e-ISSN (O): 2348-4470
Scientific Journal of Impact Factor (SJIF): 4.72 p-ISSN (P): 2348-6406
International Journal of Advance Engineering and Research Development
Volume 4, Issue 3, March -2017

PRE - FEASIBILITY STUDY ONDEVELOPMENT OF PORT INFRASTRUCTURE, AT MAGDALLA, SURAT

Sumedha R Mahajan[1], Dr. Gargi Rajpara[2], Mr. Mukesh Dave[3]

[1]*Infrastructure Engineering, LDRP-ITR, Gandhinagar*

[2]*Civil Engineering, LDRP-ITR, Gandhinagar*

Abstract–*Having proper understanding of ports operations as well as utilizing methods of development by the means of value-added service, could change a role of a port from a transportation node to an efficient point in a transportation chain. Trend of globalization has been followed by an increase in level of demand for freight transportation and thereafter establishing suitable port services. Developments of transportation chains, logistics and progress of these networks have enhanced the sustainable condition and level of transportation. To increase efficiency in the performance of the ports is to provide an environment for the activities that can meet high potential, reduce cost and increase replacement speed in parallel with the development of international business. Gujarat is strategically located with a coastline of 1600 km and has 42 ports. It has the highest number of operational ports & commercial cargo ports. Gujarat is strategically positioned to act as the hub of coastal trade. Already, minor ports in Gujarat account for 76% of the total cargo handled in the country. This is expected to rise further with development of more ports. The Gulf of Cambay and Gulf of Kutch provides natural navigational safety and logistical advantage, so by studying the various potentials and factors affecting the port infrastructure we can make Ports –* ***"As an Integral Part of Gujarat's Development Process".***

Keywords–*Ports, Globalization, Logistic, Cargo, Development, Gujarat, Infrastructure Facilities*

I. INTRODUCTION

Infrastructure plays a very important role in the economic progress of the nation. No country can think of economic progress & development without the development of efficient infrastructure. Especially in age of Globalization where international goods & commodities are to be transported from one country to the other, efficient infrastructure is the key to the success. India has a strategic location in the Indian Ocean with a coast line of 7517 kms with 13 major ports. In addition, there are 200 minor and intermediate ports, out of which 41 minor ports are based in Gujarat. Gujarat has emerged as a leading industrial and business Centre in the country. Gujarat has a coastline of 1600 km providing ideal location with proximity to international maritime routes for port as well as port led development. The astonishing growth pattern of the ports of Gujarat continued from last ten years has also been reflected in the annual growth of 35% in the traffic handled by GMB ports in 2009-10. Indian ports handle 95% of India's foreign trade in terms of volume and 70% in terms of value. Of this Gujarat accounts for about 75% of total traffic handled by non-major ports of India. Gujarat also has the highest number of operational ports and commercial ports and commercial cargo ports in India. Industries like petro chemicals, metal, cement, fertilizer and power have built their competitive edge from close proximity to ports for import of raw materials and/or export finished products after value addition. Gujarat's port sector has substantially consolidated itself in the last decade and now is favorably poised to tap opportunities emerging from the Dedicated Freight Corridor (DFC), Delhi Mumbai Industrial Corridor (DMIC), Special Economic Zones (SEZ) and Special Investment Region (SIR).

1.1 Objective of Study

- To carry out the pre-feasibility study for the port development.
- To identify the size of Logistics infrastructure facilities to handle the anticipated traffic in an efficient and cost effective way.
- To create basic cargo handling facilities at a minimum cost and allowing flexibility for extension/additions of infrastructure with traffic build up.

1.2 Scope of Work

- Port Planning
- To access the past traffic analysis
- Provide infrastructure facilities
- Provide design facility of planned facility.

II. BACKGROUND AND LITERATURE REVIEW

Large number of studies has been reported on developing port infrastructure with different logistics chain. Many research have been examined for the development of port facility some of the researchers are *Aecom (2010),*have studied the benefits &impacts associated with the Inland Port's presence in Will Country. The key element to succeed was the need for increased effectiveness of truck transportation in the Country and need for defining an enhanced contribution from freight transportation connected to the inland waterway system. *P. Taneja (2012),*have promoted use of flexible and sustainable infrastructures −though initially more costly, in view of the uncertainty; they may prove more economical over their entire life cycle& so the use of flexible and sustainable solutions infrastructures needs to be promoted.*G.S. Dwarakish (2015)*have presented a review on the role of ports on the development of a nation. The growth anddevelopment of ports leads to
greater trade activity, increased supply, greater foreign reserves and reduced prices for commodities as a whole. If port systems are not continuously updated, they face threat of becoming obsolete and eventually too inefficient to run. As a result, port owners need to constantly reserve funds for upgrades and maintenance costs.

III. METHODOLOGY

3.1 Selection of Proposed Location

The promoter has a vision to develop port terminal at this location to serve the export-import of various dry cargoes. Magdalla is well connected excellent road network.Magdalla/Surat being on strategic location can be important links inthe logistics chain. Thereis an attractive scope to establish port terminal at such strategic location. Various industries are established in Surat and around the Surat like textiles, sugarcane, handicraft, sea food;food processing units, cold storage, milk products, farmer's co-operatives society in additionto many small and medium size industrieslocated in this region.

The following are the advantages of this location:

- The proposed land is within sheltered area of Tapti channel. The location is in less cycloneprone region. Traffic flow is continuous.
- Site is located in the heart of the Surat/Hazira Industrial area.
- Broad gauge railway line is readily available at a distance of 2.5 Kms.
- Proposed location is well connected with state and national highways.
- Located far from residential area.
- There is also great potential for RO-RO and RO-PAX and Fast passenger ferry services from Surat.

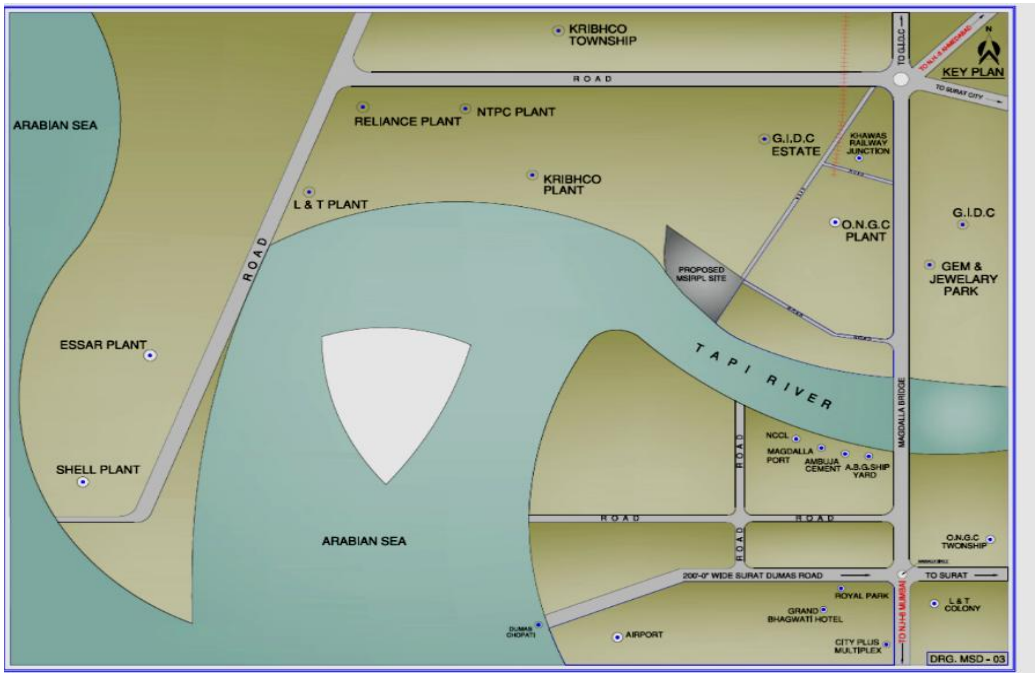

Figure 1.Key Plan of Proposed Location

3.2 Problem Identification

There are several problems that cause a serious obstruction to the flow of different commodities at the study area.Magdalla Port is handling all types of cargo, but presently due to limitations, only coal is being handled. Shell - Hazira is importing gas, while all other Industries import/export their own captive cargo.Apart from GMB owned

Magdalla port all other existing jetties in this area are developed as captive jetty by the various industries for their individual cargo handling.Hence there is no other jetty available in this region, for handling general cargo.GMB Magdalla jetty is now dedicated to handle only coal. There is a great potential of a privately owned jetty to handle various commodities as required by the requirement in this industrially well-developed region.

3.3 Problem Solution

After observing the difficulties of handling different commodities and identifying the problems causing these inefficiencies, there are various solution for improving the facilities for handling commodities safely.

- By Improving Facility
- ✓ Providing facilities for the port to handle the anticipated cargo.
- ✓ Developing the nearby-areas.
- ✓ Developing port with infrastructure facilities.
- ✓ Marine development
- ✓ Onshore development

3.4 Data collection and Analysis

A preliminary traffic analysis has been done at this stage. A comprehensive detailed analysis shall be undertaken at DPR stage.The State of Gujarat has in total 42 ports (including 1 major port) that serve the needs of a variety of industries and industrial areas. Many of these ports are already operational and additionally, the State's Port Policy has identified various new sites for development.

Given in the figure below is the list of all the existing 41 Ports in Gujarat (both operational and non-operational). This list does not include the upcoming ports which are in the development stage.

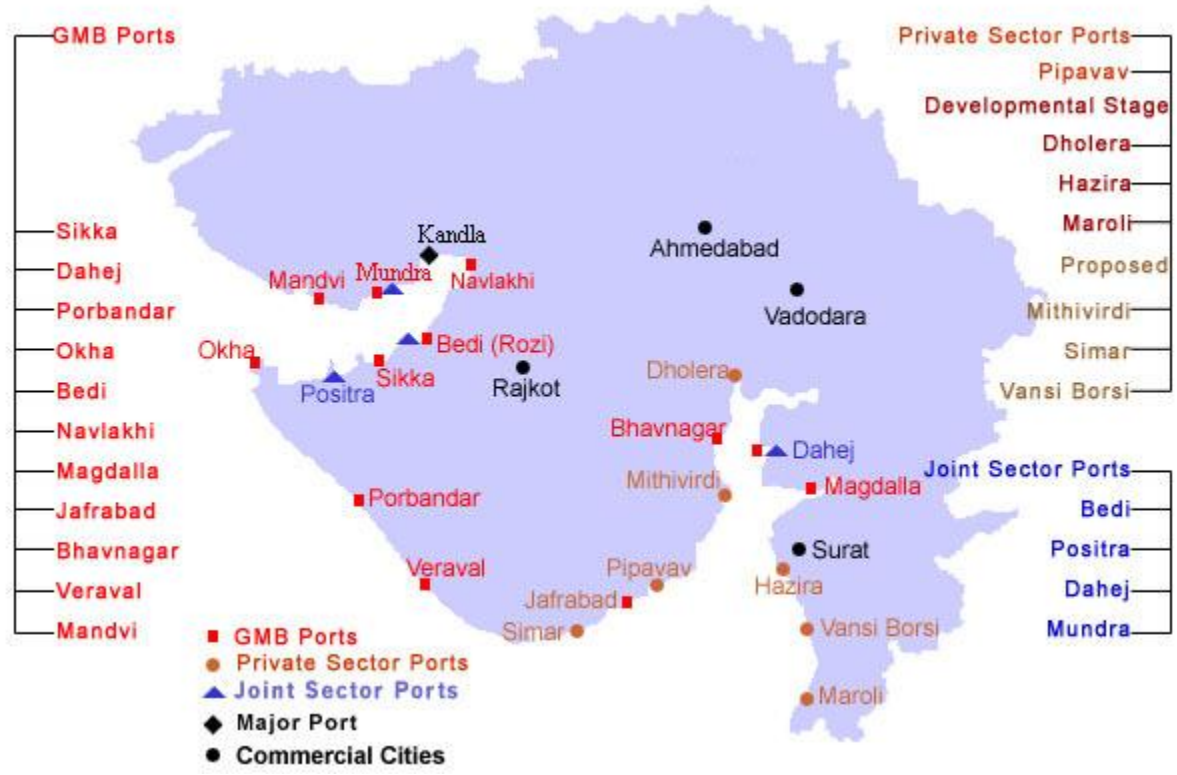

Figure 2.Ports in Gujarat

3.5Identification of Hinterland

It is necessary to identify the hinterland that the Magdalla Port can be expected toserve. For this purpose, the entire hinterland can be divided into two parts:

➢ **Primary Hinterland** – approximately representing the region of 100Kms fromhe port in all directions. This denotes the region where, at least based on generalizedcosts, cargo can be expected to be captive in nature for the port to a largeextent. However due to the existence of various other reason, some specificcargo may not be captive for the port. For Surat, as given in the diagram below,primary hinterland consists of two major industrial clusters – Bharuch, Vapi.

➢ **Secondary Hinterland** – representing the region extending from the end of theidentified boundaries of the primary hinterland which typically can be served byother ports in the vicinity as well. For Magdalla Port, secondary hinterland willconsist of north Gujarat, South Gujarat and western Madhya Pradesh and NorthMaharashtra. Some parts of Saurashtra may also consider as part of this hinterland.

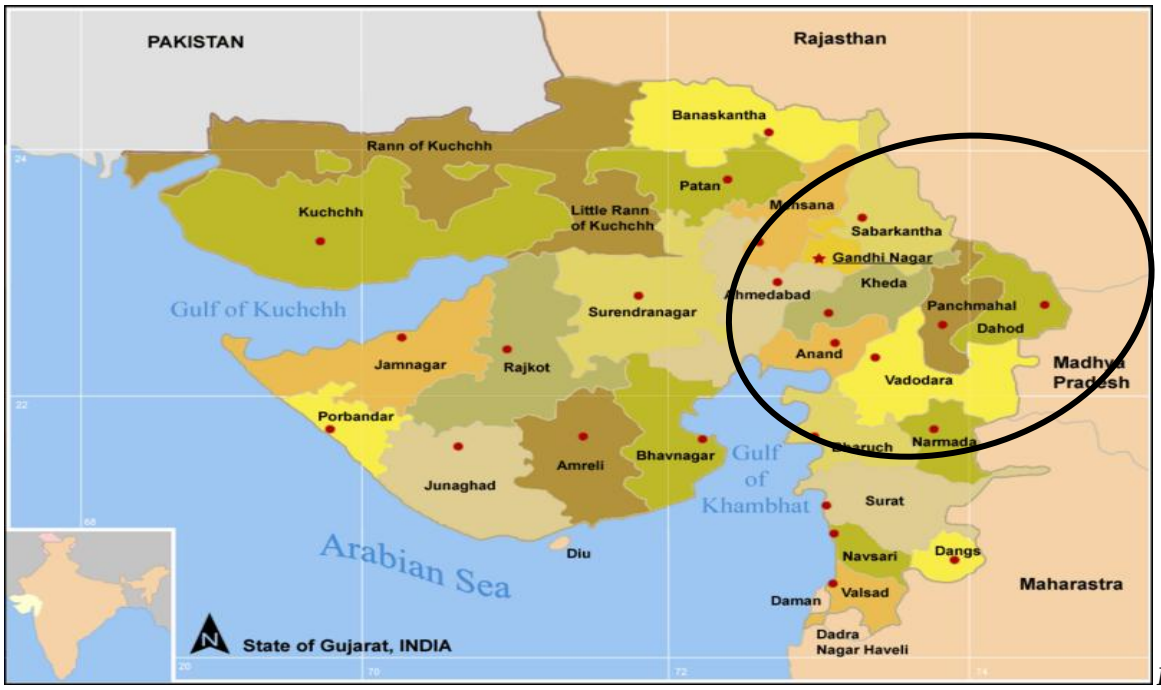

Figure 3.Hinterland of Magdalla, Surat

The proposed port is well connected by rail and road network to rest of country hence it is feasible to serve the hinterlands.

3.6Traffic Projection Summary

Table 1. Potential cargo projection for new facilities in MMT

Commodity	2020-25
Fertilizers	1.00
Cement & Clinker	1.0
Fruit, Vegetable and Food grains	0.10
Soya bin	0.50
Molasses	0.10
Sugar	0.10
Project cargo for heavy engineering	0.10
Cattle feed extraction	0.30
General cargo from local industries	0.20
Coal	5.00
Container Cargo	10000 TEU
TOTAL	8.40

The above table represents the cargo potential for new port facilities in the region.However, to realize the same potential, adequate infrastructure has to be developed.

Table 2. Cargo Projection – Realistic

Commodity	Cargo Projection in Million Tones
Fertilizers	0.5
Cement & Clinker	1
Fruit, Vegetable and Food grains	0.1
Soya bin	0.1
Sugar	0.05
Project cargo for heavy engineering	0.1
General cargo from local industries	0.25
Coal	2.1
Container Cargo	8,000 TEU
TOTAL	4.296

However potential for other cargos are not ruled out in future based on the development of the hinterland traffic and scenario.

IV. CONCLUSION

In this research paper study was take in to accountto identify the size of Logistics infrastructure facilities to handle the anticipated traffic in an efficient and cost effective way. The study reviews options for the development of cargo handling facilities using the available data. The development plan has been evolved taking into account the technical, economic and environmental aspects. There is a need of good infrastructure facilities to be provided at the proposed site for handling different commodities. Such activities and services at proposed location of Magdalla have the potential to generate large employment as also make industry competitive.

REFERENCES

[1] G.S DWARAKISH, A. M."Review on the Role of Ports in the Development of a Nation. International Conference on Water Resources, Coastal and Ocean Engineering", Elsevier 2015
[2] P. TANEJA, R. R, "Flexibility in Port Infrastructures", June 2012
[3] http://www.gmbports.org

