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PERSPECTIVE

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Malaysia's Oil and Gas Sector: Constant Expectations despite Diminishing Returns

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A general view shows the Petronas Twin Towers (centre) and other commercial buildings, as seen from KL Tower, in Kuala Lumpur on 24 July 2020. Photo: Mohd RASFAN / AFP.

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EXECUTIVE SUMMARY

- Malaysia has long been dependent on the oil and gas (O&G) sector for a range of purposes. Not least, the state relies on income from the sector to provide a substantial proportion of public revenue.

- However, while expectations of the O&G sector have been constant, possibilities of endlessly tapping this resource to underpin public spending, continuously boost GDP, and promote domestic entrepreneurship are rapidly diminishing.

- There are a range of reasons for this, including the growing size of the Malaysian economy relative to that of the O&G sector, frequent price shocks, and the structural decline of the fossil fuel industry.

- These unchanging expectations also place considerable pressure on Petronas, the state-owned petroleum giant, to continue making substantial contributions to public coffers. Unless mitigated, this threatens the ability of the firm to remain viable and to stay at the technological forefront.

- Going forward, Malaysians may have to revise their expectations of the sector in general and of Petronas in particular.

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INTRODUCTION

Since the oil and gas (O&G) sector's take-off in the 1970s, this natural bounty has yielded myriad benefits to Malaysia. While not falling into the 'resource curse' of an unquestioned reliance on natural resources, the O&G sector is nonetheless a key enabler for many aspects of the country's economy and public finances.

Malaysia's current account shows the significance of the sector, which has long accounted for a sizable proportion of merchandise exports and foreign exchange earnings. In 1990, for instance, the country's global exports of fuel and derived products totalled US$5.4 billion and made up 18.3 per cent of all merchandise exports. In 2019, just before the COVID crisis struck, the corresponding figures were US$34.5 billion and 14.5 per cent.[1]

Beyond those in the country's ledgers, indications of the O&G sector's skyrocketing success are everywhere – most visibly in the country's much-vaunted infrastructure. Examples include but are not limited to: the Petronas Towers, the erstwhile tallest buildings in the world and centrepiece of Kuala Lumpur's skyline; Putrajaya, the country's administrative capital; and the Kuala Lumpur International Airport.[2]

The sector has also underpinned many of Malaysia's economic nationalist aspirations. Today, the government-owned corporate giant, Petronas, is a source of pride and, in 2021, was the nation's sole Fortune Global 500 company. The government has also sought to foster an eco-system of local firms in the O&G sector to diversify the economy and foster more technologically-intensive tasks. And, when demand calls, it has used the country's national flagship firm to bail out capsizing corporate captains.

However, there are growing signs that, going forward, the sector will no longer be able to play such an outsized role. One statistic suffices to illustrate this trend. In 2009, as much as 40 per cent of government revenue was derived from O&G-related sources; in 2021, however, the corresponding figure had plummeted to a mere 19.2 per cent.[3]

Despite the O&G segment's prodigious potential, it faces a number of structural constraints and policy challenges. In order to analyse these, this paper will first set out the historical development of the sector and the Malaysian government's long-term policy objectives. The subsequent sections will look at the key challenges facing the sector and then conclude.

BACKGROUND

Malaysia's tryst with oil and gas began more than a hundred years ago, when Shell discovered the first oil well in Sarawak in 1910. However, in the following decades, production remained limited. This was because drilling for oil was not particularly lucrative, given the offshore location of many of the country's oil deposits and relatively low international prices for the commodity.

However, technological improvements in the early 1960s led to the discovery of many more oil fields in Sarawak, which piqued the interest of major foreign players such as Shell, Esso, and Conoco. Under the Continental Shelf Act of 1966, these companies were allowed to operate concessions in return for royalties and tax payments.[4]

These arrangements changed radically in the 1970s. The 1973 Organisation of Petroleum Exporting Countries (OPEC) Oil Crisis underscored the importance of sovereign control over energy resources, whilst highlighting their revenue-earning potential. This, coupled with growing economic nationalism in Malaysia, led the government to secure greater control over the O&G sector and renegotiate production agreements with the international oil majors.[5] The drive was also influenced by the country's National Economic Policy (NEP) of 1971, which proposed 30 per cent ownership of corporate wealth by indigenous groups to encourage their equitable participation in commerce.[6]

The dynamic local and global O&G landscape led to the formulation of the Petroleum Development Act (PDA) in 1974, which bestowed the central government with formidable authority and laid out the regulatory framework for the sector. This was followed by the establishment of Malaysia's national oil company, Petroliam Nasional Berhad (Petronas).[7] The entity was incorporated as a private company wholly-owned by the Malaysian government, holding exclusive rights of the ownership, exploration, and exploitation of oil and gas in the country.[8] Petronas answers directly to the Prime Minister.[9]

Petronas then renegotiated the leases granted to international firms operating in Malaysia with production-sharing contracts (PSCs). In 1976, the company went downstream for the first time and Malaysia became a net exporter of oil, reinforcing the enterprise's primary objective, national self-reliance.

During the worldwide oil glut of the 1980s, the government was forced to increase production and relax the conditions for joint ventures between Petronas and other global oil companies. Over this period, the state-owned giant also forayed into refining and distribution.[10] The discovery of additional oil fields and the completion of the Petronas LNG complex helped the firm secure a comfortable spot in the Fortune Global 500 list.[11]

Throughout the 1990s, Petronas, in an attempt to establish its presence beyond Malaysian shores, began making inroad investments in emerging ASEAN economies, including Myanmar, Cambodia, Thailand, and Vietnam. Escalating its diversification efforts, the company ventured into the aromatics industry, liquefied petroleum gas (LPG) distribution, polyethylene production, ship-owning, and the development of the Kuala Lumpur City Centre.

At the turn of the century, Petronas further boosted its internationalisation strategy, forming significant upstream and downstream sector agreements with countries in the Middle East, Africa, Europe, and Asia. The firm also initiated risk-sharing service contracts to develop Malaysia's marginal oil and fields and began consolidating the national petroleum industry to mitigate the impact of global oil price fluctuations.[12]

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POLICY GOALS AND FRAMEWORKS

The goals for the O&G sector were laid out in the 1974 PDA, which were to:

1. Secure more control over the country's petroleum resources;
2. Provide the commodity at affordable prices in the local market to boost the growth of capital- and energy-intensive activities; and
3. Foster upstream and downstream linkages as well as the participation of local operators in the sector.[13]

Over the decades, subsequent plans such as the *1st*, *2nd*, and *3rd Industrial Master Plans*, the 2010 *Economic Transformation Programme*, and sector specific initiatives have all retained these themes, namely enabling the sector to grow, retaining ownership control over key aspects of the production process, promoting more capital- and skill-intensive activities, and fostering domestic entrepreneurship.

More recent plans also maintain these objectives in light of new developments. For example, the *National OGSE Industry Blueprint 2021-2030* seeks to create a 'robust, resilient, and globally-competitive' Malaysian oil and gas, services and equipment (OGSE) sector that can improve national GDP growth, sector employment, export development, and fiscal contribution. Its successful implementation is anticipated to significantly ramp up the sector's contribution to national GDP by the end of the decade. In order to do so, the masterplan emphasises the need to consolidate the industry, simplify licensing schemes, and set up multiple research and development (R&D) centres throughout Malaysia.[14]

In the same vein, Petronas' *2022–2024 Industry Activity Outlook* report underscores the urgency of the oil and gas sector to expedite the energy transition process in the face of growing global resistance to traditional oil and gas businesses. The document anticipates a very gradual and fragile recovery from the COVID-induced economic slowdown and, therefore, draws attention to cost-effective innovations being readied to be employed throughout the sector. Its key targets include: promoting renewable energy opportunities among OGSE players; supporting Petronas Ventures, the firm's venture capital arm, in driving technological change; and using efficiency as a tool to maximise assets and improve operations to maintain a competitive edge over regional players.[15]

THE OIL AND GAS SECTOR IN MALAYSIA TODAY

Today, Malaysia is the second-largest oil producer in Southeast Asia and the world's third largest exporter of liquefied natural gas (LNG). At the end of 2020, the country held proved oil reserves of 2.7 billion barrels and natural gas deposits totalling 32.1 trillion cubic feet.[16] Figure 1 depicts a snapshot of the country's oil and gas reserves, located mainly offshore in the South China Sea, near the coasts of the states of Kelantan, Terengganu, Sarawak, and Sabah.

Since its inception, Petronas has held exclusive ownership rights over all oil and natural gas exploration and production activities in the country. Among the prominent international oil production companies currently operating in Malaysia are Shell, ExxonMobil, and

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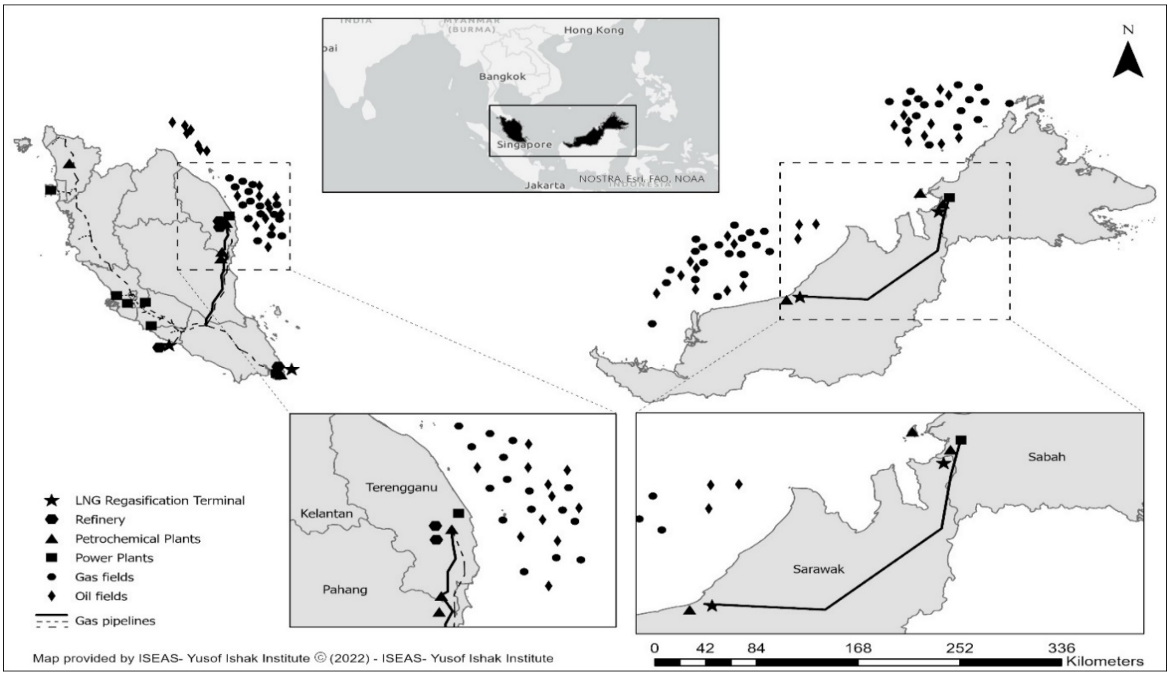
ConocoPhillips. According to data compiled by the US Energy Information Administration (EIA), in 2020, the country's total liquid fuel production was close to 655,000 barrels per day (b/d), of which about 556,000 b/d was estimated to be crude oil and 49,000 b/d was natural gas plant liquids (NGPL).[17]

Figure 1: Malaysia's Oil and Gas Landscape, 2020



Source: Authors' creation based on data from Petronas (2020).

Contribution to Exports

Since the 1970s, and especially after the formation of Petronas, Malaysia's fuel exports – as a percentage of total merchandise exports – have remained fairly steady. This has formed a key part of Malaysia's export basket and has constituted a reliable source of foreign exchange. However, fuel exports have dipped during times of oil price slumps due to unfavourable external conditions (Figure 2). For instance, sharp drops were observed during the mid-1980s oil glut, the 1997-98 Asian Financial Crisis (AFC), the 2014-16 oil price crash, and the 2020 COVID-19 pandemic.

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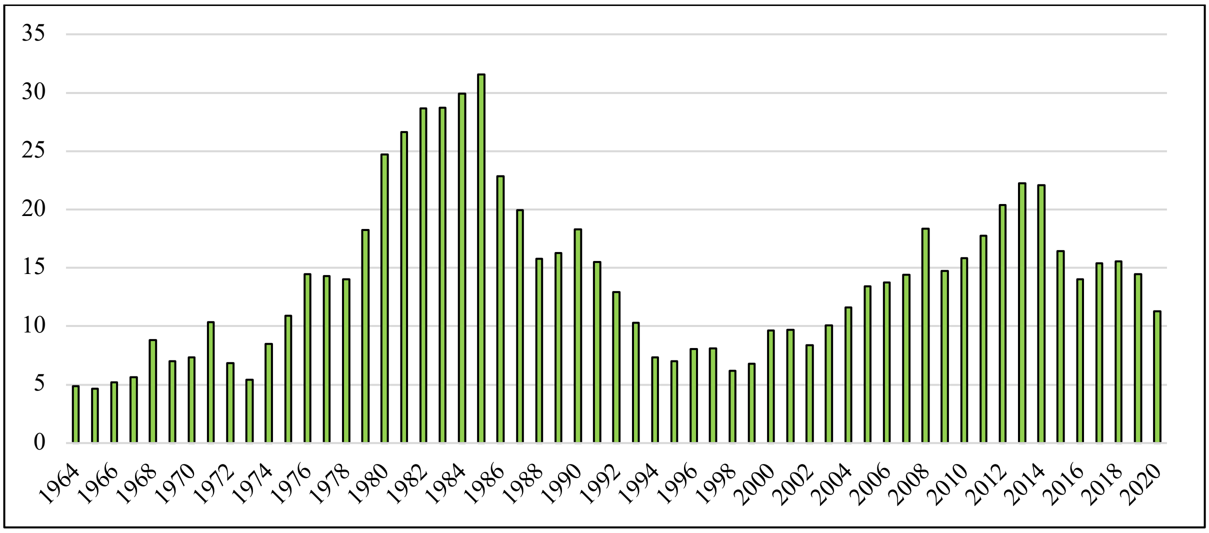
Figure 2: Malaysia's Fuel Exports (as Percentage of Total Merchandise Exports), 1964 – 2020



Source: Authors' creation based on data from the World Bank.
Note: Fuels comprise mineral fuels, lubricants, and related materials.

Fiscal Contribution

In addition to the oil and gas sector being an important growth driver of the national economy, it is a vital source of revenue for the government. This fiscal contribution comes in a variety of forms, which are:

1. Petroleum Income Tax (PIT) paid by petroleum-related firms;
2. Royalties from petroleum and gas companies;
3. Export duties on petroleum products; and
4. Dividends remitted by Petronas.[18] [19]

Tables 1a and 1b present the changing composition of oil and gas revenue over the past 50 years. The first three revenue sources are long-standing. However, since the mid-1980s, Petronas has paid dividends to the Malaysian government. From around 15 per cent in 1985, this has increased to approximately half of the total of petroleum-related revenue in recent years. Consequently, the relative importance of established contributions such as the Petroleum Income Tax and Petroleum and Gas Royalty have decreased in relative importance, and the more variable – and more discretionary – Petronas Dividend has become the largest source of oil-related revenue over time.

Table 1a: Breakdown of Malaysia's Total Oil and Gas Revenue (in RM Million), 1975 – 1995

Revenue Component	1975	1980	1985	1990	1995
Petroleum Income Tax (PIT)	322 *[80.5%]*	1,736 *[63%]*	3,130 *[49.5%]*	2,644 *[35%]*	2,185 *[32.5%]*
Petroleum and Gas Royalty	78 *[19.5%]*	345 *[12.5%]*	619 *[9.8%]*	627 *[8.5%]*	710 *[10.5%]*
Petroleum Export Duties	0	677 *[24.5%]*	1,639 *[26%]*	1,910 *[25.5%]*	751 *[11%]*
Petronas Dividend	0	0	930 *[14.7%]*	2,300 *[31%]*	3,100 *[46%]*
Total O&G Revenue	400	2,758	6,318	7,481	6,746

Table 1b: Breakdown of Malaysia's Total Oil and Gas Revenue (in RM Million), 2000 – 2020

Revenue Component	2000	2005	2010	2015	2020
Petroleum Income Tax (PIT)	6,010 *[46.7%]*	14,566 *[47.2%]*	18,713 *[33.8%]*	11,559 *[26.5%]*	20,800 *[41%]*
Petroleum and Gas Royalty	1,763 *[13.7%]*	3,293 *[10.7%]*	4,900 *[9%]*	5,142 *[11.8%]*	4,300 *[8.4%]*
Petroleum Export Duties	996 *[7.7%]*	2,029 *[6.6%]*	1,745 *[3.2%]*	989 *[2.2%]*	800 *[1.6%]*
Petronas Dividend	4,100 *[31.9%]*	11,000 *[35.5%]*	30,000 *[54%]*	26,000 *[59.5%]*	25,000 *[49%]*
Total O&G Revenue	12,869	30,888	55,358	43,690	50,900

Note: Percentage in brackets.
Source: Authors' calculations based on data from Ministry of Finance, Economic Report/ Economic Outlook (various years).

Domestic Entrepreneurship

The rapid rise of Petronas over the past half-century has solidified the firm's position as a key pillar of the Malaysian economy, expanding its reach beyond Malaysia and allowing it to emerge as the nation's sole Fortune Global 500 company. For the first three quarters of 2021, the 48,679-employee-strong corporation's total assets were valued at RM618.9 billion, total revenue stood at RM171.4 billion, profit after tax reached RM35.2 billion, and capital investments amounted to RM20.4 billion.[20]

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Supportive policy frameworks implemented over the decades have led to the advent and growth of a large number of firms within the sector. Thus, in both upstream and downstream activities, Malaysia's home-grown companies have, to a large extent, been shielded from foreign competitors. For instance, to participate in exploration and production activities, foreign companies must receive a licence from Petronas. Likewise, there are substantial local or Bumiputera equity conditions for companies interested in supplying O&G-related goods and services. Keen foreign firms can do so only through an agency agreement with domestic companies licensed by Petronas, or by forming a joint venture with a local company/individual.[21] When it comes to participating in refining and manufacturing activities, a foreign company is required to set up a local subsidiary and comply with the conditions set by the Ministry of International Trade and Industry (Exclusive Economic Zone Act 1984).[22]

At present, Malaysia is home to approximately 4,000 O&G businesses, including domestic and international oil companies, independents, and services and manufacturing firms. This has facilitated the formation of an extensive network of Machinery and Equipment (M&E) manufacturers that supports key strategic segments such as marine, drilling, engineering, fabrication, offshore installation, and operations and maintenance (O&M). Collectively, they provide employment to an estimated 59,000 individuals across upstream, midstream and downstream activities in the O&G value chain (Table 2).[23]

Table 2: Oil and Gas Sector Value Chain

Upstream	**Midstream**	**Downstream**
• Exploration • Field development • Drilling/Extraction • Production operations	• Gathering • Processing • Transportation • Storage	• Manufacturing • Refining • Distribution • Wholesale/Marketing

Source: Authors' compilation.

CHALLENGES

While the O&G sector, together with its substantial derivatives, has undeniably benefited Malaysia, going forward, there are considerable challenges facing it.

The first concerns the overall contribution of the sector to the country's economy. The proportion of Malaysia's fuel exports has remained quite stable for a long time and, in fact, the absolute value of crude oil exported has been going up in recent years. However, the inescapable reality is that the O&G sector's importance relative to the size of the Malaysian economy has taken a hit as the latter has grown consistently and rapidly. Indeed, in the late 1970s, rents derived from the sector contributed to more than 10 per cent of GDP, but recent numbers are noticeably smaller, hovering around 2 per cent since 2015 (Figure 3).

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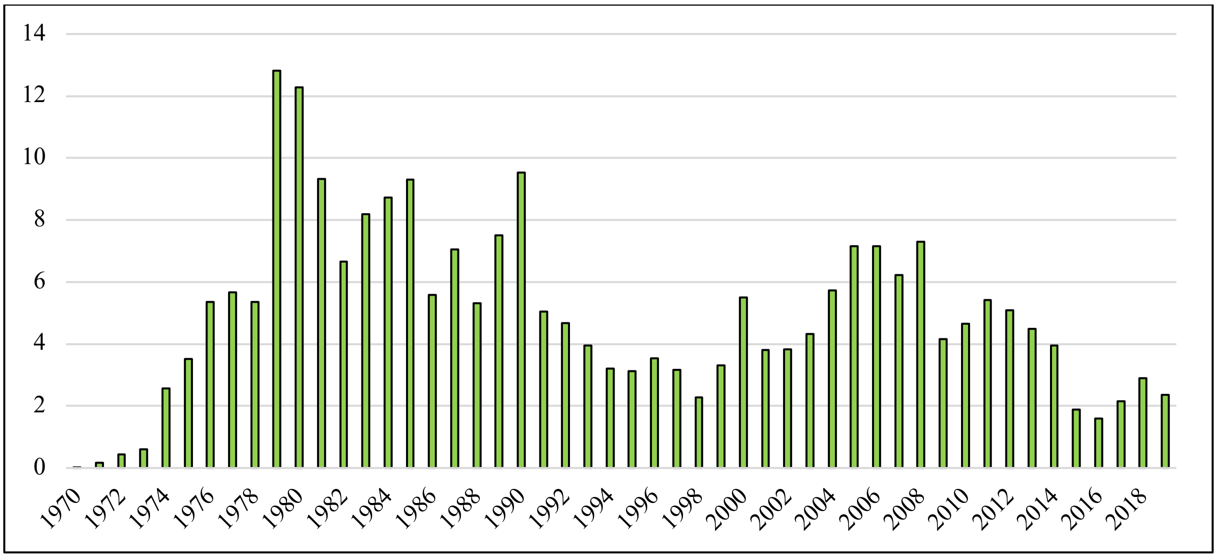
Figure 3: Malaysia's Oil Rents (as Percentage of GDP), 1970 – 2019



Notes: Oil rents are calculated as the difference between the value of crude oil production at regional prices and total costs of production.
Source: Authors' creation based on data from the World Bank.

The second, more complex challenge relates to the sector's inconsistent fiscal contribution. Oil prices are influenced by a host of supply, demand and public policy factors – ranging from conventional output decisions made by OPEC or private oil-producing nations to central bank interest rates, or disruptions brought about by natural calamities or political unrest. The global experience over the past two years has shown that unforeseen economic and health crises can contribute to the variability, too. The problem is further compounded by the cyclicality inherent in oil price movements.

The volatility of oil prices significantly affects the government's fiscal revenue, with price rises adding to the public purse and price crashes depleting it. This fluctuation can be clearly seen in the varying proportion of the revenue derived from the oil and gas sector in Malaysia's total government revenue (Table 3).

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Table 3: Oil and Gas Revenue as Percentage of Malaysia's Total Public Revenue, 1975 – 2020

Year	Total Oil and Gas Revenue (in RM million)	Total Government Revenue (in RM million)	Oil and Gas Revenue as Percentage of Total Government Revenue
1975	400	5,117	7.8%
1980	2,758	13,926	19.8%
1985	6,318	21,115	29.9%
1990	7,481	29,521	25.3%
1995	6,746	50,594	13.3%
2000	12,869	61,864	20.8%
2005	30,888	106,304	29.1%
2010	55,358	159,653	34.7%
2015	43,690	219,089	19.9%
2020	50,900	227,270	22.4%

Source: Authors' calculations based on data from Ministry of Finance, Economic Report/ Economic Outlook (various years).

Finally, it must be recognised that Malaysia's hydrocarbon resources are not unlimited. The production capacity of the O&G sector in the nation has been on a downward trajectory for some time now, thanks to maturing large fields. In 2016, total fuel production was 757,000 b/d, while in 2020, this statistic had gone down to 655,000 b/d.[24] In fact, several studies have tried to determine the precise number of years of oil reserves left in Malaysia. A 2016 estimate claimed that, without net exports, the country would have just enough reserves to last until 2030.[25] This claim was reinforced in 2019, when the Economic Affairs Ministry announced in parliament that local oil and gas fields were expected to be depleted by 2029.[26] A slightly more optimistic image emerged in 2021, as Petronas records indicated that the national oil reserves would last for 28 years – and 38 if contingent resources are accounted for.[27]

IMPLICATIONS FOR PETRONAS

The abovementioned challenges, along with the ongoing COVID-19 crisis, do not bode well for the state-owned entity's growth prospects.

Petronas' Continued Financial Viability

A major impediment to the sustained growth of the O&G sector arises from Petronas' inability to continually contribute large sums of money to the government while simultaneously generating profits, exploring new oil fields, and investing in innovation. A large chunk of the corporation's revenue is directed towards public revenue – both during oil price surges and drops.

In fact, Petronas has periodically had to make contributions to the state coffers for a range of reasons, including bailing out government linked corporations (GLCs) in the 1980s,

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nationalising ailing firms following the Asian Financial Crisis, and shoring up the former state-owned automotive producer Proton.[28]

More recently, for each of the past three years, Petronas has provided additional dividend payments to the government, first to counterbalance the phasing out of the goods and services tax (GST) in 2019, and then in light of the COVID pandemic in 2020 and 2021.[29] For example, the 2020 additional payment amounted to RM10 billion, on top of the committed RM24 billion – and in a year when the firm itself faced huge losses.[30]

Table 4: Petronas' Annual Net Profit and Dividend Payment, 2010 – 2020

Year	Net Profit (in RM billion)	Dividend Payment (in RM billion)
2010	40.3	30
2011	54.8	30
2012	49.4	27
2013	65.6	28
2014	47.6	29
2015	20.9	26
2016	23.8	16
2017	45.5	16
2018	55.3	54
2019	40.5	24
2020	-21	34

Sources: Bloomberg, Petronas, and Ministry of Finance (various years).

There have been constant calls to cap the amount of Petronas' dividend at a set percentage of the company's profit, but this has yet to be implemented. This perennial pressure for cash transfers has, on occasion, led to disagreements between Petronas leaders and Malaysia's elected leadership. However, given the direct relationship between the Prime Minister and the corporation's CEO, dissenting directors do not retain their position for long.[31]

Complicating the firm's financial viability is the fact that it also needs to keep on investing in technology and securing additional deposits overseas. To this end, in recent years the corporation has invested in research and operations in such locations as Argentina, Brazil, Mexico, Vietnam, and Japan.[32] Moreover, once crude oil production in Malaysia peaks and demand reaches a ceiling, which is expected to take place in 2025, Petronas will be forced to embrace cleaner energy alternatives and make a greater commitment to decarbonisation and sustainability.[33] The shift away from fossil fuels will undoubtedly be accompanied by asset divestments and acquisition of new businesses, both of which could limit the company's earnings – at least in the short run.[34]

Protection from International Competition

The government's push to prioritise local entrepreneurs does not come without its share of costs. The reduced level of competition for domestic players has, many a time, manifested itself in the form of complacent policies and inefficient performance.

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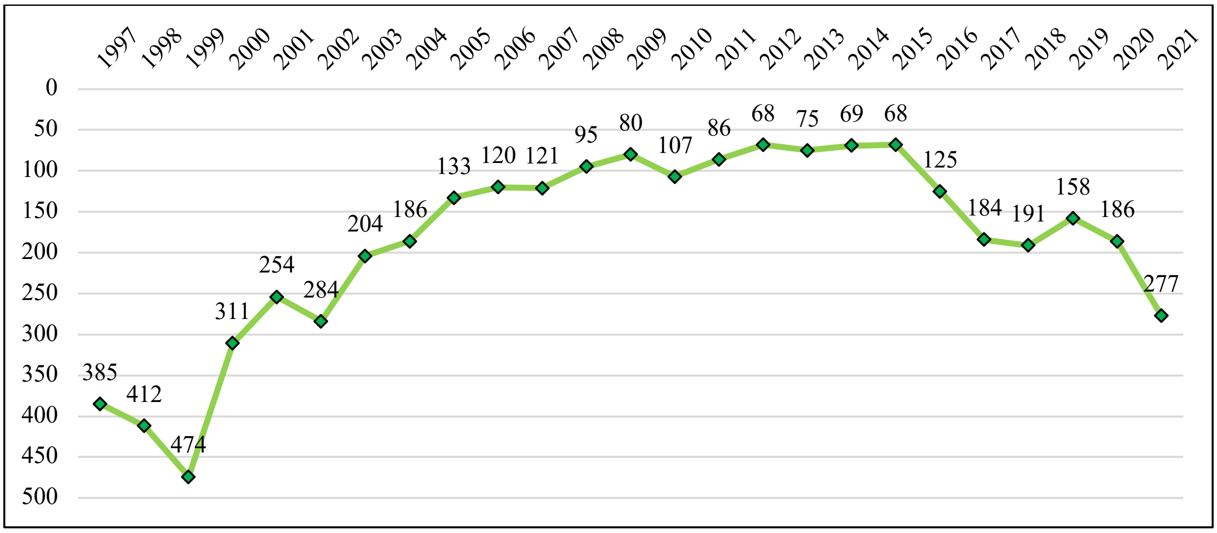
A series of recent highly publicised incidents have highlighted the growing incidence of uncompetitive behaviour among local OGSE firms. For example, in December 2021, Serba Dinamik Holdings' CEO was charged with submitting what the regulator said was a false statement to the stock exchange.[35] In March 2021, Petronas, after receiving adverse reports on alleged unethical and integrity issues, suspended its 60 per cent-owned subsidiary, Deleum Primera Sdn Bhd, from participating in the national oil company's tenders and contracts until further notice.[36] In July 2019, the operating licence for Barakah Offshore Petroleum Bhd's wholly owned unit, PBJV Group Sdn Bhd was suspended by Petronas due to reported non-performance.[37]

It is not just the smaller firms that have faltered. Petronas, too, recently found itself in hot water when several local vendors accused the GLC of delaying their payments[38]. Late last year, after the military coup in Sudan, that nation's transitional government issued arrest warrants against Petronas' country manager and other officers. Sudan's military leader General Abdel Fattah al-Burhan alleged that the company had acquired its local assets through illegal means during the rule of ousted leader Omar al-Bashir.[39]

In this regard, one cannot ignore the fact that, despite being Malaysia's only Fortune 500 company since 1997, the company has of late had a hard time retaining its rank in the double digits. Figure 4 shows that the state-owned enterprise's position has been slipping for a few years now – nosediving from the 68th spot in 2015 to the 277th position in 2021.[40] This trend suggests that Petronas' survival in the increasingly competitive global economy hinges on retaining a larger portion of its revenue for reinvestments.

Figure 4: Petronas' Fortune 500 Rank History



Source: Fortune 500

CONCLUSION

The oil and gas sector is vital for Malaysia's economy. Beyond the overall contribution to GDP, the sector has been harnessed very effectively for the country's long-term economic

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development, most notably through its contribution to state coffers but also through promoting domestic entrepreneurship in the upstream, midstream, and downstream activities.

However, as the Malaysian economy expands, its growth rate outpaces the feasible growth of the sector, which becomes smaller in proportional terms. This, along with potentially dwindling oil reserves, volatility of oil prices, and a general decline of the fossil fuel industry, means that it cannot be the bedrock of public finances that it was in the past.

Soon, the possibilities of turning to Petronas for exceptional transfers of a meaningful dimension will be limited. This, in addition to the need for the GLC to ensure its own commercial viability, suggests that the Malaysian state will need to look at new sources of fiscal revenue and also consider increasing the competition for local players in the O&G sector. Like all non-renewables, stocks of this precious resource are finite.

ENDNOTES

[1] World Integrated Trade Solution (WITS) data, World Bank (various years) <https://wits.worldbank.org/CountryProfile/en/Country/MYS/Year/2019/TradeFlow/Export/Partner/all/Product/27-27_Fuels> (accessed 14 February 2022)

[2] *Asia Sentinel* (7 May 2020) <https://www.asiasentinel.com/p/petronas-malaysias-ailing-financial> (accessed 24 January 2022)

[3] Petronas Annual Reports (various years) <https://www.petronas.com/media/reports> (accessed 15 January 2022)

[4] In line with thinking at that time, three subsequent acts – the Petroleum Mining Act (1966), the Petroleum Income Tax Act (1967), and the Petroleum Mining Rules (1968) – established a concession model, where international companies came to dominate domestic upstream production, downstream refining, and sales – all in exchange for royalties and tax payments to state governments.

[5] Gale, Bruce, "Petronas: Malaysia's National Oil Corporation" *Asian Survey*, Vol. 21, No. 11 (1981): 1129-1144; and Yacob, Shakila, "PETRONAS, Oil Money, and Malaysia's National Sovereignty" *Journal of the Malaysian Branch of the Royal Asiatic Society* 94, No. 1 (2021): 119-144.

[6] It is, however, important to note that the appetite for increased assertion over the national economy and its resources was not exclusive to Malaysia. A number of oil-rich countries including Iran, Venezuela, Bolivia, and Indonesia were also curtailing the activities of foreign enterprises while enhancing domestic capabilities (Yacob 2021; *Endnote 5*).

[7] For a comprehensive historical account of the development of Malaysia's O&G sector, refer to Ramli, Nordin, "The History of Offshore Hydrocarbon Exploration in Malaysia" *Energy (Oxford)* 10, No. 3 (1985): 457-473. Gale (1981; *Endnote 5*) also contains detailed information on the negotiations between Petronas and international oil producers.

[8] The 1957 Constitution established that the management of natural resources was the preserve of state governments, as opposed to the federal government. The PDA centralized a great deal of control over oil. This did not go uncontested by states reluctant to lose control over revenue from this source. The PDA does provide for some element of revenue sharing between the central and state governments, however this issue is not yet completely resolved. Please consult a) Yeoh, Tricia, “Responsible Resource Management of the Oil and Gas Sector in Malaysia: Issues, Challenges, and Opportunities” in *Misplaced Democracy: Malaysian Politics And People,* Petaling Jaya: SIRD (2014): 261-287; and b) Yeoh, Tricia, *Federal-State Relations under the Pakatan Harapan Government,* Trends in Southeast Asia, Singapore: ISEAS (2021).

[9] Yacob (2021; *Endnote 5*) and Yeoh (2014; *Endnote 8*). There has been considerable debate as to whether Petronas should report to parliament or the Prime Minister. Former Prime Minister Mahathir Mohamad has supported the direct reporting structure to the Prime Minister on the grounds that it makes decision making easier and avoids interference by political parties. Other proposals include making Petronas a publicly-listed corporation with its accounts discussed in parliament. In additional, see *Yahoo News* (10 November 2021) <https://malaysia.news.yahoo.com/dap-nga-calls-petronas-public-085417833.html> (accessed 11 February 2022)

[10] For details on the negotiations between the Malaysian government and the O&G players, please consult Jesudason, James. V, *Ethnicity and the Economy: The States, Chinese Business, and Multinationals in Malaysia,* Singapore: Oxford University Press (1989). Gill, Ranjit*, Razaleigh: Cita-Cita Dan Perjuangan,* Petaling Jaya: Pelanduk Publications (1987) also offers unique, behind-the-scenes insights on Tengku Razaleigh Hamzah’s experience as Petronas’ founding chairman.

[11] Hashim, Ismail, *The Young Turks of Petronas*, Kuala Lumpur: The Edge Communications (2004), ISBN 9834205600.

[12] Mehden, Fred R. Von Der, and Troner, Al, “Petronas: A National Oil Company with an International Vision” *The James A Baker III Institute for Public Policy’s Policy Report* (2007) <https://www.bakerinstitute.org/media/files/page/9dd51576/noc_petronas_tronervdm.pdf> (accessed 5 January 2022)

[13] Lebdioui, Amir, “Local content in extractive industries: Evidence and lessons from Chile’s copper sector and Malaysia’s petroleum sector” *The Extractive Industries and Society* Vol 07, No.02 (2020): 341-352.

[14] *National OGSE Industry Blueprint 2021-2030* (Abridged Report), Economic Planning Unit (2021) <https://www.mprc.gov.my/sites/default/files/resources/National%20OGSE%20Industry%20Blueprint.pdf> (accessed 31 December 2021)

[15] *Petronas Activity Outlook 2022-2024*, Petronas (2021) <https://www.petronas.com/sites/default/files/PAO/PETRONAS-Activity-Outlook-2022-2024.pdf> (accessed 4 February 2022)

[16] *Statistical Review of World Energy*, 70th Edition, British Petroleum (2021) <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf> (accessed 14 February 2022)

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information on the income from MTJA operations is not available publicly and is therefore not included in the computation of total O&G revenue.

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