CHAPTER VII

SUMMARY AND CONCLUSIONS

The ports are key facilitators and accelerators of economic development and have continued to evolve with the changing demands of the global shipping trade. They are also focal points of convergence for several contending and competing business interests such as shipping lines, port authorities, terminal operators, freight forwarders, inland logistics agencies and shippers. Furthermore, they have emerged as highly sophisticated and integrated systems, which provide a full range of services for the maritime sector and are increasingly becoming integrated into the logistics supply chain.

The Ports in India currently account for about 90 per cent of the country’s international trade by volume and 70 per cent by value. There are 13 major ports under the jurisdiction of the Central Government and about 185 minor ports under the state governments. Due to the increasing share of global trade in the Indian Economy, the demand for port capacity and infrastructure expansion continues to be robust. However, the major ports in India are plagued by infrastructure constraints like low drafts, conventional and manual operations, and limitations of storage area resulting in pre-berthing delays, slow turnaround of vessels and cargo from the port, all adding to the cost of landed cargo. Ports also require logistics support in the hinterland as well as road and rail networks for evacuating goods. Without this support, expanding ports alone will not be helpful. India urgently needs to enhance the road and rail network connectivity to ports. The existing networks are inadequate and are bottlenecks for the movement of goods. Although Maritime Transportation constitutes a critical infrastructure for the social and economic development of the nation, the emphasis on the development of infrastructure in Indian Ports is inadequate, and the sector is plagued by congestion and capacity constraints.

In order to meet the demand for port capacity and infrastructure in a planned manner, one of the important policy initiatives at the central level introduced by the
The Maritime Agenda identifies priority areas for government intervention and aims to meet India’s future maritime infrastructure needs. It envisages investments of about Rs.5,000 billion, of which 57 per cent or around Rs. 2774 billion (Euros 40.2 billion) will be spent on ports in India from 2010-2020 in three phases (Phase I from 2010-12, Phase II from 2012-17 and Phase III from 2017-20).

The Agenda lays out a comprehensive plan for augmenting port capacity to 2,300 mt by 2016-17 and to more than 3,000 mt by 2020. Development of private Greenfield ports and conversion of existing small non-major ports into all-weather, deep draught ports are other elements that have been given attention in the Agenda. The capacity expansion plans are based on India’s aim of doubling its share in global merchandise trade by 2020, which is expected to increase cargo traffic to 1,750 mt by the end of the Twelfth Five Year Plan Period in 2017. According to the Agenda, the capacity of the Indian Port Sector would reach 3400 MT in 2019-20 where Non-Major Ports would account for the 53 per cent of the increased capacity and Major Ports for the remaining 47 per cent.

The government has also framed new policies to streamline procedures and provide an enabling environment for stakeholders taking into consideration the factors hindering private interest and investments in the sector. Most of these policies are in the consultation stage with drafts released for inviting views from various stakeholders. Some of the important policies at the central level since January 2011 include the new Land Policy for Major Ports; the Policy on Captive Berths; Policy on Dredging; Shifting of transshipment of Indian containers from foreign ports to Indian ports; Policy on Co-operation and Competition amongst Indian Ports and establishing ‘Indian Ports Global’ for overseas investments by Indian Ports.

A Port Policy for promoting private investment for the development of minor ports in Tamil Nadu has also been formulated. Its main objectives are to provide exclusive port facilities for import of Coal/Naphtha/Oil/Natural Gas for shore based thermal power plants; promote export oriented and port based industries along the
coastal districts of Tamil Nadu; encourage ship-repairing, ship-breaking, manufacture of cranes and floating cranes and aid in the decongestion of major ports in the State. The Government of Tamil Nadu in collaboration with the National Highways Authority of India and the Union Government, as part of the 2014 industrial policy, proposes to improve the connectivity to the major ports of Chennai and Ennore in the State. The policy document also aims to aid and promote the multi-level car parking terminals in all the seaports in the State and collaborate with the Union Government in facilitating the establishment of the Mega Container Terminal in Chennai Port.

The Chennai Port Trust is the third oldest port among the major ports in India and operations commenced here in 1881. The Port handled a volume of 1,539,279 TEUs during 2012-13 and about 25 per cent of the total container traffic at Major Indian Ports or 1468,000 TEUs during 2013-14.

The Port commissioned a state-of-the-art Vessel Traffic Management System (VTMS) at a cost of Rs 9.81 crore in July 2012. This system has helped improve the efficiency of navigation of ships into and out of the Port and also provided warnings in advance regarding any intrusion or breach of security into the Port waters from the sea.

The considerable volume of trade handled by Chennai Port Trust provides significant scope for increasing capacity as well as improving the quality of services in line with the expectations of the port users and employees. The objective of this study was thus to assess the Overall Effectiveness of Management of Chennai Port Trust. In order to fulfill the aim of the study, the researcher after collecting relevant literature on the Port Sector in India undertook a detailed survey of relevant internal and external stakeholders of Chennai Port Trust including the employees and the users of the Port namely the Shipping Agents, Stevedoring Agents and the Clearing and Forwarding Agents in Chennai District to determine their level of satisfaction with select dimensions of effectiveness of Port Management. The present Chapter concludes the thesis by summarizing the key findings of the study and identifying certain issues that emerged from the empirical research and provides suggestions for
effective port management with reference to the Port Trust of Chennai. The research was conducted among the employees and users of Chennai Port Trust to determine their perception and satisfaction with the effectiveness of management of the Port. The results of the study carried out by the researcher are summarized in the following sections.

Findings of the Study on the Effectiveness of Port Management among Employees of Chennai Port Trust

The study investigated the perspectives and satisfaction of the employees of Chennai Port Trust with respect to certain dimensions of the effectiveness of Port Management. The findings and the issues related to the employees of the Port Trust of Chennai are enumerated below.

The first issue was the discontent among the employees over certain infrastructure and workplace facilities provided by the Port Trust. The results are quite interesting mainly because, although 89.1 per cent of the respondents reported that they were satisfied overall with the working conditions in the port, they expressed discontent over several other facilities and amenities available. For instance, 62.4 per cent of the respondents expressed that they were not satisfied with the drinking water amenities in the port. Also, 51.1 per cent of the respondents said that they were not satisfied with the toilets and wash facilities in the port. The employees in the harbour keenly felt the lack of toilets and wash facilities accessible to them. When asked to rate their level of satisfaction with the canteen facilities, 73.1 per cent of the respondents reported that they were dissatisfied. Shore workers in the harbour also felt the lack of a canteen in proximity to their workplaces. Management must ensure that adequate canteen facilities are provided to the employees and that the food served is hygienic and nutritious.

The second issue that was identified concerned the safety measures provided by port management. Although, 69.1 per cent of the respondents reported that they were satisfied, 17.4 per cent of the respondents expressed dissatisfaction, and outdoor harbour staff in particular felt that fire safety appliances including fire
extinguishers must be inspected and maintained well. They also expressed that lifesaving appliances must be readily accessible. Road safety within the harbour premises was also said to be a major cause for concern. The employees were asked whether all the safety equipment was provided for transportation of hazardous cargo and other maintenance work to which 79.8 per cent of them replied in the affirmative while 20.2 per cent of the employees said that they were not provided with all the required safety equipment for transportation of hazardous cargo and other maintenance work. Civil Engineering shore workers in particular reported that they were not being provided safety shoes. Management has to see to it that all port personnel involved in maintenance work and transportation of hazardous cargo are provided with all the necessary safety equipment.

The third issue was with regard to medical and health care facilities provided by the Port Trust to the employees. Around 69.6 per cent of the respondents expressed that they were satisfied while 18.7 per cent reported that they were dissatisfied with the quality of healthcare being provided, and that preferred to visit private hospitals as they felt that they did not receive adequate care and attention in the Port Trust hospital.

The next issue was the lack of morale and motivation regarding opportunities for promotion and career growth. About 52.6 per cent of the respondents said that they were satisfied with the opportunities for promotion. On the other hand, 37.4 per cent of them expressed dissatisfaction. Class IV shore mazdoors in particular felt the lack of promotion opportunities as far as they were concerned since they would have to retire as mazdoors. They expressed that Management must evince interest to provide technical training to mazdoors in different port operations so that they can be absorbed in other departments and can move vertically up the organization and have more opportunities for promotion.

The lack of inter-departmental cooperation in the Port Trust was also a problem according to the employees. An overwhelming 85 per cent of the respondents rated that the relationship with their superiors was good. Similarly, 87.7 per cent of them expressed satisfaction with regard to the relationship with their
colleagues. In contrast, for 16.5 per cent of the respondents, inter-departmental cooperation and communication was considered a problem. These respondents felt that to increase efficiency and effectiveness of departments and boost the morale of employees, some inter-departmental communication exercises, job rotation and team building exercises with department heads could be organized.

With regard to the consideration of employees’ suggestions and feedback by the Management, 57.6 per cent of them replied positively. Employee feedback and suggestions on issues affecting employees need to be carefully considered with organizational commitment. Clarity and communication between employees and decision makers must be maintained to sustain employee enthusiasm and motivation. Pertaining to welfare measures, about 63.4 per cent said that they were satisfied, while 23.9 per cent said that they were not happy with the welfare measures mainly due to the fact that the scholarship scheme for children of the employees of Chennai Port had been discontinued.

The next issue identified was with respect to training programs provided by the Port. 82.4 per cent of the respondents reported that training programmes are arranged by Management after identifying training needs without employee consultation. 65.9 per cent were satisfied with the duration of the programs, and 85 per cent were satisfied with the quality of the training programs. The respondents clearly felt that training programs that are more specific to the ports and shipping industry must be provided, and employees must also be consulted to identify those areas in which they feel more training is needed. A strong need for evaluation of training programs to ensure that the goals and objectives of training have been achieved was felt by the respondents. The study established that there is a significant association between level of training and employee perception of modernization. It is observed that the respondents felt that training had a positive impact on port modernization.

The next issue was about the training provided for handling hazardous cargo and approximately 40 per cent of the respondents were not satisfied and felt that regular training is of utmost importance to ensure that knowledge of the latest
amendments and changes to dangerous goods regulations remains current. The research proved that there is a significant difference between the designation of employees with respect to the training and modernization dimensions of the effectiveness of port management. Based on Duncan’s Multiple Range Test in the training dimension, it is observed that Classes I and IV significantly differ from Classes II and III towards the training component, but there is no difference between Classes I and IV and Classes II and III respectively. With regard to the dimension of modernization, it is seen that Class I respondents differ in their perception of Class III and IV; There is also a difference between Classes III and IV while Class II differs from Class IV, but Class II does not significantly differ from Class I and III.

The study established that Port Modernization reduces the cost of operations. Modernization of port operations can enhance productivity and handling capabilities and thus help the port to increase efficiency and reduce costs in its operations. This was followed by the factor modernization reduces occupational health risk. It must be mentioned that modern cargo handling equipment can improve occupational safety for workers. The Mean Rank brings out the highest rank in the factors on employees’ perception and level of satisfaction with factors of training and establishes that these factors play a very important role in the effectiveness of port management. Accordingly, based on the mean rank, employees’ perception that training improves skills, and increases efficiency was the highest factor. It must be stressed that building up the employees with specific training for their jobs always increases productivity.

The study on the effectiveness of port management among employees concluded there is a significant difference between designations of employee respondents with respect to training, port modernization, working conditions as well as port personnel satisfaction dimensions of the effectiveness of port management. The research study established that modernization in cargo handling equipment and operations improve port performance and that there is a significant association between working conditions and level of port personnel satisfaction.
Findings of the Study on the Effectiveness of Port Management among the Users of Chennai Port Trust

The research also assessed the perspectives and satisfaction of the Users of Chennai Port with regard to various dimensions of the effectiveness of port management. The researcher collected information about the responsiveness and accessibility of port management from the perspective of the users of the port. They were also asked to rate their level of satisfaction with the effectiveness of various service delivery parameters of Chennai Port Trust. These included cargo security measures, safety measures, types of cargo handling facilities, infrastructure facilities, availability and quality of cargo handling equipment, efficiency of the private container terminal operators, port user charges, cargo storage area, cargo handling capacity, berthing and navigational Aids, quality of maritime services, efficiency of documentation processes, cleanliness of the port facility, accessibility to the port and services of the harbour staff.

In terms of the most effective mode of communication with the management, 55.29 per cent preferred the telephone, and 46.76 per cent preferred e-mail. Users said they were satisfied in general with the port brochure (83.6 per cent) and marketing programs (71.4 per cent). They however, clearly felt that the port must promote their services in a better manner by providing more information, port statistics and the benefits they can offer to the users in relation to other ports in the country. Similarly, marketing programs must be more effectively designed so as to add value and support the marketing strategies of the port. Users were also of the opinion that marketing communications must be interactive in nature in order to be truly meaningful.

An overwhelming 98.9 per cent of the user respondents said they were satisfied with the vessel position updates which were useful for adequate planning so as to avoid or minimize delays while moving their cargo. However, a few users felt that updates must be more frequent to the tune of four times a day in order to be more effective. The most serious issue affecting the productivity of the Port was the lack of accessibility to the port for pickup and delivery. This was a grave problem
for the majority of the users. An overwhelming 85.29 per cent of the users indicated that they were dissatisfied because of extreme congestion at the port due to poor road access which in turn caused container trucks to form slow-moving queues of several kilometres. This led to the missing of scheduled vessels, heavy demurrage, production disruptions and delays. Although, user respondents in general reported that they were satisfied with the services of the port; the results are quite interesting as several other issues were identified. The first issue was the lack of sufficient port infrastructure which hindered the efficiency and productivity of the port. The user respondents clearly expressed that the road network within the port was poor, and this coupled with low cargo handling capabilities was leading to low productivity at berth and extended turnaround time of vessels. It was felt that the existing infrastructure was inadequate to handle the increasing volumes of cargo especially for containers in light of significant congestion.

The majority of the users (98 per cent) reported that they were satisfied with the berth allotment details, and said that the updates helped users to plan adequately to avoid delays to their vessel’s schedule. With regard to the Port Community System, about 98.2 per cent of them said they were satisfied. With regard to the help and assistance of Port officials about 97 per cent said they were satisfied but, on the other hand, a few users expressed that port staff, in general, must focus more on sincerely engaging with the Port User Community.

The next issue identified was with respect to responsiveness and accessibility of port management and communication with the users of the port. Port users expressed that the staff, in general, must focus more on sincerely engaging with the port user community and act in a timely manner to their needs. With respect to the number of times complaints were registered or issues were reported by port users, 7.4 per cent of the user respondents said they had registered a complaint 1-5 times during the last 12 months, and 0.6 per cent of them reported complaints 5-10 times. However, 92.1 per cent of the respondents had not registered a complaint because they felt that although they had participated in a number of surveys by the port authority soliciting their feedback, their suggestions rarely seem to influence port practices, and there were no tangible outcomes from their contributions. In response
to whether their issue or concern had been resolved, 7.4 per cent of them replied in the affirmative while 0.6 per cent of the respondents reported their frustration that their complaint was not resolved and they had to make several phone calls in order to connect with the staff accountable that could help in the resolution of the issue. It must be stressed that port management must be proactive in engaging with the users and employ swift decision-making to address the issue without sacrificing quality in the process.

With respect to Chennai Port Trust’s quality of services, users expressed dissatisfaction with the constraints of space and congestion, high aggregation or evacuation time of cargo, lack of adequate infrastructure and cargo handling equipment which were all cited as lacking in the port. Another issue was the lack of effective and adequate cargo handling equipment and facilities. Users expressed that most of the cargo handling equipment at the port was commissioned years ago and had outlived their life span and that the productivity of some equipment is not adequate to meet the requirements of modern vessels calling at the port. Furthermore, the right types of cargo handling accessories are also not present in adequate numbers.

The cargo storage area and cargo handling capacity were also identified as a major cause of concern. In the opinion of the users of the port, the lack of adequate storage space was seriously affecting the loading/discharging rate of the vessels. In addition, user respondents were also dissatisfied with the inadequate handling capacity of the port which they felt was leading to congestion and therefore required enhancement.

Although 83.82 per cent of the user respondents were satisfied with the efficiency of the dock workers, they said that manning scales for loading and unloading operations were high and that workers must be multi-skilled and more disciplined. Maintenance of cleanliness and sanitation in the port was the next issue. About 23.23 per cent of the respondents felt that cleanliness and hygiene in the port premises require urgent attention as it reflected poorly on port management.
The user respondents were also asked to rate their level of satisfaction with various Supply Chain Integration parameters such as the port’s road, rail and hinterland connectivity. With regard to the port’s ship-rail connectivity about 62.1 per cent reported that they were satisfied while the other users felt that the rail connectivity of the port must be improved by means of higher capacity carrying wagons so that more containers and cargo can be moved. They also felt that the long distances between railway sidings and the berths needed to be addressed by laying railway tracks just along the berths which would result in quicker, easier and cheaper loading and unloading operations. With regard to the port’s ship-road connectivity, 89.4 per cent of the respondents expressed a positive opinion while a few users felt that the city roads connecting the national highways to the port were in poor condition and needed to be fixed urgently. With respect to the port’s hinterland connectivity, 93.8 per cent said they were satisfied. A few expressed that the hinterland connectivity infrastructure did not match the growing cargo and container volumes. Thus causing congestion and undermining the competitiveness of the port.

The majority of the users transporting containerized cargo through the port were satisfied with the infrastructure, cargo handling equipment, capacity and services of the private container terminal operators. With regard to tariffs, user satisfaction was 39.6 per cent while 60.3 per cent felt that cranage and cargo handling rates including lashing/unlashing charges were high. Overall user satisfaction with the services of the private container terminals was 67.92 per cent while 32.8 per cent of the users expressed that high tariffs and slow movement of containers due to congestion at the terminal gates were the main issues they faced. 90.5 per cent of the users said that operational efficiency of the terminals, particularly the first container terminal had improved after privatization.

When asked to rate their level of satisfaction with the port’s cargo transportation costs, about 78.2 per cent of the respondents said they were satisfied while 17.4 per cent felt that the wharfage charges were on the higher side and coupled with port congestion led to higher transportation costs which severely affected the mobility and reliability of cargo.
The user respondents were also asked to rate the port’s quality of services in comparison to other ports and about 96.7 per cent replied positively. A few others expressed dissatisfaction over the constraints of space and congestion, high aggregation/evacuation time of cargo, lack of adequate infrastructure and cargo handling equipment. With regard to the level of satisfaction with overall quality of services offered by the port, 97.3 per cent of the respondents said they were satisfied but were not happy with the port’s long-standing congestion problem and lack of adequate infrastructure which they felt must be resolved.

The study conducted among the users of Chennai Port Trust established that there is a significant difference between the number of years as a port user with respect to the responsiveness and accessibility of port management, effectiveness in service delivery and supply chain integration dimensions of effectiveness of port management.

The study among the users of Chennai Port Trust proved that there is a positive relationship between responsiveness and accessibility of port management and effectiveness in service delivery as factors of the effectiveness of port management. The study also established that there is a positive relationship between effectiveness in service delivery and supply chain integration dimensions of the effectiveness of port management. The study concluded that there is a significant relationship between supply chain integration and port user satisfaction factors of effectiveness of port management and a positive correlation between effectiveness of port management in delivering services and port user satisfaction.

Based on the Duncan’s Multiple Range Test, the users who had been transporting cargo through the port less than 10 years significantly differed from the 11-20, 21-30 and above 30 groups in the responsiveness and accessibility of port management dimension. In the effectiveness in service delivery dimension, a significant difference was seen between the above 30 years group and the below 10, 11-20 and 21-30 categories respectively. Also, the 21-30 years group significantly differed from the above 30 and 11-20 groups. Again, the 11-20 years group differed
from the below 10 years and 21-30 years groups with respect to their perception of effectiveness in service delivery as a factor of Effectiveness of Port Management.

The respondents who have been users of Chennai Port Trust for over 30 years differed significantly from the below 10, 11-20 and 21-30 years categories respectively in the supply chain integration dimension. The study concluded that there is significant difference between the amount of cargo handled by the port user every year in tonnes with respect to the effectiveness in service delivery and supply chain integration dimensions of effectiveness of port management. The above 200000 tonnes group significantly differed from the 20000-50000 and 100000-200000 tonnes groups in the effectiveness in service delivery dimension based on the Duncan Multiple Range Test.

In the supply chain integration dimension, a significant difference was seen between the below 20000 tonnes group and the 20000-50000, 50000-100000 and 100000-200000 tonnes categories respectively. It is concluded from the study that there is a significant difference between mean ranks towards port users’ perception and satisfaction on factors of the effectiveness of service delivery for the effectiveness of port management. Based on the mean rank, the highest factor rated by the port users was the quality of maritime services. The second highest factor was port users’ level of satisfaction with the availability of berths. The third highest factor was the level of satisfaction with navigational aids. The fourth factor was the quality of berth facilities. Dedicated berths with suitable draughts capable of handling specialized cargoes or containers such as berths with pipelines for handling liquid cargo and mechanized ore handling plants become very important from the point of view of increasing the effectiveness of port management. The fifth factor was arrival departure times. This was followed by factors such as, cargo storage areas, cargo security measures, safety measures, cargo handling capacity, types of cargo handling facilities, efficiency of documentation processes, availability of cargo handling equipment, services of harbour staff, port user charges, efficiency of dock workers, quality of cargo handling equipment, infrastructure facilities, cleanliness in the port facility and accessibility to the port.
The study further proved that there is a significant difference between mean ranks towards port users’ perception of factors of responsiveness and accessibility of port management. Based on the mean rank, the highest factor rated by the port users was the vessel position updates. The second highest factor was berth allotment details. The third highest factor was the Port Community System. PCS provides a single window system for the Port communities in India to securely exchange the documents and information electronically with their stakeholders involved in the maritime transport and logistics chain including the trading partners and government agencies. The fourth factor was the assistance of port officials. The fifth factor was information provided in the port brochure. An effective port brochure must enable a port to present its capabilities, strengths, and specialty services or products to its users and prospective customers. This was followed by the Port marketing team.

The study also established that there is a significant difference between mean ranks of the perception of port users with respect to the factors of Supply Chain Integration. The Mean Rank brings out the highest rank in the port users’ perception of the factors of supply chain integration and establishes that these factors play a very important role in the effectiveness of port management.

Accordingly, based on the mean rank, the highest factor rated by the port users was the port’s hinterland connectivity. Port connections to and from the hinterland are very important from the point of view of minimizing or avoiding long waiting times in ports or at hinterland connections. The second highest factor was the port’s ship-road connectivity. Connectivity to a port through road plays a vital role in determining traffic flow, and the efficiency and performance of a port. The third highest factor was the cost of transporting cargo from the port. An efficient multi-modal transportation system ensures that goods are transported from their origin to destination at a minimal time and costs. The fourth factor was the port’s ship-rail connectivity.

The study proved that there is a positive relationship between responsiveness and accessibility of port management and effectiveness in service delivery as factors of the effectiveness of port management. The Correlation Coefficient between
responsiveness and accessibility of port management and assessed effectiveness in service delivery as factors of effectiveness of port management is 0.459 which indicates 45 percent positive relationships between responsiveness and accessibility of port management and assessed effectiveness in service delivery and is significant at the 1 per cent level. The study also established that there is a positive relationship between assessed effectiveness in service delivery and supply chain integration dimensions of the effectiveness of port management. The Correlation Coefficient between assessed effectiveness in service delivery and supply chain integration dimensions is 0.158 which indicates 15 per cent positive relationships between assessed effectiveness in service delivery and supply chain integration factors.

It is concluded from the research study that there is a significant relationship between supply chain integration and the port user satisfaction factors of the effectiveness of port management. The Correlation Coefficient between supply chain integration and port user satisfaction factors is 0.206 which indicates 20 per cent positive relationships between supply chain integration and port user satisfaction.

The study among the users of Chennai Port Trust thus proved that there is a positive relationship between responsiveness and accessibility of port management and effectiveness in service delivery as factors of the effectiveness of port management. The study also established that there is a positive relationship between effectiveness in service delivery and supply chain integration dimensions of effectiveness of port management; and a positive relationship between effectiveness of port management in delivering services and port user satisfaction. A positive correlation was established between service effectiveness of private container terminal operators in the port and port user satisfaction.

The seaports today are considered as sections of a longer maritime logistics chain. The development of global supply chains changes the traditional role of ports from providers of transshipment services to a new role as efficient distributors of products across the supply chain and integrated logistics service providers. However, to fulfill this role, ports must evolve from the traditional functions of
facilitating loading and discharging operations to become links in a larger logistics chain as part of a global distribution channel. Chennai Port Trust is a major container port in India. It is a gateway port for the vast hinterland of the States of Tamil Nadu, Karnataka and Andhra Pradesh. However, there is an urgent need to improve road connectivity, expand capacity, improve operational efficiency and find a long-term solution to the problem of congestion that affects the port.

The analysis of the location, facilities, operations and infrastructure of the port of Chennai identified certain strengths and weaknesses of Chennai Port Trust. The geographical location of the Port is one of its major strengths with Chennai having the entire South India as its hinterland, and being well located and connected with other ports in the Bay of Bengal.

The discussions with users of Chennai Port Trust revealed that due to high inland transportation costs, most businesses continue to transport their goods through the port despite the long-standing problem of congestion. The stakeholders of the port also maintained that top level officials are responsive to their requests but on the other hand, lower level employees are not very cooperative due to an unstructured framework for internal communication resulting in lower knowledge transfer within the different departments. The third strength of the port is that it is an all-weather; multi-cargo port with good rail connectivity. Furthermore, industrial activity in the port’s hinterland has increased considerably, offering new opportunities for the growth of the port.

The major limitations of Chennai Port Trust are the problems of cargo evacuation due to traffic congestion, land or storage space constraints and poor road connectivity. It is important that connectivity to the port with the hinterland is augmented not only to ensure smooth flow of traffic for the present level of cargo volume but also to meet the future requirements of projected increase in traffic. To address the problem of ground container storage space in the port, off dock CFS (Container Freight Station) facilities need to be developed outside the port.
The opportunities that Chennai Port Trust can actively pursue are the provision of ship repair facilities to ship-owners, and Engineering and technical consultancy services to minor ports in the State of Tamil Nadu. The main threats faced by the Port are competition from major ports like Tuticorin in the container segment and Ennore with regard to thermal coal in addition to the minor port of Krishnapatnam in Andhra Pradesh.

The cargo traffic at Chennai Port Trust is expected to touch about 70 mt by the financial year 2017. Of this, the major share of about 52.34 per cent is expected to be contributed by container traffic. The Port Trust must seek to strengthen its infrastructure given this scenario, by means of fast-tracking its connectivity projects for quicker transit and upgrading the cargo handling equipment. There is also a need for the port to resolve the hinterland connectivity issues affecting its performance and also ensure the provision of adequate infrastructure to its users. The Management should also look into awarding long-term maintenance dredging contracts and effectively managing its human resources in order to stay competitive and emerge as a container hub on the east coast of India.

Suggestions

The suggestions have been provided to enhance the effectiveness of the management of Chennai Port Trust. They are as follows:

- **Enhancing Infrastructure Development for efficient Port Services**

  The infrastructure facilities including physical assets and cargo handling facilities coupled with navigational aids and berthing facilities need to be improved in order to enable port management to deliver a wide range of services and act as an effective interface between sea and surface modes of transport and compete with key transhipment hubs in the region including Singapore and Dubai.

  The major infrastructure issues facing Chennai Port Trust include i. The inability to achieve an optimum level of cargo-handling due to multiple constraints
related to handling of cargo, low capacity utilization, customs procedures and insufficient hinterland connectivity, which has increased evacuation time at the port. The low productivity of equipment and labour contribute to high handling costs for cargo and containers and stand in the way of major shipping lines from bringing mother container ships for handling at the Port adding to the transportation costs of imports and exports. ii. Evacuation of unloaded cargo and poor connectivity to the hinterland from the port remains a limiting factor. The railways, highways, coastal shipping and inland waterways need to be upgraded to facilitate evacuation of cargo and improve the productivity of the port. Chennai Port Trust needs to adopt a higher level of automation and mechanization to offset low labour productivity and equipment utilization in port operations. Efficient handling coupled with quick evacuation will enhance the vessel turnaround time and improve the productivity and output per berth. Multimodal evacuation and distribution systems need to be developed wherein; it is possible to evacuate cargo using roads, rails and air.

- **Improving Capacity**

There is a need to increase capacity and port productivity, as well as to reduce total transport costs, thus improving economic growth in the hinterland areas of the port. Port capacity can be enhanced through better operations, management and by means of concessions in port operations including port facilities maintenance, and terminal and berth developments through PPP mode.

The proposed Chennai Mega Terminal Project was conceived in 2006, with a rated capacity of 4 million TEUs per annum, to increase the capacity of the port to 8 million TEUs. The Chennai Port Trust has decided to drop its plan of developing the mega container terminal following two failed attempts, and instead go in for a multi-purpose terminal to handle different types of commodities.265 Chennai Port Trust has to see to it, that the Outer Harbour Development project gets underway soon in order to increase the capacity of the port. The development of the Integrated Dry Port and

---

Multimodal Logistics Hub near Sriperambudur will also enable major industries with establishments in and around the area to use Chennai port’s facilities.

- **Upgrading Cargo Handling Equipment**

  The percentage of utilization of the cargo handling equipment such as mobile cranes, wharf cranes and forklift trucks has to be increased so that the vessel turnaround time and cargo handling costs can be reduced. In 2013-14, the percentage of availability of wharf cranes in Chennai Port Trust was 99.87 per cent while the utilization was only 4.72 per cent. The Availability of Mobile Cranes was 98.90 per cent, and the utilization was significantly lower at 31.93 per cent and the Availability of forklift trucks was 60.90 per cent while the utilization was only 17.8 per cent.

  The cargo handling equipment has to be upgraded, and the level of mechanization increased. Chennai Port Trust has to ensure the supply and operation of harbour mobile cranes which can be utilized in an optimal manner for multi-commodity handling. The working life of all equipment should only be 10 years so that productivity is increased, and downtime is reduced.

- **Increase Draught Levels**

  The draught levels at Chennai Port Trust also have to be increased to enable efficient performance and transshipment volumes. Capital dredging projects in Chennai port at Dr. Ambedkar and Jawahar Docks will have to be completed in time so as to facilitate handling of main line container vessels at the second container terminal and bulk carriers with draught up to 14m at Jawahar Dock. The Port Trust should look into awarding long-term maintenance dredging contracts and greater involvement of private players for managerial and technical expertise for dredging works.
• Implementing a Paperless Regime

The IT infrastructure at Chennai Port Trust also needs to be upgraded in order to improve port operations and management systems; optimize the use of port estate and other assets; effectively plan and schedule vessels; process shipping documents faster and reduce throughput time for cargo in the port. The business process flow and exchange of electronic information among stakeholders in the (Port Community System) PCS has to be optimized in order to really benefit from Electronic Data Interchange (EDI) and see significant improvements in terms of service levels, capacity, throughput time, operational costs and customer satisfaction and truly move toward a paperless regime.

• Improving the connectivity of Chennai Port Trust for enhanced port performance

There is a pressing need to improve road and rail connectivity to Chennai Port Trust by upgrading infrastructure to meet future traffic growth. The Port is plagued by persistent road congestion due to inadequate access facilities leading to delays and production disruptions as a result of users missing their schedules. The container terminals at Chennai are currently handling 1,200 trucks every day against the road handling the capacity of 1,700 trucks due to congestion. The remaining 500 trucks are parked on city roads. At least 2,000 container trucks wait for a minimum of 24 hours on a daily basis on Chennai port access roads from S.N. Chetty Street up to Central Warehousing Corporation, Madhavaram. The lack of sufficient access/entry gates to the port and delays in the implementation of the Chennai-Ennore Port Road Connectivity Project and the Elevated Four Lane Link Road from Chennai Port to Maduravoyal have exacerbated the problem.

The short term measures to solve the problem include the creation of four-lane traffic at the single gate that the port keeps open during daytime for import and export traffic; the opening of more gates at night through which export and import containers can be moved and the swift removal of import cargo. Containers can also be moved via rail to the Inland Container Depot (ICD) terminal at Thondiarpet, so as
to reduce congestion caused by the trucks around the port. Customs-notified checkpoints could also be set up in Chengalpattu, Red Hills and Sriperumbudur, and trailers could wait until the appointed day of exporting the container. Users of the port have also suggested that instead of sending factory-stuffed containers to the Central Warehousing Corporation (CWC) in Madhavaram for verification of the excise seal, containers could be sent to their facilities (CFSs) where Customs officials could be stationed for 24 hours. Moreover, the Elevated Four Lane Link Road from Chennai Port to Maduravoyal needs to be expedited to alleviate port congestion.

The long term measures include expediting the development of the integrated dry port and multimodal logistics hub near Sriperambudur with dedicated rail connectivity so that the containers can be moved out of the terminal and customs clearance can be carried out at the dry port. Secondly, by means of providing better rail connectivity, the operations through ICDs can be increased so that truck movements are reduced thus bringing about decongestion of the road network. Finally, a proposal to ferry containers from Chennai’s two private container terminals to Ennore Port through barges via the sea has been proposed by the CII in their pre-feasibility report entitled “Logistics Collaboration between Ennore and Chennai ports”. This proposal would decongest the road highway. The expected travel time for a barge from Chennai to Ennore is four hours against the current transit time for trucks which is 24 hours. This project must be taken forward by the port in order to solve the connectivity issues affecting Chennai Port Trust.

- **Enabling Public Private Partnerships and tapping PPP opportunities**

The Ministry of Shipping under the Twelfth Plan is looking at exploring the possibility of attracting private participation in some areas which were being primarily catered to by ports themselves. Some of the areas that can be explored for private participation in Chennai Port Trust include the following:
**Dredging**: The private sector can be encouraged to take on capital and maintenance dredging projects, and this will be beneficial because the operator has to maintain the channel during the concession period.

**Special Economic Zones**: Customized models of PPP are needed for developing Special Economic Zones (SEZs) in the port sector – for instance, BOT with a period of 60 years or more and DBFOT for Free Trade Warehousing Zones (FTWZs). The port can earn substantial revenue which can be used to fund dredging and road/rail connectivity projects by leasing out developed land for commercial infrastructure related activities.

**Road and Rail Infrastructure**: The road connectivity of Chennai Port Trust can be enhanced, and the quality of service improved by the entry of private players. The Port can also participate as partners of SPVs with the private sector and/or with public sector authorities such as the NHAI. The ways in which improvements in rail operations can be achieved with private participation include giving freedom to the ports to have PPP partners handle captive rail cargo; a higher degree of mechanisation of bulk handling through outsourcing/leasing from the private sector; permitting the port to only own rakes to carry cargo while the non-moving infrastructure remains with the railways and the operation of such rakes may be outsourced by sharing revenue with the private partner and developing internal container depots (ICDs) with higher minimum guaranteed throughput (MGT) requirements in order to have economies of scale and full rakes for each port terminal.

**Ship-repairs, Shipbuilding and Dry Docking facilities**: There is an increasing demand for the development of ship-repair and shipbuilding facilities in the vicinity of major ports. The possibility of developing such facilities in the port’s own yard through private investment by leasing out land for the long term can be looked at.

**Energy Generation**: Private investment in captive energy generation has become necessary in view of the high commercial tariffs that are paid by ports currently. The
surplus funds of the port can be invested in captive power projects on a PPP basis to reduce power costs.

- **Emphasizing Containerization**

  The absence of a hub port in India has led to a significant share of containers leaving ports through feeders, transhipment and mainline movement. This has resulted in additional delay due to the feeder voyage from the local Indian port to the hub port and then at the hub port while it waits for the mainline vessel to call. According to the Planning Commission, the total container traffic in India is expected to cross over 350 mt by March 2017 growing at a CAGR of 21.9 per cent. JNPT is expected to dominate traffic by handling about 36.5 per cent of the total traffic followed by Chennai at 9.95 per cent. Although the share of container traffic in India’s total port traffic has been rising, the total container throughput can in no way be compared to world leading ports like Shanghai and Singapore. In order to develop Chennai as a hub port on the east coast, there is a pressing need to upgrade and ramp up its container handling infrastructure and equipment to attract large container vessels and expedite the project that seeks to convert the coal berth on Jawahar Dock East into a Container Terminal.

- **Developing integrated logistics systems for competitive advantage**

  The Chennai Port Trust lags significantly behind as far as meeting the global benchmarks in the working of multi-modal transport, and logistics value chains are concerned. In order to develop integrated logistics systems and fulfill Chennai Port’s supply chain role, the following measures are suggested:

  - **Information sharing and establishment of seamless communication systems**

    It has been found that information sharing leads to high levels of supply chain integration by enabling organizations to improve reliability, dependability and speed. It is suggested that the introduction of information technology and
information sharing systems would influence greater integration, avoid duplication of documentation and improve processing and treatment of data by all players in the transport chain with a consequent reduction in total port costs.

- **Value-added services**

  The value-added services such as procurement and pre-assembly, playing the role of distributors, developing continuous replenishment or cross-docking activities are considered to be essential for ports in the context of fulfilling their role as elements in a logistics chain. Other value added activities include the ability to launch new tailor made services for the port users to cater for specific needs of market segments and to be adaptable to the needs of the customers.

- **Establishment of multi-modal systems and operations**

  Firstly, the cargo carrying capacity of existing rail and roadway networks has to be optimized for efficiency and adequate to meet requirements. Secondly, there must be proper synchronization and absence of time lags in the development of various types of logistics infrastructure required in a multimodal transport system. Ports are bi-directional logistics systems because they receive goods from ships to be distributed to land via road or rail and inland waterway modes that perform the remaining legs of the transport system, whereas at the same time, ports receive cargoes arriving by road/rail and inland waterways and deliver them to ships for the sealeg. Thus, the port must be able to offer the efficient use of multiple modes of transport interconnected by facilities at the port terminal to be competitive. The Rajiv Gandhi Dry Port and multimodal logistics hub project needs to be expedited by port management.

- **Focusing on human resource development for improved productivity**

  The Chennai Port Trust needs to provide the right framework to help employees develop their personal and organizational skills so that their efficiency and productivity is increased. The working conditions infrastructure which includes
basic needs such as water, toilet and wash facilities, food, workspace, safety and healthcare needs to be improved in order to ensure that employees are satisfied and their morale boosted. There is an urgent need for rationalization of the deployment of manpower in terms of the type of cargo handled and the manning of equipment and craft. The gang shift output measurement of productivity does not adequately recognize the individual worker’s effort or the skill set of the equipment operator. Thus, in order to rationalize the manning scales, the deployment of personnel must be on a need basis.

The remuneration package inclusive of pay structure, service conditions and allowances for all categories of personnel at Chennai Port Trust and all other major ports (with the exception of the corporatized Kamarajar port) is decided and implemented by the Bipartite Wage Negotiation Committee set up by the Government with equal representation of workers and employers. However, issues pertaining to remuneration and allowances are not taken up at the port level due to the limited powers of the individual ports. In order to empower the port management to decide on the incentives and remuneration and involve the worker representatives to discuss issues of change and improvement, a policy decision needs to be taken by the Union Government and guidelines may be issued by the Ministry of Shipping as in the case of Public Sector Enterprises.

The employee development through training must be emphasized right from the induction of the employee to periodic programmes at different levels. A multi-skilled workforce must be created by focusing on specific training programmes. Training must be a prerequisite to being considered for advancement or promotion.

The Chennai Port Trust lacks a system of performance appraisal where the incentives are linked to the performance of the employees with the exception of the piece rate system for Class IV cargo handling workers. The performance of Class I, II and III employees alone takes place through Annual Confidential Reports, and there are no incentives for higher performance or achievements and no deterrents/disincentives for poor performance. The performance appraisal system must be transformed into an effective tool to not only assess performance but also
motivate employees to perform better. The appraisal formats must be revised, and the process must be made transparent by means of mutual discussions between the supervisor and the employee.

The recruitment, promotion and remuneration policies of Chennai Port Trust need to be reviewed and upgraded so that the right talent is attracted and retained. The deployment of manpower at the port is different even for handling the same type of cargo or using the same piece of equipment. This can be accomplished by reorganization of the Port’s Human Resource policies. The steps that may be taken by Port Management in this regard include the following:

i. The Management has to question firstly whether departmental goals are being achieved by means of the existing jobs and structures and define the main problems being faced by the Organization. ii. Secondly, the factors that contribute to the effectiveness of job structures must be analyzed, such as the skills needed for each position which can be determined by comparing current skills with what is needed. iii. Thirdly a new structure that will help support the accomplishment of the following tasks needs to be identified by Management and these tasks include:
   a. Distribution of functions throughout the organization (definition of functions to be performed, groupings of functions, and the relationships among functions).
   b. Vertical and horizontal authority relationships.
   c. Communication/decision-making process (how formal decisions are made and by whom, and the information systems established for decision-making).
   d. Internal departmental policies (the decisions, rules, or guidelines established by General Administration, Traffic, Marine, Planning and Research Cell, Civil Engineering, Stores and other departments) and e. The attributes of department employees (includes abilities, skills, experience, and other behavioural issues) which also need to be determined.

iv. Next, the management authority can develop a proposal for revamping the Human Resource Policies of the Port by including:
   a. a timeframe for the reorganization;
   b. Organization charts with the newly structured job descriptions for changed posts;
   c. A list of employees likely to be affected by changed or eliminated jobs, physical relocation, etc.

v. Lastly, formulate a communication plan to
identify the different groups who need to be intimated regarding the changed policies and also the type of information that they will require.

The employees also need to be suitably motivated and trained by imparting special skills in areas where skilled manpower is required such as advanced cargo handling operations, VTMS, Information Technology oriented processes, piloting, etc. The port also needs to invest in suitable training infrastructure such as simulators so that a skilled workforce of employees is created. A multi-skilled port labour force can be created by the Port authority by training port workers in the areas of automobile lashing and heavy equipment and machinery lashing in addition to other cargo handling procedures. Management must also ensure that training needs and resources are properly assessed for this purpose. The workforce needs to be suitably trained with respect to Customer Relationship Management skills and systems so as to focus on the customer.

- **Developing Chennai Port Trust to serve as a key for tourism growth in the region by enhancing cruise terminal facilities**

  The Chennai Port Trust has been identified as a cruise tourism spot by the Ministry of Tourism and plans to expand the current Cruise cum Passenger Terminal through PPP model at an estimated cost of Rs. 22.14 Crores. The port can look into the expansion of the Cruise Terminal by tying up with private players who can additionally focus on landside development such as hotels, malls and recreation centres which can boost local employment and promote tourism which in turn will be an added source of revenue for the port. The Port can also explore the avenue of tying up with local tour operators and actively market/publicize the terminal cruises so as to attract more number of cruise ships.

  Today, the historic city of Madras that is Chennai has become a bustling hive of industry, trade and commerce and Chennai Port has served as the lifeline for the commerce of the State by handling containers, cars and project cargo. Major Automobile manufacturers such as Hyundai Ford, Nissan, Ashok Leyland and Toyota have shown a keen interest in increasing their volumes through the port.
The city of Chennai is referred to as the Detroit of India due to the fact that global and domestic automobile majors have set up plants in Chennai and the city accounts for a major share of the country's total automobile output and auto exports. The major reasons for the rise of Chennai in the auto sector include a stable legislative government, a transparent industrial policy, a strong engineering base, the availability of educated labour and the proximity and contribution of the port of Chennai to the industrial development of its hinterland.

The Chennai Port Trust has grown over 133 years from an iron screw-pile pillar and manual handling of cargo to a modern, multiberthed, multipurpose harbour in India. However, the Port is increasingly confronted with the need for expanding infrastructure facilities and cargo handling productivity. The continued growth of seaborne trade, particularly, the rapid growth of container traffic implies that the port must increase capacity, improve operational efficiency and ease port congestion without delay.

Today, the role of the port exceeds the simple function of basic transshipment of goods. In addition to their role as the traditional sea to the land interface, ports are a good location for value added logistics in which different stakeholders of different channels in the supply chain can meet and interact. Consequently, they are considered to be not only an integral part of the transport system, but a major sub-system of the broader production and logistics systems in the global supply chain.

The Chennai Port Trust must thus seek to fulfill the physical infrastructure and logistics gaps identified by the research, as congestion in the Port’s hinterland infrastructure has opened up opportunities for neighbouring ports including Katupalli in Tamil Nadu and Krishnapatnam in the State of Andhra Pradesh. This competitive landscape provides the necessary incentive for the management of Chennai Port Trust to improve the effectiveness of services and emerge as a regional logistics hub port for containers, cars and project cargo on the east coast of India.