

free case

This case was prepared by Wee Beng Geok, Associate Professor, Division of Strategy, Management and Organisation and Director, Asian Business Case Centre and Ivy Buche, Research Associate. It was written as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation. ©2007 Nanyang Technological University, Singapore.



Keppel Offshore & Marine

Riding the Waves of Change

In mid-2006, the search for new oil reserves in the world's ocean beds continued unabated as crude oil prices rose to US\$60 per barrel from US\$25 per barrel in September 2003. Oil drilling companies raced to acquire new equipment and facilities for offshore exploration and production. Keppel Offshore & Marine Ltd (Keppel O&M), a Singapore-based marine engineering group, was a major beneficiary of this boom. As the world's leading builder of jack-up rigs, semi-submersible rigs and floating production facilities, its orderbooks were full till 2010, with new building projects totalling S\$7.3 billion.

Keppel O&M was well-positioned to meet this demand with its range of marine engineering and project management capabilities as well as a suite of proprietary offshore engineering technology. It was a pioneer in the conversion of tankers into floating production and storage facilities (FPSOs). These special floating structures were considered as cost effective alternatives to laying undersea pipelines for transporting crude oil to shore. In the current offshore oil boom, FPSOs emerged as the main method for producing, storing and offloading oil from deep ocean sites.

The marine engineering group had a network of 17 shipyards, spanning major oil-producing areas in the world, from Singapore to United States (US), Brazil, the Netherlands, Norway, United Arab Emirates (UAE), Azerbaijan, Kazakhstan, Philippines and China. It was a global leader in the design and construction of offshore rigs, building 48 percent of global jack-up rigs and 39 percent of semi-submersible drilling platforms worldwide¹. It also had a well-established division in ship conversion and repairs. As a specialised shipbuilder of small customised vessels, it built ice-class floating support platforms, anchor handling tugs, ice-breaker ships, cable ships and other multi-purpose support vessels used in offshore oil search and production.

However, high oil prices had resulted in an increase in speculative orders for new rigs and Keppel O&M's Chairman & CEO, Choo Chiau Beng, noted: *We have experienced huge cycles in rig building before and the downturn will come again. These super-high oil prices are the froth; they create a lot of speculative activity which is not very good for a long-term player like us. As a longer-term player, we like oil prices to be stable, maybe around OPEC's target of US\$40-US\$50 per barrel is a good price. We don't like huge oil price jumps to US\$70-US\$80; we don't get any benefit, only the speculators benefit.*²

Competitive Environment

Competition was intense as many conventional shipyards, attracted by the high margins, were moving into the offshore construction market. They included major South Korean shipyards, who, with their large engineering infrastructure and capabilities, were formidable competitors. China-based marine groups had a cost advantage, with lower raw material and labour costs. China was also developing its own oil and gas resources. Drilling contractors generally preferred established offshore builders with proven records for timely completion/delivery of rigs but in 2006, with many orderbooks full, they were placing orders with the newcomers.

Offshore construction was a resource-intensive business in terms of facilities, funding and capabilities. While resource capacity placed serious limits on revenue growth, investments in new capacity needed several years in lead time before coming on-stream. New investments had to be weighed against the continuous and disruptive changes that were regular features of the industry. In the past, the glut in vessels and rigs due to overbuilding had aggravated downturns in the shipping cycles. The ongoing challenge for Keppel O&M was: how to exploit current business opportunities while managing the long-term growth prospects in this industry?

Company Background

Keppel O&M began in 1968 as Keppel Shipyard Pte Ltd, a commercial company set up by the Government of Singapore. An outcome of Singapore's transition from British colonial rule to a politically independent state, Keppel Shipyard took over the assets of the British-run Dockyard Department of the colonial port authority.

Singapore Government's brief for the management of the newly formed company was: ***"to reorganise, rationalise and expand (or hive off) facilities to meet the target which any private investor would expect in a dynamic industry"***.³ During its first four years, boosted by a growing port, Keppel Shipyard's revenues grew from S\$33 million in 1969 to S\$44 million in 1970.

In the early 1970s, very large crude carriers (VLCC) were introduced to transport crude oil from the Arabian Gulf to the Far East, Western Europe and the US. With its strategic location at the mid-point of many tanker routes, Singapore became a convenient stopover for VLCC repairs which became a mainstay of the local shipyard operators, including Keppel Shipyard.

In 1973, a local management team took over the reins

at Keppel Shipyard. With its drydock facilities sandwiched between growing port facilities, there was very little room for expansion. Without larger drydock space, Keppel Shipyard would find it increasingly difficult to service the growing (both in size and numbers) VLCC fleet. To address this, the management commenced building a 360,000 dead weight tonnes (dwt) drydock on the western end of Singapore, at a cost of S\$90 million.

Keppel Shipyard also acquired a majority stake in a local company, Far East Levingston Shipyard (FELS), a pioneer of Singapore's then nascent offshore construction business which serviced the offshore oil exploration and production operators in the region.

Oil Shocks

In October 1973, as part of a political strategy, OPEC cut oil production and placed an embargo on shipments of crude oil to the west⁴. The price of oil quadrupled to nearly US\$12 per barrel in 1974. The shock triggered a severe global recession and the shipping and tanker charter markets collapsed. By 1976, hundreds of oil tankers were laid up or sent to the breakers without ever carrying any cargo.

The opening of Keppel Shipyard's new drydock facility coincided with the drop in demand for tanker repairs and servicing. Together with other drydock investments by Singapore shipyards, an additional two million dwt of dry dock capacity had poured into the market during this time (1975) and shipyards in Singapore struggled to find jobs to fill their facilities. A price war ensued and many of the smaller shipyards were forced to close. Keppel Shipyard went on an acquisition path, buying up smaller private shipyards and other marine-related companies. It also ventured abroad, setting up a shipyard in the Philippines, funding these investments through the issue of company bonds in 1975, 1976 and 1977, with the first two issues guaranteed by the Singapore Government.

FELS, the rig building arm of Keppel Shipyard, was not spared the effects of the oil crisis. After it had incurred heavy losses in 1978 and 1979, Keppel Shipyard moved to assume management and operational control of FELS in 1980.

By the end of the 1970s, the shipping industry seemed to be on the uptrend as many economies came out of recession. The ship repair industry recovered in tandem and demand for ship repair work grew, especially for VLCCs. To comply with international anti-pollution measures, shipyards were retrofitting tankers according to the new standards.

In 1979, another oil shock was building up. The political fallout from the Iranian Revolution caused oil prices to reach US\$39 per barrel in 1980. With Iraq's invasion of Iran, oil production was severely affected. This accelerated the pace of offshore oil exploration elsewhere and drilling contractors seized the opportunity to invest in new rigs and other exploration and production vessels. By then, a cluster of offshore construction companies, both international and locally-owned, were busy building rigs and other offshore construction facilities in Singapore. A total of 65 jack-up rigs (out of 300 worldwide) built by these companies during this period established Singapore as a global jack-up rig building centre. The marine industry in Singapore hit new revenue highs of S\$2.4 billion in 1981.

However, rising oil prices triggered a worldwide economic recession, dragging down world trade. The global shipping market began slowing down in 1981 and by the following year, a worldwide shipping recession lasting five years, dealt a severe blow to shipyards around the world. The global marine industry entered its worst slump ever and many shipyards around the world, particularly in high-cost European centres, ceased operations. In Singapore, it caused a hollowing out of the industry.

Offshore oil exploration and production activities slowed to a trickle. As demand for drilling services fell, so did rig utilisation and consequently, many of the global drilling contractors worldwide went bust. With little prospects of new rig building work and empty orderbooks, only eight out of the 82 rig building yards worldwide were left at the end of the recession.

With almost S\$100 million raised from an initial public offering on the Singapore Stock Exchange in 1980, Keppel Shipyard's response to the shipping slump was a diversification strategy out of the shipbuilding and repair business. In 1983, in a major acquisition exercise, it acquired Straits Steamship Group, an established company based in Singapore and Malaysia, with strong property business, traditional shipping services and oilfield engineering services.

However, the deep recession affected the overall Singapore economy including the property sector. The acquisition of Straits Steamship saddled Keppel Shipyard with S\$845 million debt and the prospects of an annual interest bill of about S\$75 million. This was a crucial turning point for the shipyard and it brought about a major reassessment of its operations and business model. It then embarked on a major organisational rationalisation plan to increase productivity and efficiency.

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New Strategies

To compete with new low-cost repair centres emerging in Asia and the Middle East, the shipyard turned to higher value-added work. The ship repair division focused on developing and marketing its capabilities in complex repair and retrofitting work, including the conversion of older ships into FPSOs, ship jumboisation (extending the size/capacity of a vessel) and other specialised modifications.

When international rig builder Marathon Le Torneau closed its Singapore operations in 1985, FELS signed a licensing agreement to build Marathon rigs in Singapore, stepping beyond its previous role as an offshore contractor to take on turnkey projects (which required more complex engineering and design works). Again, when Mitsubishi Shipyard of Japan decided to close its Singapore operations, FELS took over its shipyard land lease which included a 400,000 dwt drydock, then the largest in Singapore. It converted the facility for rig building at a fraction of the cost that it would have to pay for a new one.

Further in 1983, Keppel Shipyard moved into the industrial engineering business, tapping on excess engineering manpower caused by the marine slump and upgraded its steel workshop infrastructure. By 1985, the new division had secured local public work contracts worth S\$100 million as well as overseas engineering projects. This business unit grew into the group's industrial engineering core business by the early 1990s. It also forged ahead into the financial services business, obtaining a license to operate a finance company as well as acquiring stakes in a local bank and a finance company in 1983.

Weighed down by oversupply, oil prices fell to US\$13 per barrel in 1986 (from US\$39 per barrel in 1980) and the world economy recovered. A mini-boom in tanker repairs followed, aided by an ageing oil tanker fleet worldwide. Keeping an eye on costs, Keppel Shipyard continued its overseas expansion to lower cost regions, buying another shipyard in the Philippines in 1988. In 1990, a third oil crisis hit the world as a result of the first Gulf War. As oil fields of Kuwait were set on fire, oil output fell and oil prices hit US\$40 per barrel.

Shipyard in the Doldrums

Consequently, by 1992, another downturn swept across the global shipping industry, including the tanker charter markets. Keppel Shipyard, still highly dependent on VLCCs repairs, was caught in a downward spiral of jobs and customers. Operating costs climbed due to new environmental pollution control regulations and rising wages in Singapore's fast growing economy. A strong Singapore dollar further eroded Keppel Shipyard's price competitiveness.

By then, the shipyard division was only one part of Keppel Corporation Limited, a conglomerate that it had spawned. FELS remained as the offshore construction division while two new core businesses started in the previous decade, Property Development (under Straits Steamship) and Financial Services, grew steadily. By the end of the 1990s, the combined

contribution from these two businesses eclipsed that from the marine, offshore construction and engineering. (See Table 1)

FELS began setting up operations in major oil-producing regions in the world in a new move to reach out to customers in the global offshore oil drilling industry. In 1990, it acquired a stake in a US-based rig builder in Texas, giving it access to drilling contractors and oil companies operating in the Gulf of Mexico. In 1994, it set up a design and engineering base in Bulgaria to serve the Black Sea region. Further, in 1997, it moved to the Caspian Sea region, setting up a shipyard in Baku, Azerbaijan. In 2000, it started a joint venture - FELS Setal in Brazil - which revived operations of two abandoned shipyards, thus setting up its first operations base in South America. Subsequently, it bought over the shares of its Brazilian partner in 2004 and the 100 percent-owned subsidiary was renamed Keppel FELS Brazil. (See Table 2)

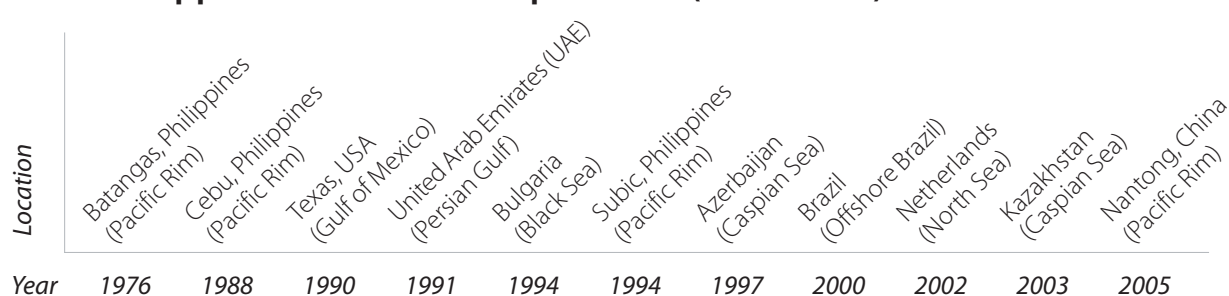
With the global offshore construction business contingent on oil prices, the parent company sought to buffer the irregular revenue streams in the public listed FELS. In 1999, in an organisational restructure, Keppel FELS⁵ was integrated with the group's land-based engineering units, to form Keppel FELS Energy and Infrastructure (KFEI), comprising offshore and industrial engineering as well as petroleum refining and distribution.

Table 1 Keppel Corporation: Contribution of Core Businesses to Revenue

Core business	% Contribution to revenue			
	1990	1999	2002	2006
Ship repair	41	16	35	76
Offshore Construction	25	20		
Engineering/Infrastructure	9		12	7
Property	5	25	6	15
Financial Services	14	34	-	-
Investment and Others	6	5	47	2

Source: Keppel Corporation Ltd Annual Reports 1990, 1999, 2002 and 2006

Table 2 Keppel O&M: Overseas Operations (1976-2006)



In the same year, the group's ship repair operations merged with Japanese-owned Hitachi Zosen Singapore, creating Keppel Hitachi Zosen Ltd (KHZ), the second largest shipyard group in Singapore.

Boom Time in the New Millennium

The global marine engineering business began its uptrend in the early years of the 21st century. As the pace of industrialisation of Asia's two giants, China and India quickened, so did the demand for oil.

Up till the end of the 1990s, the two marine engineering businesses, offshore construction and ship repair, had been regarded worldwide as two distinct businesses with different markets and customers. As advances in offshore technology and the economics of oil exploration and production moved in favour of floating solutions in offshore drilling, the lines between the two market segments blurred. For the Keppel group, a rationalisation of the marine engineering businesses would increase operational flexibility, allowing effective leverage of complementary engineering capabilities, facilities and infrastructure. The challenge was to merge the two public listed companies (KFEI and KHZ) that operated the two businesses.

In 2001, as a result of Singapore Government's decision to restructure the local banking industry, Keppel Corporation divested its Financial Services division to a local bank for S\$5.2 billion in cash. With the proceeds, it privatised KFEI and KHZ, and merged the shipyard and offshore construction businesses into a new entity - Keppel Offshore & Marine Pte Ltd (Keppel O&M) - as a wholly-owned division of the Keppel Corporation.

With this, Keppel O&M could implement its strategy of capacity maximisation based on innovative and opportunistic allocations of work among its facilities across the world. Hence, a rig could be designed, cut and put together in different locations, freeing the group from the capacity limitations faced by dedicated rig building yards: ***By bringing 17 yards in one centrally controlled and yet locally managed system, we have been able to respond swiftly to changing market conditions.... Protecting market share is important, and we will continue to do that, but our real challenge lies in how we continue to differentiate ourselves from others to be the best in the industry.***⁶ Tong Chong Heong, MD & COO, Keppel O&M

Keppel O&M leveraged Keppel FELS's capabilities in rig building and design, including its suite of production design solutions. It tapped on Keppel Shipyard's in-house capabilities in re-building older vessels into dependable

workhorses for offshore oil drilling and extraction activities. The project management capabilities from both and an overarching organisational culture also contributed to its ability to respond and change directions quickly. Within five years, Keppel O&M's revenue tripled from S\$1.9 billion in 2002 to S\$5.75 billion in 2006, which accounted for 76 percent of Keppel Corporation's 2006 revenue of S\$7.6 billion.

Looking into the Future

Over the last four decades, Keppel O&M had continually reinvented its business model, responding to abrupt changes in an uncertain environment shaped by OPEC's oil policies, political upheaval in oil-producing countries as well as global shipping cycles. With a business philosophy based on innovative market and product development solutions, and a strong focus on project execution, the group had positioned itself to take full advantage of rising oil prices since 2004.

Its "Near Market, Near Customer" strategy not only involved progressive and opportunistic development overseas but also, building up international engineering capabilities and continuing reconfiguration of the various components of its marine engineering businesses. This gave Keppel O&M a first-mover advantage in its competitive environment. Looking ahead, Choo Chia Beng remarked: ***There are increasing numbers of entrants, while new oil and gas fields are being developed, particularly in harsher environments. National oil companies are expanding their roles. The challenges include environmental considerations, rapid development of new technologies, rising costs of infrastructure and services and a shortage of skilled manpower.***⁷

Which of these could halt or accelerate Keppel O&M's current growth momentum? Which would be critical in shaping its future directions?

Notes:

- 1 Behrmann, N (2006, November 16). Keppel steaming ahead with confidence. *Business Times*, Singapore.
- 2 Urquhart, D (2006, November 27). Keppel O&M eyes more deals with Gulf Drilling. *The Shipping Times*, Singapore.
- 3 Spoken by Hon Sui Sen, the first chairman of Keppel Shipyard Pte Ltd.
- 4 As a result of the ongoing Yom Kippur War, OPEC (Organisation of Arab Petroleum Exporting Countries) declared that they would no longer ship petroleum to nations (United States, its allies in Western Europe, and Japan) that had supported Israel in its conflict with Syria and Egypt.
- 5 In 1997, FELS was renamed Keppel FELS.
- 6 Keppel Offshore & Marine. *Report to Stakeholders 2005*.
- 7 Keppel O&M celebrates five years with 300 percent increase in revenue. (2007, May 2). *Keppel Corporation - Press Release*.