Malacca: No More A Dilemma For China?

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> "From the perspective of international strategy, the Strait of Malacca is without question a crucial sea route that will enable the United States to seize geopolitical superiority, restrict the rise of major powers, and control the flow of the world's energy..... it is no exaggeration to say that whoever controls the Strait of Malacca will also have a stranglehold on the energy route of China. Excessive reliance on this strait has brought an important potential threat to China's energy security"
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> — Shi Hongtao,
> 15 June 2004[1]

China is the world's largest consumer of energy in the world. It is also the world's second largest consumer of oil as well as the second largest net importer of oil after the US. China's energy consumption increased by 5.82 percent annually, underpinning the 10 percent annual growth of the national economy.[2] In the period of five years (2006-11) China's per-capita primary energy consumption rose by 31 percent while the per-capita natural gas consumption increased by 110 percent and the per-capita electricity consumption by a whopping 60 percent. This is only going to increase further. China's oil fields are mature and 85% of the oil production capacity is located onshore. China's proven oil reserves are 20.53 billion barrels which are the 15th largest oil reserves in the world.[3] Its economy, bristling at an average of 10% of GDP since 2000, consumes 9,250,000

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barrels of oil per day as of 2011.[4] In 2010 China was importing 4.79 million barrels per day – in 2011 that had increased by 6.3 per cent to almost 5.09 million barrels per day.[5] *Xinhua*, the state run news agency, reports that China's dependence on oil imports grew 55.2% in the first five months of 2011 alone up from 55% in the entire 2010.[6] Tong Xiaoguang, of the Chinese Academy of Engineering predicts that China's dependence on imported oil will increase to 65% by 2030 due to continued urbanisation and industrialisation.[7] The obvious questions that tickle the strategic mind is - How will China ensure her energy security? How will China address the strategic vulnerability of her Sea Lanes of Communication (SLOCs) through the Straits of Malacca?

Much has been written about the 'Malacca Dilemma' and China's strategic vulnerability of the SLOCs that pass through the Straits of Malacca; the Straits of Malacca are no more a vulnerability for China's energy security. China has already taken adequate precautions to ensure that in times of hostilities, when her SLOCs are threatened, proactive means have been taken to ensure energy (essentially oil) supplies are guaranteed. Imposing a blockade or interdicting the SLOCs may not be an effective method of denying oil due to the very nature and rules of trading oil on the high seas. This combined with alternate sources obviate or circumvent the 'Malacca Dilemma'.

China's Total Energy Consumption

Coal

China has 19 per cent of the world's coal reserves or approximately 170 billion metric tonnes.[8] 71 per cent of China's energy consumption is coal-based or supported by coal. Of this nearly 45 percent is utilised for electricity and rest is for industrial use. China's coal production in 2012 is aimed at 3.65 billion metric tonnes and its imports are projected to be 270 million metric tonnes (approximately 7 percent of the total coal production).[9] During the period 2006-11, China imported 50 per cent of its coal needs from Australia and Indonesia.[10] The other major exporters to China are Mongolia, Canada and the US. All these countries do not use the Straits of Malacca for shipping the coal to China. The

balance imports of coal are from Colombia (5.3 million metric tonnes)[11] and South Africa (13 million metric tonnes in 2011).[12] In terms of energy criticality and per day consumption, this amount is negligible and can easily be compensated locally by stepping up domestic production in crisis.

Natural Gas, Renewable Energy and Others

Natural gas contributes to 4.6 percent of the total energy consumption, of which almost 84 percent is produced domestically.[13] China consumes 130.9 billion cubic metres of natural gas (or 0.35 billion cubic metres per day at 2012 consumption rates) of which 102.7 billion cubic metres is produced domestically and 28.1 billion cubic metres (approximately 80 days requirement) is imported.[14] Major imports were from Australia (30 percent), Qatar (19 per cent) and Indonesia (16 percent) and Malaysia (13 per cent) in 2011.[15] Some natural gas imports have also commenced by pipeline from Turkmenistan (4.4 billion cubic metres or 13 percent) in 2011.[16] Thus a negligible quantity from Qatar and Yemen is likely to pass through the Malacca Straits. China has 2.01 billion cubic metres as commercial reserves and its capacity to stock additional reserves is much higher.[17] Besides, China has 1.9 trillion cubic metres of natural gas reserves.[18] In addition, by 2015, China plans to explore the potential of 200 billion cubic metres of shale gas.[19] Its shale gas reserves alone are estimated to be 25.1 trillion cubic metres enough to meet 'China's gas needs for next two centuries.'[20] These reserves are more than adequate to cater for any emergent needs in the event of a blockade or crisis. Renewable energy and nuclear energy, though increasing rapidly, only constitute a little over one percent and hydroelectricity constitutes almost 6 per cent of the energy pie. Being largely domestically produced, they have no relevance to the Straits of Malacca.

Oil

Thus, it is oil that caters for the balance 18 percent of the total energy consumption in China. Of this, about 45 per cent is domestically produced from onshore and offshore oil wells largely in North West China and the Yellow Sea. The remaining 55 per cent of the oil that is imported impacts one half of 18 percent or barely approximately 9 per cent of China's energy requirements.[21] It is this 9 percent or about 4.5 million bpd at 2011 consumption rates (approximately) that passes through the Straits of Malacca which are a cause of concern for China's energy security.

Alternate Means of Energy Security

What are the alternate sources or means that China has adopted to compensate for this loss through the Straits of Malacca? Some strategic experts argue that India dominates the SLOCs that pass through the Indian Ocean and the Indian Navy can easily enforce measures to block these vital oil supply lines that are critical to China's energy security. China appreciated the problem well in time, circumventing this predicament by two means - creating a viable Strategic Petroleum Reserve (SPR) and building oil pipelines. Prof Chen Shaofeng, a Chinese Scholar at Peking University believes the Chinese government has taken two major policy measures to reduce the reliance on the Straits of Malacca. Firstly, China has undertaken 'energy consumption-led measures'- pricing, environmental protection, improved public transportation and tightening rules for the automobile industry; Secondly, 'energy supply side measures'- seeking other transportation routes to bypass the Straits of Malacca, diversifying oil import sources and building oil stockpiles.[22] He believes that, 'the risk that China is facing in the Straits of Malacca tends to be exaggerated. China's countermeasures, though economical, are conducive to mitigating its reliance on the Strait of Malacca'.

Strategic Petroleum Reserve (SPR)

Strategic Petroleum Reserve (SPR) is an emergency fuel store of oil maintained by a nation. The strategic oil reserve is crucial to China's energy security, essentially due to its limited domestic production and the extended SLOCs through which oil comes to China's shores. In the 12th Five Year plan, China pledged to 'reasonably plan energy infrastructure and improve oil reserve system.'[23] The country's lack of strategic oil reserves, became a matter of concern during the steep oil price surge from 2004-2007 which left Chinese oil companies with huge losses vis-à-vis others like US and Japan who maintain SPR of up to 100 days. Such large SPR stocks absorb the price shock and enable countries to take advantage of falling prices to build storages. But more importantly, SPRs double up as war reserves. The present daily consumption of imported oil by China is about 4.39 million barrels a day. As per its known plans, China intends to maintain an SPR of oil equivalent to 100 days of consumption at normal rates.

China began discussing the need for an SPR back in 1993 but construction of the first SPR project commenced only in 2004 in Zhenhai, Zhejiang Province with a capacity of about 102 million barrels. By 2009, all of the country's SPR projects were in operation, containing about a two-week supply of oil.[24] The oil that filled

the first SPR facilities averaged $58 per barrel, much lower than the average price during the period, thanks to the global financial downturn. In 2009, a second batch of SPR projects commenced construction, with a designed capacity of 169 million barrels. A third batch of SPR locations is going through the site-selection process. The third group of SPR projects will also have a capacity of 169 million barrels and is likely be finished by 2020. Thus, within a decade, China's SPR will have a capacity of about 100 days of imported consumption.

In 2007, China announced expansion of its crude reserves into a two-part system. Chinese SPR reserves would consist of a government-controlled strategic reserve and a mandated commercial reserve also called enterprise reserve.[25] It is important to note that although the SPR provides China with a measure of security on the oil supply front, the facilities themselves have long been monopolised by the big national oil companies. Sinopec has 50 percent of the capacity in the SPR and PetroChina has 40 percent- both being state owned. After much delay, in May 2010, several private enterprises were allowed to join the SPR business for the first time.

Enterprise Reserve

The planned enterprise reserve or commercial reserve by the Chinese government is 209.44 million barrels. Zhao Youshan, Head of the Petroleum Distribution Committee of the China General Chamber of Commerce, an industry group, submitted a proposal to harness 230 million tonnes worth of storage tanks, available with 600 private oil companies all over China. The contention was that in 2008, due to slump in oil prices, many private oil companies became broke and were unnecessarily spending on high maintenance costs of empty tanks. He suggested that the use of these idle private storage tanks could be a win-win situation for both the commercial enterprises and the government companies by using them to store national oil reserves.[26] A combination of the two gave a massive fillip to existing capacities, which far exceed the planned capacities and are readily available for immediate use with almost no investment by the government. Recent news reports indicate that six companies have won bids to participate in the SPR and they will contribute about 9.4 million barrels of storage capacity.[27]

China has been opaque on providing accurate data on energy issues. The International Energy Agency has repeatedly criticised Beijing for not publishing national oil stock volume figures, which are needed to calculate global oil demand. By collating data from various sources, it is believed that by the end of

2010, China's petroleum reserve capacity was enough for 39 days of consumption, comprising the SPR oil and a further 168 million barrels of commercial reserve capacity. Another report suggests that China has completed 103 million barrels of the first phase and the construction of Phase Two sites by 2012 and would have the remaining four Phase Two sites ready by 2013.[28] When China finishes filling its reserve of about 500 million barrels, it will equal to roughly three months of imports and the second-largest stockpile in the world.[29] Reports from *China Economic Weekly*, a magazine run by the official *People's Daily* suggest that China's total SPR capacity could increase to 85 million tonnes, or 621 million barrels, by 2020 when the three phases of storage facilities are completed.[30] At an appreciated import estimate of 5 million barrels a day by 2020, this would further enhance its capability to sustain disruptions or stoppages in oil to almost 125 days.

Pipelines

To overcome its strategic vulnerability of energy security, China has embarked on an ambitious project to acquire oil through various pipelines, which will enable it to mitigate this problem. These are

- Kazakhstan-China - 400,000 bpd (barrels per day).
- Eastern Siberian Pacific Ocean pipeline (ESPO) - 300,000 bpd.
- Myanmar-Yunan pipeline (not yet operational) - 200,000 bpd.
- Gwadar- Xianjiang pipeline (not yet operational) - quantity not known.

Kazakhstan–China Pipeline

The Kazakhstan–China pipeline is currently China's only operational overland oil pipeline project. In September 1997, the Chinese and Kazakh governments signed the General Agreement on the Project of Oil Deposits Development and Pipeline Construction. Built in two stages, the first stage of this pipeline was from Kenkiyak to Atyrau in 2002–2004, while the second stage from Atyrau to the Chinese border at Alashankou was completed by 2006. The China National Petroleum Corporation (CNPC) funded the construction cost of $806 million for the thousand-kilometre leg from Atasu to Alashankou, as well as the cost of a 252 km extension from Alashankou to the refinery at Dushanzi, also in Xinjiang. The pipeline is operated by a joint stock company called MunaiTas North-West Pipeline Company CJSC, which is backed by China National Petroleum Corporation and KazMunaiGaz. In August 2007, CNPC opened a 400,000-bpd-capacity crude oil pipeline from Shanshan in Xinjiang to the refining centre at

Lanzhou, in Gansu Province. This line, and a parallel oil products pipeline, will allow crude and refined products from Xinjiang to be shipped to Lanzhou and then into CNPC's existing pipeline network serving central and south-western China. The Kazakhstan–China pipeline will also be integrated with a new strategic petroleum reserve site under construction near Ürümqi, which will store fifty-one million barrels of crude once completed. This pipeline is a win –win for both as it ensures China gets 'secure and guaranteed' Kazakh crude while Kazakhstan gets to export its crude independent of Russia.[31]

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Eastern Siberian Pacific Ocean Pipeline (ESPO)

Since 2007, China has been importing oil from Russia by rail at an average of 300,000 bpd. Since this was twice the cost of moving the same by pipeline, in 2009, Chinese oil companies CNPC and Sinopec sought the construction of a 1035 kilometres long spur emanating from the main ESPO line from Skovorodino to Daqing in Heilongjiang province of Northern China at a cost of $436 million. China decided to finance the entire pipeline as almost 965 kilometres of its length is in China. Its capacity is initially to be 300,000 bpd to expand to 600,000 bpd in time.

While the project continues to be mired in delay due to internal politics in Russia, the deal is likely to fructify in the near future. There are of course strategic issues like the possible diversion by Russia and the profitability of the project which can be a potential source of friction, which will need to be overcome when such a situation confronts China.

The Myanmar-Yunnan Pipeline

This pipeline has two major aims

- Circumvent the dependence on the Straits of Malacca
- Open up Yunnan and Kunming to trade and access to the Indian Ocean

To be funded entirely by China, this pipeline from Kyaukphyu to Daling will have a highway and a railway alongside. Kyaukphyu itself is being entirely developed into a commercial port by China. The pipeline is proposed to initially transfer 200,000 bpd which will subsequently be increased to 400,000 bpd.

The Gwadar- Xinjiang Pipeline

This pipeline is still on the drawing board and is unlikely to be operationalised in the near to medium term.

Thus China has ensured plans to transfer anything from 900,000 to 1,400,000 bpd along these pipelines once these projects fructify. These would meet approximately 20 percent of the 5 million barrels per day import requirement by 2020.

Oil Trade on the High Seas

It is important to understand how oil is traded on the high seas to support the argument that it is extremely difficult to enforce an oil blockade against a target country considering the nature of trade of this commodity in the world market. Crude oil being fungible (i.e. it is tradable at any point along its supply chain), its trading is managed so as to get the best out of the market. Crude oil is normally sold two months in advance, i.e. it is shipped only two months later to the contract being entered to with the buying entity, via ship or through a pipeline. Most countries buying crude do so via state agencies, either as per long term inter-governmental contracts or by buying crude in the spot markets. Once a shipment or cargo lot has been purchased, the buyer/charterers arrange to hire a ship to load the shipment at a designated port within a designated date range. The choice of ship finally settled upon to lift the cargo would normally be arrived at basis costs, safety and record of the owners. The flag of the ship, if not proscribed, or otherwise likely to cause problems would not be a consideration for the charterer. Therefore, a case of a Saudi crude oil shipment, being loaded on an Iranian flagged tanker bound for China, with the consignee being any of the Chinese State Owned Enterprises (SOEs) is routine. En route to its being shipped, the cargo could be sold upon the high seas, with the cargo being delivered either to its original destination, or if the terms of hire of the vessel allow, be diverted as per emergent requirements of the new owner.

It has not been possible to prevent oil being traded to anybody who needs it and has been willing to pay extra for reaching it. This is despite the traditional sovereignty of a vessel's flag being infringed upon by emergent international regulations as a response to the advent of the Flags of Convenience (FOC) Convention – ostensibly with the aim to bettering safety and governance in international shipping. Consequently, all the major nations allow for strategic crude oil reserves to cater to any disruption of the supply chain, based on the likely nature of disruption and risk assessments.

In the India-China strategic context, geography has dictated that the Chinese SLOCs for sourcing of energy lie through the Malacca Straits i.e., the source of energy being the Persian Gulf. However, while apparently a Achilles heel, a closer evaluation of the problems attending the interdiction of oil flow to China via the Malacca straits or the large Indian Ocean region (Sunda and Lombok straits) throws up the issues of Freedom of Navigation of different Flags that may be used for reaching the cargoes to third countries or client states, from where it may be transhipped to mainland China. In any case, shipping consignment documents are easily changed to yield any destination of choice obviating the need for transhipment, unless a very stringent inspection regime is put in place, at the entrance to Malacca's or geographical choke points.

For oil interdiction to work it will require a blockade of Chinese ports which is beyond the capabilities of any Navy today. The only blockade that has worked in recent history was that enforced by the US Navy (USN) during the Cuban missile crisis, where there was overwhelming superiority of the USN backed by very strong political will, itself a product of vital US security interests being at stake. The case of oil interdiction as a viable threat to counter China is further weakened by Chinese strategic foresight and contingency planning, where it has been reliably published that they have strategic reserves for over a 100 days. This reserve allows them sufficient buffer to meet the requirements of any conventional conflict, especially one planned and executed on their terms and time lines, and provides them with sufficient time to press into service any alternate routes that they may have included as part of their contingency planning for supplying crude oil through the Pacific Rim countries of South America.

Therefore, given the nature of the oil transportation industry and its attendant practices in international shipping, it is relatively easy to circumvent any blockade which is not enforced at the point of interest, backed by physical verification and inspections. Similarly, for mid-sea interdiction the freedom of navigation and the shipping industry practices/processes would make any interdiction ineffective and unenforceable, apart from requiring a very strong case of international backing. The efficacy of any such interdiction efforts is likely to be nullified by the switching over to other geographical locations for sourcing of energy. In the short term it would not in any case dissuade any course of action that the Chinese state may plan on account of the strategic reserves that they would have at their disposal. Therefore, oil interdiction, or its threat is not likely to achieve any deterrence value on its own account and can be dismissed

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on that consideration. It may have a minimal value as one of the measures that may be taken recourse to by India.[32]

Oil Tankers

According to a recent report, China has placed orders for 50 oil super tankers at a cost of $ 4.5 billion. The order has been placed by three of China's biggest shippers, China Shipping Group, Dalian Ocean Shipping Co. and China Merchants Group.[33] This is part of the Chinese government's overall plan to have a fleet of 80 VLCCs (Very Large Crude Carriers) by 2020.[34] While it is difficult to confirm the exact details of the VLCC pool in China one report said that the Dalian Cosco ship company was the largest, owning 20 VLCCs.[35] One VLCC has a capacity of carrying 2.1 million barrels of oil. Thus, the Chinese capacity of holding crude oil afloat on its VLCCs is 42 million barrels and likely to increase to 168 million barrels (80 VLCCs) by 2020.

Summary

The total holding/stocking capacity of China by 2020 is likely to be

- SPR stocks - 500 million barrels.
- Commercial/enterprise stocks - 210 million barrels.
- Pipeline capacity - 1.4 million barrels per day.
- Oil tankers - 168 million barrels.

This does not include oil held ex trade with foreign tankers.

According to one report, China's oil consumption is likely to increase by 65 percent by 2030.[36] That would be about 15.25 million barrels per day.[37] Of this 55-60 per cent or about 9 million barrels a day would be imported. The stocking/storing capacity of China would be 878 million barrels while daily input due to inflow from pipelines will be 1.4 million barrels a day. In terms of days, 878 million barrels would be equivalent of 98 days (approximately 100 days) of imports at 2020 rates of consumption—all this, without a drop passing through the Straits of Malacca.

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Notes

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