

## Colombo, the Golden Gate to the South Asia Ready to Welcome Mega Carriers

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**Summary:** *The scale of container ships continues to grow over the last decade. The author briefly discusses why shipping lines have deployed bigger ships. The main purpose of this report is to identify the foremost impact of bigger ships towards shipping and logistics network. Author takes his own experiences of his port to illustrate how mega carriers affect on shipping network. He describes what challenges his port faced due to growing ship sizes and how their port converted the challenge into a golden opportunity to grow as a hub. The author further discusses what role he played during his port prepares to take up the challenge of welcoming mega carriers.*

**Theme:** What do you see as the major impact on world trade and shipping as a result of the growing deployment of larger container vessels? How is your port responding to this and what part are you playing in ensuring your port is prepared?

## Shipping Industry – Ships are Growing Bigger

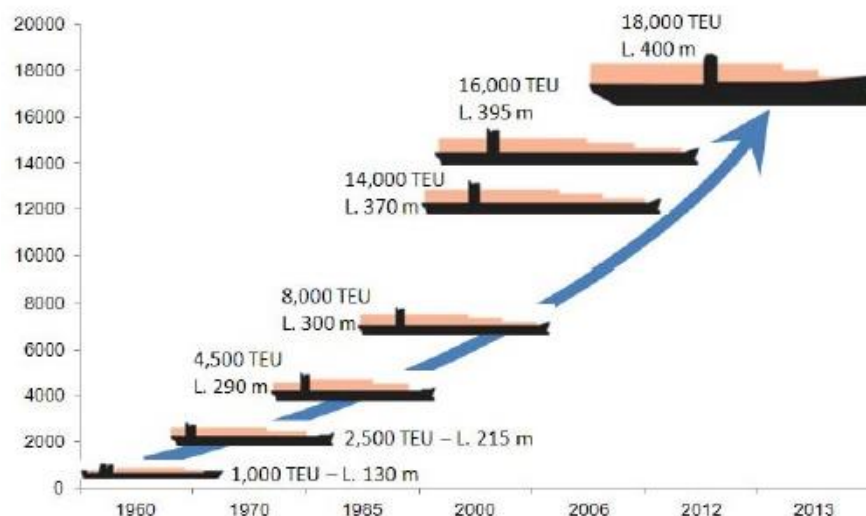
The shipping industry has faced a complete restructuring and consolidation since last two decades and it's been confronted with a continuing increase in ship sizes. It also can be predicted the sizes of ships will continue growing in next few years too.

History of shipping tells us the liner shipping industry has been moderated by a number of profound transforms, starting from the introduction of container in early 1960s, and the set up of consortia and other agreements and formation of global alliances. These global alliances made it possible to incur huge capital of deploying bigger ships and make sure the ship is full in the sea. It is clear that the factors behind forcing shipping lines to go for bigger ships are a synthesis of different point of views of shipping market, Ports authorities, terminals, carriers...etc.

## Shipping Network moving towards Hub and Spoke

According to the ship order book, many shipping lines have ordered above 18000 TEU ships. Maersk ordered twenty 18000 TEU ships, 13 being delivered and in operation. Other shipping lines also ordered mega container ships or consider the investment.

The impact of these changes in ship sizes is noticeable in trade patterns, cargo handling methods and shipping routes.



**Figure 1 Evolution of Container Ships**

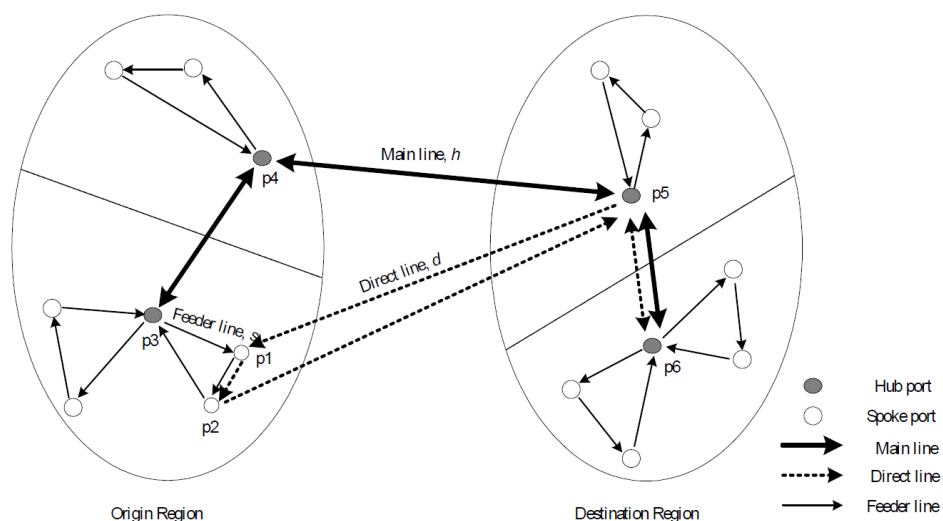
Source: Dutch Bank & Sector Data

Introduction of bigger ships forced the shipping market to move from multi-port network towards a hub and spoke network. This movement has a greater influence on entire shipping and logistic process which I would identify as the biggest impact of all.

Mega ships influence ports authorities heavily to expand their ports to accommodate ships with 400 meters LOA and terminal operators have to simultaneously invest on upgrading facilities to keep the terminal efficient. Handling efficiency is crucial when it comes to bigger ships where the economies of scale which is achieved at sea will be lost if the ship stayed at port for a longer period.

In such scenario the numbers of ports which can accommodate and handle new generation container ships are limited. Some ports, they cannot expand further as the space is limited, some ports have natural obligations which make expanding financially unviable and some ports do not have that strong vision to develop to that extent.

Following figure shows how a fundamental Hub and Spoke maritime network is operating.



**Figure 2 Operation of a Hub & Spoke System**

Hub and Spoke system has both positive and negative effects. The cost advantage of new ship building concepts like Triple E and advantage of economy of scale is now passed to the customers.

Hub and spoke shipping network improves reliability of network through scheduled voyages and well outfitted advanced and reliable stevedoring equipment and systems.

However routing freight through a hub sometimes incurs extra shipping distance, shipping time, port charges and stevedoring charges. That will directly influence on shippers specially who deal with time and cost sensitive products.

The frequency of ships also hit negatively by deploying of mega ships. This reduction of frequency cut off the chances of closer alternatives for the shippers to connect their containers.

## Reaction of Port of Colombo

Growing ship sizes open up the opportunity for Colombo port to develop as the maritime hub of south Asia. Colombo has just 4 hours deviation from the main route, where the nearest next port in the Indian subcontinent has a deviation of 12 hours. With this inherent advantage, Colombo has already become a preferred shipping destination.

According to “Mahawanshaya” the book where the history of Sri Lanka is written, Sri Lankans have started trading with foreign nations via sea even 2500 years before in king’s era.

Containerization started in south Asia with Queen Elizabeth Container Terminal at Port of Colombo on 1<sup>st</sup> of August in 1980. But the internal conflict started in middle of 1980s pushed Sri Lanka back from development. When the war is over in 2010, Colombo had 3 container terminals, Jaya Container Terminal (JCT), Unity Container Terminal (UCT) and South Asia Container Terminal (SAGT).

After the war, government of Sri Lanka saw the opportunity and made a vision to develop Colombo as the major shipping hub of South Asia. The government and SLPA management have short term, medium term and long term plans to achieve the vision.

In **short term**, security is entrusted within the port. ISPS regulations were implemented and international security measures like US Mega port system were granted to ensure the containers lifting from Colombo are all safe. This safety assurance made shipping lines confidence to bring their big ships to Colombo.

According to a publication of Maersk line, the expected productivity rate for a gantry crane is 45 moves per hour for an 18000+TEU container ship. This was the challenge Port of Colombo, especially JCT was facing at initial stage.

It is identified the human resource has a major role to play in meeting the productivity. It was very difficult for JCT to bring all employees to one mind set focused on productivity as most of them are in their 50s and used to a different work place culture. Lots of workshops, seminars, lectures, were arranged for all categories of employees to insert the vision in to their minds and make them understand the challenges ahead for JCT and Port of Colombo. They were given the idea of how important their role is for a faster ship turnaround time.

Quay crane and transfer crane operator's skills were closely monitored and operators who are lack of skills to meet demanded performance were sent for special training programs at SLPA training Institute. JCT recruited few junior managers who have the educational background of shipping for overall supervision of planning and operations with senior staff who have the experiences of over 2-3 decades in the terminal. That mix of young ideas and vast experience worked positively for many changes in planning and operations.

In 2008 JCT went for Navis terminal management system which SAGT was already using to cater the improving volumes. It was a huge effort of all employees to shift successfully from old, half manual TMS to Navis TMS within less than a month period.

Boost of productivity and reliability of operation, led to bring up bigger ships to Colombo questioning the capacity of existing equipment. Some ships had to turn around due to the insufficient maximum reach of gantry cranes. A project carried out to improve the capacities of equipment at JCT. Under this project boom of 6 ship-to-shore cranes increased from 16 across to 18 across and stacking capacity of 10 transfer cranes increased from 4+1 to 5+1.

Under **medium term** strategies Both JCT and SAGT terminals strengthen their equipment capacities by bringing down new equipment.

In 2011 six new gantry cranes including two twin lift cranes and 30 new 6+1 transfer cranes were added to the JCT equipment fleet. That increased the number of gantry cranes from 17 to 23. SAGT also bought 2 new twin Lift gantry cranes increasing their fleet up to 12 gantry cranes.

50 new terminal tractors were added to the JCT fleet in the same year, increasing the fleet to 120 terminal tractors.



**Figure 3: JCT Upgraded Performances by Adding New Equipment**

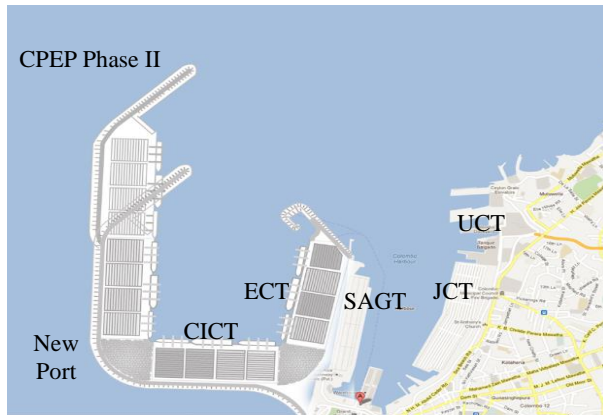
The berth occupancy rate at Jaya container terminal increased up to 75% in 2011 and that affected waiting time of ships especially of feeders. In 2011 a new feeder berth was built with two gantry cranes to accommodate feeders. That increased the number of dedicated feeder berths up to 4 including 2 berths at Unity Container Terminal.

Both terminals exceeded their designed capacities in 2012. To ease the congestion at JCT yard, a new container yard with the capacity of 8000 TEUs was built. Yard planning is monitored strictly by the executive officers and tide yard allocation is given for each services.

Colombo noticeably became the most economical gateway to the Indian subcontinent in both cost and time wise. Many alliances including LP-6, G-6 and many new services showed their interest to call Colombo emphasizing the immediate need of capacity and capability building. Colombo Port Expansion Project (CPEP) started commencement with the purpose of accommodating mega ships under the **long term** strategies of making Colombo the hub of South Asia.

The new breakwater at Colombo port is about 6 km from length and it has a depth of 18 meters compared to the previous 14-15 meters, a crucial difference in a world in which ever bigger cargo ships require ever deeper berths. The construction of breakwater was completed in 2012. The first container terminal of new Colombo South Port is completed in July 2013 and this made possible for Colombo port to accommodate the latest generation container ships which carry

18,000TEU and more. The completion of Colombo South Port Expansion Project will eventually increase the capacity of Colombo by 12.5 million TEUs per year.



**Figure 4 Colombo South Expansion Project Map**



**Figure 1 New Port under Construction - 2013**

In April 2014 South Container Terminal which is named as Colombo International Container Terminal (CICT) was fully completed and commenced operation. Currently CICT operates with 12 twin lift, 24 across gantry cranes and 30 RTGs with 6+1 stacking capacity.



**Figure 6 MSC NEWYORK at CICT-Port of Colombo**

On 20<sup>th</sup> November 2014 MSC NEWYORK, the biggest container ship at that time called port of Colombo and it was a landmark for the port. East Container Terminal (ECT) also now under construction and it will commence operation at the end of 2015 making available of six berths

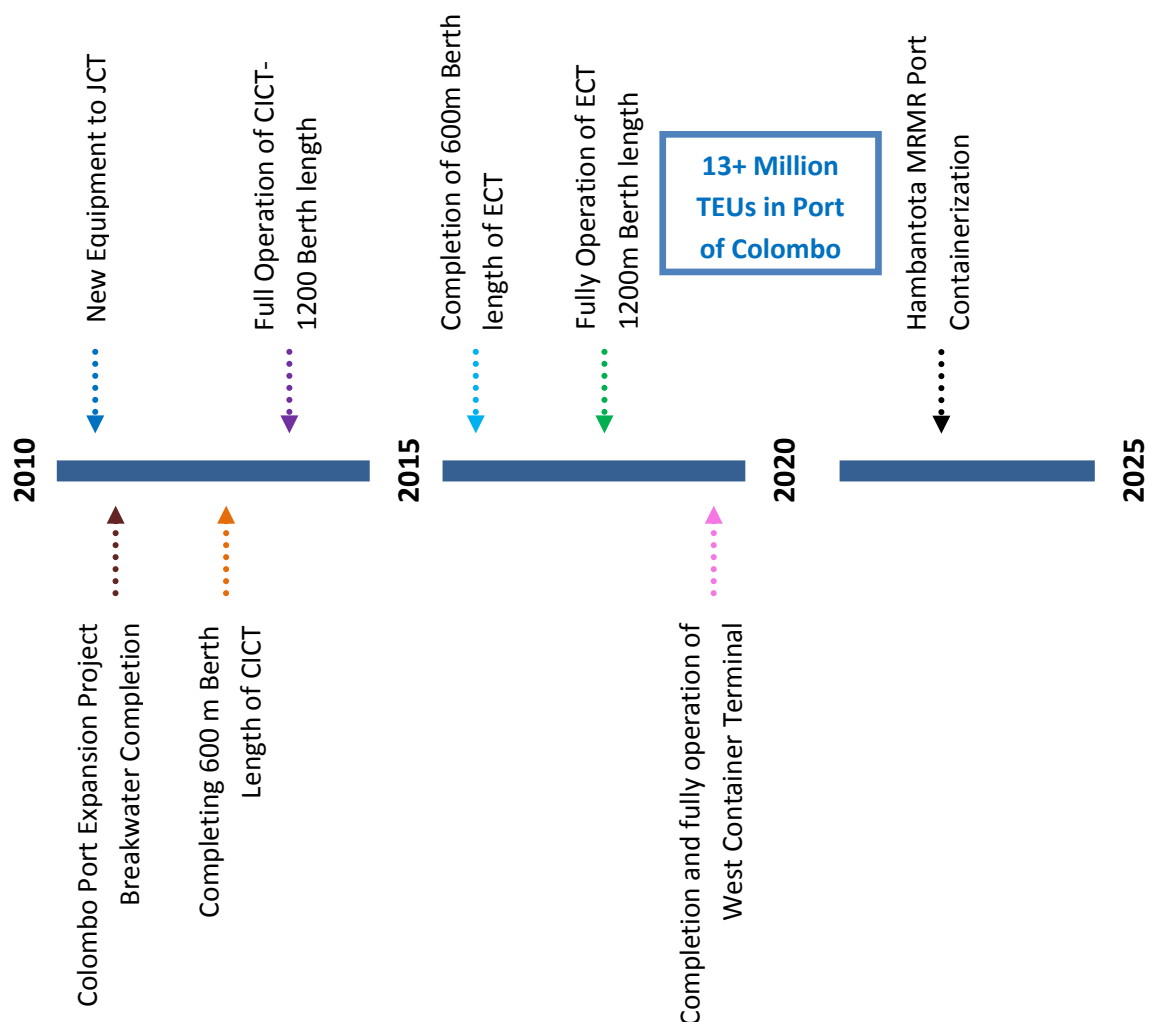


capable of accommodating mega container ships. ECT will be equipped with 12 gantry cranes with 24 across and twin lift capacity and 30 RTGs with 6+1 stacking capacity. 4 gantry cranes and 12 RTGs are currently being ordered and expected to reach Colombo by end of May in 2015.

The road network between terminals have upgraded to 6 lanes to cater the growing inter terminal trucking (ITT) and domestic volumes. Electronic systems are introduced to handle domestic and ITT ensuring accuracy of transactions.

PDS and RFID systems are implemented at JCT yard to increase the efficiency and effectiveness of yard operation. These systems automate most of yard activities saving time and improving accuracy.

Furthermore a project is proposed to build an inland dry port connecting Port of Colombo via railway to ease the congestion in and out of port limits. Under this project domestic containers will receive and deliver thorough the dry port. This will reduce the number of external prime movers inside the terminal facilitating more focus on vessel operations.





**Figure 7 Port of Colombo Maritime Agenda**

Apart from the facilities for vessel operation, room for other services also being developed within and around port of Colombo. Crew changes, food and water supply are facilitated at Port of Colombo. Hambantota Port is developed as a service port at the southern part of the country which is also closer to Colombo. Hambantota Port provides bunkering facilities for ships for lowest rates in South Asia. This would encourage larger ships to come to Colombo, as they are offered with one-stop shop facility for all their needs at port of Colombo.

With all these effort, the signs of Colombo capitalizing on the advantage of growing ship sizes are shown. According to 2014 statistics, Port of Colombo has recorded a growth rate of 13.8% compared to the last year. This growth rate is one of the highest growth rates of all ports in the world for the year 2014. That proves port of Colombo is steadily moving forward achieving the hub status of South Asian region.

### **My role to make Colombo Ready**

During this difficult and challenging period, every employee gives their best to the terminal.

I work as a junior manager at JCT and I'm basically responsible for overall operation of JCT. Other than that I also work as a ship planner at JCT. Yard planning, equipment control, yard and muster point supervisors directly report to me during my shift. I make sure the yard allocation for each ship call JCT is optimal to reach the maximum productivity rate. On the other hand equipment allocation, and human resource plan is done under my supervision for each shift. That is done based on the priority given for each service.

I give my full contribution for seminars and workshops organized for JCT employees. During this programs I make speeches and presentations explaining the current competitive situation of port and importance of giving our full contribution.

During the implementation of PDS and RFID systems, I involved in test run at UCT and gave my ideas on customizing the system to support JCT environment. When new systems are

implemented, changes are made to the processors, we have to put all our effort to convince people quickly to adopt to the change.

I also involved in organizing IAPH regional meeting at Colombo in 2012 which brought the image of Colombo to international shipping community. I represented SLPA in World Ports and Trade Summit 2011 in Abu Dhabi as well.

I got the opportunity to involve in preparing the feasibility report of planned Dry port at Peliyagoda aiming to ease the congestion in and out of port premises.

I continue my studies in shipping and logistics so that I will be up-to-date in changing business environment. I always try to bring that message, how competitive the terminal industry is to the ground level staff to motivate them to give their best, as I believe, above all human factor is what matters the most.

I'm very proud of how JCT and Colombo react to face the challenge of Mega ships. Infrastructures, superstructures and people are eagerly waiting to welcome Mega ships to Colombo.

## Bibliography

- *Statistics of Port of Colombo are taken from Statistics Division of Sri Lanka Ports Authority*
- *UNCTAD Review of Maritime Transport (Geneva, Switzerland: United Nations)*
- *Container ship size and fleet still growing (article by MacGREGOR, 2007)*
- *“Global impacts of ship size development and liner alliances on port planning and productivity” presented by Mr. Neil Davidson at IAPH Mid-term Conference-Sydney*
- *Containerization International Magazines*