

**Iran's Global Petroleumscape
The Role of Oil in Shaping Khuzestan and Tehran**

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IRAN'S GLOBAL PETROLEUMSCAPE: THE ROLE OF OIL IN SHAPING KHUZESTAN AND TEHRAN

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Various constellations of oil actors—including corporations and nations—have shaped seemingly disconnected and geographically distant landscapes, cities, and buildings around the world over the last 150 years. Corporate, public, and popular media have publicized these cycles of spatializing oil. Together, construction and representation have created what is here collectively identified as a global palimpsestic petroleumscape. Based on archival research and a flourishing literature of secondary sources, this article applies the concept of the petroleumscape to two case studies in Iran and identifies two patterns of spatializing oil. First, in the southern region of Khuzestan, it tracks Iran's modern transformation under the influence of British Petroleum (BP) (1901–1951), when oil and governmental interests built a complete support landscape. Then, in the capital Tehran, it investigates how US players helped shape the petroleumscape between 1953 and 1979, in line with US styles of consumption, car use, and urban development.

Keywords: Commodity flows; globalization; Iran; Khuzestan; oil modernity; petroleumscape; Tehran; urban form

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INTRODUCTION

Commodity flows connect local, national, and global scales and embody the mobility—of capital, people, technologies, ideas, and cultures—that constitutes globalisation. Oil and its refined products are a particularly good example for the twentieth century. Globally traded



commodities, they are key elements in our energy landscape and have shaped the built environment in multiple, interconnected ways over the last century. Petroleum flows encompass the entire world and constellations of oil actors—including corporations and nations—and shape seemingly disconnected and geographically distant physical spaces. At the same time, representations of petroleum-related architecture and planning in corporate and popular media, art, and advertisements promote highly selective images of these oil spaces. Together, petroleum and its representations are a layered physical and social landscape that reinforces itself over time: a *global palimpsestic petroleumscape*.¹

Figure 1 shows the various aspects of the spatialisation of oil in this petroleumscape. Corporate and public actors have created diverse urban and architectural patterns depending on various factors: the prior existence (or absence) of cities and infrastructures, the particularities of the political and economic regimes in the spaces of oil extraction, transformation, and resale, and the geographical, social, and cultural conditions of a specific location. They have distributed and occasionally imposed their global structures on local environments, while sometimes adapting to local needs. As a result, this built environment—part of the petroleumscape—is uneven and hybrid. Private oil corporations tend to limit their investment to structures necessary to their functioning: industrial facilities, administrative buildings, and infrastructure. Occasionally, in the absence of existing settlements, or in cases where the government controls the oil company, necessary construction can include entire new cities, providing housing, leisure facilities, and even religious buildings. Often, the oil industry has collaborated with national governments to develop necessary infrastructure. The construction of roads made with asphalt, a petroleum product, is an intriguing example of the multitude of interconnections between public and private actors. Companies’ spatial holdings might redirect economic flows over time, making the location particularly resilient in the face of economic challenges; an early investment in physical

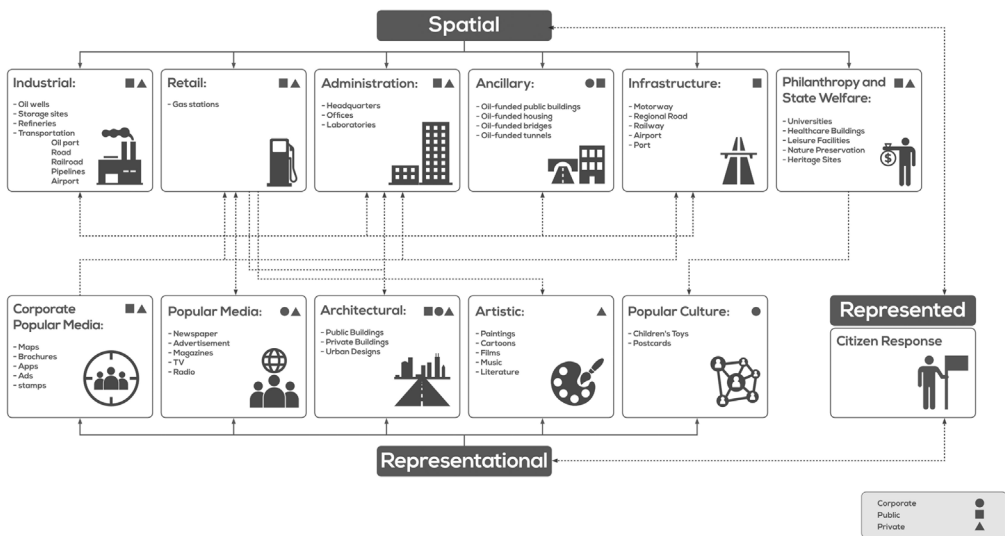


Figure 1. The concept of the global petroleumscape. Source: Carola Hein.

spaces like refineries or infrastructure might attract oil-related businesses to the vicinity or the region; siting a refinery or a port can trigger later development. These global networks also mean that local structures are vulnerable to decisions made elsewhere, and relocations or closures of multinational corporations can change the fate of entire regions. These corporations and their public partners have created feedback loops that further reinforce petroleum transformation and consumption and make citizens partners in the permeation of the system.

Petroleum actors' investments go beyond the physical presence of industrial spaces: they are also active in the creation of narratives and representations of the petroleumscape. For more than a century, the oil industry has helped inscribe petroleum products into the lives of people around the world: it has erected entire landscapes, cities, and buildings, and has celebrated these buildings in diverse media. Depending on time and context, production sites get more or less publicity. Depictions of refineries are rare in European countries, and those that exist appeared before the rise of the environmental movement. Such depictions in policy documents, publicity, or even in children's books or as toys are more widespread in countries like Iran or China, where they are part of a national narrative that celebrates industrial growth and petroleum independence. In Europe and the United States, corporations and states have celebrated and depicted asphalt roads—which take up exponentially more space—as agents of national or individual freedom. Their negative environmental impact—and that of petroleum-based fuel and travel—has only recently become more prominent in the popular imagination.

The present text applies the concept of the petroleumscape to two case studies in Iran, specifically of the southern region of Khuzestan and Tehran, the capital, to show how global oil actors have adapted their spatial presence to local conditions and evolving political, economic, and social contexts. This research focuses on spatial developments, building on the research of scholars from various disciplines who have focused on the role of the oil industry in generating new cities, planning, and labour conditions in Iran.² Based on both archival research and a flourishing literature of secondary sources, this article explores petroleum-related Iranian architectural and urban history through time and space and starts to identify specific patterns of actors, places, and investment collaboration specific to that history. It compares the two Iranian case studies to identify two complementary petroleumscape types that are symptomatic of global developments. On the one hand, under British influence and with the support of the Iranian government, Khuzestan was shaped directly by and for the oil industry. In contrast, in Tehran, American petroleum interests and Iranian actors collaborated to inscribe the wealth of oil into the representative spaces of an existing city and into the lifestyles of its people. Involving changing actors and geographies at different moments in time, the processes of development and modernisation in Khuzestan and Tehran are interrelated parts of the larger palimpsestic petroleumscape.

NOTES ON THE CONCEPT OF THE PETROLEUMSCAPE

The concept of the petroleumscape is a tool for investigating the impact of financial flows of oil companies, often multinationals, on different locations around the world and through time. It builds upon a growing scholarship exploring how global effects of oil shape layers of the built

environment.³ The concept is a comparative framework for studying different types of urban and building typologies not usually considered collectively. It aims to open up a global and multidisciplinary debate, bringing architectural and urban historians into conversation with planners, economic geographers, and political scientists, and it seeks to gain advanced understanding of global interdependencies of spatial transformation, and of the extent of petroleum's impact on the built environment beyond industrial spaces. Along with thinking about the dynamics, actors, spaces, and representations of oil, it is helpful to understand the petroleumscape as palimpsestic, or having many historical and physical layers that overlap with and reinforce each other. This part of the model allows for spatio-temporal comparison of petroleum systems.

Combining the different layers of the petroleumscape into a single approach makes visible the multiplicity of strategies by which oil actors engage with the built environment. An integrated analysis of different architectural typologies and urban spaces generated by petroleum, and their representation by public and private actors, illuminates the full range of oil's impact on the built environment. This approach can also compare and contrast different areas within a single country, both providing insights into oil's local particularities and setting the foundation for comparison on a global scale. Studying the many spatially and symbolically overlapping spaces of oil at the same time as one petroleumscape facilitates the writing of an architectural and urban history that is globally balanced and that goes beyond canonical narratives.

The petroleumscape concept builds on and connects to rapidly growing research in multiple disciplines. The concept links to Michael Watts' excellent analysis (making reference to the work of Timothy Mitchell, Andrew Barry, and others) and to his term, *oil assemblage*. Watts points to the connections between oil and its territory, identifying a technological zone, but stops short of discussing the designs of actual buildings and their representation.⁴ Numerous scholars in the field of energy humanities emphasise the importance of studying the representation of oil; they explore energy, and particularly oil, to gain a better understanding of the emergence of modernity and contemporary society, and to examine the difficulties in overcoming oil dependency.⁵ The idea of the petroleumscape also links to the work of Arjun Appadurai, who suggested that the suffix *-scape* allows for an understanding of the "new global cultural economy as a complex, overlapping, disjunctive order that cannot any longer be understood in terms of existing center-periphery models".⁶ The concept of the petroleumscape thus ties commodity and energy flows to diverse spaces and connects those spaces beyond national borders, urban-rural separations, and architectural typologies.

Furthermore, the concept of the petroleumscape relates to Henri Lefebvre's argument that space is socially produced and then appropriated as a tool. In *The Production of Space*, he argues that space, "in addition to being a means of production... is also a means of control, and hence of domination, of power".⁷ The analysis of the petroleumscape engages with his famous triad: Lefebvre's *spatial practices* (the life of inhabitants in a space) and *representations of space* (the approaches of built environment professionals) are visible in the petroleumscape as the multiplicity of actors and multifunctional spaces. The third leg of the triad, *spaces of representation* (the images and associations of the users),⁸ is visible in the palimpsestic petroleumscape's multiple

layers of professional and public representations that render what are essentially functional economic spaces fun and attractive.

Addressing these approaches in our two case studies leads us to ask the following questions: How have the unique and complex global processes of petroleum extraction, refining, transportation, administration, and resale shaped both the physical spaces and representations of contemporary architecture, modern cities, and infrastructure in the two Iranian regions? What roles have public and private actors—private global oil companies and national governments who owned the spaces and structures of the oil industry at different moments in time and through space—played in this process? What agency did engineers, architects, and planners have as they designed different but related building typologies and served corporations or governments?

The patterns of spatialising oil vary extensively within the Middle East and elsewhere. In North America and Europe, private actors have collaborated with public institutions to fit the emerging petroleumscape into existing infrastructure, building on ongoing industrialisation and modernisation. In the Middle East, colonial regimes and rising global corporations, originating in North America and Europe, overlapped with new public and private actors. Furthermore, the construction of spaces of petroleum extraction, refining, transportation, and consumption coincided with political, economic, and social modernisation. Some colonial governments in the Middle East imposed modernisation on other Middle Eastern countries, creating spatial constellations and representations of industrial, administrative, retail, and ancillary structures.⁹ Case studies by Alisaa Reem, Farah Al-Nakib, Neida Fuccaro, and many others have provided insights into the Middle East, an excellent foundation for the global framework of the petroleumscape.¹⁰

In the Iranian case, modernisation and the development and transformation of urban spaces for and by oil occurred very early. Oil extraction began in 1908—and the Iranian government and general public supported it.¹¹ In the southern region of Khuzestan, oil and governmental interests under British influence built a complete support landscape between 1901 and 1951, with infrastructure and towns based on the British garden city model. This landscape served global consumption while helping import a Western, modern way of life into Iran. In the capital region of Tehran, American politicians and professionals, working with the Iranian government, helped shape the petroleumscape between 1953 and 1979 in line with American styles of consumption, car use, and urban development. They linked the petroleumscape to existing spaces, where earlier political power had left its mark in built form and expanded them, while celebrating their achievements in both professional and public media. As oil consumption and production patterns changed globally, foreign intervention in Iran shifted from British to American experts, urban forms, and lifestyles. The result was two different but interconnected petroleumscape patterns, one creating new cities and regions, the other integrating and supporting the political manifestation of national power in Tehran.

BORDER-CROSSING COLLABORATIONS IN THE DESERT OF KHUZESTAN

Multiple corporate, public, and professional actors contributed to the emergence of the Iranian petroleum landscape in Khuzestan—a multifaceted fabric of cities, infrastructures, ports, refineries, housing, leisure sites, universities, and even movie theatres related to oil. The process started when British mining entrepreneur William Knox d'Arcy obtained an oil-exploration concession from the Iranian (then Persian) government in 1901.¹² After discovering oil in 1908 near the small city of Masjed Soleiman, d'Arcy and Burmah Oil established the Anglo-Persian Oil Company (APOC) in 1909 and the government enabled APOC to expand drilling activities in south Iran.¹³ After 1913, the British government became the main consumer of Iran's oil and injected capital into the company so as to develop the oil industry in Khuzestan. After a new agreement was signed between the Iranian and British governments increasing Iran's share of oil profits, the company was renamed Anglo-Iranian Oil Company (AIOC) in 1935, and became British Petroleum (BP) in 1954, one of the antecedents of today's company of that name.¹⁴

This consortium constructed extraction, transportation, and refining facilities in Khuzestan just as the car became a prominent means of individual transportation, and just as the British government decided to use petroleum instead of coal for its navy, an incentive to establish ties in the oil-rich Middle East.¹⁵ In contrast to other parts of the Middle East, where colonial powers directly imposed designs, oil production in Khuzestan showed some level of collaboration between foreign forces and the Iranian government, frequently benefiting the elite. While using local workers in the extraction fields, APOC employed British engineers and imported British models to develop the oil-rich area.¹⁶

Oil extraction, transportation, and refining here led to the creation of a cluster of towns that served the petroleum industry in multiple ways. The extraction sites—as often the case internationally—were in undeveloped areas, and APOC had to establish both new transportation infrastructure and new housing. Between 1908 and 1920, APOC constructed a series of small new towns such as Masjed Soleiman, Haftgel, Lali, Aghajari, and Omidieh near new drilling sites in the oilfields of Khuzestan to accommodate workers.¹⁷ These settlements served primary needs such as eating and sleeping; they stood in a park-like setting with freestanding houses in bungalow style (Figure 2). But as the existence of these sites depended on oil production, they did not have the potential to grow into cities.

Oil extraction is only one step within the oil production system. Refinery sites became the most powerful motors of later urban development. In the early 1910s, APOC decided to switch its export from crude oil to refined oil.¹⁸ The original agreement between the company and the government only covered oil exploration, and they therefore had to negotiate refinery construction.¹⁹ Many refineries at this time were located close to rivers, both for production and transportation, and APOC sited their refinery along the Arvand River, close to the coast of the Persian Gulf in southern Khuzestan. They also located storage and port facilities there, and the buildings that would become the city of Abadan.²⁰

APOC invited British engineers to design and construct a series of pipelines, railways, and roads to transfer crude oil to refining sites and ports. The crude oil for refining arrived through a

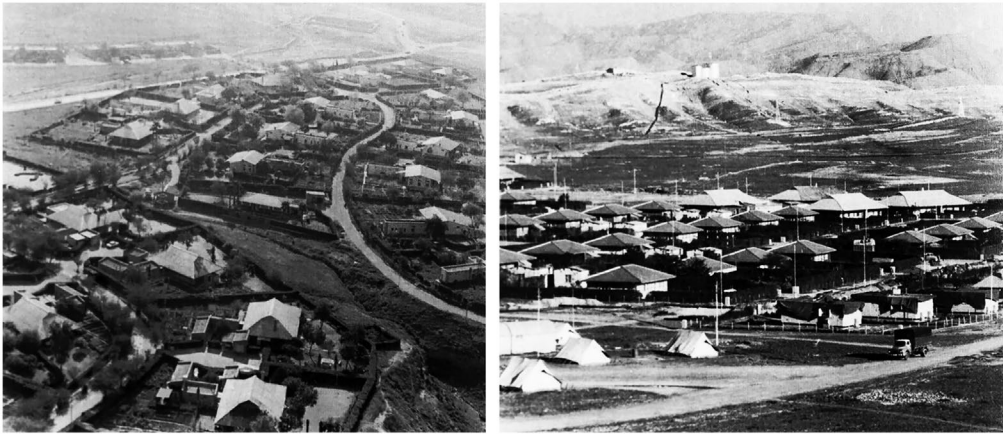


Figure 2. Housing neighbourhoods in Masjed Soleiman by APOC, constructed in the 1930s and 1940s. Source: Archive of Iran Petroleum Museum.

series of pipelines from drilling sites 300 kilometres away: between Masjed Soleiman and Abadan in 1911; between Aghajari and Mahshahr in 1943, where APOC had built a port to export crude oil to Europe; and to the port of Shahpur, built by APOC in 1928 for the construction of petrochemical industries.²¹ Covering more than 200 kilometres and crossing a difficult mountainous landscape, these pipelines required innovative infrastructure, such as new large-span bridges over valleys (Figure 3). During the 1920s and 1930s, APOC also developed the port cities of Khorramshahr, Mahshahr, Shahpur, and Darkhovin, which became strategic locations for the economic development of Khuzestan.²² In order to smooth transportation between Ahvaz and extracting sites in the mid-1920s, APOC provided advanced construction equipment, such as tower cranes, that allowed the government to build a bridge over the Karun River.²³ These structures became a point of departure for the development of cities; for example, the Karun Bridge facilitated the eastward expansion of Ahvaz in the late 1990s.²⁴

Such an extended landscape, with established cities and key nodes in the petroleum business, required multiple headquarters for administration and supervision. In 1913, APOC built its first headquarters in Masjed Soleiman, where the company had discovered the largest oilfields in Iran.²⁵ In 1914, APOC established new headquarters in Ahvaz, the capital of Khuzestan province, where other important administrations were already located, such as Iran's Shipping Company, the house of the governor of the province, and the British Consulate.²⁶ The company also constructed headquarters in Abadan in 1934, home to the largest refinery in the world until the late 1950s, and in the port city of Khorramshahr, near the largest oil storage facility; and it expanded its head office at the drilling site of Masjed Soleiman.²⁷ These buildings stood out for their European construction and neoclassical styles, and their depictions in diverse media served to represent the power and wealth of APOC achievements under British influences in Khuzestan (Figure 4).



Figure 3. The top image provides an overview of pipelines and oil-related facilities in Iran in 1963. Source: Mohamad Sedighi, based on a map available in the National Archive of Iran. The bottom images show the pipeline and a bridge constructed in the 1910s by APOC to connect the drilling sites of Masjed Soleiman with Abadan. Source: Archive of Iran Petroleum Museum (left), and *Mahshahr: A Port for Exporting Oil Productions*, Tehran: Iran’s Oil Operation Companies, 1967 (right).

In turn, new company activities required new ancillary structures, such as railways and stations, bridges, and fire stations. Financed and developed in collaboration with the Iranian government, the construction of these led to rapid urban development in once-barren areas.



Figure 4. APOC's headquarters in Khuzestan (Masjed Soleiman on the left, and Abadan on the right). Source: Archive of Iran Petroleum Museum.

Starting with the development of individual buildings, such as a new modern hospital in Masjed Soleiman in 1913, APOC expanded its activities, constructing a railway between Ahvaz and Abadan, and connecting drilling sites to it in the late 1920s (Figure 5). Building on this infrastructure, the Iranian government then expanded Iran's north–south railway in the early 1930s. The company made its most extensive architectural and urban interventions near their headquarters. During the 1940s, AIOC invested in a series of free-standing bungalows for British expatriates in Haftgel and Aghajari (Figure 6), and developed housing and other extensive urban facilities for their employees in Abadan, Khorramshahr, and Masjed Soleiman.²⁸

Abadan came to link the hinterland and the British foreland with commodity flows, infrastructure, and planning. Its design reflected British planning concepts and served as a model for the future expansion of oil-related cities in Khuzestan. Here, APOC/AIOC developed the new city of Abadan to accommodate British engineers, employees, and workers. The company asked British architect James Wilson to design the master plan, including housing for British employees and refinery workers, as well as urban facilities such as hospitals, schools, restaurants, clubs, and sports fields.²⁹ Wilson relied on the principles of the British Garden City, and organised his plan around an urban centre with a new administrative building and two gas stations that featured a mixture of local ornaments—such as *Muqarnas* (honeycomb vaults) and *Iwan* (vaulted deep entrance spaces)—and international design structures, notably using steel as construction material and creating outward looking façades with windows towards the streets (Figure 7). AIOC also funded the construction of a radio–television station, telecommunications facilities, and an airport for contact with and transportation to workers' homes back in the UK.³⁰

In the early years, APOC paid little attention to the living conditions of the local working class in Abadan, a city conceived with an eye to foreign needs, expatriate users, and British planning debates.³¹ This situation changed considerably in 1933 when a new agreement was reached between the Iranian government and APOC, making the latter responsible for the construction of schools, hospitals, housing, mosques, and other facilities for Iranian workers in Abadan.³² APOC established the Abadan Petroleum University to teach Iranians how to explore oilfields,

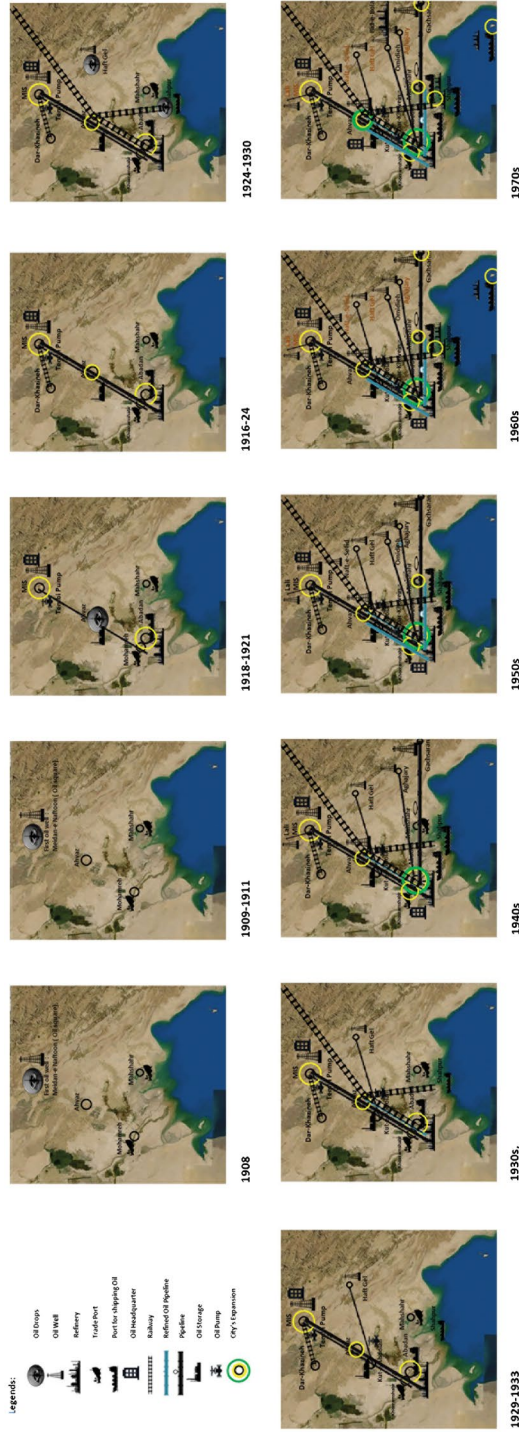


Figure 5. The expansion of oil-related infrastructure and ancillary buildings in Khuzestan between 1901 and the 1979 Iranian revolution. Source: Rezvan Sarkhosh.

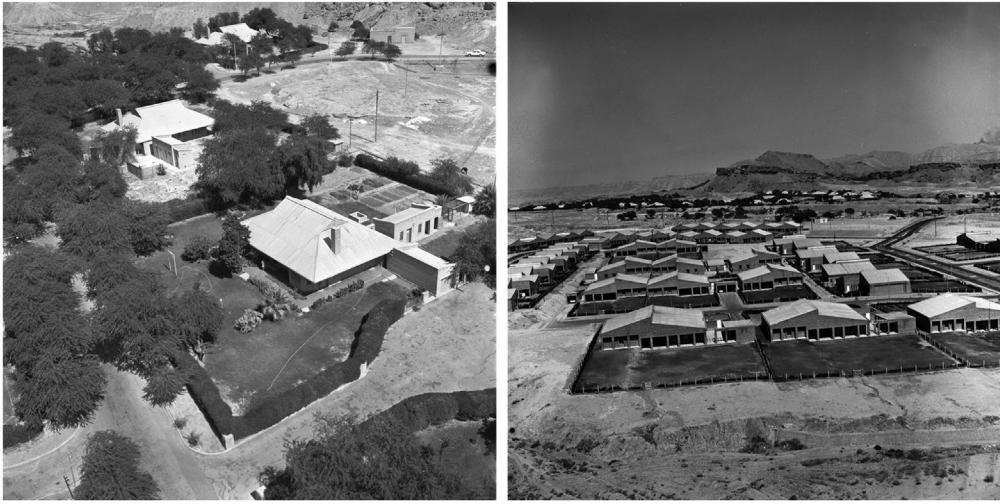


Figure 6. A series of bungalows in Aghajari constructed by AIOC in the 1940s. Source: Archive of Iran Petroleum Museum.



Figure 7. Two early gas stations in Tehran (left) and Abadan (right). Source: Archive of Iran Petroleum Museum.

refine oil, and produce its by-products, connecting Iranian students to their counterparts in the global North (Figure 8).³³ This resulted in the development of new ancillary structures: the neighbourhood of Bovardeh, for example, accommodated educated Iranian workers/engineers, expanding Abadan towards the east.³⁴

The city of Abadan and its region experienced further development starting in the late 1940s as the car became a standard means of transportation.³⁵ The production of bitumen as a by-product of the Abadan refinery enabled APOC to construct asphalt streets, yet another layer of the petroleumscape. These roads facilitated transportation of APOC/AIOC/BP employees between oil facilities and related buildings; they connected Abadan neighbourhoods with the refinery and the port; and on a larger scale, linked Abadan with Ahvaz, Shahpur, and drilling sites. Coinciding with the export of Western-manufactured vehicles to Iran, and in particular



Figure 8. The Abadan Petroleum University established by AIOC in 1938. Source: Archive of Iran Petroleum Museum.

to Abadan, the increase in private car use necessitated further expansion of the road network and the construction of gas stations throughout the cities and the landscape.

The company featured its urban achievements in a range of media: journals, distributed to British and Iranian workers of the company; free postcards, available in the supermarkets, cinemas, and clubs; and anniversary booklets.³⁶ Their images depicted the sites and cities as oases in the desert, and featured oil structures such as refineries and installations as crucial to a liveable environment. The postcards represented the newly constructed cities as places full of parks and low-rise bungalows, promoting British Garden City ideas (Figure 9). To disseminate a positive image among the general public in Iran, in the early 1950s, AIOC produced a series of movies featuring locations developed by the oil industry as ideal places to live. The movie, *Persian Story* (1951–1953), for example, portrayed Abadan as a comfortable and appealing place where Iranian and British people lived and worked in peace together.³⁷

The Iranian government similarly embraced the new oil city as an icon of national identity. It chose to depict the Abadan refinery on the national currency, connecting the development of the oil industry to Iran's economic expansion and wealth for the general public (Figure 10). Independent media such as the *Tehran Mossavar* newspaper also presented these industrial developments as the contribution of the Iranian government to the modernisation of the country. In addition, the Iranian architecture journal, *Arshitekt*, showed Abadan as a modern city with residential neighbourhoods, its citizens enjoying the benefits of modern electricity,

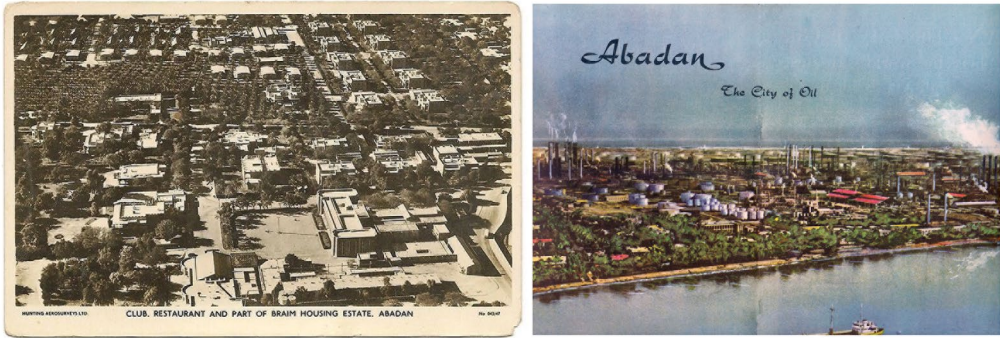


Figure 9. Abadan appears as a green city, full of gardens, in a desert-like climate on these postcards. Source: Archive of Iran Petroleum Museum.



Figure 10. Abadan refinery on Iran's national currency. Source: Archive of Iran Petroleum Museum.

plumbing, sewer systems, and air-conditioning.³⁸ These depictions attracted many people who sought a better life, and the city dramatically grew from a tiny village in 1912 to a large town with a population of 173,000 people in 1949.³⁹ In turn, Abadan inspired many Iranian modernist architects such as Ali Sadegh to develop similar urban structures outside Khuzestan, such as the Chaharsad-Dastgah housing project in Tehran.⁴⁰

Thus, by the 1950s, the multiple elements of the spatial and represented petroleumscape of Khuzestan—extraction, transportation, transformation, administration, advertising, and ancillary developments—collectively communicated the impact of petroleum as an agent for innovative architecture, urban planning, modernisation, globalisation, and national development. AIOC's close collaboration with the British government came to an end in 1951, when the Iranian government, under the leadership of then prime minister Mohammad Mosaddeq, nationalised

the company.⁴¹ The new government would continue to embrace petroleum as a means of modernisation, but chose a new location, close to the country's capital and decision-making centre, Tehran, and a different approach for connecting oil structures to existing spaces.

Meanwhile, the growth of Abadan's population in the 1950s and 1960s again required further urban expansion. In the early 1960s, Iran's Ministry of Development and Housing, in collaboration with the Ministry of Petroleum (IMP), asked the Greek urban planner, Constantinos Doxiadis, to develop a new vision. His plan accepted car-based transportation as an urban development principle. It gave equal weight to the development of oil-related facilities and of urban facilities for the working class and the Iranian employees of the oil industry in Abadan.⁴² Aside from the general layout of streets and residential neighbourhoods, the plan also focused on the construction of a series of gas stations in the city, further promoting the use of cars and petroleum.⁴³

The development of car-based urban form in Abadan and the oil cities of Khuzestan coincided with the increased involvement of the United States in Iran. During the 1960s and 1970s, US-based automobile companies such as Jeep and General Motors considerably increased exports to Iran.⁴⁴ As more Iranians owned cars, new suburban housing districts catered to the new car-based lifestyle that diverse media depicted. The use of these oil-generated spaces popularised this new lifestyle with the Iranian population. However, the focus of the country's modernisation was no longer on Khuzestan. Most of the American petroleum-based impact in Iran now focused on Tehran, a key site in the Cold War fight for oil access. The Cold War highlighted the importance of Middle Eastern oil for US national security and foreign policy. On the one hand, Persian Gulf petroleum generated gasoline for millions of automobile consumers in the US; on the other hand, it fuelled the Marshall Plan for the recovery of Western Europe.⁴⁵

THE IRANIAN GOVERNMENT AND THE OIL-BASED DEVELOPMENT OF THE CAPITAL

Rapid growth of car ownership among Iranians and the subsequent expansion of infrastructure, motorways, and suburban areas around the big cities, in particular the capital, shifted the focus of international petroleum actors to Tehran.⁴⁶ The new Iranian government, established after the CIA/MI6-engineered coup of 1953 against the Mosaddeq administration, used the oil industry as an agent for modernisation and urban transformation.⁴⁷ Tehran emerged as the main site of the country's production, consumption, and representation of petroleum.

World War II had weakened the dominant position of the British government in the Middle East, creating a chance for the United States to fill the vacuum and strengthen its position in the region.⁴⁸ The connection with the United States linked Iran to the global industrial system and more generally to modern lifestyles. While APOC/AIOC had been the main agent for the development in Khuzestan, the US became a significant player in Iran's socio-political and economic development, providing advanced technologies to the Iranian government. American construction, development, and design firms helped expand the oil industry in Tehran and

develop new urban structures and major buildings.⁴⁹ This modernisation program led by the Shah was known as the White Revolution.

To fuel the White Revolution, the Shah developed the oil industry in order to increase national income needed for expansive infrastructural development.⁵⁰ At the invitation of the Iranian government, United States oil companies such as Exxon collaborated with Iran's Ministry of Petroleum to build a new refinery in south Tehran between 1962 and 1965, linking it to the earlier petroleumscape of Khuzestan with pipelines and other infrastructure.⁵¹ They took a new and different approach to refining and spatial distribution in Iran: rather than producing fuel for foreign consumption in a port, the new refinery served consumers in Tehran and the Iranian heartland. To cover the distance between the capital and the extraction sites in southern Iran, American companies and engineers helped the IMP construct 2,000 kilometres of pipeline.⁵² The presence of the refinery attracted many state-funded companies to expand oil-related industries in Tehran. For instance, Behran Oil, established in 1962, and Tehran Oil Trading, established in 1963, constructed their petrochemical factories nearby to accelerate the production of automotive oils, industrial oils, greases, and other products.⁵³

The expansion of the oil industry in Tehran increased the need for administrative oversight and boosted urban development. The IMP built its new headquarters in 1963. In contrast to all other governmental buildings, located in the historic city centre, the administration chose a location just outside the existing city centre and close to the US embassy. The 15-storey building was one of the tallest at the time and a landmark in Tehran. Its US-trained Iranian designer, Abdolaziz Farmanfarmaian, was best known as a pioneer in the design of high-rise buildings in Iran; he would go on to work for the IMP until the 1979 Islamic revolution.⁵⁴ His tower became a model for high-rise buildings in Tehran and served to spearhead new urban development.⁵⁵ Since the mid-1960s, international and national oil companies, such as Consortium and Behran Oil, built their headquarters around the new IMP office, far from drilling sites and refineries. Seemingly, the development of these new administrative buildings attracted other national and international financial institutions: BBME Bank, First National Bank of Milwaukee-Wisconsin, Tehran Bank, Pars Bank, and Omran Bank all built their new offices nearby.⁵⁶ This area—created by the administration of oil, an important layer of the petroleumscape—serves today as the modern financial and non-governmental administrative centre of the city (Figure 11).

The connection between oil and urban development in the capital is further illustrated in the development of the master plan of Tehran by the American architect, Victor Gruen, between 1965 and 1968. Gruen notably proposed to divide the city into ten satellite towns linked by motorways (Figure 12).⁵⁷ High-rise residential buildings around shopping malls would help to promote a consumer society.⁵⁸ These malls offered access to American commodities such as oil-powered refrigerators, televisions, and radios that entered the country beginning in the 1950s as part of the Point IV program initiated by US President Harry Truman to open Iran's market to US goods.⁵⁹ The shopping malls also promoted an automobile society. As architectural historian Pamela Karimi has pointed out, the master plan of Tehran “was designed to accommodate commercial markets and facilitate the movement of automobiles”.⁶⁰ The proposed highway



Figure 11. The IMP building in Tehran constructed in 1967 (left) and the current situation (right). Source: Archive of Iran Petroleum Museum.

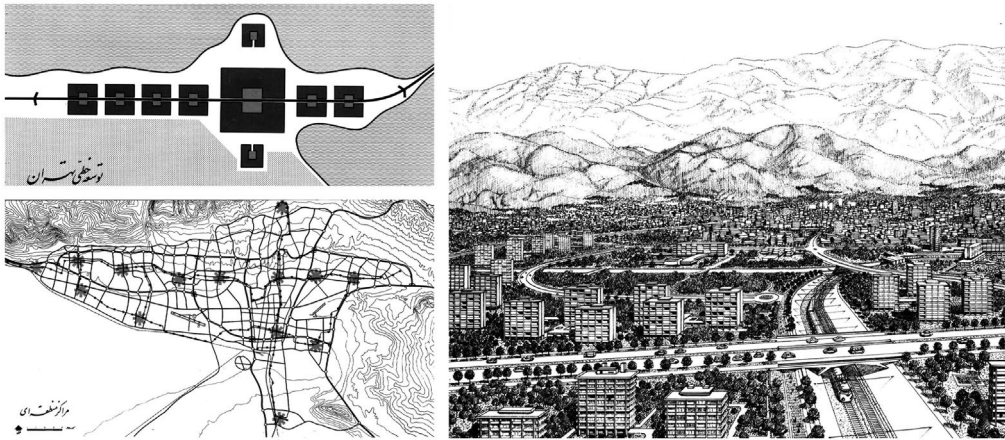


Figure 12. The diagrams and illustration provided by Victor Gruen for the master plan of Tehran. Source: *Honar va Memari*, 3, no. 5 (1970), 22–77.

network catered to an oil-dependent society, and the plan's details described the placement of gas stations in the city.⁶¹ Mostly located in the places suggested by Gruen, the Tehran gas stations are still a key element of the petroleumscape, connecting the oil industry to people's everyday lives. The development of roads and gas stations as well as the expansion of private

car ownership considerably increased the consumption of oil and its by-products in the capital. The IMP expanded the refinery of Tehran in the late 1960s in order to produce more gasoline for automobiles and more asphalt for roads required by the new car-based lifestyle.⁶²

The financial flows of oil also left their imprint on ancillary structures, symbolic buildings such as Shahyad Tower (renamed Azadi Tower after the revolution) and the House of Parliament, and housing estates in Tehran that have since developed into new icons of the country. In the 1960s, the IMP mostly invested in workers' housing projects such as Shahrak-e Naft (close to the refinery in south Tehran). Nevertheless, by implementing the master plan of Tehran in the late 1960s, it shifted focus to the development of public amenities such as drive-in cinemas and clubs for its employees. These spaces later became gathering places for all residents of the city. More importantly, in collaboration with the Municipality of Tehran, the IMP funded new urban projects: Shahyad Tower, constructed in 1971 as a gateway to the city, close to Mehrabad International Airport; Aryamehr Complex, developed in 1973 to host international sports events in the capital, and Tehran Contemporary Art Museum, constructed in 1976 for the exhibition of work by international artists (Figure 13). Mostly designed by US-trained Iranian architects, these projects featured a mixture of local and international iconography. Professional magazines such as *Honar va Memari* published pictures from new urban projects, such as Shahyad Tower, the tomb of Reza Shah Pahlavi, the headquarters of Bank-e Sepah, Tehran's City Theater, the Hilton Hotel, and the headquarters of National Iranian Oil Company, as symbols of progress.⁶³ These projects have also inspired many Iranian artists, such as Parviz Tanavoli and Samila Amirebrahimi, and regularly serve as backgrounds for postcards issued by travel agencies (Figure 14).

The most ambitious urban project suggested by the master plan of Tehran was probably Shahestan Pahlavi, a proposed urban centre which aimed to imagine the capital as an emblem of modernisation in the Middle East.⁶⁴ Oil-generated funds allowed the government to move ahead with Gruen and to propose a new administrative centre in the hilly areas of Abbas-Abad, including new ministry buildings, governmental offices, and ceremonial places. Between 1974 and 1976, the Municipality of Tehran employed world-famous architects such as Louis Kahn and Kenzo Tange in designing this area, with the IMP providing the funds.⁶⁵ A year later, the design proposal of Shahestan was fundamentally changed by the Llewelyn Davies Company. In the proposal, the new high-rise building of the IMP occupied a dominant place in the design layout and was planned for the first stage of construction. Once again, the oil industry became a driving force for development and for expanding the petroleumscape. Iranian oil companies used images of the project to promote the use of their by-products in the construction industry (Figure 15).⁶⁶ Through the expansion of oil-related facilities and headquarters at the heart of the capital, and through the investment of oil gains in the built environment, the nationalised oil industry linked Tehran to the production sites in Khuzestan, and added a layer of both administrative control and representation to the palimpsestic petroleumscape.



Figure 13. Funded by petrodollars and constructed by the Iranian government, Aryamehr Stadium (left), Shahyad Tower (right), and the Contemporary Art Museum (top) became new landmarks in Tehran as of the early 1970s. Source: National Archive of Iran.



Figure 14. Shahyad Tower and Queen Elizabeth Boulevard in Tehran on postcards. Source: National Archive of Iran.

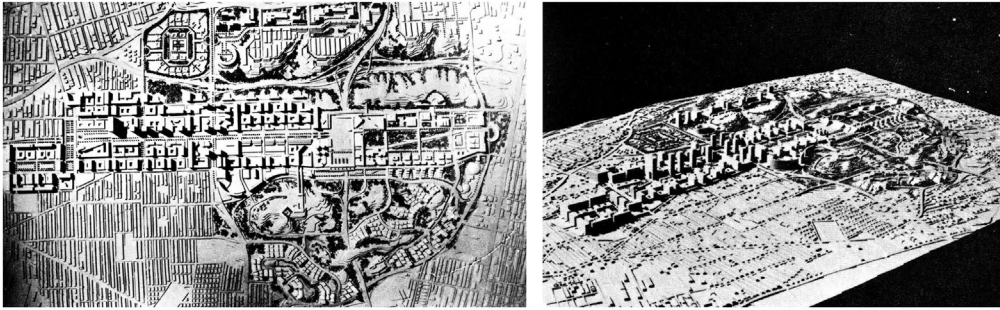


Figure 15. The plan of Shahestan Pahlavi (in Abbasabad) revised by Llewelyn Davies architects in 1976. Source: *Honar va Memari*, 8, no. 34 (1976), 6.

CONCLUSION

Different constellations of actors, geographies, infrastructure, and global and local interaction in Iran formed two versions of modernisation, recalling Shmuel Eisenstadt's notion of multiple modernities.⁶⁷ Expressed in distinctive petroleumscape patterns that related to each other in a palimpsestic way in time and space, modernisation in both Khuzestan and Tehran made citizens part of the oil-generated transformation of the built environment. In Khuzestan, an undeveloped part of Iran's southern province, the APOC/AIOC focused on the export of oil and developed new infrastructure and urban areas to accommodate the needs of its employees and the workers of the oil industry. There, a foreign oil company with the support of both a foreign government and the Iranian government established a semi-colonial development of oil extraction, transportation, and refining infrastructure, showcasing it as a successful modernisation story associated with foreign planning principles. Ultimately, however, the British impact on Iran's modernisation process and lifestyles did not reach far beyond the province of Khuzestan.

In Tehran, in the two high-growth periods of 1955 to 1963 and 1968 to 1978, Iranians' petroleum-based energy demands increased and people started to use cars more extensively.⁶⁸ Support from United States companies for the construction of a new refinery close to the capital extended the petroleumscape from Khuzestan to Tehran and promoted petroleum-based urban transformation. The new refinery and the development of oil-related industries in Tehran provided the foundation for further expanding US lifestyles for ordinary Iranian citizens, including oil-powered household commodities and construction technologies. Public and private, foreign and national actors transformed the capital into a national icon, using it as a tool for promoting national identity. Private companies used oil money to fund public amenities and promote those projects to form a positive image of oil in the minds of the general public.

Using the concept of the petroleumscape helps to analyse the roles of different oil actors—global and national corporations; national and local governments; professional, industrial, and civic players; the public—in creating these territories, built forms, and representations, and provides an opportunity to enrich our understanding of globalisation, multiple oil modernities,

and architectural, urban, and environmental history and its impact on space through time. In a next step, this research will allow us to compare national, regional, and local histories and to facilitate a cross-cultural and transnational perspective on architectural and urban history.⁶⁹ A closer study of the relation between oil and built form facilitates our understanding of the role of energy landscapes in the past, present, and future, including those of new renewable energies, and their potential impact on historic structures and future urban form alike.

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