

Asian economic growth and Japan's ports

SUZUKI Takeshi,
Director of the Port and Harbor Department

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1. Asian economic growth and Japan's ports

During the 10 years from 1999 to 2009, the world's GDP expanded by 1.85 times. During this same period, the GDP of North America grew by 1.55 times and that of Western Europe grew by 1.71 times. In contrast, however, Japan's GDP grew by only 1.16 times, indicating that Japan's economy remained stagnant even as the global economy grew. On the other hand, Japan's neighbors, China among them, expanded their economies significantly during this time. They also formulated various strategies leading to bold investments and institutional reforms, and thereby expanded the influence of their ports. Looking at handled container volume, Japan's top port in 1980 (Kobe Port) ranked fifth in the world in handled volume; however, by 2009, Japan's top port (Tokyo Port) ranked just 26th. Conversely, East Asian ports dominate the top positions in terms of handled volume, as eight of the top ten ports are located in East Asia.

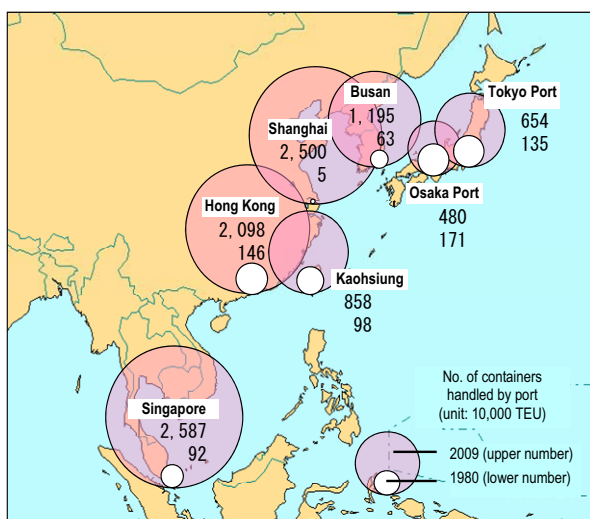
2. Increasing size of international cargo vessels

Container vessels are being built larger and larger in order to efficiently transport a growing amount of container goods and to ensure that companies survive in market competition.

In the 1970s, container ships had a carrying capacity of about 2,000 TEU; however, in the 1980s, 4,000-TEU Panamax vessels—the largest vessels capable of passing through the Panama Canal—made their appearance. In the 1990s, “over-Panamax” vessels that are incapable of traversing the Panama Canal began to be built, with some attaining a capacity of 6,000 TEU. Given the growing size of these vessels, construction to expand the Panama Canal is underway. And looking at the current state of ship construction, it is anticipated that size of container ships that ply the world's oceans will suddenly grow even larger in response to the canal's expanded capacity. At the same time, however, there are some shipbuilders that are not waiting for the canal's expansion, and thus there are expectations that container ships capable of carrying some 15,000 TEU—exceeding the canal's post-construction capacity—will be seen.

Bulk carriers that transport coal, iron ore, and grain are also expected to grow larger. One reason for this is expanding long-distance transport amid rapidly growing demand for resources by newly developing countries. Until now, 70,000-ton class Panamax vessels have been the major mode of grain transport, while 170,000-ton class

[Number of containers handled by major Asian ports]



TEU (twenty-foot equivalent unit): An International Organization for Standardization standard (ISO standard) unit that calculates a 20-foot container as “1” and a 40-foot container as “2”.

* Tokyo Port* includes Tokyo Port and Yokohama Port.
* Osaka Port* includes Osaka Port and Kobe Port.
However, the figure for Osaka Port is for 2008.

Source: Prepared by the Ports and Harbors Bureau, MLIT, based on Containerisation International Yearbook 1982 and 2010 and March 2010 Containerisation International

[World ranking of number of containers handled by port]

| 1980 | | 2009 (preliminary values) | |
|------|---------------------|---------------------------|----------------|
| Port | Handled volume | Port | Handled volume |
| 1 | New York/New Jersey | 1 | Singapore |
| 2 | Rotterdam | 2 | Shanghai |
| 3 | Hong Kong | 3 | Hong Kong |
| 4 | Kobe | 4 | Shenzhen |
| 5 | Kaohsiung | 5 | Busan |
| 6 | Singapore | 6 | Guangzhou |
| 7 | San Juan | 7 | Dubai |
| 8 | Long Beach | 8 | Ningbo |
| 9 | Hamburg | 9 | Qingdao |
| 10 | Oakland | 10 | Rotterdam |
| 12 | Yokohama | 26 | Tokyo |
| 16 | Busan | 36 | Yokohama |
| 18 | Tokyo | 39 | Nagoya |
| 39 | Osaka | 44 | Kobe |
| 46 | Nagoya | 50 | Osaka |

Note: Figures include both domestic and overseas trade.
Figures in parenthesis show rank in 2008.
Handled volume figures marked with an asterisk (*) are for 2008.

Capesize vessels have been the main player in iron ore transport. However, more and more vessels that are even larger than these ships are coming into service. Transport by 300,000-ton class VLOC (Very Large Ore Carrier) is beginning between ironworks in China and Brazil. And a major Brazilian iron ore company is reportedly building a 400,000-ton Chinamax vessel.

3. Response to changing international cargo demand and larger vessels

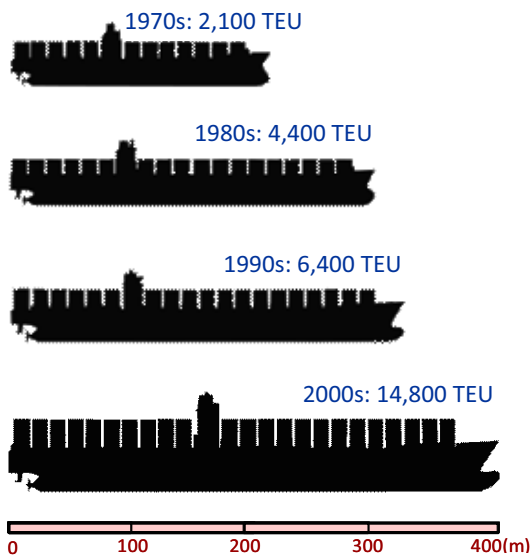
Domestically, Japan faces severe economic, financial, and employment circumstances brought about by its aging society, declining population, the strong yen, and shifting of businesses to overseas locations. Moreover, antigovernment protests in the Middle East and Africa from the end of last year present the danger of rising petroleum prices. On the other hand, other Asian countries quickly bounced back from the Lehman Brothers' crisis and are now enjoying strong economic growth.

As other East Asian ports prosper and vessel sizes grow larger, Japan's ports are falling behind in responding to the larger vessels and could even lose major container routes as a result. Moreover, companies are leaving Japan in search of lower production costs and strong foreign demand.

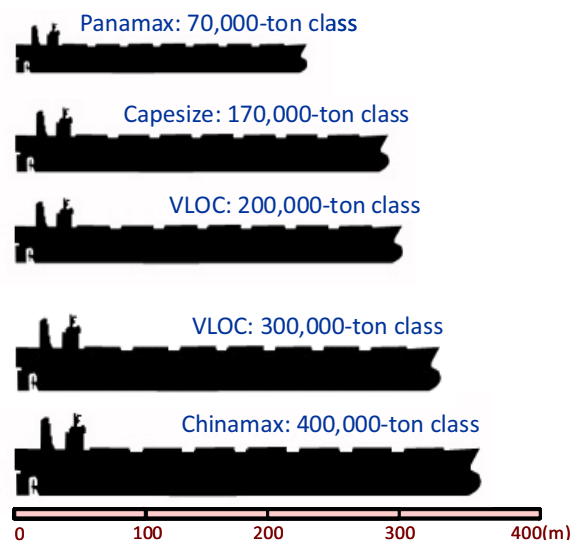
Japan must raise the competitiveness of its ports and, by doing so, raise its domestic economic competitiveness and lower import costs for consumer goods. At the same time, it must link Asia's vitality to revitalization of its domestic economy. Achieving these goals will require immediate steps to give ports the ability to handle larger vessels and improve corresponding services. In light of Japan's severe financial situation, it will be necessary to carefully select ports having high potential here and then to pour intensive investment into them. It is with these objectives in mind that the Ministry of Land, Infrastructure, Transport and Tourism selected two regions as "international container strategic ports" in August 2010. MLIT is also taking steps toward selecting "international bulk strategic ports."

To formulate such practical and highly effective port policies and then to effectively implement them, it will be necessary to analyze and draw up forecasts concerning how flow of goods between ports, vessel size and function, frequency of port calls, and volume of cargo handled by each port change in response to economic conditions in concerned countries, barriers to international transport and trade, fuel costs, the management strategies of shipping companies, vessel specifications and performance, and conditions surrounding the development of port, land, and marine infrastructure. Such analyses and forecast must also focus on the kinds of facilities and equipment needed to respond to the above-mentioned conditions as well as the size, structure, and function they must have. Taking these steps will require continuous accumulation and analysis of various forms of information, including data on trade, transport, vessels, and port development. Then, survey research on model theory, survey analysis techniques, statistical theory, and other fields must take place, followed by the creation of a highly reliable international marine logistics model capable of evaluating the various elements that influence trade and logistics. Moreover, this model must be constantly upgraded to ensure that it has maximum practicality. On top of this, survey analyses must take place that cover not only results obtained from the international marine logistics model but also operation of vessels, cargo-handling equipment, and storage facilities as well as structure function, usability, durability, energy efficiency, and technical development trends. From here, it will be necessary to establish methods for setting the specifications, use conditions, and other factors for port facilities and equipment that will be needed as conditions require.

As the policy for establishing international container strategic ports and international bulk strategic ports moves forward based on the activities described above, the Port and Harbor Department intends to help evaluate various measures within the policy and to contribute to forecasts and analyses for the planning and formulation of new measures.



Prepared based on DNV materials
Changes in lengths of container ships



Prepared based on Vale materials
Changes in the lengths of bulk carriers