

**Study on the Next Generation of Large Container Ships
and Its Potential Implications for the Port of Hong Kong**

Purpose

This paper is to brief Members on the findings of the captioned in-house Study.

Background

2. Fifty years ago on 27 April 1956, the sailing of Malcom Mclean's Ideal X, a modified tanker carrying its usual liquid cargo as well as 58 steel containers from Port Newark to Houston, which was the very first containership in the world, marked a quiet revolution in the history of sea transportation.

3. Since then, the world of container shipping has been changing rapidly with the emergence of ever-larger containerships. Container ports have to appreciate and meet the demand caused by the development in the container shipping industry. It is imperative that Hong Kong should ensure its infrastructure and facilities are able to receive the future generation of Ultra Large Containerships (ULCS).

4. The Marine Department conducted a study on the next generation of large containerships in 2001, and carried out a review in 2003. Nowadays, ships of 13,500 TEUs are being built, and designs up to 15,000 TEUs are already on the drawing board, it is opportune to conduct an update.

Objectives of the Study

5. The objectives of this update are :

- To identify and evaluate the existing and possible future trends of containership development; and
- To review its impact on the operation of the Hong Kong Port.

Study Methodology

6. The study involves extensive literature reviews, supplemented by interviews with major shipping lines, container terminal operators and classification societies.

Findings

7. The following is a summary of the findings of the study:

- The world container fleet has been growing rapidly over the last decade in tandem with the growth in container trade on a global basis. Almost 100 post-panamax containerships for most of the large shipping lines are expected to come on stream within this year, and around one quarter of these ships have carrying capacity of 8,000 plus TEUs.
- As declared by Maersk with 11,000 TEU nominal capacity although estimated to be capable of carrying 13,500 TEU the Emma Maersk, the first of the eight ships in this series known as the E-class, is now the largest containership. She will enter into service on 14 September at Gothenburg and will call Hong Kong later this year. Her principal dimensions are as follows:

Carrying capacity :	13,500 TEUs (maximum)
Length Overall :	397m (LOA)
Breadth :	56.4m (22-row across)
Design draft :	14.5m
Design speed :	25 knots

- A lack of feeder tonnage in recent years is becoming a threat to the efficient movement of containers. The shipping lines are now addressing this issue by building more vessels with comparatively smaller carrying capacity. With more new ULCSs coming into service, the feeder network in Asia will likely be developed into multi-tier services.
- Although the Emma Maersk has a beam of 22 rows across, the world's major terminals have already acquired quay cranes with sufficient outreach and are well-prepared to serve this class of ships.
- The continuous quay provided by the newer terminals together with the terminal operators' mechanism to share quay lengths, enables the Kwai Tsing container terminals to accommodate the expected length of the next generation of containerships.
- While turning the E-class ships in the Kwai Tsing Container Basin may require greater marine traffic coordination and planning to ensure navigational safety and efficiency, the Basin is considered adequate to turn these ships.
- It is evident that the draft of the future ULCSs is likely to remain in the region of 14m to 15m. In the light of the E-class ships are of 14.5m design draft, there should not be any insurmountable constraints to berth these vessels in the Kwai Tsing Container Basin.
- The container shipping industry generally believes that the next generation of ULCSs beyond the Maersk E-class is not likely to join the market in the coming five years. However, it considers that deeper water depth may be required for such vessels if they eventuate.

Conclusions

8. The study has the following conclusions :
- Post-panamax containerships and feeder vessels will retain an important position and boxships of estimated carrying capacity at 13,500 TEUs will soon become frequent callers to Hong Kong. Albeit ship designers/builders have the confidence and enthusiasm to construct containerships reaching 18,000 TEUs carrying capacity, the industry generally believes that it would not come on stream within the next five years.
 - Order Books for the next three years has seen a reduced demand for sub-panamax (3,000 – 3,999 TEU) and post-panamax (5,000 – 7,999 TEU) sizes of containerships. In their place is an increase in the smaller size (1,000 – 2,999 TEU) vessels, since there are strong requirements for the feeder services.
 - As the length, breadth and sailing draft, including air-draft for the ULCSs to come on stream in the next few years are expected to fall within the range of the previous findings, the Port of Hong Kong will be able to receive these ships. However, in order to maintain the regional competitive edge of the Port of Hong Kong in the longer term, dredging within the Kwai Chung Container Basin to –16.5m would accommodate the operational needs of the ULCSs when they are loaded to their maximum draft before leaving the Port of Hong Kong.
 - Given continued technological and market development, it is possible that the next generation of ULCSs of up to 18,000 TEUs may be developed within the next decade. This should be closely monitored and future reviews on its development should be conducted at a suitable time.

Advice Sought

9. Member's views and/or comments on this study are welcomed.

Presentation

10. This paper will be presented by Mr. M. K. CHAN, Senior Marine Officer of the Marine Department.

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