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INVESTIGATING THE ENABLERS AND BARRIERS FOR INTRODUCING PORT-CENTRIC LOGISTICS WITHIN THE INDIAN LOGISTICS NETWORK

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ABSTRACT

The prevailing lack of transportation, port and intermodal facilities is one of the major hurdles for the development of the Indian Logistics sector and causes congestion at various points in the supply chain. The UK port industry has also been facing many challenges in the recent past. The congestion challenges in UK ports have eased to a certain extent in recent times due to investment and new government and private sector initiatives. One example of this has been the adoption of a "Port-Centric-Logistics" strategy by some UK ports to attract direct callers in these ports. This strategy will try to replace/reduce the feederage that is going on between the continent and UK, and improve the efficiency and productivity in the whole supply chain up to the end user. Teesport has taken the lead in this exercise and set up a fully-fledged distribution centre which provides facilities such as container stripping, storing, repacking at the port already, in collaboration with ASDA. This model is now being considered by other ports such as Hull and Liverpool in order to improve their competitive edge over European ports.

In a previous paper, Galhena, et al (2008) studied the bottlenecks with reference to Indian ports. Considering the issues presented in that paper and with reference to the Port Centric concept, this paper will investigate the possibilities of adopting the "Port Centric Logistics" concept in the container ports of India. Based on the analysis of the literature on Port Centric Logistics and Logistics models within the Indian scenario, this paper will investigate the enablers and barriers for introducing this concept within the Indian Logistics environment. This analysis will be also be coupled with data from a limited number of semi-structured interviews conducted with respondents in the Indian Logistics environment. The research is in its infancy and will present a conceptual model highlighting the factors affecting Port Centric adoption in India for the practitioners.

INTRODUCTION

In the recent times, India's imports and exports in/out of container ports/terminals have been growing at a higher rate, compared with other principal ports. India's main container port, Jawaharlal Nehru (JNP), which handles more than 50% of the country's container volume, recorded a 26.3% growth rate to 3.89 million TEU and 7.5% growth rate to 4.18 million TEU, in 2007 and 2008 respectively (Galhena 2008; Fossey 2009). But, lack of container terminal facilities and the required intermodal facilities to connect the main producing/consuming areas have been a major challenge for the growth of international trade.

Some UK ports had also been in a similar situation in the recent times and the adoption of 'Port-Centric Logistics' (PCL) strategy has helped ports such as Teesport and Felixstowe and their customers including supermarket chains (ASDA Wal-mart and Sainsbury's) to overcome the congestion situations in the intermodal facilities/system. The efficiency of the supply chain between ports and consuming area have increased due to this strategy. Also, this environmental-friendly concept helps to reduce the need for the empty containers to travel and saves a large amount of unproductive road/rail miles.

Although, the 'PCL' concept is not yet a widely accepted/used strategy in the UK, some large supermarket chains such as ASDA/Walmart and Sainsbury's have been benefited by the concept. The following quotations highlight some of the economic and environmental benefits that could be harnessed.

'The actual on-port operation helps reduce the suppliers issues as we have the ability, working with the port authority to manage the flow of imported products at the point of landing, where as without the port centric operation, many decisions were previously taken many days or weeks in advance...' **(BAP Group which provides 'PCL' facilities at Felixstowe, March 2009)**

'The use of a northern port saves unnecessary inland road miles. For ASDA the saving is over two million lorry miles a year.' **(PD Ports, March 2009)**

'ASDA supports the Teesport and the 'PCL' concept. It works well for us. But, Teesport still needs deepsea container handling facilities to implement this concept fully. Due to the feeder requirement into Teesport from ports such as Rotterdam and Felixstowe, the lead time is gone up by two days or so. But, strategically we are better off.' **(ASDA, March 2009)**

'Congestion at ports, inland and roads have rapidly increased- thus directly augmenting logistics costs. ...average train speed is 23.3kmph in India. This is 100kmph in Europe.' **(Vaidyanathan, 2007)**

PORT CENTRIC LOGISTICS CONCEPT

The 'PCL' concept is explained by Mangan, et al (2008a) as an encouragement to locate distribution centres within port premises which will cut down the empty movement of containers. This allows a faster turn round and savings of road miles. Mangan, et al (2008b) discuss the role of ports and their changing nature within the supply chain and suggest that port-centric logistic activities is a new/potential revenue earner for ports. Van Marle (2008) argues that the shift in global manufacturing patterns and 'PCL' concept has emerged as a result. As the paper stated there are two models; the retailer model (minimum 1 million sq ft) and the 'warehouse in the container yard' (goods stays in containers until the need arises). The author argues the potential of 'PCL' has not yet been exploited. Hailey (2009) has indicated the plans of the Spanish port of Ferrol to offer 'PCL' facilities which is increasingly becoming fashionable.

USAGE OF PORT CENTRIC LOGISTICS STRATEGY IN THE UK

The concept of limiting the maritime container to the sea leg and that the land transportation of cargo should be done in a more environmentally friendly and economical way, is gathering momentum. The UK ports such as Felixstowe and Thamesport (managed by Hutchison) adopted this method and are successfully providing the facilities to companies such as BAP which in turn service customers including Sainsbury's and Somerfield with on-port and off-port de-stuffing, warehousing and storage (Ship2Shore 2007; BAP Website 2009; Mangan et al 2008b). PD Ports (2007) states that 'PCL' is an opportunity to reduce costs, lead-times and environmental challenges in the logistics industry. The paper argues that the port choice for inbound cargo has been a decision of the freight forwarder without considering the benefit to the retailer. ASDA, as a beneficiary of 'PCL' activity, has reduced road miles drastically and consider strategic business partnerships as key to success. Also this research document recognises the benefits to the retail sector in general.

CONTAINER PORTS/TERMINALS: INDIA RELATED ISSUES

Haralambides and Behrens (2000) discuss the transformation of the Indian port sector - the privatisation process that commenced in India at JNP in the mid 1990s with the trade liberalisation has now been embraced by almost all the container ports. The small scale

private sector involvement in India's port sector activities and the importance of large amounts of funds to develop port facilities in the future has been discussed by Bennett (1995). Bennett also argues the need to progress on privatisation of the ports on an urgent basis irrespective of national consensus on labour issues in order to get optimum benefits from investments. Venkiteswaran (1995) explains the limitations that were in force in India's legal framework in respect of privatisation. The paper deals with the decision made to privatise the Nhava Sheva container terminal at Jawaharlal Nehru Port. This was an imperative step to facilitate India's manufacturing boom and growth in international trading opportunities. Baird (2002) argues that especially, for developing countries, such as India, the way forward is only with a higher level of private sector participation. The opportunities available for the development of transport and port infrastructure through Public Private Partnerships (PPP) and, successful implementation of such projects are discussed by Sharma (2008).

A detailed impartial analysis about the infrastructural requirements of India to absorb its economic growth is made in RREEF (2007). The report discusses the weak transport networks and port infrastructure. The authors suggest that the present situation 'scars off' foreign investors. Raghuram and Gangwar (2007) discuss India's challenges in the context of its robust growth in trading volumes. The authors stress the need to develop deeper and state-of-the-art container terminals in order to avoid transshipment over ports in another country. The diagnostic work carried out by Raghuram (2006) and Ray (2004) on JNPT, the largest container port in India, recognises the limitations of the port, Intermodal connections (rail and road) and other logistics infrastructure that cause port congestion.

Cumbersome import/export procedures and their adverse effects have been examined by Taneja (2004). Kumar (2001) discusses the trading opportunities and the competition India is facing with China and the infrastructure bottlenecks in India. India's maritime sector prospects and challenges have been discussed in Vaidyanathan (2007) and Deloitte (2006). India's democratic political structure is cited as one of the main reasons for slow decision making compared with China. The potential and the lucrative opportunities prevailing in the port sector, the inherent bottleneck and issues that get in the way have been discussed in Lloyd's List (2005). The study carried out by De and Ghosh (2003) to ascertain the co-integration and causality between performance and traffic found that performances precede traffic in most Indian ports.

A previous study carried out by the authors (Galhena, et. al. 2008) provided an input in terms of the bottlenecks in India's port interface for this study. The factors that emerged from this study were; port capacity limitations, insufficient investment, bureaucracy and port inefficiency issues. These were revolving around human involvement as a central theme and it was suggested that the human involvement was contributing to the vicious cycle of the said inefficiencies.

Some UK ports have introduced 'PCL' to overcome similar challenges in a few ports with some success. This paper examines the enablers and barriers to introducing this concept in India's container ports as a solution to its acute congestion related bottlenecks.

RESEARCH DESIGN

In the above context the research questions for this study are as follows;

- (1) Can 'Port-Centric Logistics' be implemented in India?
- (2) What are the enablers and barriers to implement 'PCL' in India?

In order to explore the research questions, a literature review was conducted on port related challenges and issues in India, and on the 'PCL' concept both in general and its application in the UK scenario. However, the academic literature was somewhat limited on the ground level issues. Therefore, in order to obtain a better insight into the factors

affecting this study and ground situation, the approach used was that of qualitative research. Interviews were conducted with four senior executives of ports/container terminals and an academic/consultant who has carried out a large number of Indian port-related studies/projects. The interviews were recorded and transcribed, for diagnostic purposes and analysed using grounded theory principles. The analysis was based on the suggested methods by Miles and Huberman (1994) using the early analysis technique following the date sequence of interviews. The clusters which didn't have identified themes were given new titles. Some of the major concepts that emerged, were, as follows: lack of space/land in ports, old existing port infrastructure, congested road/rail networks, high level of bureaucracy, stringent and outdated regulatory and legal regimes and long delays in decision making.

The data which was derived from the relevant literature was also analysed using the same method. These themes were then compared with the interview data and the focus was narrowed down for this research. The new factors that emerged were as follows;

- (a) Lack of rational thinking- the human component.
- (b) Lack of empowerment
- (c) Lack of sensitivity to the need and urgency in the system

RESEARCH MODEL

The research model is depicted in Figure 1. It considers the PCL concept as a central solution (at least partial) to the bottlenecks in India's maritime chain. The outer circle shows the themes that were identified in the study. These are the general bottlenecks in the system (delays, lack of space, old infrastructure, bureaucracy, outdated regulatory/legal systems and congestion) that can have an adverse impact in the implementation process of 'PCL' concept/strategy. Based on the data analysis, three scenarios are identified which will influence the decision of the users (of maritime logistics) to implement 'PCL' as and these are placed with a link to the main circle in the diagram;

Scenario 1: The user has adequate space in terms of land and warehouse/ factory and hence does not need to use a service such as 'PCL'. This is identified as 'no go situation' and crossed out in the diagram.

Scenario 2: The user does not have the space on his own but has access to the 'PCL' set up without much hassle. This is identified as a 'go situation' and has been ticked.

Scenario 3: The user can obtain better freight rates for oversized containers (45ft or so) which are not permitted on the road. This is also identified as a 'go situation' and has been ticked.

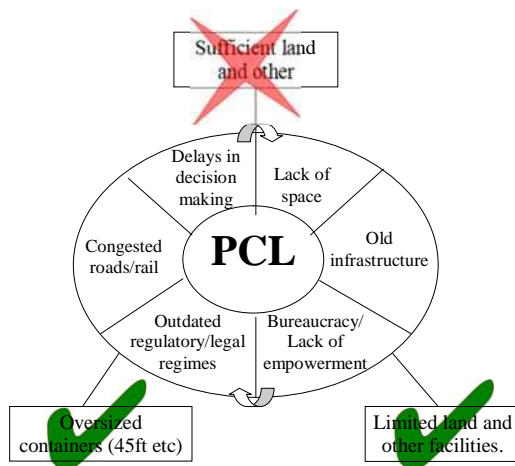


Figure 1: 'PCL' possibilities for India

DISCUSSION & ANALYSIS

The purpose of this study was to ascertain the enablers and barriers for implementation of 'PCL' strategy in India's ports as a solution (atleast partial) to the challenges in the country's maritime logistics environment. The growth of the international trade has temporary slowed down due to the global economic/trading downturn. But the long term prospect still appears to be bright for India. Although the port privatisation process commenced in the 1990s, the main legal framework governing the maritime industry and international trade has not changed adequately to suit the 21st century. For instance, the port trust/governing act and customs ordinance will require changes to implement a 'PCL' strategy successfully, as this will demand somewhat liberal thinking. However, the implementation of privately-run Container Freight Stations (CFS) outside of ports, several years back, for delivery of import cargo can be considered as 'outside of box' thinking. With the increase of import/export volumes, the main ports (mainly at inner-city ports) began to face numerous difficulties as far as container yard capacity/space is concerned. These developments have pushed the authorities to listen to the practitioners and take radical decisions.

The interviews revealed that 'PCL' concept cannot be adopted in every port. The infrastructure and capacity of old ports such as 'Port of Kolkata' is not conducive or give room for this sort of novel ideas. At the same time, the design of new container facilities at Jawaharlal Nehru Port (JNP) which is the largest container port of India (with three container terminals) also does not permit the land-required developments such as this. The Indian situation is somewhat similar to the UK scenario. The Port of Felixstowe, UK has got only limited warehousing facilities on-dock and other warehouses are located outside of the port due to land/space restrictions. The port of Teesport, UK (in north east) has land resources, but does not have deepsea container handling facilities for larger vessels to efficiently connect the Far Eastern producing regions. At JNP, CFSS (about 20 in number) are set up just outside the port to deliver the goods to consignees.

The port dwell time for containers is two to four days on average at JNP and the evacuation of containers from port is critical for the port operations and its productivity. However, the most interviewees agreed that Indian ports can get benefited from 'PCL' strategies depending on circumstances. Mukherjee (2009) has reported that due to the recession, Indian retailers are streamlining logistics to remain profitable, and as an initiative "the retailer plans to reduce the space per distribution centre to lower the cost of real estate and encourage direct supply to stores". These aspirations are quite similar to the current strategy of ASDA to implement 'PCL'. The relatively new ports/container terminals such as Pipavav and Mundra (situated in Gujarat state and privately owned) which are becoming popular as alternatives to JNP should be able to embrace the 'PCL' concept mainly because of the availability of port/adjacent land and relatively better road/rail connections with the north and north west hinterland. However, the operators/owners of the Mundra port have adopted a different concept to that of 'PCL'. They have set up two facilities/warehouses (in 500-700 km from port in Delhi and Rajasthan) with modern facilities to serve the customers being in the close proximity to the customer. In this case, this provider offers a full package from discharging from the ship up to the customers' door-step. The interview with a senior executive of this company revealed that the port stay of containers are costly and it could pose challenges on 'Just-in-Time' concept that most manufactures are adopting. Hence the new extended service will help. Also, this reduces the inventory cost for the users. Similarly, they provide facilities in the reverse direction for exports. This paves the way for the manufacturers to concentrate on their core business while logistics component of the business is taken care of by a strategic partner.

CONCLUSION

This study has reported the results of a preliminary qualitative exercise conducted to explore the enablers and barriers for the adoption of a 'PCL' strategy in Indian ports as a solution to some existing bottlenecks in India's maritime logistics chain. However, the study is in its infancy and this is just a basic attempt to obtain the views of the practitioners and their likeability on the concept. This study will require more in-depth data collection to understand the adoptability in an Indian port scenario, which will be conducted in the next phase of the research project.

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