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Straits of Malacca and Singapore: Ensuring Safe Navigation

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Abstract

The Straits of Malacca and Singapore are two of the world's most congested straits used for international shipping. There are existing hazards impeding safe navigation through the Straits. What would be the impact of a proposed bridge linking Sumatra and Malaysia?

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Straits of Malacca and Singapore: Ensuring Safe Navigation

By Mohd Hazmi bin Mohd Rusli

Synopsis

The Straits of Malacca and Singapore are two of the world's most congested straits used for international shipping. There are existing hazards impeding safe navigation through the Straits. What would be the impact of a proposed bridge linking Sumatra and Malaysia?

Commentary

RECENTLY A plan to build a 128 km-long bridge across the Strait of Malacca connecting Teluk Gong in Melaka to Dumai in Sumatra was proposed by the Straits of Malacca Partners, a Malaysian company. Press reports suggest that the US\$12.5 billion China-funded project will build the longest sea-crossing bridge in the world and will link Malaysia and Sumatra at the narrowest point in the Strait of Malacca. The company is awaiting approval from the Indonesian and Malaysian governments. First mooted 14 years ago but shelved due to the Asian financial crisis of 1997, it will take 10 years to complete and will enhance ASEAN's connectivity when ready.

Notwithstanding the economic spinoffs of the proposed bridge for Malaysia and Indonesia as well as the region, there are issues of safe navigation to consider once construction starts. As the bridge will straddle the Traffic Separation Scheme (TSS) area of the Strait of Malacca between Port Klang and Singapore, it may well affect through traffic in the channel, even during its construction. The impact on ship movements through the Strait of Malacca will be wide-ranging. Indeed, the proposed bridge highlights – and will need to take into account -- the broader issue of safe navigation in the Straits of Malacca and Singapore, two of the world's busiest shipping channels.

Navigational Hazards

Currently, the Straits of Malacca and Singapore bear more than 70,000 vessel movements per year. This figure is predicted to double in the next ten years, making the Straits the most congested in the world. Larger ships can also use the Lombok-Makassar Straits route between Java and Sulawesi, but avoiding the Straits of Malacca and Singapore would take three days longer and result in increased shipping costs. A normal voyage of a vessel from Aden in Yemen to Yokohama in Japan at an average speed of 12.5 knots would take 22 days via the Straits of Malacca and Singapore route and 25 days via the Lombok-Makassar Straits.

The route through the Straits of Malacca and Singapore is beset with challenges, natural and man-made. The region is subject to torrential rain and squalls, almost every day. The system of squalls that originates from the Indian Ocean, and described as the Sumatras, brings thunderstorms, heavy rain and winds in areas around the

Straits of Malacca and Singapore. During squalls, visibility can decrease considerably to make it difficult for mariners to navigate their vessels through the Straits.

The sea currents at the northern entrance to the Strait of Malacca are strong where the Andaman Sea waters enter the Strait. Further south, the Strait of Malacca receives currents from the South China Sea and Singapore Strait. The currents in the southern part of the Strait of Malacca are unstable as the southern end is narrower. The currents form large sand waves, sand banks and shallow shoals along the waterway that make navigation challenging.

The most difficult stretch for navigation in the Straits of Malacca and Singapore is in areas spanned by the TSS between One Fathom Bank off Port Klang (Malaysia) in the west and Horsburg Lighthouse (Singapore) in the east. The TSS extends for 250 nautical miles and has six choke points with average depth of about 23 metres. Despite continuous dredging works, the Straits of Malacca and Singapore tend to become shallow because of siltation.

The high shipping traffic coupled with the narrowness of the Straits make for navigational hazards. The narrowest breadth of the Strait of Singapore is off the southern tip of Singapore at Phillips Channel, where it is about 1.96 nautical miles. Other navigational hazards in the Straits include ship wrecks (11 along the TSS area); small islands, isles and shoals in the southeastern exit of the Strait of Singapore and unreliable aids to navigation, especially in the Indonesian portion of the Straits.

The Straits of Malacca and Singapore also accommodate cross-strait traffic or coastal shipping, particularly in the TSS area. Since 2008 the steady increase of coastal shipping has been identified as one of the impediments to safe navigation of through traffic. Piracy/sea robbery activities also complicate navigation, though since 2006 the number of sea robbery incidents has gone down due to effective security measures by the littoral States, such as the coordinated naval patrols by Indonesia, Malaysia and Singapore.

Haze Hazard

Haze caused by forest and bush fires in Sumatra has also compromised safe navigation through these waterways and it remains a threat to mariners until today.

In July 2009, the haze caused by forest and plantation fires as well as a long drought season blanketed the airspace of the Sumatra's Riau province, affecting shipping near the Port of Dumai, with visibility down to less than 0.2 nautical miles. In 2010, hazy conditions caused by illegal forest clearing in Sumatra reduced visibility to less than two nautical miles, forcing Malaysia to issue a hazard warning for ships sailing in the Strait of Malacca. Fortunately for the littoral States, there have not been any maritime accidents in the Straits due to poor visibility caused by hazy conditions.

Human errors are also a form of navigational hazard when assessing risks to the marine environment of the Straits. Regulations relating to safety and good seamanship through the International Maritime Organization (IMO) are also important in avoiding vessel groundings and collisions in the Straits of Malacca and Singapore.

Way Forward

The Straits of Malacca and Singapore will see increased shipping traffic in future years. Given that these current and future hazards may complicate navigation, the littoral States, user States and the IMO should continue to work together to ensure the Straits are navigationally safe. Then maritime accidents could be avoided, thereby protecting the sensitive marine environment of the Straits, besides keeping the strategic channel safe and open for international shipping.

Mohd Hazmi bin Mohd Rusli, who holds an LLB (Bachelor in Law), is pursuing his PhD studies at the Australian National Centre for Ocean Resources and Security (ANCORS), University of Wollongong, Australia. He contributes this article especially to RSIS Commentaries.