IGF

INTERGOVERNMENTAL FORUM on Mining, Minerals, Metals and Sustainable Development

IGF Guidance For Governments: Leveraging Local Content Decisions for Sustainable Development

CASE STUDY

SINGAPORE: DOWNSTREAM LINKAGES

PROACTIVE EXPORT PROMOTION POLICIES AND INVESTMENT OF INCENTIVES

OVERVIEW

LEVEL OF OPERATION:
National

GOVERNMENT ROLE:
Regulator; program facilitator

FOR MORE INFORMATION:
See Economic Development Board; Jurong Island

KEY COMMODITIES:
Fish, deepwater ports[1]

TOTAL NATURAL RESOURCE RENTS (AS % OF GDP) (2015):
0.0 per cent[2]

NATIONAL EXTRACTIVES COMPANY:
N/A. However, Temasek Holdings, a holding company with the Singapore Minister for Finance as its sole shareholder, has shares in Repsol, S.A., Turquoise Hill Resources Ltd., and Pavilion Energy Pte Ltd.

UNDP HUMAN DEVELOPMENT INDEX VALUE (2016):
0.925 (Global Rank 38)[3]

Singapore's development since the 1960s has relied heavily on an export-led economic strategy supported by dedicated institutions providing guidance, fiscal incentives and a thriving financial and logistics sector. With little reserves of crude oil, the country has leveraged its unique geographical position as the gateway to Asian markets with world-class port infrastructure. It has attracted a number of large-scale oil refineries and petrochemical industries clustered in an export processing zone, making it the petroleum trading hub of the region.

Building on Royal Dutch Shell's initiative to set up a refinery to exploit the Asian market and taking advantage of its port facilities and strategic location in the Asia-Pacific region, the government

[1] Central Intelligence Agency (CIA). (2017). *The world factbook*. Washington, DC: CIA. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/fields/2111.html

[2] World Bank Group. (2017). *Total natural resource rents (% of GDP)*. Washington, DC. Retrieved from https://data.worldbank.org/indicator/NY.GDP.TOTL.RT.ZS

[3] United Nations Development Programme. (2016). *Human Development Reports: Singapore*. Geneva, Switzerland. Retrieved from http://hdr.undp.org/en/countries/profiles/SGP

implemented an export-driven industrial policy centred around refined oil products. The success over the years has been sustained thanks to the strong fuel consumption trends in rapidly growing Asian economies. Recognizing a shift in the region's product demand trends, the government has moved further downstream by developing the petrochemicals sector.

To implement its vision, the government has adopted a twin-track industrial strategy of keeping bureaucratic regulations to a minimum while building supportive dedicated institutions to attract, steward and support investments. This was coupled with generous fiscal and financial incentives. The industrial strategy also leveraged the power of industrial agglomeration with the Jurong Island Export Processing Zone (EPZ), which has attracted companies along the value chain, including in refining, storage and shipping. A thriving financial and service sector supports these activities. The model has allowed the industry in Singapore to differentiate itself from other emerging players in Asia by helping firms achieve operational efficiencies and cost reductions. Over time, oil trading has become a major sector in the country, granting Singapore its primacy as Asia's oil trading hub.

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THE PILLARS OF A SUCCESSFUL DOWNSTREAM POLICY

Singapore's success in attracting the downstream value chain of oil has its roots in the late 19th century, when the British Empire built three bulk storage tanks for kerosene on Bukom Island (belonging to the Singapore archipelago) for storing oil and supplying British operations in East Asia. They also invested in Singapore's port infrastructure and regional connectivity.

After independence from the British regime, in 1961 Singapore established a dedicated institution to promote industrial development and attract investment. The so-called Economic Development Board (EDB) was endowed with a budget of USD 100 million to design and implement policies to promote industrial investments in Singapore, foster enterprise opportunities in international markets and offer development financing options. The 1965 separation from the Federation of Malaysia, which for its part was pursuing import substitution strategies, empowered the EDB. It became the engine of Singapore's economic growth through an export-oriented industrial strategy. At the core of this strategy was the desire to build on the strategic comparative advantage in the oil industry built by the British Empire and to leverage Singapore's strategic port between the Indian Ocean and the Pacific Ocean.

In this context, the 1960s and 1970s saw the establishment of further supportive institutions to the oil-based export industry as well as the deployment of a fiscal incentive policy:

- In 1968, the EDB created the Development Bank of Singapore (DBS) to oversee capital financing for export-oriented industries (EOI), and the International Trading Company (Intraco) with the mission "to develop overseas markets for Singapore-made products and to source cheaper raw materials for local industries through bulk buying."[4]

[4] Rodan, G. (1989). *The political economy of Singapore's industrialization: National state and international capital*. International Political Economy Series. Palgrave Macmillan UK.

- Investment incentives included allowing companies to operate tax-free for the first five years of operation, removing import duties on equipment and raw materials needed as inputs, and reducing the corporate income tax rate to 4 per cent on export manufacturing companies.
- Investment attraction policies also relied on quick approval/licensing processes for private investment and large-scale government investments in advanced logistics infrastructure.

Complete corporate income tax exemptions in some cases were extended to 10 years or longer.

The deployment of export promotion strategies built on the auspicious context of the time: the refinery sector was attracted by fuel demand increase in Asia and lack of competing refineries in the region. Oil refining was cited as Singapore's "dominant growth industry between 1965 and 1969" as the island nation steadily rose to become the Asia-Pacific's leading port economy.[5] Singapore enjoyed a first-mover advantage to cater to the Asia-Pacific's fuel and specialty chemical needs.[6]

The first foreign company to invest was British-Dutch oil major Shell in the 1960s. It built a 20,000 barrel per day (bpd) refinery to service the Southeast Asian markets. Other oil companies followed, using and developing storage facilities in Singapore. Investments in refineries boomed during the years of soaring fuel demand coming from the American military's involvement in Vietnam. Singapore was a close partner of the United States, with the People's Action Party-led government having a strong anti-communist stance.[7]

Building on this momentum, the EDB continued offering fiscal incentives for the industries that it granted "pioneer" status, which included the oil refining sector. Complete corporate income tax exemptions in some cases were extended to 10 years or longer. These incentives, coupled with perceived political stability compared to its neighbours, helped strengthen Singapore's investment attractiveness in the 1970s.[8]

To benefit from the thriving sector, the government created the Singapore National Oil Corporation (SNOC) in 1980, which was responsible for managing energy resources and infrastructure, as well as stimulating economic growth in the oil downstream sector.[9]

USING THE "CLUSTER APPROACH" TO FURTHER DEEPEN DOWNSTREAM LINKAGES

In the 1980s, prompted by the realization that the oil business was volatile (after the two oil shocks), Singapore decided to move down the value chain and focus its efforts on developing the petrochemicals industry. At the core of this undertaking was the establishment of the Jurong Economic Zone on the Jurong Islands in 1983. This was partly motivated by the industrial land scarcity on the mainland. The Zone benefited from large infrastructure investments by the EDB. A roadway network was built connecting the seven islands. In a few years Jurong became the heart of the petrochemical industry, with companies clustering in the area. The industry benefited from being close

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5 Ibid.

6 Ng, W.H. (2013). *Singapore, the energy economy: From the first refinery to the end of cheap Oil, 1960–2010*. Routledge.

7 Ibid.

8 Meanwhile, neighbouring countries were experiencing mass conflict and political instability: Vietnam slipped into war in the late 1960s, Thailand's farming class led a revolution in 1970, and Indonesia was beset by a Communist purge in 1965.

9 Sharma, S., & Fesharaki, F. (Eds.). (1991). *Energy market and policies in ASEAN*. Institute of Southeast Asian Studies.

to feedstock from the refineries and having access to storage (Singapore has the largest bunkering port in the world, selling 48.6 million tonnes of bunker fuel) and world markets through the most advanced port in the region. In addition, businesses on Jurong benefited from service providers being located in close proximity. This cluster of inputs, services and expertise attracted companies like Shell and ExxonMobil to use Singapore port as a stockpiling centre and logistics hub.

The fierce competition within the Jurong cluster model reduced operational costs and increased efficiency of the sector. By 1995, Singapore's petrochemicals trade was valued at USD 11.7 billion and its export earnings reached USD 5 billion. In 2001, ExxonMobil invested USD 2 billion in a petrochemicals plant, and in 2006, Shell built a large petrochemicals complex boasting an 800,000 tonne per year (t/y) ethylene cracker on Bukom Island and a 750,000 t/y mono-ethylene glycol plant on Jurong.

The presence of these large-scale refining and petrochemical complexes attracted further industries. Companies such as Vopak, Hin Leong and Oiltanking that specialize in leasing out storage capacity settled in Singapore. The biggest oil trading firms, including Vitol, Glencore and Trafigura have their regional offices there. Singapore's dominant position as a trading hub in the region is best illustrated by Platts setting the "free on board" shipping price benchmark for refined oil products in Singapore.[10]

GROWING CHALLENGES IN THE REFINERY SECTOR

The booming demand from East Asia's economic development has sustained Singapore's refining industry. To keep up, Singapore has specialized in importing large volumes of crude from the Middle East, storing, blending and exporting liquefied petroleum gas, gasoline, jet fuel, diesel and a variety of other petro-products. However, Singapore's dominant market position in Asia is being challenged by a few factors:

- Competition: International oil companies (IOCs) are looking to establish and upgrade refineries in neighbouring countries as regional competition to host these industries has increased. Neighbouring countries seek to attract IOCs with lower labour costs and larger incentives. Even in terms of storage, the Philippines, China, India and Thailand are becoming more attractive destinations.

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- Environmental concerns: Growing social and political concerns about the negative environmental externalities from refineries and petrochemical plants have resulted in the scrapping of expansion plans. In accordance with Singapore's 2020 plan, the government is planning to introduce a carbon tax that could make refining a costlier activity.[11]
- Lack of space: The island is facing constraints of land availability, and there is limited room for expansion. The scarcity of storage space has resulted in increasing storage costs and longer turnaround times. Traders are therefore looking at alternatives, including China, South Korea, Malaysia and Indonesia.

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[10] Ramaswamy, E. (2007). Singapore's role as a key oil trading centre in Asia. *Energy perspectives on Singapore and the region* (pp. 31-41). Singapore: Institute of Southeast Asian Studies.

[11] Jaipuriyar, M. Mohanty, S. (2017). Analysis: Singapore can't afford to let oil exports lose edge despite carbon tax. *S&P Global Platts*. Retrieved from https://www.platts.com/latest-news/oil/singapore/analysis-singapore-cant-afford-to-let-oil-exports-27775455

As a result of a combination of these challenges and a worldwide trend, the refined petroleum industry has suffered production losses in recent years. Its output slumped from USD 57.2 billion in 2012 to USD 32.9 billion in 2015.[12] To address these challenges, the government initiated "Jurong Island Version 2.0" to further improve the special economic zone (SEZ) and boost investor confidence. In 2014, Jurong invested USD 950 million in increasing its storage capacity. Due to land constraints, the storage was built underground in rock caverns that can hold up to 147 million cubic metres of liquid hydrocarbons. Business responded positively with more companies investing in the SEZ. In 2015 the Jurong Island SEZ was home to over 100 petrochemical companies with an estimated USD 34 billion worth of investment. By January 2017 the petrochemical sector recorded a 37 per cent export growth rate.[13]

KEY LESSONS

- Political will backed by institutions and policy cohesion is key to developing downstream industries.
- Access to the raw resources is not essential to build downstream industries.
- In the right environment there are opportunities to move further down the value chain (in this case from refineries to the petrochemical sector).
- The evolution of Singapore toward further downstream value-addition (from the refinery to the petrochemical sector) reveals the government's capacity to adapt to changing market conditions.
- This evolution toward further beneficiation has been enabled by Singapore's comparative advantage (geographical position and port) and the government's proactive and visionary decision to create the supportive business and infrastructure environment (i.e., Jurong island).

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[12] Department of Statistics Singapore. (2017). *Yearbook of statistics Singapore, 2016*. Department of Statistics, Ministry of Trade & Industry, Republic of Singapore.

[13] Suratman, N. (2017). Singapore January petrochemical exports grow 37.1 percent on year. *ICIS News*. Retrieved from https://www.icis.com/resources/news/2017/02/17/10079939/singapore-january-petrochemical-exports-grow-37-1-on-year/

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