

Tomtawan Torteeka 2011: Cost Analysis of Queuing System for Container Vessel at Port of Bangkok. Master of Economics, Major Field: Economics, Department of Economics. Thesis Advisor: Associate Professor Darawan Virunhaphol, Ph.D.  
87 pages.

The propose of this study was to analyze the total cost of queuing system for Container Vessel at Port of Bangkok by using M/Ek/S queuing model to describe the movement of ships at Port of Bangkok with the cost analysis related to ships and ports. Another aim was to find out the optimal number of berths and cranes combinations that minimized total cost of queuing system in the Port of Bangkok. This study use assumption that the number of berths or cranes will increase until marginal cost equals marginal benefit, which is to reduce the cost of ships in port.

This study found the arrival rate at the Port of Bangkok was 6 ships per day. The average service time per ship was 21 hours and the average waiting time per ship was 5.58 hours. The average time that a ship spent at the port was 27.19 hours and average number of waiting ships was 1.40 ships and average number of ships in port was 6.80 ships. Thus, the cost of container vessels waiting was 423,479 baht per hour, the cost of services at the Port was 193,086 baht per hour and the cost of queuing systems at the port of Bangkok was 616,565 baht per hour. The study concluded that the optimal berths and cranes combinations that minimized total cost of queuing system in the Port of Bangkok is 8 berths and 2 cranes per berth. Thus, the total cost of the queuing system was 579,307 baht per hour or decreased 37,258 baht per hour.

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