

DEVELOPMENT OF SATELLITE SEA PORTS-A NEW INITIATIVE UNDER SAGARMALA PROJECT

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Abstract—In India, the importance of sea route as the focal point of the development from the early times of civilization was palpable. Population growth, economic growth, urbanization and increased technology have transformed many Indian cities into metropolitans. Due to these changes, the function of sea ports has also changed and the current pattern of port development in India now focus more on mixed-use development and recreation. The focus of this project is to identify the attributes of the port development and there upon derive guidelines for port development. Findings of various studies have identified the importance of port development in the nation building process. This opportunity has an economic growth impact and the effects will be seen on the GDP of the country as a whole. The geographical location of India is both strategic as well as fragile. Our real problem is not in securing our borders but coastline and hence we need concerted efforts in the name of Sagar Mala Project. 1) Port modernization 2) Connectivity enhancement 3) Port-linked industrialization 4) Coastal community development. India has never focused on developing a good coastline and hence there is a huge potential for the success of the project.

Index Terms— port infrastructure, port connectivity, sagarmala, coastal community,

I. INTRODUCTION

Sagarmala has Indian government flagship major project. Waterways have great historic importance in the development of civilizations and in the growth of nations. Rivers and water are important resources for human life, the environment and national development. Ancient people utilized rivers and seas as their first facility for mass transportation of goods. The 7500 km long Indian coastline has 12 major ports and 200 minor/intermediate ports. Indian ports are the gateways to Indian's international trade by sea and are handling over 90% of foreign trade. The major ports are located at Calcutta, Chennai, Cochin, Jawaharlal Nehru port, Kandla, Mormugao, Mumbai, Para dip, Tuticorin, Vishakhapatnam and New Mangalore. The sagarmala main for pillars 1) Port modernization 2) Connectivity enhancement 3) Port-linked industrialization 4) Coastal community development. Sagarmal aims to 150 projects and initiatives in four main pillars. To modernization Indian port infrastructure 5 to 6 new major port developed. The second focus area is port connectivity, in this project 80 projects are being planned. These including a rail connectivity, highway connectivity, multi logistic way etc. the third set of projects aims to the potential of port-led industrialization to boost industrial and export growth along the coastline and 14 Coastal Economic Zone (CEZ) along the coastline, and number of industrial clusters. The coastal communities focused skill development, fishery activity, tourism activity etc, developed.

II. PORTS A GROWTH ENGINE

- India as a seventh largest nation is bound by sea in three directions has a vast coastline.
- Water transportation is most economical.
- Imports and exports through sea route.
- Huge Foreign Direct Investment for the nation.
- Rise in Gross Domestic Product (GDP) and hence improvement in economic scenario.
- Potential for employment generation.

II. SAGARMALA PROJECT

- The geographic location of India is strategic as well as fragile.
- Economic growth with strategic security is the prime objective.
- Modernization and up gradation of port infrastructure.
- Developing sustainable and efficient transport infrastructure and better interconnectivity.
- Developing good coastline for the nation.
- Developed brown port and green filed ports.
- Inland waterways transportation.
- Port- led industrial development.

III. MISSION OF SAGARMALA

- Boost the overall trade by imports and exports
- Rise in GDP.
- Rise in Foreign Direct Investment.
- Enhancing maritime security.
- Rise in tourism and fisheries industries.
- Rise in employment.

- India to be an economic superpower.
- Development of 5 to 6 new major ports.
- Development of 2 to 3 smart cities.
- Reducing in cost of cargo handling through automation and mechanization.
- Hinterland connectivity to neighbouring states.

III. LITERATURE REVIEW

Review of literature is important in any research work. Many researchers have carried out research work in problems related to the port modernization, port interconnectivity, port infrastructure, port commodity, port traffic etc.

Eva Osekowska, Henric Johnson and Bengt Carlsson (2017) have carried out a study on Maritime Traffic Modeling serves the purpose of human-readable information and knowledge of traffic data. The goal of the study is to the presence and character of fluctuations in maritime traffic patterns. The main objective is to identify such concept drift.

The empirical study is based on a collection of AIS vessel tracking data. The scope of the study limits the AIS data area to the Baltic region, which experience some of the most maritime traffic in the world. The investigation of maritime traffic modeling method based on the potential field concept, for this study to facility of concept drift. The concept drift is made apparent in course of the statistical and visual analysis of the experimental results. This study shows a number of particular cases, the maritime traffic is affected by concept drifts. The visual representations of the traffic model make shifts in the traffic patterns apparent to human eyes. The modeling method against concept drift in traffic is discussed and improvements are proposed.

Axel Merkel and Johan Holmgren (2017) have carried out a study on the maritime port efficiency is a accumulated empirical evidence concerning the drivers of port efficiency very large, there has not been any attempt at quantitative meta-analysis. This study therefore uses a compounded dataset of port efficiency estimates from 52 studies and regresses these estimate on port and metrological effects. They find that there is lack of attention paid to the user side of port service production, which has implications for the interpretation of efficiency estimates and next find negative relationship between intra-port competition and estimated efficiency. they discuss the interpretation of these finding in the context of partial production functions, a large portion of the applied methods do not capture between producer and user inputs. Next find the ratio of military spending to GDP is positive related to estimated port efficiency.

Xin Shi and Huan Li (2016) have carried out a study on the management and expansion of the port hinterland and is the competitiveness of modern ports. In this paper Considering the impact of the global supply chain and regional economy development, this study proposes different perspectives to analysis the development of the port hinterland, and applies these perspectives to Shenzhen Port in China. The hinterland development from physical, logistics, and macroeconomic perspectives, and analyze the influencing factors. The main viewpoint in terms of three driving forces: spatial, value, and organizational. Next, they find that the influence of these driving forces and their relevant strategies different from these three perspectives. For the Shenzhen Port to develop its hinterland sustainably, its geographical boundaries should be extended in both directions (i.e. inland-bound and foreland-bound), and the structure of container throughput needs to be optimized. Some relevant strategies in this regard are proposed.

David Romaro and Alberto Camarero (2017) have carried out a study on this paper focuses on the first mandatory step of analyzing the different types of risks faced by a commercial port infrastructure. The number of potential risks is large – information technology risks, operational risks, labor risks, etc. This paper presents a methodology for improving the scoring of the risks to commercial ports and understanding their real scope. the paper discusses the results of a survey of experts at Spanish ports and an analysis of almost two years of security statistics, the goal being to obtain realistic information about the importance of the various risks in order to specify suitable countermeasures and evaluate their costs. The results have enabled the identification of several new parameters that must be considered when assessing the risks to commercial ports, as well as enhancements to the definitions and use of some of the existing parameters. The new parameters include Enhance maritime risk security, the risk to a port, intrinsic risk to the type of terminal, accessibility, terminal layout and operational relevance of key elements to port operations. The structures, rail and road facilities and development of warehouse provide in port sector.

Wan, Chengpeng, Zhang and Yang Zaili (2017) have carried out a study on this paper Environmental problems that seriously affect both natural systems and social development of human beings. the concept of green port is developed to mitigate the negative impacts of inappropriate port operations on environment. This paper analyzes the current status of green port development worldwide. An evaluation model for quantitative measurement of green port development is established based on the Drivers, Pressures, States, Impacts and Responses (DPSIR) framework. The weight of each index composing the evaluation model is calculated through an analytical hierarchy process method, and the evaluation results of the investigated ports with respect to each index are aggregated using an evidential reasoning approach. The next step required the evaluation model is further demonstrated through a comparative analysis of five major ports in China. In china 5 major port developed in greenfield port based system. The novel model developed along with the methods applied in this paper can provide significant insights for the comparative evaluation on the development of green ports in other countries, as well as a powerful tool to conduct self-assessment of green port development.

Gabriel Figueiredo De Oliveira and Pierre Cariou (2015) have carried out a study on this paper There are many studies on container port efficiency. The many factors are technical and scale efficiency, private versus public terminal management or macro-economic factors, play on the efficiency score of a given port. There are fewer studies that focus on the role played by the inter-port competitive environment. This role remains difficult to assess. In fact, on the one hand, a port subject to high inter-port competition may record higher efficiency scores due to the pressure from the competitive environment. The port subject to high competition may be forced to over-invest and could therefore records a lower efficiency score. This article investigates this issue and examines how the degree of competition measured at different levels. The local level, regional level and global level etc. level checked. impacts the efficiency score of a given container port. Next, they implement a truncated regression with a parametric bootstrapping model. The model applied to information gathered for 200 container ports in 2007 and 2010 leads to the following conclusions: port efficiency decreases with competition intensity when measured in a range of 400–800 km (regional level); and the effect from competition is not significant when competition is measured at a local (less than 300 km) or at a global (more than 800 km) level. Final Estimates also show a tendency for ports who invested from 2007 to 2010 to experience a general decrease in efficiency scores, an element which could be explained by the time lag between the investment and the subsequent potential increase in container throughput.

Yapa Mahindra Bandara and Hong-Oanh Nguyen (2016) have carried out a study on this paper the process of formulation, revision and approval of port infrastructure tariffs is complex and involves different stakeholders. This paper aims to identify and analyses the influential factors in the port infrastructure tariff formulation process using survey data collected from 67 port authorities. Next find the Exploratory factor analysis (EFA) is first conducted before confirmatory factor analysis (CFA) is applied to analyses the latent factors underlying port infrastructure tariff setting. The analysis results suggested the four factors influential to infrastructure tariff practice, namely tariff policies, transparency, tariff regulation and stakeholder participation. The paper also presents the implications for port authorities, management and stakeholders.

IV. FINDING FROM LITERATURE REVIEW

This paper aims to present a review of the literature on port development, port efficiency and environmental green port development. Eva Osekowska, Henric Johnson and Bengt Carlsson (2017) focused to find the role of maritime traffic modeling, while Axel Merkel and Johan Holmgren (2017) focused to find the maritime port efficiency. Xin Shi and Huan Li (2016) focused on the management and expansion of the port hinterland and is the competitiveness of modern ports. David Romaro and Alberto Camarero (2017) focused on analyzing the different types of risks faced by a commercial port infrastructure. Wan, Chengpeng, Zhang and Yang Zaili (2017) of green port is developed to mitigate the negative impacts of inappropriate port operations on environment. Wan, Chengpeng, Zhang and Yang Zaili (2017) took china. Yapa Mahindra Bandara and Hong-Oanh Nguyen (2016) focused on influential factors in the port infrastructure. influential factors in the port infrastructure Most of the above researchers have identified problems regarding port efficiency, maritime traffic modeling, development of green port, port risk management, environmental port based green port, port infrastructure, port traffic regulation, dredging operation in port. From the brief review of the literature performed, it is possible to work on some indexes of port development, checking their methodology and problems in the study area, every port is suffering from the problems of unregulated and unorganized port development system.

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