A STUDY OF FACILITIES AVAILABLE WITH RESPECT TO PORT OPERATIONS AT MAJOR PORT IN INDIA

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ABSTRACT

Water transport has been playing an important role in Indian economy since time immemorial. The average ship-borne traffic in India is 35 million tonnes per annum and the total optimum handling capacity of the major ports is hardly more. Any increase in trade results in congestion at the ports. The main objective of the paper is to study about the status of facility available at sea ports in India. The information was collected through structured questionnaire from 80 port employees and 40 ship owners across the 12 major ports in India. Analysis of data has been done with the help of suitable statistical tests. The descriptive statistics, such as mode, frequency, percentage, minimum and maximum, etc were determined. The study result showed that even though major facilities are available at ports in India still there is lack of some important facilities at the ports, which must be fulfilled for better operations and to improve efficiency of the port.

Key words: Ports, Facilities, Major ports of India

Cite this Article: Dr. Prafulla W Sudame and Pavan Nagorao Bahekar. A Study of Facilities Available with Respect To Port Operations at Major Port in India. International Journal of Management, 6(10), 2015, pp. 11-17.
http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=6&IType=10

1. INTRODUCTION

Growth in trade of a country is an important indicator of its overall growth. Trade of a country is an indicator of its economic condition. Internal trade of a country not only fulfills the requirements of its different regions but also promotes balanced regional growth in the country.

Water transport has been playing an important role in Indian economy since time immemorial. It is an easy and cheap means of exports and imports of heavy items. It is in this context that the role of ports becomes all the more important. A port is a gate
for entering into land from sea. In fact, a port is a place in a waterway where a ship can stop for loading and alighting goods. Ports are the nodal points for land and sea trades.

As per Mukherjee (2001)\(^1\), India has the largest merchant shipping fleet among the developing countries and ranks seventeenth in the world in terms of gross registered tonnage (grt) and fifteenth in terms of deadweight tonnes (dwt). It has been estimated that around 90 per cent of the world’s merchandize and commodity trade is transported by ships. This percentage has remained fairly constant over the last century, yet the volumes have increased enormously in the last two decades. This rise in global shipping volumes resulted from the disintegration of production and the integration of world trade according to Feenstra (1998)\(^2\). As per Berköz, (1999)\(^3\), ports have two main advantages. First of all they perform roles as important links of hinterlands to points overseas. On the other hand, countries also require inner linkages, such as links to other ports, airport and railway connections if they are to perform their role efficiently. Secondly, sea conveyance is the cheapest way of transportation when considered in terms of fuel consumption and investment. When compared to other transportation systems, railway transportation requires twice as much energy consumption, while road transportation requires ten times as much as sea conveyance. During the past few decades the world has become increasingly environmentally conscious and, with its lower energy consumption, marine transportation is obviously more environmentally friendly than other means.

Of the total sea-borne trade of India, more than 85 per centers shared by Mumbai, Kolkata, Cochin, Chennai and Visakhapatnam. The average ship-borne traffic in India is 35 million tonnes per annum and the total optimum handling capacity of the major ports is hardly more. Any increase in trade results in congestion at the ports.

Although importance of ports in the trade of the country is continuously growing, existing port structure is inadequate. It is not able to avoid the delay in pre-trade activities as well as time taken by the ships in completing their journey. In labour and mechanical productivity, Indian ports are inferior to other Asian ports. India’s coastline has few indentations and consequently the country has only a few major ports of trade (Sinha, 2015)\(^4\).

The government permits joint-venture formations between major port and foreign port, between major port and minor port(s), as well as between major port and Company (ies). The measure is aimed at facilitating port trusts to (i) attract new technology; (ii) introduce better managerial process; (iii) expedite implementation of schemes; (iv) foster strategic alliance with minor ports for creation of optimal port infrastructure; and (v) enhance confidence of private sector in funding ports.

The port reform process in India has to be viewed against radical changes worldwide, in terms of the trends in cargo delivery and handling productivity of ports. While ports in India have been conventionally designed mainly for handling bulk and break bulk cargoes, the trends in the maritime trade in the last four decades has brought change in mode of cargo delivery through containers. In the above information it is necessary to find way out of the problems faced by port authorities and sheep owners while working in this environment. Hence by considering the above importance researcher decided to select present topic for the study.

The port’s efficiency parameters known as performance indicators are average turn-around time of vessel, average pre-berthing time, average output per ship berth.
day, average non-working time at berth, percentage of non-working time to total stay at berth and also at port and average parcel size. Most of these performance indicators revolve around productivity, except few. Therefore the study will be conducted to suggest suitable measures to improve productivity, improve the performance parameters and measures to achieve the same.

2. REVIEW OF LITERATURE

Heaver et al., (2000)\(^5\) gave a brief overview of these different types of agreement and examined the consequences of this evolution of the market structures in which ports and shipping companies have to operate. Wang & Brian (2000)\(^6\) investigated the progress of container port system development in South China, focusing particularly on the interplay between Hong Kong and the other ports in the Pearl River Delta (PRD) region. Notteboom & Winkelmans (2001)\(^7\) discussed the impact of some structural changes in international trade, transport and shipping on strategic and operational issues in the framework of port management. The content and strategic scope of these new roles are highlighted, especially with regard to the European container port system. Cullinane et al., (2002)\(^8\) applied a ‘port function matrix’ to analyse the administrative and ownership structures of major container ports in Asia. They concluded that the level of market deregulation is an important intervening variable which may also exert a positive influence. Clark et al., (2004)\(^9\) investigated the determinants of shipping costs to the United States with a large database of more than 300,000 observations per year on shipments of products aggregated at six-digit Harmonized System (HS) level from different ports around the world. He found they that port efficiency is an important determinant of shipping costs. Bichou &Gray (2005)\(^10\) examined the validity of the conventional terminology for classifying ports, questioning the assumption that ports should be conceptualized as separate markets and distinct operational and business ventures. It seeks to demonstrate that in today’s inter-related global markets and businesses with integrated logistics and supply chain flows, there is less of a case for the traditionally isolated and restricted port terminology.

Cullinane & Wang (2006)\(^11\) focused on measuring the efficiency of container terminals in Europe using the data envelopment analysis (DEA) approach. Container terminals in Europe play an important role in the region’s economic development and, as the result of their geographic concentration, face fierce competition compared with the rest of the world. Alvarez et al., (2007)\(^12\) presented an econometric model to calculate both, the technical and the allocative efficiency in cargo handling firms in the port of Las Palmas (Spain). Casaca (2008)\(^13\) carried out investigation by means of an email survey questionnaire. The findings show the viewpoint of port authorities regarding this matter and suggest a list of 21 pre-requisites that ports can use to assess their potential as a motorway of the sea interface; in addition, they can be used by governmental bodies when deciding whether to support financially motorways of the sea interfaces projects or not. Sinha (2010)\(^14\) aimed at understanding the different dimensions of life cycle of a seaport enabling the port-planners to decide on their strategies. The results of analysis show that primarily four dimensions impact the life cycle. He finally recommended a strategic framework for planners to respond to the management needs in the different stages of the life cycle. Yeo et al., (2011)\(^15\) presented an approach to measuring container port competitiveness, a key but neglected element of channel management in a complex and dynamic logistics environment underpinned by commercial confidence and trust in European supply
chains fed with goods from container ports in Northeast Asia. Sutomoa and Soemardjito (2012)\textsuperscript{16} explained the results of research on analysis of the ports within the Western Indonesia in terms of logistics effectiveness and efficiency perspective. Trujillo et al., (2013)\textsuperscript{17} examined this process and the factors that are slowing it. The first objective is to measure the evolution of port efficiency during the port reform process using a stochastic production frontier. The results suggest that reforms are producing the first positive results. Deng et al., (2013)\textsuperscript{18} examined the relationship between ports (port demand, port supply and value added activity in port) and regional economy from a logistics perspective that provided intellectual support for policy makers in their strategic port related decisions. Bhanot & Singh (2014)\textsuperscript{19} carried out benchmarking the performance indicators in Indian Railway container business and select private players. A case study has been conducted employing data envelopment analysis (DEA) methodology on secondary data of container terminals of CONCOR, Adani and Gateway logistics. The study enables the reader to gain some valuable insights from a managerial perspective by the use of DEA methodologies so as to formulate strategies to foster better performance. Chang & Tovar (2014)\textsuperscript{20} assessed and compared the efficiency and performance of Peruvian and Chilean ports terminals. In order to do so we estimate total factor productivity (TFP) growth by applying Stochastic Frontier Analysis (SFA). Giovanni et al., (2014)\textsuperscript{21} investigated social and instrumental antecedents of clique survival, focusing on equity joint ventures engaged by terminal operators in a 10-year time frame (2002–2011). Li et al., (2014)\textsuperscript{22} investigated spillover effects and dynamic correlations between shipping spot and derivatives markets (tanker forward freight agreement, FFA) under the multivariate generalized autoregressive conditional heteroscedasticity framework. Results from this article will be helpful to improve participants’ predictions of return, volatility and correlation, which are significant for determining hedge strategies. In addition, the management of freight rate risk and portfolio investment can also benefit from the empirical results obtained in the study.

The published literature raises questions regarding the port operations in respect of improvement in productivity and efficiency. It is apparent that the future policy needs to be designed in such a way that agencies and firms share responsibilities for the smooth functioning of port operations. Literature also shows that many different management strategies were used for improving the productivity and efficiency of ports; however, studies specifically focusing on port operations in Indian context are very less. Hence, on the basis of in-depth analysis of the literature this study identified the research gaps and aimed to study the port operation and its strategies.

3. METHODOLOGY

In this study, all major sea ports in India were considered as the study area. All the port authorities and ship owners/representatives (Shipping Agents) in India were considered as the universe of this study. For the purpose of data collection 80 port authorities and 40 ship owners were selected by following random sample selection method.
In the present study questionnaire was used as a research instrument. Individual questionnaires were developed for the port authorities and ship owners. In the present study, Fixed Response (Qualitative) Rating scale /Continuum (such as Likert-type scale) were used.

4. DATA ANALYSIS

Analysis of data has been done with the help of suitable statistical tests. The descriptive statistics, such as mode, frequency, percentage, minimum and maximum, etc were determined from the collected data using SPSS 18.0 Software. The significance level was chosen to be 0.05 (or equivalently, 5%).

It was evident from the analysis of data collected from port employees and ship owners that facilities such as warehouses, break bulk/general cargo terminal, container depots, dry bulk terminals, oil terminals, passenger terminals, dry docks and ship repair are available at more than 90% of ports. It is also observed that according to more than 70% respondents Sprinkler, fire detection system and fire main were not available at the port.

It is evident from the study results that 71.3% of port authority annually check maintenance and renewal of insurance by tenant and/or subcontractors. It is also observed that 85% ports depend on external agency for supply of electricity. The backup for electricity was available only at 50% ports. Majority of port authorities given due importance to property and equipment maintenance and staff training programs. It was apparent from the information that security precautions including 24 hour security guards were available at 100% ports. It observed that alarm facility at all buildings, perimeter fences and gates is not available at all buildings, perimeter fences and gates of majority of ports. It is evident that according to majority (66.3%) of port authorities land and equipment availability and quality is a critical factor of very high importance for port productivity and efficiency.

5. CONCLUSION

Ports play a key role in the economic development particularly in the liberalization and globalization scenarios in short and long term perspectives. Besides this, the review of evolution of port studies and case studies of ports are indicating origin, growth and development of port plays vital role particularly in the impact of port developments on cities, infrastructure developments in catchment areas of port.
From the study results obtained after analysis of data it is concluded that there is lack of facilities such as Sprinkler, fire detection system and fire main, in addition to this majority of ports depend on external agency for supply of electricity. Alarm facility at all buildings, perimeter fences and gates is not available at all buildings, perimeter fences and gates of majority of ports. However; facilities such as security precautions including 24 hour security guards is available at all ports in India, facilities such as warehouses, break bulk/general cargo terminal, container depots, dry bulk terminals, oil terminals, passenger terminals, dry docks and ship repair are available at majority of ports. Moreover majority of port authority annually check maintenance and renewal of insurance by tenant and/or subcontractors. Majority of port authorities given due importance to property and equipment maintenance and staff training programs. This shows that even though major facilities are available at ports in India still there is lack of some important facilities at the ports, which must be fulfilled for better operations and to improve efficiency of the port. In the light of above information following suggestions are made.

Modernization of port infrastructure is essential to benchmark the performance of Indian Ports against global standards. The researcher has found that the Indian Ports has to give TOP PRIORITY to undertake modernization of their ports through, construction of new berth terminals, various expansion and upgradation project for berths, installation of new and modern equipment, upgradation through higher capacity cargo handling equipment etc.

REFERENCES


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