

# Oil Heritage in Iran and Malaysia: the future energy legacy in the Persian Gulf and the South China Sea

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**Abstract.** The oil industry has played a major role in the economy of modern Iran and Malaysia, especially as a source of transnational exchange and as a major factor in industrial and urban development. During the previous century, the arrival of oil companies in the Persian Gulf, brought many changes to the physical built environment and accelerated the urbanization process in the port cities. Similarly, the development of the national oil industry had a huge impact on post-independence Malaysia, affecting balance sheets, the environment, and society. Oil significantly changed Malaysia's position in the global economy and transformed a predominantly agricultural country into a major producer of petroleum and natural gas. Through implementing the analytical, historical and comparative perspectives, this paper focuses on the legacy of oil cities in the Persian Gulf and the South China Sea as the birthplaces of the oil industry in two regions, whose geopolitical importance along with oil's historical significance has the potential for representing national unity, political memory and collective shared identity. In proposing this grounding, the paper seeks to approach the heritage of oil as a particular form of industrial heritage. This research analyses the future of energy heritage, existing Covid-related challenges, political tensions and examines the various impacts, transitions and capacities associated with the current international relations, post-pandemic urban developments, and the post-oil future to pave the way to these nascent areas of industrial heritage and oil heritage in Iran and Malaysia.

**Keywords:** Persian Gulf, South China Sea, Oil Heritage, Industrial Heritage, Post-Pandemic Urbanism

## 1 Introduction

The paper situates the Iranian case within a broader Asian and Malaysian perspectives to show that some comparable developments, temporalities, growth processes, spatial practices, international collaborations and exchange may be found. Such processes and practices are often codified in planning documents and enacted by domestic and international actors. Even today, the dynamics and actors of oil in Iran and Malaysia continue to reshape the industry, society, culture, and politics and transform the built environment and urban spaces. In this study, Malaysia represents an important case for

comparison, where oil has seeped into different levels of society and politics. Mainly mined offshore, the presence of the industry altered and affected communities facing the South China Sea. Oil is a source of collective identity at a national level, as represented by the national oil company Petroleum Nasional Berhad (henceforth known as Petronas). From the building of the Twin Towers' rapid development of villages to the sponsorship of students, Petronas is responsible for significant changes in Malaysia's rural landscape and urban cityscape and shifts in traditional society. Its international presence, helped by its sponsorship of the Formula 1 team Mercedes-AMG, has made Malaysia internationally visible beyond the region. In a relatively short period, this multi-faceted nature and leveling of Malaysia's oil industry have ensured that this natural resource is tied into different aspects of the country's image and make-up. Focusing on the contemporary transitions in the Middle East and Iran on one hand and the Asia-Pacific Region and Malaysia on the other, this research explores the legacy of oil in the Persian Gulf and the South China Sea and analyses the future of energy heritage, existing challenges, political tensions and examines the various impacts, transitions and capacities associated with the current international relations, pandemic and the post-oil future in Iran and Malaysia as well as the greater Middle Eastern and southeast Asian regions.

## **2 Oil (Counter) Narratives: Politics, Transition, Modernization, and Revolution**

Over the last 150 years, much of the geopolitical tensions around the world have been directly or indirectly related to energy and, specifically, non-renewable fossil energies. The heritage of Oil Port Cities (OPCs) is the product of natural resources, globally-distributed extractive industries, and vast networks of connectivity and exchange. This is a multi-faceted heritage that is fundamentally spatial and partially expressed in the fabric of the built environment. In these globally interconnected nodes, local geographies of resources coincide with the more complex and fluid labour and knowledge (tech) geographies and the geopolitics of energy. This is an essentially multi-scalar mix. From this perspective and in the world where the shift to renewable energies is of utmost urgency, the heritage of the oil industry in general and OPCs in particular are worthy of consideration both for their direct contribution to the future of energy-producing cities and for the demands of management of these places as heritage localities.

Extraction, refining, transformation, and petroleum consumption have made an extensive impact on OPCs over the past century. In addition, the role and importance of port cities tend to be particularly sensitive to changes arising from larger political, cultural, and societal transitions unfolding around them, as well as the environmental impacts and long-lasting changes to their built environment [1]. The recent devastating Beirut Blast (4th August 2020) shows the importance of the ports in the contemporary globalized world, which calls our attention to the safety, security, governance, connection, and collaboration between port and city regions [2]. In this sense, different layers of the spatial, cultural, and societal memory flows of petroleum, such as physical, rep-

resented, and everyday practices, combine into the transnational future petroleumscapes. For analysing the interrelations between oil and global politics in the nineteenth and early twentieth centuries, Timothy Mitchell, in his book-*Carbon democracy*-explores the rise of a certain kind of democratic mass politics and the historical development of energy from fossil fuels [3]. Michael Watt, puts forward the term ‘oil complex’ (or ‘oil assemblage’) as the particular territorializing of the oil complex and the technological zone, which is a center of economic, political, and scientific circulation [4]. Rather than the physical representation, the expression, ‘oil assemblage’, frames the history of oil as the outcome of social and historical ‘encounters’ between the material world, the actions and the counteractions of different and unequal social workers that underlines the global system of oil provision. By suggesting the term ‘oil culture’, Barrett and Worden (2012) highlighted the problematic relationships that have taken shape between oil and conceptions of futurity, the profound cultural entanglement of petroleum and apocalypse, and the central role that feeling or effect has played in the interpretation and promotion of oil capitalism [5]. This definition is quite different from the ‘oil industry’ since the broader social, historical, spatial, and cultural relationships surrounding the rise to oil prominence are excluded from that perspective. Oil production and refining have historically been important sites of labor activism, class relations, social unrest, and political agency. The OPCs were the focal points produced by the actions, interactions and counteractions of the various social actors (such as oil workers, drillers, engineers, and corporate managers, spouses, extended families, urban landlords, bureaucrats, technocrats, political activists, smugglers, beggars, indigenous farmers, merchants, policemen, and migrants who had flooded to the oil complex and involved in the making of this complex history.

In the Middle East, the colonial regimes and rising global corporations greatly influenced the patterns of oil spatializing [6]. Western Europe had no oilfields, so the additional oil would come from the other parts of the world that came under colonial purview, be it the British in Iran or the Dutch in Indonesia [7]. The oil industry in Iran has a close collaboration with national governments and corporate actors to maximize the revenue, develop industrial growth that changed over time, and align with local cultures. After the defeat of the oil nationalization movement (1949-1953), a consortium of multinational oil companies took control with the National Iranian Oil Company (NIOC) (which had replaced the AIOC) divided profits equally between the NIOC and the multinational consortium. This agreement remained the same until the 1979 revolution and the complete nationalization of the Iranian oil industry.

As a result, the growth of OPCs on the southern shores of the Persian Gulf has been phenomenal. As Suleiman Khalaf commented in the mid-2000s, “oil-generated growth has demolished small mud-walled seaports and villages. They have been transformed into glittering commercial capitals and sprawling suburbs integrated within the global economy and culture in just four decades. The speed, pattern, and politics of urban development have been similar across the Gulf [8].” In the Persian Gulf, these transformations have been shaped by the region’s strategic importance of its petrochemical resources, leading to the emergence of what may be called “oil urbanization” [9]. In this sense, capitalist expansion has always been closely tied to oil-led urbanization and development.

Similarly, along the Malaysian coasts of the South China Sea, the backwater towns of Miri in Sarawak and Kerteh in Terengganu were transformed by the oil industry. In the case of Miri, when oil was discovered during the colonial period, the town was quickly modernized and westernized to accommodate the British managers. Waterways and roads were improved to transport the oil to the tankers, shop lots were built to provide more luxurious items, and clubhouses were established to entertain the managerial staff. The make-up of the native population changed with the influx of laborers from India and China, with accommodation and facilities installed for their benefit. Miri was industrialized and globalized by the oil industry in less than twenty years, infused by a colonial vision and style. By contrast, the oil changes to the peninsula were different under the purview of an independent country. When oil was struck off the coast of Terengganu, changes came swiftly to accommodate the industry and develop the villages and their people. Schools, hospitals, and modern amenities were built and introduced, seeing the hybrid nature of oil – not only as an economic project but as a social one too. Even with oil rigs far from the coast, its impact is felt on the lives of those living on land. Most recently, the southern city of Pengerang in the state of Johor was touched by the industry. The Pengerang Integrated Petroleum Complex transformed the broader region by Petronas. Petrochemical refineries, storage chambers, and land were replaced by small fishing villages and farmlands for more expansion [10]. As Nelida Fuccaro puts it, “the predominance of studies on oil urbanization precludes an understanding of oil urbanism as a way of life and as a mode of political and socio-economic organization [11].” Therefore, what is needed is a better understanding of “the political and human texture” of the contemporary Persian Gulf and South China Sea cities [12]. This oil-generated growth in the port cities in these two regions has been partly influenced by internal and external dynamics, logistical relationships, regional forces, geostrategic dynamics, and infrastructure development in the region. The policies and priorities of state leaders have been equally important in shaping the overall profile and form of OPCs within and their position in broader regional and global networks.

### **3 Oil Heritage as National Legacy**

The petroleum industry is approximately 160 years old, its origin conventionally dated by historians to the oil wells drilled in Ontario and Pennsylvania in the late 1850s. The International Committee for the Conservation of the Industrial Heritage (TICCIH) (founded in 1978), is an international organisation established to focus on studying industrial heritage in the development period. It aims to explore, protect, conserve and explain the remains of industrialisation. TICCIH has been ICOMOS (The International Council on Monuments and Sites) special advisor for industrial heritage on properties to be added to the World Heritage List, drawing on its advice from TICCIH. The theoretical and practical considerations of these properties as the World Heritage sites are examined in the light of the criteria for Outstanding Universal Value in UNESCO's Operational Guidelines for the Implementation of the World Heritage Convention [13]. In 2020, TICCIH published the first global assessment of the heritage of petroleum production and the oil industry and the places, structures, sites, and landscapes that

might be chosen to conserve for their historical, technical, social, or architectural attributes. This TICCIH thematic study on oil heritage also included the proposals for criteria to evaluate this heritage and priorities for conserving the most important sites, ensembles, and landscapes, from regional inventories up to World Heritage sites. In this report by TICCIH, the heritage of the petroleum industry is defined as "the most significant fixed, tangible evidence for the discovery, exploitation, production, and consumption of petroleum products and of their impact on human and natural landscapes" [14]. While the importance of the historical evidence for the oil industry as the tangible cultural heritage is self-evident, it is also challenging to define an integrated and holistic strategy from a conversation point of view [15]. In many cases, the petroleum production sites and historical infrastructures -situated in corrosive and fragile landscapes- are costly to conserve, difficult to re-use and re-function considering their contribution to global warming.

In this sense, for achieving holistic and methodological reuse strategies, it is required to reconsider various factors such as national policies and the economic system. In many cases, the retention and study of documentation and company archives is the best way to conserve the industry's history. Today, there are many museums, memorials, and other historical establishments commemorating the oil industry's contributions to the world's cultural landscape. Bringing together the refinery technology and culture, there are nearly 200 museums in the world that exhibit oil and gas machinery and relics. Due to the lack of an integrated management system, developing new methods to identify and protect industrial heritage with high values and significance [16]. In Iran, starting from January 2014, arrangements began to establish the national Museums and document center of the oil industry set up by the direct order of the Iranian Minister of Petroleum-Bijan Namdar Zangane and under the supervision of Akbar Nematollahi to collect, safeguard and display the old oil industry equipment. Iran's Petroleum Museums and Document Center offer insight into the nation's energy heritage, which began in 1901 when British speculator William D'Arcy received a concession from Iran to explore and develop southern Iran's oil resources which led to the formation of the London-based Anglo-Persian Oil Company (APOC). It tries to collect and display the old oil industry equipment and protect and pass the tangible oil heritages to the next generations.

The launch of Iran's petroleum industry museums started in the OPC of Abadan, which includes old refinery, gas station (as the oldest filling station of Iran has been turned into a museum in Abadan, as well as the 1934 Davazeh Dowlat filling station in Tehran), the oldest oil-related technical training school (as the oldest national training school dedicated for Iranian oil workers in Abadan). Cranes are being preserved in some parts of Abadan's old ports with heavy machinery, such as Ekvan (literally means monster) and Gogerd (literally means Sulfur). There is also an exhibition about the reconstruction process of the refineries after the Iran-Iraq war (1980-1988). The plan also includes the inauguration of the oil museum in other major OPCs such as Masjed Suleiman (located in the southwestern province of Khuzestan as the birthplace of the oil industry in Iran), which includes the oldest oil recovery site in the country. The first thermal power generation plant in Iran- known as Tombi Power Plant (launched in September 1908 and still operational in electricity distribution)- is defined as one of the

pilot museum sites in the Masjed Suleiman Petroleum Museum scheme. Based on the editorial report published by the Iran Petroleum Museums and Documents center, "The history of Masjed Suleiman electricity and Tombi Power Plant is directly related to oil eruption from the first well. In 1911, 3 years after, the first barrel of oil was pumped from Well No. 1 of Masjed Suleiman. Oil flow started to the Abadan oil refinery through a pump house in Tombi. Given its oil and gas riches, Masjed Suleiman has always been considered, and it rapidly grew after the discovery of oil. The first station for pumping crude oil from Masjed Suleiman to Abadan was built in 1909, and similar stations started operating in Malasani, Kut Abdullah, and Darkhovin, respectively. Darkhovin station is being operated with a power generator to meet its internal needs [17]."

The plans for two other oil museums in Kermanshah (west part of Iran) and Tehran aim to offer insight to the nation's long oil heritage. In Kermanshah, the previous tin factory is planned to be transformed into the Petroleum museum. The structure is to be erected at the Tin Factory of Kermanshah Refinery. Given the factory's long history— it has been in place for over a century— and its role in distribution of petroleum products throughout the country in the past several decades, the museum is envisaged to exhibit a rich collection of items belonging to various periods of the factory's operation. Most of the showcased items will be placed in the museum with focus on the industry in Iran's western regions. Tehran-based "Museum of Oil Industry Technology" introduces the nature and importance of oil, gas and petrochemicals in various areas of human life for a long time and the technologies used in it. Unlike other oil museums in other parts of the country, this museum does not have buildings, facilities and content, so a special building will be designed for the Tehran Oil Museum. The museum is expected to take four to five years to set up. Tehran Bureau of Oil Industry Museums and Archives has two major sections including the Treasury of relics and the Archives. The Archives' section of Iran's Oil Industry Museum aims to identify, gather, categorize, organize, retrieve, repair, preserve and keep oil industry documents to provide a comprehensive resource for the oil industry's researchers and the general public [18].

In Malaysia, there is little focus on preserving the oil industry, while discussions remain scattered. One of the main reasons for this is the dominance of off-shore rigs, making them not easily accessible and challenging to convert into an attraction. Another reason for the lack of importance on oil preservation may be the organization of heritage creation in Malaysia, which is tied up with identity and racial politics and is mainly focused on non-industrial aspects (such as food, historical cities and villages, and folklore) [19]. Agricultural heritage is more developed and well thought out, with the creation and planning of Geo-parks, which "support the principles of sustainable development" and, in some cases, are established to preserve some of Malaysia's geological resources [20]. Nonetheless, there have been some efforts to protect Malaysia's oil history and educate and inform. Coinciding with the unveiling of the Petronas Twin Towers, the Petrosains Discovery Centre was opened in 1999 to increase public awareness of petroleum. Beginning with a simulation of arriving on an off-shore oil rig, visitors are brought through interactive exhibitions and information boards about the resource and industry [21].

The only other petroleum museum in Malaysia is situated in Miri, Sarawak, on the first drilling rig in the country. In production since oil was struck in the early 1900s, it

was retired in 1972. A year later, the land and the oil well were handed over to the state government by Sarawak Shell. In the early 2000s, the area was developed to include visitors to the oil well, a petroleum museum, and a café. Similar to the Petrosains center, visitors are provided with information on the oil industry. However, in Miri, a concerted effort was made to conserve the old oil well and protect it from fires and decay. Both museums were funded by Petrosains, indicating a governmental interest in preserving oil's historical presence in Malaysia. The focus is scientific and on the environment. Such appears disconnected from other efforts by the Department of Museums, including the conservation of organic and non-organic sites (but not including oil), preservation of culture, and education [22]. In this regard, Malaysia differs sharply from Iran's efforts to preserve the history of the country's oil industry.

In Malaysia, the reach of the oil industry has seeped into many aspects of society, which arguably preserves the oil industry differently. Petronas is a national oil management company and has other ventures in sectors such as education and the automobile industry. It is recognized internationally as a Formula One team with Mercedes AMG, which owns a private university. The company also owns a private university, the Universiti Teknologi Petronas (Technology University Petronas), which, as the name suggests, focuses on technical sciences such as engineering, geoscience, and computer studies. In addition, the company provides scholarships through its Petronas Education Sponsorship Program (PESP), funding talented students for further university education and bonding them to the company after. Such an arrangement creates a sustainable cycle, ensuring that the company constantly gains well-educated employees every year. On the other hand, we see how this results in education's commodification, capitalization, and marketization [23]. By looking at the multi-faceted nature of Petronas' ventures, oil is preserved in several ways in the public space.

The oil industry has not been examined comprehensively from a global standpoint or how it impacts society. The increasing international attention toward the oil heritage as part of the industrial heritage is also a reminder of the coming of a new 'Post-oil future.' In Iran, the management, adaptive reuse, and conservation policies over the oil heritage and its related regulations are still developing. While in Malaysia, efforts are slim, with oil's legacy and heritage being preserved differently. The new holistic framework for achieving sustainable adaptive reuse must be integrated with the social, political, and economic contributing factors. Considering the oil's complex history, more detailed studies are required to assess the cultural impact of the oil industry through the many universities, national museums, and natural parks, which owe their existence to the wealth it has generated.

#### **4 Concluding Notes: Towards Post-Pandemic, Post-Sanctions, Post-Oil Futures?**

Fossil fuels are gradually becoming relics of the past. In response to environmental challenges, many countries worldwide are now rallying for climate-friendly green and cleaner energies and new renewable resources as alternatives for oil. As the climate emergency deepens, motor vehicles (which account for half of all oil use globally) are switching to electricity instead. In the Middle East and Asia, the OPEC (Organization of the Petroleum Exporting Countries) states, with an economy firmly rooted in oil

production, are moving into a new era and are trying to diversify their economy to secure growth in the long term.

It is essential to identify the moments of decisive change toward new energy values, green transitions, and resilient policies in post-oil future cities. Considering the current de-urbanization, de-growth, and emigration of post-industrial sites, the oil industry's industry's very past and present size needs to shrink dramatically. Moreover, in the aftermath of decolonization and the transformations of neoliberal global order, it is essential to understand the significance and dynamics of the worldwide oil complex [24]. Malaysia and Iran have taken different approaches to their post-oil future when preserving oil as part of their national heritage. In his book, Christopher Dietrich examines how cultural history forms an essential part of the struggle of post-colonial countries turning into international states [25]. As demonstrated here, there is an element of both Malaysian and Iranian policy to decolonize the oil industry through the preservation of historical sites and to narrate them as part of the national story. Through the efforts of Petronas, oil permeates society and dominates education, producing new elites and changing the landscape of coastlines facing the South China Sea. In this narration, oil has resulted in the improvement of society, the upgrading of backwater villages, the advancement of educational opportunities, and drastic changes to landscapes and cityscapes. The relic that is the Miri oil drill is transformed into a tourist site under the purview of Petronas, sanitizing the past and decolonizing British presence from Sarawak's Sarawak's early oil history.

The Covid-19 pandemic outbreak has shown that the industry is not infallible and that countries with significant oil industries are vulnerable to changes in consumer demand. The economic effects of the pandemic saw a drastic drop in consumer demand, which will likely continue to depress Iranian and Malaysian exports for the months to come. In the case of Iran, the Covid-19 crisis and the near-future fluctuations in oil prices coincided with the maximum pressure campaign of the United States against Iran. Tensions between the United States and Iran relaxed somewhat after the nuclear deal of 2015. But, due to the recent US withdrawal from the Joint Comprehensive Plan of Action (JCPOA) in May 2018, Iran's oil exports declined dramatically [26]. Before that, China and India (two giant Asian customers) were purchasing Iranian oil. In response to these and control liquidity and direct it to the right path and production cycle, Iran is considering letting residents invest in oil on the domestic energy exchange [27]. With its rich oil and gas resources, Iran needs new technology investments and development plans to be prepared for the post-Oil future, but that will be hard to achieve without resolving US-Iran tensions and an easing of US sanctions. To balance the future economic growth with social development and environmental protection, Iran also needs to invest more in plans for sustainable development, smart cities, and a smooth transition to less environmentally harmful sources of energy.

Thus far, Malaysia has not been subject to international sanctions and can trade on the world market with few barriers. Its diplomatic relations with Iran have been consistent since the Pahlavi era through to the current presidency of Ebrahim Raisi. Iranians can travel to Malaysia without a visa. Although Malaysian Prime Minister Mahathir Mohamed had condemned the US sanctions against Iran, the country still bowed down



to Washington's pressure to enforce them [28]. Petronas has not shied away from interacting with Iran when it comes to the oil industry. Over the years, it has explored oil fields, signed a memorandum of understanding with the NIOC, and expressed interest in Iran's oil and gas projects. But interest has been inconsistent, as seen by its recent withdrawal from a liquified natural gas project in Iran, reflecting Malaysia's adherence to international concerns attached to economic closeness to Iran as well as Petronas' limited scope. Malaysia and Iran have much potential to collaborate over their oil industries, especially in light of good bilateral relations, historical ties, and cultural similarities. However, in the age of sanctions, this remains a barrier for the two countries to pursue economic (and social) projects related to oil.

The Malaysian oil industry played another critical role in light of the global chaos caused by the recent pandemic crisis. Petronas took on a pastoral part by alleviating the difficulties caused by the virus, again blurring the lines between corporate and national responsibility. The company provided medical supplies, monetary support, and daily essentials to frontlines and affected communities. Similarly, Shell in Malaysia launched a similar campaign to show its efforts during the pandemic by channeling funds to local charities and to support medical practitioners. Such measures place oil at the heart of Malaysian society, thus preserving its importance and relevance.

Moreover, Petronas's usage of oil profits challenges the paradox where oil wealth has resulted in inequality [29]. Nonetheless, the Malaysian petroleum industry is not immune to volatilities in the market and international outcries over the ongoing climate crisis. In the last years, Malaysia's palm oil industry has come under much pressure due to its unsustainability and has developed strategies to improve environment management [30]. Malaysian petroleum companies have had to follow suit. They have also developed programmes to safeguard the environment and play an essential role in ensuring sustainability and transparency. The Yayasan Petronas (Petronas Foundation) runs forest and mangrove conservation initiatives and cleaner reloading services for shipping in the South China Sea. As a developing country that still relies on its oil reserves, sustainability here is closely linked with corporate responsibility, which is intertwined with a focus on preserving oil's place within Malaysia's national legacy.

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