

# The Background of Yangshan Project and Its Prospect

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## Abstract

As the symbol of Shanghai to be built as an international shipping center, the Yangshan deepwater port now is having far-reaching influence in the shipping world. It is not only to receive the latest generation container ships, but also to make Shanghai a pivotal port for container vessels in the region. It can be imaged that this project will offer good cooperative opportunities for the development of international shipping industry as well as the global supply chain operation.

What is the functional orientation of this project and how about the future prospect? This article will review the relationship between economic development in the Yangtze delta region and the port demand growth for the Yangshan project. On the basis of elaborate analysis of the status quo, this article also analyzes, in line with the development of international and domestic economic situations in the future. Through the analysis of the total amount of port demand, the regional distribution and value-added service of port demand volume, this article also tries to explore the special functional features of the project, based on this, to justify the orientation of Ynagshan project.

**Key Words** : Ynagshan Port, Function, Prospect

## 1. Background Analysis : Globalization and World Container Trade

Globalization is the most frequently used word in the current world. It has made more and more production and operation activities and resources allocation to be carried out throughout the world. The development of economic globalization and the readjustment of world economic pattern constitute a new global trade and transport chain and each country becomes a component part of the chain. Under the general development trend of production internationalization, no country can free itself of the world economy.

Port sector plays a critically important role in local economy. There are many examples that local economy gets prosperous as a result of port development. The city where we are holding the conference, Shanghai, is a good example. It is the business and financial center of China, as well as the shipping center of China. Its current strategy of building international shipping center will surely have a strong push for future prosperity of the area.

## **2. The Demand of Port Capacity : Challenge from “China Factor” : Dominating Container Shipping and Port Industries**

Along with the requirements of economic globalization, China began to implement its basic national policy of reforms and opening-up in 1978 and thus its economic development got onto a fast traffic lane. With the roaring growth of Chinese economic aggregates and foreign trade scale, the demands for seaports have extended rapidly.

Since the 1990s, the volume of container handled of China’s seaports has maintained the average annual growth rate of 30%. In 2004, the volume of container handled hit 56.5 million TEU. With the expansion of China’s market and the momentum of international manufacturing continuous transfer to China, international capital has sped up movement into China. In the first 10 years of the 21st century, China may become a manufacturing center in the world. The expansion of the manufacturing and the increasingly wide scope of the category of containerised cargo will make tremendous container transport demand on the seaports.

According to the above analysis and forecast, the volume of container handled of China’s seaports will respectively reach 120 million TEU in 2010 and 240 million TEU in 2020

Clearly, China’s rapid economic development, and its rise as a world factory in particular, has resulted in a flood of raw materials, commodities and components inflow to its manufacturing centers, and flood of consumer goods outflow to the market of US and Europe. “China factor” in recent years has played a dominant role within container shipping and port sectors. The benefits to shipping lines and port operators are obvious. As a result, several major China’s container ports have become the regional hubs, changing the landscape of global port competition.

## **3. The Demand of Port Capacity : Challenge from the Size of Vessel**

Enlargement of vessels, which has been a continuing challenge for port industry for the last decade. Over last couple of years, post-panamax container ships have gained a total capacity of over 8000 TEU, while it was only about 6000 TEU back to three or four years ago. Nowadays, 9000 TEU ships have been deployed on key service routes, and 10,000 TEU ships will be put into services very soon. Enlargement has also become the trend for container carriers. It has become a trend in the international shipping industry that ships are getting bigger and bigger.

The building of these larger ships is in line with the bursting growth of world trade and helps reduce the unit costs for shipping companies. However, there are not enough suitable berths to accommodate the incoming mega ships. The serious port congestions in many regions cast a shadow for shipping companies with such ships.

Seeking the economies of scale, shipping companies have increased the size of container ships. It was at the beginning of 1996 that the first 6,000 TEU ship was put into the market. The current standard of a mega container ship or a super over panamax, is a ship with a capacity of 8,000 TEU ship, which first appeared in the market in 2003. The mega ship is more than 300m long and 33m wide, and its draft is 14 to 14.5m. The growing trend of container ship size does not seem to be coming to an end. It was reported earlier this year that a Chinese shipping company had ordered 4 ships with a capacity of 10 thousand TEU.

Where is the suitable place to build deep-water berth in order to meet the requirements either from traffic demand or from the enlargement of vessels?

Port authorities are forced to invest additional resources to accommodate mega ships when they are seeking the status of a hub port or a gateway port, and Yangshan is a optimal choice.

#### **4. The Layout and Functional Areas of Yangshan Project**

The site of Yangshan has favorable conditions for the construction of deepwater port.

The Yangshan project is located off the Yangtze River estuary at the Qiqu Archipelago in the Hangzhou Gulf, about 30 kilometers to the northwest of the Luchao Port of Nanhui District, Shanghai. It is the natural harbor site nearest to Shanghai with water depth over 15 meters. Via a sea-spanning bridge to connect with Shanghai integral transport network. From physical geography point of view, the Greater Yangshan project has favorable conditions for the building of over 15 meters deepwater berthes. It has stable seabed with balanced silt left over a hundred years. The water depth at the project sea area keeps constantly over 15 meters the whole year round. The screening of island chain has offered a favorable condition for oceangoing ships to moor at the harbor, to pull into or leave the wharf. The multiple islands and the well-developed shoal leave much room for the port to develop. It is therefore suitable for the construction of large-scale terminals.

##### **4.1 The overall layout planning for Yangshan Project**

The overall planning of Yangshan project is by lying on Yangshan Island chain to form the north and the south port areas. There will be a deepwater coastal line extending to 11 kilometers with 30 berths, having a passing capacity of 15 million TEUs at the maximum. From long-term perspective, the Yangshan port area is in possession of immense potential for development. According to the overall planning, a land area of 20-odd square kilometers can be formed with deepwater coastline stretching for 20-plus kilometers along which over 50 large-scale berths will be arranged.

The first phase of the Yangshan Project includes principally the port area project, the East China Sea Bridge project and the Luchao Harbor auxiliary area project.

The length of the terminal is 1,600 meters along which there are 5 container berths. The designed water depth in front of the wharf is 15.5 meters, capable of mooring the fifth and the sixth generation container ships as well as ships with loading capacity of 8,000 TEUs. While the designed annual handling capacity is 2.2 million TEUs. The port area is about 1.53 square kilometers where corresponding warehouse site, roads, diversion and wave-prevention facilities, auxiliary facilities for production and living, loading and unloading equipment etc. will be constructed.

#### **4.2 The East China Sea Bridge**

The starting point of the bridge is at the juncture of the major embankment and the sea-beach about 1.4 kilometers in the north and 4 kilometers from the eastern side of the wharf for passenger transport at the Luchao Port of Nanhui District, Shanghai. Its terminal point is at Mt. Xiaochengzishan on the Qiqu Archipelago of Shengsi County, Zhejiang Province. It is 31.5 kilometers in length, designed and constructed in accordance with the standard for a two-way and six-lane freeway. The surface of the bridge is 31.5 meters in width, the designed speed for motor vehicle being 80 kilometers per hour. Under the bridge are a main navigation opening for 5,000-ton ships (the net height of the opening being 40 meters) and an auxiliary navigation opening for 1,000-ton ships.

#### **4.3 The Luchao Harbor Auxiliary Area**

In order to develop the value-added services, the The Luchao Harbor Auxiliary Area is located near the landing point of the East China Sea Bridge. Its chief function is to provide coordinated services for the Yangshan project, including water supply, power supply, communication, stripping and stuffing containers, warehousing, multimodal transport, washing and repairing, dredging highway and corresponding comprehensive auxiliary functional facilities such as Customs checking site, etc.

### **5. Future Prospective**

Regarding the future prospective, in the era of economic globalization, what we need is to hold the trend of the world trade which has been facilitated by containerization, as evidenced by four significant aspects:

Firstly, the port operation has been shifted from a port-to-port to a door-to-door focus. The containerization made this logistics system shift possible, therefore integrative services, value-added activities certainly play an important role in Yangshan project.

Second, there is greater concentration of trade flows. Consequently, several container hub ports

have been emerged in the global shipping system, therefore, the orientation of Yangshan project should be considered as a “hub port” which attract more and more traffic either for hinterland or for transshipment purpose; .

Thirdly, globalization of production facilities has shaped the volume and direction of world container flow. One of the most important trends is the rise of China as a world reprocessing, assembling and manufacturing center, generating more and more container volume in and out China.

Finally, the rise of supply chain management has been emerged as a discipline. Traditional trade theory, which is focusing the exchange between two counterpart nations, is unable to explain today's trade relation. Now, managing their global supply chain and logistics systems have become the major concerns of multinationals.

Therefore, suggestions to the Yangshan' future development are:

Enhancing Cooperation with Shipping Companies: Port service is a vital part in both shipping supply chain and shipping companies' cost structure. Today it has become a big concern for shipping industry because of port capacity constraint in Europe, the west coast of America and other areas. There is no doubt that the container shipping industry is affected by rising levels of port congestion and snarl-ups on the roads and railways in next few years. Thus, for the operator of Yangshan project, it is necessary to carry out the policy to enhancing cooperation with shipping companies.

For the future development of Yangshan project, we need new and breakthrough technology to do more with what we have. Faster and more efficient handling equipment is required for the reduction of dwell times and increase utilization of the terminal. The softer infrastructure (customs) also need to be streamlined.

