaks itself the importance of ports.

The state of Maharashtra is situated on the west coast of India between the state
of Gujarat in the north and Goa in the south. It has a coast line of 720 kms with two
major ports and 48 minor ports. Government of Maharashtra has established the
Maharashtra Maritime Board in 1997. The Board is responsible for regulatory as well
as developmental activities in the maritime. The board has powers to raise loans in
the market and can borrow from financial institutions, enter into contracts with
companies and take integrated view of development in port sector.

There are seven minor ports identified for the development under private
sector. Their sites are located at the following places;

Table 1.1 Ports to be Developed under the Private Sector

<table>
<thead>
<tr>
<th>SR. NO</th>
<th>PROPOSED SITES</th>
<th>DISTRICTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Alewadi</td>
<td>Raigad</td>
</tr>
<tr>
<td>2.</td>
<td>Dighi</td>
<td>Raigad</td>
</tr>
<tr>
<td>3.</td>
<td>Arjanvel</td>
<td>Ratnagiri</td>
</tr>
<tr>
<td>4.</td>
<td>Jaigad</td>
<td>Ratnagiri</td>
</tr>
<tr>
<td>5.</td>
<td>Ganeshgule</td>
<td>Ratnagiri</td>
</tr>
<tr>
<td>6.</td>
<td>Vijay durg</td>
<td>Sindhudurg</td>
</tr>
<tr>
<td>7.</td>
<td>Redi</td>
<td>Sindhudurg</td>
</tr>
</tbody>
</table>

Out of the above selected sites “Dighi” and a new site at “Rewas-Aware” have
been approved by state Government for development under MOM basis. Accordingly
“Dighi” is being developed by M/s. Balaji Leasing and Industries Company Ltd. and
Rewas-Aware by M/s. Amma Lines Ltd. Other sites have been planned to be
developed through a global bidding process. Government is also willing to consider
development of various other sites on merit bases depending upon individual merits.

The coast of Maharashtra is generally rocky and rugged. Some places near the
coast consist of elevated plateau intersected by numerous creeks and navigational
rivers situated between steep and lofty hills. The Western Ghats with general
elevating of 600 to 900 m and few perks lighter than those is a typical feature of
Maharashtra.
The district of Ratnagiri lying between 15°40 and 18°5 north latitude and 73°5 east longitude has an area of 3789 square miles. A thin sprinkling of red earth contrast with black rock is observed. The hills draw back a little rich levels of rice fields, coconut palms between them and a beach. Almost every 10 miles is a river or bay large enough to form a safe harbor for native craft which are by size and position fit to be leading ports and centres of foreign trade.

The Ratnagiri and Sindhudurga districts which have a coastline of over 500 k.m. consisting 19 minor ports out of 48 minor ports identified in Maharashtra. Most of the ports in the district of Ratnagiri and Sindhudurga are in the river estuaries or creeks. Some of these are Devgad, Vijaydurg, Ratnagiri, Bhagavati Bandar, Dabhul, Murud Janjira and Revedanda.

In spite of enough potential and economic viability for commercial shipping especially, these ports are not operating to their full capacity. The developments of ports have been neglected for a long time due to the development of other modes of transport. The developing of creeks river bays and ports will definitely boost up trade, commerce and industry in this region. If due attention is given, there is an ample opportunities to raise employment by way of supporting fishing, inland transport shipping.

The potential of port development can be observed from the traffic projection for commercial ports undertaken by government of Maharashtra. The traffic projection for some commodities is given here with:

**Crude Oil**

Refining capacity in India to increase from 6.155 MTPA (1996-97) to 169.75 MTPA by 2007 (Petroleum Ministry)

New refinery of 6 MTPA indicated at Devgarh in Maharashtra by 2007. Site may shift to Jaigarh or Vijaydurg.

Traffic in crude oil for Maharashtra pors can go up form initial 6 MPTA to 24 MPTA (Low Scenario) or 42 MTPA (High Scenario)

**Thermal Coal**

Jaigarh – 8 MTPA (2011-12) to 26 MTPA (2022-23)
Coking Coal

Jaigarh – 2.3 to 8.5 MTPA in 2001-02 to 5.4 to 19 MTPA in 2022-23 uncertainties are high.

Containers

1 million TEU (2011-12) to 4 million TEU in 2022-23 at a port near or north of Mumbai.

Therefore, greater attention should be given to growth of coastal shipping in these districts. It is not necessary that ports be big; smaller ports for 3000 to 5000 tons parcel size of about 4 m draft are sufficient. This would keep investment low. Emphasis should be given to reduction of turn round times. Ports with sufficient capacity for coastal traffic should be located at a distance of every 300 km. to reduce land leads. These ports should have geared jetties, warehousing and access to other modes of transport.

All the additional investment at ports should be private investment by appropriate stakeholders. Co-ordination in development with other modes and location policy in terms of manufacturing and redistribution facilities are essential.

1.8 STUDY PERIOD

The period of the study is confined to 15 years commencing from 1991-92 to 2011-12. The selection of this period is significant in view of the fact that, though the history of seaports in Konkan belt is too old, the actual development of these ports has been initiated with recommendations made by the Rakesh Mehta Committee. Thus, the real reforms in this sector took place with the adoption of various measures like involvement of private sector under the process of liberalization. The study period is important to initiate further development and projections of future trends in this regard.

1.9 METHODOLOGY

Data Collection

The minor ports in the Ratnagiri and Sindhudurga districts were selected for the case study. Interviews and observation methods were employed for studying the potential of existing creeks and rivers. Discussions with the port authorities like district port officers and officers of port trusts were held. Secondary source of data
was collected from various ports established in the study area. The parameters like implementation, administration, financial, investment made and marketing were reviewed in the context of the hypotheses. The primary source of data was collected from the stakeholder to study the benefits of the execution of sea port development and the availability of allied facilities.

**Data Analysis**

The collected data was analysed and tabulated suitably. Bivariate tables were presented wherever found suitable. The case studies were also presented within the framework of the objectives.

### 1.10 CHAPTER SCHEME

The results are incorporated in individual chapters. The first chapter creates a base for data collection and its analysis. Chapter II accounts for the history of maritime/sea ports development in India. Third chapter signifies the sea ports development in Maharashtra with reference to Ratnagiri and Sindhudurga district. Chapter IV gives the details of the creeks, rivers and sea ports in Ratnagiri and Sindhudurga Districts. Chapter V accounts the benefits of sea port development. Navigational safety and environment protection is discussed in chapter VI. The last chapter concludes the analysis.