A New Hub-port Concept for Tomakomai in Anticipation of the Era of Arctic Shipping

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ABSTRACT

Ice-diminishing Arctic seas offer shorter navigation distances between Asian and European markets, as well as the benefits of reduction in fuel costs and overall emissions from sailing vessels. To manage ice-classed ships efficiently, hub-port scenarios will be needed to respond to growing demand in shipping via the Northern Sea Route (NSR) and to minimize the risk of accidents and pollution. Tomakomai in Hokkaido has a marked geopolitical advantage as an Asian gateway for the NSR. This paper examines a concept for a new Tomakomai hub-port mainly from its geo-technological aspect.

KEY WORDS: Arctic shipping; Northern Sea Route; hub-port; Asian market; Tomakomai; geo-technology.

INTRODUCTION

Beginning in 1993, Ship & Ocean Foundation of Japan carried out the International Northern Route Programme (INSROP) over six years in collaboration with the Fridtjof Nansen Institute in Norway and the Central Marine Research and Design Institute in Russia (SOF, 2001). The distinctive merit of the NSR lies in its shorter sailing distance, while its demerits lie in the need for expensive ice-strengthened commercial vessels, the relatively small number of knowledgeable and well-experienced seafarers available, and unclear tariff and/or insurance costs for NSR navigation. These demerits will bring about a trans-shipment mode of transport via the NSR at hub-ports on both the Asian and European sides, to minimize sailing distance by costly vessels. On the Asian side, the world map indicates Hokkaido in Japan will have a geopolitical advantage in the NSR.

The high proportion of coastline has generated a large number of sea ports in Japan. With about 40% of the entire population living in areas with sea ports, their development has been important to the economy. There are four important factors that govern the selection of a new major port site in Japan: earthquakes, tsunamis, typhoons and volcanic eruptions. After a survey of major ports of Japan, emphasizing natural conditions, Yokohama, Nagoya, Kobe, Tokyo, Osaka, Hakata, Shimizu, Kitakyushu, Sendai, Niigata, Hiroshima, Otaru, Nemuro, and Hakodate ports were found to be unsuitable. The narrow mouth of Tokyo Bay is a hindrance as the land-use limits are in place for development of Tokyo and Yokohama Ports, which also are threatened by possibly destructive earthquakes in the near future.

Fig. 1 Major Sea Ports in Japan (source Wikipedia)

Shimizu, Nagoya, Osaka and Kobe have similar problems and they would be unable to avert a crisis caused by the “Tokai”, “To-Nankai” and “Nankai” earthquakes within 30 years, expectations by scientists, as shown in Fig.2 Hiroshima is located deeply inside the semi-enclosed sea, while Hakata and Kitakyushu have little geopolitical advantage. Conditions would not allow Sendai, Niigata, Otaru, and Nemuro to expand. Having eliminated these ports being unable to satisfy the hub-port requirements, Tomakomai in Hokkaido remained a possible hub-port in Japan at the time of INSROP. At present, Tomakomai Port arranged to serve as one of the two major ports in Hokkaido for cabotage and ocean-going vessels, without any concept for the NSR.