

PETROLEUM IN SINGAPORE 2003

1. IMPORTANCE OF JURONG ISLAND IN PETROCHEMICAL PROJECT M2000

Singapore is the third largest refining center in the world. Its total refining capacity is 1.2 million barrels per day. The development of the petrochemical industry in Singapore is a natural progression given Singapore's strong base in petroleum refining, which provides feedstock such as naphtha for the petrochemical industry.

Petroleum and petrochemicals were another base of Singapore's industrial and economic life. In the late 1980s, Singapore was the world's third largest oil-trading center and also the third largest center for petroleum refining. It was the second largest builder of drilling rigs, and its facilities for repairing and maintaining rigs and tankers were the most competitive in East Asia.

When oil prices began eroding in 1981 and collapsing toward the end of 1985, Singapore felt both negative and positive consequences. The collapse of oil prices dealt a severe blow to oil exploration. The impact was felt widely and immediately in everything from reduced orders for rig construction to lowered occupancy of luxury apartments as foreign petroleum workers returned home. With both of its immediate neighbors, Indonesia and Malaysia, heavily dependent on oil and gas exports for revenue, Singapore had a resulting loss of trade in both goods and services.

Singapore benefited, however, from the availability of cheaper energy, which in 1986 amounted to a savings of about S\$2.5 billion (US\$1.12 billion). Furthermore, Singaporean refineries invested in the equipment and technology necessary to enable them to refine a wide variety of crude oils and obtain a greater proportion of high valued products from the refining process. Petroleum refining alone made up 28 percent of Singapore's manufacturing output in 1985, although by 1988 it had dropped by half as a result of a decline in petroleum production and growth in other industries. Singapore also benefited indirectly when large oil importers such as Japan and the United States obtained higher real incomes from lower oil prices, enabling them to increase their imports from Singapore and other countries.

The petroleum, petrochemical and chemical industries are experiencing rapid growth in Asia. Singapore aims to create a competitive environment on Jurong Island to house these industries. The Jurong Island amalgamation project is one of the key initiatives under the program M2000 to develop a world-class chemical industry cluster. The Jurong Island project is implemented based on a total approach to industry development.

The Jurong Island project will amalgamate a group of seven small islands off the southwestern coast of Singapore into a single island. The island would house the petroleum and petrochemical industries by reclaiming the channels between them and extending into additional sea space. The seven southern islands are Pulau Merlimau, Pulau Ayer Chawan, Pulau Ayer Merbau, Pulau Seraya, Pulau Sakra, Pulau Pesek and Pulau Pesek Kecil. With an existing land area totaling a little less than 1,000 hectares, the intention is to create an additional 1,790 hectares of land through reclamation. This will form a land mass of about 2,790 hectares which will be available for industries.

In the 1960s, this group of seven small islands had been identified as the ideal location for heavy industries. It became home to several large oil refineries including Esso, Mobil and Singapore Refining Company (a joint venture between Caltex, BP and Singapore Petroleum Company), located on Pulau Ayer Chawan, Pulau Pesek and Pulau Merlimau respectively. In 1984, the first petrochemical complex in Singapore was established on Pulau Ayer Merbau. Petrochemical Corporation of Singapore, a joint venture between Shell and a Japanese consortium led by Sumitomo Chemical, operates the cracker in this complex. The downstream players in the complex include The Polyolefin Company, Phillips Petroleum, Ethylene Glycols Singapore, Denka, and Kureha Chemicals.

With these pioneers in place, it became logical that the surrounding islands, when amalgamated, would be suitable for the development of a petroleum and petrochemical hub. The physical clustering of related chemical industries provides strong opportunities for industry integration and other benefits arising from economies of scale.

In 1991, the government approved the amalgamation plan at an estimated total direct development cost of S\$7 billion. This was a direct response to the identification of the chemical industry as a key growth sector, contributing significantly to the Singapore economy. The idea was to reclaim the land in phases to keep pace and to meet the projected demand of the industry. The original schedule for the final phase of the reclamation was year 2030. However, with increasing demand from these industries over the past two years, the reclamation has progressed ahead of schedule. The completion of Jurong Island is now targeted for the year 2003. Singapore is well positioned to play a key role in the growth of Asia-Pacific's petrochemical industry with an integrated hub on Jurong Island. Many multinational companies are already enjoying the benefits of locating on Jurong Island.

Companies that have recently announced their intention to locate on Jurong Island include a Sumitomo led consortium (acrylics complex), Eastman Chemical (oxoalcohols), Chevron (lube additives), Asahi (polyacetal resins), Poval Asia (polyvinyl alcohol), Denka (acetylene black, polystyrene) and Lonza (purified isophthalic acid).

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