

ABSTRACT

Title of Thesis: Green Gold? An Analysis of Saudi Renewable Energy Policy from 1960 to 2010

Jacob D. Bailey, B.A. International Studies; B.A. Psychology, 2018

Thesis Directed by: Doctor Melanie Tanielian

This work explored the question, “How did the Saudi government’s desire for political stability, a cultural reliance on oil within Saudi society, and the ineptitude of state-sponsored environmental authorities influence the development of renewable energy practices in Saudi Arabia from 1960-2010?” Using primary and secondary sources from both Saudi Arabia and the international community, this thesis posits that, although there was a strong renewable research and development presence existent in Saudi Arabia since the 1960s, movement toward practical implementation stalled from then until 2010. This stagnation at the implementation stage can be attributed to a dominating narrative of oil reliance within Saudi culture, the Saudi government’s desire to maintain political stability, and the ineptitude of state-sponsored environmental organizations. While previous literature exists on each of these three factors as a primary facilitator for the perpetuation of fossil fuels, this thesis proposes that understanding their intersectionality serves as a better method for analyzing the continued failure of the implementation of renewable policy.

Green Gold?
An Analysis of Saudi Renewable Energy Policy from 1960 to 2010

By

Jacob D. Bailey

Thesis submitted to the Faculty of the College of Literature, Science, & Arts
at the University of Michigan in partial fulfillment
for the requirements for the degree
of Bachelor of Arts
(International Studies with Honors)
2018

Thesis Committee:

Doctor Melanie Tanielian
Doctor Anthony Marcum

Table of Contents

Abstract	i
Acknowledgements	v
Map of Saudi Arabia	vii
Chapter I: Essential History and Existing Opinions	1
The Question, Motivation, and Contributions to Research	1
Historical Overview	2
Literature Review	7
The Dominating Narrative of Oil Reliance	9
Politics of Stability	10
Ineptitude of State-Sponsored Environmental Authorities	14
Outline of the Thesis	16
Chapter II: A Conceptual Transition - 1960-1985	19
Introduction	19
Ineptitude of State-Sponsored Environmental Authorities	20
Politics of Stability	24
The Dominating Narrative of Oil Reliance	28
Summary	32
Chapter III: Progress, 1985-2001	34
Introduction	34
Ineptitude of State-Sponsored Environmental Authorities	36
Politics of Stability	41
The Dominating Narrative of Oil Reliance	45
Summary	49
Chapter IV: Perseverance - 2001-2010	50
Introduction	50
Ineptitude of State-Sponsored Environmental Authorities	52
Politics of Stability	57
The Dominating Narrative of Oil Reliance	62
Summary	66
Chapter V: Conclusion - 2010-2018	68

Introduction	68
Creation of Opportunity within Environmental Authorities	69
Political Stability through Unity	72
The Role of Culture in Enriching the Renewable Narrative	74
Summary	75

Bibliography	77
---------------------	----

Acknowledgements

This thesis would've never happened without the endless support from my professors, colleagues, friends, and family. First and foremost, my thanks goes out to Melanie Tanielian – without your faith in me, the constant stream of ideas, and drive to push me another step further, this finished product would not be half of what it is today. Thanks is also due to Anthony Marcum – you gave me the perfect amount of freedom to create something that was truly mine, but never let me stray too far from the goal. I think that's one of the true hallmarks of an amazing educator.

To Evyn Kropf, thanks for getting this whole thing started. Any successful research project starts with successful research, and I'd have been lost if it weren't for our initial meeting in early July (and subsequent six-month email chain).

To my thesis cohort, thank you for your patience. You all helped turn this project from a rough compilation of facts to a refined academic piece. Sometimes all a paper needs is one more set of eyes, and I'm thankful I had nine.

To Omolade Adunbi, you may never realize this, but your class brought this idea to the front of my mind. Our weekly discussion about oil as a conflict resource and a cultural symbol led me to this idea, and I couldn't be more thankful for that.

To Michigan Rugby, thank you all for inspiring me to simply be better. Coach Sparks, Zach, Bill, Andre, and everyone else in the family – you facilitated the most important growth point in my life. To have a group like that to fall back on is rare in college, and I'm thankful to have been a part of it.

Finally, thanks to my mother, Margaret, and my grandmother, Pat. You two have been present since the very beginning, celebrating every high, and pushing me through every low. Thank you for sticking with me and supporting my dream for the last 21 years, I hope I'm making you proud.



Map of the Kingdom of Saudi Arabia, Copyright NormanEinstein, 2006.

Chapter I: Essential History and Existing Opinions

“We are living in a different world now. You can see it everywhere in international relations: It was noteworthy that, after his visit to Washington, the Chinese president’s next stop was to Saudi Arabia”

--Daniel Yergin¹

The Question, Motivation, and Contributions to Research

This work explores how the Saudi government’s desire for political stability, the long-standing economic reliance on oil, and the inefficiency of state-sponsored environmental authorities undermined the development of sustainable energy in Saudi Arabia from 1960 to 2010. This thesis examines the history of Saudi Arabia’s failed sustainable energy policies taking into account the interplay of culture, religion and politics in preventing the development of a coherent and successful move away from oil dependency. Herein, it considers the dominating oil reliance narrative, the desire for stability from the federal government, and the inefficiency of state-sponsored environmental authorities as key determinants of the socio-cultural climate of Saudi Arabia. It will become clear that these three key areas contributed uniquely and variably over time toward a continued prioritization of oil over renewables in Saudi Arabia’s domestic energy production. While this has perpetuated a successful carbon-based energy production in the past, the focus on an oil economy clearly, as elsewhere, here too is untenable for the long-term future. Assuming the Saudis understand this, I outline how desire for political stability, a comfort with an existent oil economy, and the lack of political will to change, has influenced the path of renewable development, and how interactions between these key factors helped, or

¹ Jung, A., & Mascolo, G. (2006). “Energy Security Will Be One of the Main Challenges of Foreign Policy.” [Interview]. In *Der Spiegel*. Retrieved from: <http://www.spiegel.de/international/spiegel/the-war-over-resources-energy-security-will-be-one-of-the-main-challenges-of-foreign-policy-a-427350.html>

hindered, the practical implementation of renewable energy on a regional or national scale. This thesis argues that, in response to global pressure for more environmentally-friendly energy production methods, a strong movement for the research and development of renewable energy existed along the narrative of Saudi leadership on the world stage, but that there was little progress, however, toward practical implementation within Saudi Arabia. This is due to a dominating cultural narrative of oil reliance from both the government and its people, the Saudi government's desire for stability, and the inefficiency of state-sponsored environmental authorities. While these factors have been considered individually by previous literature, it is important to consider these factors together as it is, I argue, their relationship that perpetuated the continued use of fossil fuels and stalled large-scale adoption of a renewable energy infrastructure from 1960-2010.

Historical Overview

The history of Saudi Arabia as an independent state begins in 1927, when the United Kingdom abdicated its rule and recognized the sovereignty of the Kingdoms of the Hijaz and Nejd, with King Ibn Saud as their ruler². Following years of dual-rule between competing kingdoms in the area, Ibn Saud consolidated his power by founding the Kingdom of Saudi Arabia in 1932. Supported by the Wahhabi sect of Islam, which had centuries-old ties with the House of Saud and strong support in both the Hejaz and Nejd, King Ibn Saud brought the region under a centralized regime for the first time in its 20,000-year history³. In unifying Saudi Arabia, King Ibn Saud maintained the existing law in each of the thirteen tribal sub-regions, while

² United Kingdom-House of Saud. (1927). "Treaty Between His Majesty and His Majesty the King of the Hijaz and of Nejd and its Dependencies."

³ Vassiliev, Alexei. (1998). *The History of Saudi Arabia*. London, UK: Al Saqi Books. [ISBN 0-86356-935-8](https://www.al-saqi.com/ISBN-0-86356-935-8).

building a loose, yet centralized federal government structure to oversee his kingdom. Although these regions were geographically and culturally distinct, the destruction of tribal borders through unification encouraged interaction among groups. What followed was a “slow, irreversible” change as Ibn Saud decided to move the Saudi capital to Riyadh. This move required new buildings for the capital itself and the city⁴. Buildings were constructed according to the latest in urban design, with more advanced and durable building techniques⁵. This advanced construction is evidenced by the prominence of modern villas throughout major cities, built mainly from cement instead of traditional wood⁶. In addition, the Saudis introduced of new transportation methods like cars and modernized urban planning methods to Saudi society⁷. More generally, a transition toward industrialization started slowly and took off later in the 1960s with major international investments in petrochemicals (oil and natural gas)⁸. The Saudi state sponsored this rapid development in urban regions via the rentier state system, in which states charge mining and export taxes on their natural resources, thus defeating the need for a productive domestic sector⁹. This transition, which occurred quickly in comparison to other developing states, added pressure to modernize to a traditionally-conservative Saudi society¹⁰.

⁴ Eben Saleh, 1998.

⁵ Lombre, Traci (2006). “Saudi Arabia: Looking Beyond the Veil.” In *University of Chicago Center for Middle Eastern Studies Newsletter*, Volume 2, No. 1. Chicago: University of Chicago.

⁶Eben Saleh, 1998.

⁷ Eben Saleh, Mohammad Abdullah. (1998). “Life and Death of Traditional Settlements of Southwest Saudi Arabia.” *Journal of Architectural Education* (1984). 51(3). pp. 177-191.

⁸ Beaumont, P. et. al. (2016) *The Middle East: A Geographical Study, 2nd Ed.* London: Routledge. ISBN: 9781317240297

⁹ Mahdavy, H. (1970). "The Pattern and Problems of Economic Development in Rentier States: The Case of Iran." In *Studies in the Economic History of the Middle East*. ed. M.A. Cook. Oxford University Press: Oxford.

¹⁰ Barth, H.K, & Quiel, F. (1986). “Development and Changes in the Eastern Province of Saudi Arabia.” Published in *GeoJournal*, 13:3 pp. 251-259. Dordrecht: D. Reidel Publishing.

Shortly after the creation of the Saudi state in 1930, Ibn Saud partnered with the American Standard Oil Company of New York (SOCONY) in drilling for petroleum. The first oil discovery was made in 1938, and Ibn Saud granted the Americans drilling rights in 1944¹¹. With this new resource came new needs in the young country: to operate the drilling sites in and around Dammam, roads and cities needed to be built, materials had to be imported to build a port near the well, and unskilled laborers had to be trained quickly. According to the Country Studies, published by the Library of Congress in 2018, SOCONY (which transitioned to the name Arab-American Oil Company - Aramco) used this opportunity to improve the lives of Saudis. They trained unskilled domestic laborers to fill required jobs around a drill site, and funded scholarships for “doctors, supply experts, machinists, ship pilots, truck drivers, oil drillers, and cooks.”¹² As a result, many Saudi nationals worked independently upon leaving Aramco, and improved their own standard of living through starting their own businesses¹³. In the same manner, Aramco partnered with the Saudi government to build railways and paved roads. Thus, cities like Jeddah and Riyadh developed into modern cultural and social centers by the 1960s¹⁴.

The settlement of nomadic communities in increasingly modernized cities brought about debates and questions about the future of Saudi society. During the 1950s, regional leaders, most notably Gamal Abdel Nasser in Egypt, spread ideas of secular nationalism was prevalent in the Middle East. The founder of the United Arab Republic (1958) and member of the Arab League

¹¹ Library of Congress. (2017). “Islamism in Saudi Arabia”. In *The Library of Congress Country Study on Saudi Arabia*.

¹² Ibid.

¹³ Ibid.

¹⁴ Nehme, M. (1994). “Saudi Development Plans Between Capitalist and Islamic Values.” In *Middle Eastern Studies*, 30:3. pp. 632-645. doi: [10.1080/00263209408701015](https://doi.org/10.1080/00263209408701015)

(1945-present), Nasser gained popularity by resisting European colonial forces, most prominently through nationalizing the Suez Canal. Nasser saw religious leadership as an obstacle to introducing his ideology of Arab socialism and successfully sidelined the Egyptian *ulama*, becoming one of the first Middle Eastern heads¹⁵. In Saudi Arabia, tribes maintained their existing way of life, despite more interaction and integration under the unified state.

Wahhabi clerics, following a conservative interpretation of Islam, in particular pushed back against Westernization and the import of foreign ideas and goods. Wahhabi Islam had become the official state religion not only because of its long connection with the House of Saud, but also because of its supportive role of the *ulama* in the creation of the modern state¹⁶. Indeed, the Wahhabi *ulama*, or religious scholars, took control of education, law, and religious custom during the 1900s, while permitting Ibn Saud to deal with non-Muslims and import modern technology as a “trade-off”¹⁷. In this way, the *ulama* influenced Saudi policy at the federal level, and used oil money from the Royal family to advance their conservative agenda and reach beyond the political borders of Saudi Arabia to take hold in other countries in the Gulf¹⁸.

When it came to international relations, Ibn Saud had historically maintained contact with American President Franklin D. Roosevelt and supplied the Allies with oil during World War II. Ibn Saud hoped that it would convince the Americans to side with him when it came to the Israeli-Palestinian conflict¹⁹. While Saudi Arabia remained neutral during the Second World

¹⁵ Cook, Steven. (2011). *The Struggle for Egypt: From Nasser to Tahrir Square*. London: Oxford University Press. ISBN 978-0199795260

¹⁶ Kepel, Gilles, & Roberts, Anthony, trans. (2002). “Jihad: The Trail of Political Islam”. Harvard University Press.

¹⁷ Commins, David (2009). “The Wahhabi Mission and Saudi Arabia”. London, England: I.B. Tauris.

¹⁸ Vogel, F. (2000) “Islamic Law and the Legal System of Saudi: Studies of Saudi Arabia.” In *Studies in Islamic Law and Society Series*, 8:1. ISBN: 9789004110625

¹⁹ Assi, Seraj. (2017). “When Franklin D. Roosevelt met Ibn Saud.” In *Al-Araby*.

War, it was not given a choice in the Cold War: both the Soviets and the United States had a vested interest in the Middle East. The Soviets saw the Middle East as a strategic gateway from which they could spread Communism into Asia and Africa. The United States, in turn, wanted to protect its oil interests in the Gulf Region. These two powers, however, could not address each other through direct military force: the threat of nuclear war was too real during the 1950s. Instead, they chose to fight via proxy groups in various theaters across the globe, the Middle East being one.

When King Ibn Saud died in 1953, the Saudi throne remained open for the first time in history. He was succeeded by his son, Saud, who defeated his brother Faisal for the throne in 1953²⁰. Within the first year of his reign, Saud expanded the government by creating the Council of Ministers. The council was comprised of other members of the House of Saud and close aristocratic friends, Saud clearly recognized the need for a larger government in the growing country. Over the next decade ministries would be established for communication (1953), agriculture and water (1953), education (1953), petroleum and mineral resources (1960), pilgrimage and Islamic endowments (1960), labor and social affairs (1962), and information (1963).

The expansion of the federal government was in part a response to the rising expectations from its citizens. In 1953 and again in 1956, domestic laborers from Saudi Aramco began demonstrations in response to worker conditions and their inability to unionize²¹. Saud responded to these protests with force, which undermined his popularity among the Saudi public. Although his responses to these strikes were dictatorial, the remainder of his reign was marked

²⁰ Al-Rasheed, Madawi. (2010). "A History of Saudi Arabia, 2nd Edition." London: Cambridge University Press.

²¹ Ibid.

by modernization and urban reform. Similarly, Saudi Aramco began to build rapport with the public. In 1959, Aramco sent its first cohort of Saudi students to study in America²² The early years of the Saudi state were occupied with state-building and socioeconomic development. Sustainable energy in Saudi Arabia, as most elsewhere in the world, was not a priority, nor was it seen as a necessary policy development considering the vast oil resources. It was only in the 1960s when the Saudi government addressed renewables as a country, and began their slow, but steady exploration into alternative energy. This slow expansion has to be seen in the light of the local, regional and international power dynamics that had already manifested in this early time period.

Literature Review

The goal of this work is to demonstrate that a strong commitment to the research and development of renewable energy existed among Saudi leaders, at least when it came to rhetoric in the international arena. This came in response to global pressure for more environmentally-friendly energy production methods. Still, despite a pro-renewable rhetoric in the international public sphere, there was little movement toward practical implementation within Saudi Arabia due to a culture of oil reliance promoted by the government and supported by the people. In addition, the House of Saud's desire for political stability and the inefficiency of standing state-sponsored environmental authorities undermined any significant concrete advancement toward a shift in energy policy. Scholars have looked at these factors in isolation, but I argue that their intersectionality perpetuated the continued use of fossil fuels for energy production in Saudi Arabia. As a result, large-scale implementation of a renewable energy infrastructure from 1960-

²² Saudi Aramco. (2018). "1950s".

2010 was stalled²³. It does not, however, consider the interaction of each of the three factors in strengthening the argument against the implementation of large-scale renewable projects in the country. Often, authors will consider one factor, such as culture, a lack of education, or financial burden as the sole or primary facilitator in perpetuating anti-renewable sentiment in Saudi Arabia. These monocausal explanations, although true to a degree, do not acknowledge that there is no primary facilitator at fault for the failure to implement a large-scale renewable energy infrastructure in the country. These factors and their multidirectional relationships, in turn, affect the prospects of a renewable energy infrastructure in Saudi Arabia. The explanation for this failure sits at the intersection of these three major factors, which have, with varying degrees of intentionality, influenced fifty years of popular opinion and policy making in the Kingdom of Saudi Arabia.

The objectives of this thesis are achieved through the examination of primary and secondary sources. These sources include national news reports, policies and documents from national and international authorities, dissertations, and historical reviews. These sources present their own biases, but their commonalities separate fact from opinion. For example, similarities between C.I.A. reports and Saudi Aramco articles in the 1980s can confirm policy actions during a tumultuous time in oil economics. To confirm these measures, Barth and Quiel's "Development and Changes in the Eastern Province of Saudi Arabia" provides an independent investigation of economic and social development in one region of Saudi Arabia. The integration of Saudi, American, and third-party primary and secondary sources provides a comprehensive scope with which to examine the success and failure of the Saudi National Development Plans,

²³ Al-Gilani, Ahmad Ali. (1998). "The Environment: Theories, Assessment Techniques, and Policies: The Saudi Experience." Ph. D. dissertation, The University of Edinburgh.

and thus confirm the importance of the intersectionality of culture, economy, and politics in the stagnation of renewable energy development at the research and development stage.

The years 1960 and 2010 were chosen as chronological parameters for this work because 1960 marked the first time that renewable energy was seriously considered by the state in Saudi Arabia, while 2010 serves as the end of the Eighth National Development Plan in Saudi Arabia. This is the last plan whose effects on the economy have been noticed and covered by scholarly sources. Since these plans last every five years, they are used as benchmarks by which to evaluate the Saudi government's progress socially and economically. Additionally, these reports provide a blueprint for the development of the Saudi energy profile. From these documents, intentions regarding Saudi use of oil in domestic energy production and international trade.

The Dominating Narrative of Oil Reliance

The historian Ahmad Al-Gilani argues that a predominant cultural narrative of oil reliance led Saudi policymakers to facilitate the domestic use of their greatest export for energy production. The outcome was limited education and a continued reliance upon tradition as a means of survival. In making his point, Al-Gilani details the deterioration of the cultural concept *hema*, which outlines traditional practice for land and wildlife conservation²⁴. He claims that the Saudi Government employed aggressive spending strategies to push modernization, thus continuing dependence on oil²⁵. While scholarly literature has not ignored the lack of formal education regarding conservation or anthropogenic climate change, we find a discussion about the environment in a perhaps surprising source. It may seem paradoxical, but Saudi Aramco began educating the public on environmental stewardship as early as 1959 through scholarships

²⁴ Ibid.

²⁵ Ibid.

to American universities, the dissemination of various media to the public, and involving the local communities in their climate change reduction strategies²⁶. The reach of Aramco publications, however, was limited. Although they may have been intended for the larger Saudi public, Aramco publications were often disseminated in English and aimed at individuals already educated in environmental engineering and energy policy. The idea of a Saudi cultural connection to the oil has not been directly addressed by previous literature to my knowledge. Omolade Adunbi's principles for understanding the cultural connection to oil in Nigeria, however, provides parallels to the situation in Saudi Arabia. He posits that Nigerians see oil as an asset endowed to them by God²⁷. They use this narrative in justifying heavy government involvement in oil production in the country, which is then, in theory, supposed to benefit the people²⁸. Similarly, the intimate Saudi connection to Islam and cultural traditionalism served to rationalize the government's buyout of Aramco in the 1980s as a means of seizing total control over their God-given wealth from foreign powers²⁹.

Politics of Stability

Another consistent theme in the history of energy in Saudi Arabia is the monarchy's prioritization of its own security over the health of its people. This prioritization is evidenced by the continued disregard for negative health effects resulting from fossil fuel-based energy production. Generally, air and water pollution has been known to lead to higher rates of asthma, ingestion of hazardous pollutants, and various cancers, among other diseases.

²⁶ Saudi Aramco. (2018). "1950s".

²⁷ Adunbi, Omolade. (2015). *Oil Wealth and Insurgency in Nigeria*. Bloomington: Indiana University Press.

²⁸ Ibid.

²⁹ Ayubi, Nazih. (1995). *Over-Stating the Arab State: Politics and Society in the Middle East*. New York: I.B. Tauris.

Historian Tracy Lombre's 2006 account of Saudi life details a growing urban population³⁰. In addition to the reported absence of poverty and unprecedented rate of modernization, it makes sense that the Saudi government would continue to use oil domestically. In addition, continued utilization of existing oil-based energy infrastructure is more cost-efficient than retrofitting the national power grid renewables.

The only potential pressure to shift toward a renewable energy infrastructure in Saudi Arabia from 1960 to 2010 would have been Saudi Aramco. Even when the United States controlled the company, the power dynamic between Aramco and the Saudi government was well-understood by both parties. The Saudi government knew that the United States needed the oil and presence in the Middle East, and the United States was willing to do whatever it could to maintain their strategic partnership in oil and foreign policy. The United States' priorities were geo-strategic relations and the political economy of oil; the environment and a *long duree* sustainable energy policy were simply unimportant. This understanding is confirmed in Historian Chad H. Parker's work, which shows that, as late as 1977, Aramco defended Saudi concerns about Israel as a means of continuing good US-Saudi relations³¹. Further, Al-Gilani's dissertation claims that an unspoken agreement existed between Aramco and the Saudi government, in which Aramco would not publicly discuss the government's lackluster environmental protection regulations, while the government would not actively oversee Aramco's actions³². Coupled with the lack of public education regarding national environmental issues, this agreement allowed the

³⁰ Lombre, 2006.

³¹ Parker, C. (2008). "Transports of progress: the Arabian American Oil Company and American modernization in Saudi Arabia, 1945--1973." Ph. D. Dissertation, Indiana University.

³² Al-Gilani, 1998.

Saudi government to use oil as they pleased with no domestic pressure to demand environmental regulations.

During the early 1990s, the Persian Gulf War caused a unique shift in the global oil economy. Saudi Arabia now turned to the West, using oil as a bargaining chip for military equipment. The Saudi government, fearing revolutionary secular nationalism, saw a concrete need to bolster their defenses on the East coast in response to the growth of Saddam's movement³³. Using its oil resources, the Saudi government was able to strengthen its military and deter any foreign invasion, maintaining a certain stability through the use of oil, both domestically and internationally.

While international oil trade allowed the Saudi government to protect the country, domestic oil usage powered the country's expansion and urban growth. Ministerial Advisor for Marketing and Cooperatives Saad bin Abdulaziz Al-Ajlan's assessment of Saudi energy projects showed that renewables have only been implemented and successful on a local scale in rural areas³⁴. This limitation is due to fossil fuel being the most readily-available and most-heavily subsidized fuel source domestically. More generally, decision-making patterns indicate a Saudi focus on the short to mid-term in investment until 2010. For example, decisions are made while only taking into consideration the next 30 years. The Saudi government and Meteorological and Environmental Protection Agency (MEPA) ignored negative health effects in the public associated with the existing energy infrastructure, in which carbon-based production facilities are often located near cities. Although 30 years is a small scope within which to consider nationwide

³³ Little, D. (2008). *American orientalism: The United States and the Middle East since 1945*. Chapel Hill: University of North Carolina Press.

³⁴ Al-Ajlan, S.A., Al-Ibrahim, M.A., Abdulkhaleq, M., & Alghamdi, F. (2006). *Developing Sustainable Energy Policies for Electrical Energy Conservation in Saudi Arabia*.

energy infrastructure development, it allowed Saudi Arabia to justify the continuation of domestic electricity production from fossil fuels.

So far, scholars have paid particular attention to the development of electricity production and its relation to development. Concurrent with Al-Ajlan, Saudi electrical engineer and Professor Othman Al-Natheer noted that five energy grids existed in Saudi Arabia, but only two are connected³⁵. Regional disconnection increased statewide dependence on large-scale power development. Still in the testing phase, energy production on this scale was much too large of a demand for renewables. Before 2010, powering one-fifth of Saudi Arabia via renewables was ambitious, but doable. Despite that, the Saudi government decided it was in their best interest to continue to spend on maintaining and expanding the current energy infrastructure to appease their subjects and secure their place on the throne.

This thesis will use a broader scope than Al-Ajlan and Al-Natheer by examining various Saudi national development plans. While these authors' works set an invaluable foundation for understanding existing Saudi infrastructure, readers will gain a more comprehensive understanding of Saudi energy practices by understanding the goals that the government was trying to reach at the time. Therefore, I plan to use national development plans as a context for explaining how environmentalism and oil reliance influenced Saudi domestic policy, thus paving the way for research, but not development, of alternative energy solutions.

³⁵Al-Natheer, Othman (2005). *The Potential Contribution of Renewable Energy to Electricity Supply in Saudi Arabia*. Retrieved from: <http://doi.org/10.1016/j.enpol.2003.12.013>.

Ineptitude of State-Sponsored Environmental Authorities

The environmental organizations associated with the government in Saudi Arabia have not sufficiently regulated energy production and maintenance in a sustainable manner. This malpractice allowed the state to exploit Saudi land without consideration for the long-term impacts of their decisions. In turn, the responsibility for environmental stewardship fell to Saudi Aramco, who had “sound conservation methods” in place since the early 1960s³⁶. Indeed, their practices backed up their reporting: Aramco consistently superceded the Saudi government in their environmental protection plans and strategies. In addition to environmentally responsible oil extraction practices, these programs covered areas like wildlife and water conservation, green energy production, and renewable-based transportation³⁷. Thus, the importance of long-term planning was downplayed by the federal government and the renewable option was further delayed. As Al-Gilani notes, the most significant point-source polluters were government-run facilities, namely smelters, desalination plants, and petro-chemical facilities³⁸. Furthermore, energy officials created easily-met sustainability goals in an effort to secure their position in power. As a result, Saudi Aramco created its own environmental standards in the 1960s, which exceeded those set by the government. Meanwhile, oil discharge and sewage from domestic extraction companies was deregulated through the 1990s, which made much of the land and potable water in urban areas unusable. In addition, lackluster implementation of anti-lead gas laws led to continuing pollution eleven years after the fact (laws were passed in 1984, lead gas was eliminated in 1995). This new law led to a 50% reduction in carbon monoxide and lead

³⁶ n.a. (1962). “A Matter of Foresight.” In *Aramco World*. 13:4. Dhahran, Aramco Services Company.

³⁷ Ibid.

³⁸ Al-Gilani, 1998.

emissions³⁹. In an earlier work, Al-Gilani and Filor detailed the formation of the MEPA. This agency produced State of the Environment Reports every five years after their inception in the 1980s. The reports, according to Al-Gilani and Filor, contained “no useful information” on the implementation of environmental protection policies in the country⁴⁰. For example, one edition of this report included only pictures of Saudi landscapes. Generally speaking, Al-Gilani and landscape architect Seamus Filor claim that environmental impact is only included in national policy to the extent of admitting there is an impact⁴¹. This lack of planning is further evidence of the shortsightedness of the Saudi plan for development of the state energy infrastructure. The only progress made in environmental policy since 1990 is the passing of Agenda 21, a comprehensive management and development strategy for parks and wildlife. Even while Saudi Arabia turned to other countries for assistance in developing Agenda 21, there was no progress toward practical implementation. Although this trend of stalling projects which protect the environment is indicative of a larger hesitance against anti-renewable measures within the country, there has been little previously written regarding their relationship. Authors such as Gilles Kepel and Michael Schmid mention these failures in achieving stated policy goals, but do not make the connection between their failures and the stalled renewable projects, which exceeded 100 by 2003⁴². In the following work, I examine the development of this trend from its origin (presumably in the 1960s) via correlations between energy policy promises and their implementation. In this way, the separation between those two can be tracked, and the trend over

³⁹ Ibid.

⁴⁰ Al-Gilani, Ahmad & Filor, Seamus (1997) *Policy And Practice Environmental Policies in Saudi Arabia*, Journal of Environmental Planning and Management, 40:6, 775-788, DOI: 10.1080/09640569711903

⁴¹ Ibid.

⁴² Brierley, Mark. (2012). “Green Machine: Saudi Aramco.” In *Oil and Gas Agenda*. Retrieved from: <http://www.growthmarkets-oil.com/features/featureoil-gas-agenda-saudi-aramco-environment/>

50 years used to forecast the path of the dissonance between the government's promises and actions. This analysis offers insights regarding the consistency with which the Saudi federal government maintained and fulfilled its promises concerning environmental conservation, both at the domestic and international level.

Outline of the Thesis

The thesis proceeds chronologically, with chapter two examining the years 1960-1985. These twenty-five years mark the beginning of renewable exploration in Saudi Arabia. Ending just before oil price collapse of 1985, I analyze Saudi Arabia's increased use of the "oil weapon", particularly in place of defense spending. At the same time, I explore the revolution of rising domestic expectations among the Saudi public, which responded to newfound government surpluses from oil revenue as a result of an improvement in the standard of living for many. Finally, I explain how the purchase of Saudi Aramco by the Saudi government led to the development of Saudi Arabia's first federal environmental authorities. This chapter integrates a cultural narrative of oil reliance, the government's desire to maintain stability, and the ineptitude of state-sponsored environmental authorities to explain the centrality of oil to all aspects of Saudi life.

Chapter three covers 1985-2001. During this period, Saudi Arabia was forced to address important regional conflicts such as the Kuwait War (1990-1991). The chapter pays particular attention to Saudi Arabia's evolving relationship with the West, mainly the United States. Here, I demonstrate the negative social effects of Operations Desert Storm and Shield had on the House of Saud's power position in the country. Furthermore, the chapter explores the growing independence of the neo-Wahhabi movement, and the role this movement played in promoting traditionalism domestically. This chapter ends by outlining the new, Western plans for state

environmental policy. The main argument of this chapter is that Saudi Arabia continued to grow as a global power but faced new challenges at home that forced their continued dependence on oil.

Chapter four evaluates Saudi energy policies from 2001, after the al-Qaida attacks of the United States on September 11, to the end of the Eighth National Development Plan in 2010. I chose to finish this work in 2010 because the Eighth Plan is old enough that its policies can be evaluated for effectiveness. This chapter details the Seventh and Eighth Development Plans and works to understand their goals in the context of energy production. At the same time, the Saudi response to heightened international interest in climate change is addressed. To conclude, I examine Saudi Arabia's commitment to the Kyoto Protocol (1997), and its newfound interest in the science and technology industry. This chapter contends that the Saudi response to the international push for sustainable energy was to openly oppose, but privately join the fight against climate change. The reason for this decision is twofold: first, the Saudis wanted to diversify their economy after being shaken by unforeseen oil fluctuations in the early 2000s. Second, they wanted to expand industry to allow more Saudi nationals to work, particularly those who were college-educated.

To finish, chapter five concludes with an evaluation of the progress that Saudi Arabia made from 2010 to the present day. I consider the changing tone of the Saudi response to more recent international environmental initiatives, shifts in resource planning to account for the longer-term, and the continued aim of diversification of the Saudi economic profile. Here I demonstrate that, since the Eighth Plan, modest improvements were made toward diversification, but the country is still largely reliant on the energy sector for income. Because there has not been

a cheaper or more efficient fuel produced, oil continues to be the main economic driver in Saudi Arabia.

Chapter II: A Conceptual Transition - 1960-1985

“To those peoples in the huts and villages of half the globe struggling to break the bonds of mass misery, we pledge our best efforts to help them help themselves, for whatever period is required - not because the Communists may be doing it, not because we seek their votes, but because it is right. If a free society cannot help the many who are poor, it cannot save the few who are rich.”

-- John F. Kennedy, January 1961⁴³

Introduction

The discovery and increased access to oil spurred rapid industrialization around the world throughout the twentieth century. For most oil consuming states, industrialization brought about an increased standard of living, modernization, and even political independence. Yet the boom in oil consumption had an even greater effect on oil-producing states. Saudi Arabia, in particular, made great economic gains. Previously a tribal country whose primary national income was derived from a religious tax, Saudi Arabia developed quickly after drilling began in Dammam in 1935⁴⁴. The financial benefit from the discovery of oil propelled Saudi Arabia, which held the most oil reserves and fourth-most natural gas reserves, onto the global stage as a serious energy trading force ⁴⁶.

At the same time, policymakers in developing states became interested in environmental changes. As early as 1938, American scientists asserted that rising temperatures were tied to the

⁴³ Kennedy, John F. (1961). “Inaugural Address.” In *John F. Kennedy, XXXV President of the United States: 1961-1963*. Retrieved from: <http://www.presidency.ucsb.edu/ws/index.php?pid=8032>

⁴⁴ Simon, Adam. (2017). “Lecture 21: Agricultural Minerals.” [PowerPoint]. University of Michigan.

⁴⁵ Ulrichsen, Kristian C. (2015). “The Political Economy of Arab Gulf States.” Rice University: James A. Baker III Institute for Public Policy.

⁴⁶ Ibid.

increased emission of carbon dioxide. Although largely discredited at first, consequent studies affirming this discovery led to the declaration by the U.S. President's Advisory Committee, which claimed that the greenhouse effect was a matter of "real concern" in 1965⁴⁷. In response, much of the developed world began exploring renewable energy to alleviate the adverse effects of carbon emissions on the environment. Ironically, Saudi Arabia was at the forefront of experimentation with renewable energy. The primary interest, however, was not preserving the environment. Rather, the Saudi government was focused on perpetuating political and social stability in an increasingly volatile global context that showed signs of diverting from oil. This chapter explores Saudi Arabia's failure to address long-term environmental damage done by its fossil fuel-based energy infrastructure from 1960-1985. Further, this chapter explores how that failure was perpetuated by the Saudi government's use of their "oil weapon" to finance defense spending as well as the revolution of rising domestic expectations based on national oil profits. Finally, this chapter discusses the Saudi government's purchase of the majority stake in Saudi Aramco in 1974, in terms of its influence on state-sponsored environmental authorities.

Ineptitude of State-Sponsored Environmental Authorities

In 1964, as a response to his inability to urbanize effectively, the House of Saud replaced King Saud with King Faisal bin Hussein bin Ali Al-Hashemi⁴⁸. According to Professor Andrew C. Hess, Faisal was asked to "meet the challenges of the oil era without compromising the principles of the Saudi state"⁴⁹. This meant affirming the centralized leadership of the House of

⁴⁷ BBC News (2013). "A Brief History of Climate Change".

⁴⁸ Hess, A. C. (1995). "Peace and Political Reform in the Gulf: The Private Sector." In *Journal of International Affairs*. 49:1, pp. 103.

⁴⁹ Ibid.

Saud and its religious counterpart, Wahhabi Islam⁵⁰. In response, Faisal engaged in expeditious infrastructural change, while maintaining social and cultural conservatism⁵¹. Specifically, he loosened restrictions on oil production, expanded the central government, encouraged conservative interpretations of Islamic practice, subsidized social services, and halted the growth of unions⁵². King Faisal's reforms brought his country to the forefront of global technological research and innovation. At the same time, his reforms failed to address the budding field of climate science, which may have inspired a more conscious effort to deal with the negative effects of carbon emissions. State-sponsored environmental regulations were virtually nonexistent in the Kingdom of Saudi Arabia until the 1970s⁵³. Indeed, the Saudi government had no regulatory commission for water treatment, landfills, or asbestos, among other sanitation and environmental protection authorities⁵⁴. At the same time, Saudi Aramco established its own set of environmental regulations in the 1960s as a means of curtailing the adverse effects of oil production on the environment⁵⁵. Whether or not Aramco's regulations were implemented is difficult to say, since the company had made an agreement with the Saudi government not openly criticize the government's lack of environmental regulation if this would mean Aramco could operate without government inspections⁵⁶. Both groups operated semi-independently until the Saudi government bought a majority share in Aramco in 1973⁵⁷.

⁵⁰ Ibid.

⁵¹ Ibid.

⁵² Ibid.

⁵³ Vincent, Peter. (2008). "Environmental Protection, Regulation, and Policy". In *Saudi Arabia: An Environmental Overview*. pp. 247-281. Boca Raton: CRC Press.

⁵⁴ Ibid.

⁵⁵ Al-Gilani, 1998

⁵⁶ Ibid.

⁵⁷ Saudi Aramco. (2017). "History".

As a consequence of a decade of rapid industrial growth, as well as the acquisition of Saudi Aramco, the Saudi government began developing environmental guidelines in the 1970s⁵⁸. Around this same time, the first wave of environmental science graduate students returned from schools in the U.S. and Europe. These students brought with them a new awareness and understanding of the adverse effects that environmental exploitation could have on their homeland⁵⁹. In addition, Saudi Aramco published the first Saudi environmental report in 1978⁶⁰. This report highlighted the biological diversity in the Gulf and argued that oil production activities were greatly harming the regional environment⁶¹. For example, the study found that only 36% of pipelined water was drinkable, and a staggering 85% of land was “severely degraded”⁶². In addition, deforestation and drought in the Hejaz, the region which encompasses most of Saudi Arabia’s West Coast and houses the Islamic Holy Cities of Mecca and Medina, left almost all land mammals threatened⁶³. In response to this study, the Saudi government passed its first five conservation laws and created the Ministry of Agriculture and Wildlife in the first state-sponsored effort to curb the adverse effects of anthropogenic climate change⁶⁴.

Faisal’s reforms and his support of conservative Wahhabis benefited the discussion around preservation and conservation in Saudi Arabia. Indeed, the revival of traditional environmentalism in the 1980s included the reintroduction of the belief that God gave natural resources to the state and that the state was obliged to protect these resources while taking advantage of them⁶⁵. Specifically, this meant the revival of *hema*, a tribal tradition of protecting

⁵⁸ Vincent, 2008.

⁵⁹ Ibid.

⁶⁰ Al-Gilani, 1998

⁶¹ Ibid.

⁶² Ibid.

⁶³ Ibid.

⁶⁴ Al-Gilani & Filor, 1997.

⁶⁵ Al-Gilani, 1998

land and wildlife⁶⁶. The Saudi government established the Meteorology and Environmental Protection Agency (MEPA) in 1981, which incorporated pollution into wildlife and resource conservation efforts⁶⁷. In addition, this group developed the first State of the Environment Report in Saudi Arabia⁶⁸. Completed in 1984, the report was meant to be a reference for judging the efficacy of environmental policies. The findings of the 1984 report concluded that standing environmental policies were ineffective, and ministerial bodies in charge of these programs had not worked to oversee their success⁶⁹⁷⁰.

This inefficiency can be attributed to the self-interest of those within the Saudi bureaucracy, who often set easily attainable goals as a means of demonstrating their value to the royal family⁷¹. Peter Vincent claims that the public “widely ignored” the first laws regarding air and water pollutants in 1982⁷². Furthermore, he states that the National Commission for Wildlife Conservation and Development (NCWCD), a subsidiary of the MEPA, was “poorly funded” and its work largely rejected by the public due to a “very positive attitude towards hunting”⁷³. Finally, in 1983, the MAW created a separate Department of National Parks. Although this seemed like a practical step toward environmental protection, it further muddled the delineation of responsibilities between the MAW, MEPA, and NCWCD⁷⁴. As a consequence, ministers lowered their standards for their authorities. These groups continued to exist through 1985 but were little more than figures the Saudi government could point toward as evidence of

⁶⁶ Ibid.

⁶⁷ Al-Gilani & Filor, 1997.

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ Vincent, 2008.

⁷¹ Al-Gilani & Filor, 1997.

⁷² Vincent, 2008.

⁷³ Ibid.

⁷⁴ Ibid.

development. The discrepancy between a public discourse that began to consider environmental protection and conservation and actual practical implementation was the outcome of a different set of priorities that occupied the Saudi government in this time period.

Politics of Stability

From 1960-1985, state-building in the Middle East continued at a rapid pace similar to that which immediately followed World War I⁷⁵. Many Arab states saw opportunities to push for political liberalization in the post-independence periods. While political parties and unions were formed in many of the regions countries like Egypt, Iraq and Syria, the Saudi monarchy was able to maintain its position⁷⁶. Along with widespread regional liberalization came continued unrest, primarily surrounding the young Israeli state. Many countries in the region were apprehensive toward Israel, and Israel responded in kind: both sides spent much of this period building defenses in response to a perceived threat from the other.

Although Saudi Arabia was wary of the perceived Israeli threat, it built its defenses differently than other Arab States. Instead of spending directly on defense, the Saudi government used their “oil weapon” to broker defense deals with other states⁷⁷. The Saudis played on Western concerns of Soviet influence in the Middle East in convincing the U.S. government to purchase F-15 fighter jets for the Saudi Air Force⁷⁹. When the Saudi government found out that the U.S. colluded with Israel during the Six-Day War (1967), Faisal strong-armed the Americans

⁷⁵ Anderson, Betty. (2016). *A History of the Modern Middle East Rulers, Rebels, and Rogues*. Palo Alto: Stanford University Press. Pp. 227-336.

⁷⁶ Ibid.

⁷⁷ Mabro, Robert. (2018). “The Oil Weapon.” In *Energy Policy*.

⁷⁸ C.I.A. (1981). “CIA Report, Key Issues in Saudi Foreign Policy, March 1981, Top Secret [codewords not declassified].” CREST

⁷⁹ C.I.A. (1981). “Memorandum, Saudi Arabia: Perspectives on Oil Policy, November 1981, Secret.” CREST.

into agreeing to \$15.4B in military and defense contracts⁸⁰. The only defense contract for which Saudi Arabia actively paid was with France from 1979-81, which cost one-third of the U.S. contract and came as a response to the U.S.'s failure in mediating peace between Israel and Palestine⁸². This diversification trend continued into the 1980's, which saw Saudi Arabia sign defense contracts with Great Britain, West Germany, and Pakistan⁸³. In this way, the Saudi government played upon their value as a strategic partner in a contentious region to convince other states to bolster their defenses, rather than spend their own money, which was largely derived from oil.

Signing a defense contract with France was seen by the international community as Saudi Arabia formally taking its place as the seat of OPEC⁸⁴. Founded in 1960 by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela, the goal of OPEC was to stop the continued decrease of oil prices that had come as the result of the foundation of multiple transnational oil corporations in the 1950s⁸⁵. While OPEC was merely a resource rent collection organization for oil-rich countries in 1960, it worked through negotiation in the 1960s and 1970s to nationalize oil companies and train domestic labor in all facets of oil production and refining⁸⁶. In this way, states were successful at reclaiming their natural resource wealth and retaining more of the oil profit than was experienced under previous agreements between transnational oil companies⁸⁷.

⁸⁰ Ibid.

⁸¹ Anderson, 2016.

⁸² C.I.A., 1981 (See "Key Issues in Saudi Foreign Policy").

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ Anderson, 2016.

⁸⁶ Ibid.

⁸⁷ Ibid.

Thus, the power of the oil weapon grew stronger as Saudi Arabia worked to gain control over domestic production and exportation.

As a result of their defense deal with Saudi Arabia, France was seen by Arab and Western countries involved in the Middle East as more Pro-Arab than the U.S., who openly supported the Israeli state⁸⁸⁸⁹. From this point forward, the Saudi government continued to work, primarily in its own self-interest, alongside OPEC to control their oil output, thus moderating fluctuations in price⁹⁰. Although its specific agenda often did not align with those of the other OPEC states, Saudi Arabia controlled more than half of the oil in the non-Communist world⁹¹. Therefore, they often acted unilaterally in pursuit of the actions that best fit their needs.

Saudi needs primarily centered around infrastructural development and securing investments, without consideration of the effects of inflation⁹². For example, during the 1960s and 1970s, the Saudi Agricultural Development Bank opened the Real Estate Development Fund (REDF). The goal of the REDF was to subsidize housing development and cost of living via interest-free loans to farmers who agreed to sell their product at a lower cost⁹³. From 1977-1979 alone, rental costs across Saudi Arabia dropped by 30%, mainly due to REDF loans⁹⁴. While this expansion was effective in meeting the needs of Saudi Arabia operating at an elevated industrial capacity, the government did not plan for the event of an economic decline. Coincidentally, as the economy slowed in 1982 in reaction to a decline in oil revenue, many of these large-scale

⁸⁸ Ibid.

⁸⁹ C.I.A., 1981. (See “Perspectives”).

⁹⁰ C.I.A (1985). “Report, Saudi Oil Policy, January 28, 1985, Secret.” CREST.

⁹¹ Ibid.

⁹² Looney, Robert E. (1990). “Infrastructure, Investment, and Inflation in Saudi Arabia.” In *the Journal of Energy Development*. 14:1. Boulder: International Center for Energy and Economic Development.

⁹³ Ibid.

⁹⁴ Ibid.

development projects were completed⁹⁵. As a result, the country had more oil production infrastructure than it could support, began operating at a lower capacity, and the international oil market slacked⁹⁶. With this excess in new oil infrastructure, Saudi Arabia saw no reason to build renewable energy plants, as they could not staff the energy production facilities they did have.

Using oil production as a bargaining chip for defense deals and nationalizing oil production to secure resource profit and output catalyzed internal development in Saudi Arabia. During the transition from pastoral to industrialized state, the Saudi government wanted to protect their long-standing relationship with Wahhabi Islam. Rather than moving toward liberalization like other Arab states, Faisal affirmed his autocracy with Islam as the official state religion⁹⁷⁹⁸. This concern for the protection of religion was the Royal family's reaction to increased acceptance of Western values and liberalism as a whole among the Saudi public⁹⁹. For example, Christian services and non-Muslim worship was permitted in private homes and land owned by foreign groups, and religious behavior was deinstitutionalized and largely unenforced by the civil service ministry throughout the 1960's and 1970's¹⁰⁰.

Backed by Aramco, King Faisal's domestic reforms spurred modernization within Saudi Arabia with the intent of maintaining the internal stability his country had enjoyed for years. He succeeded in this goal for some time: he abolished slavery, introduced social welfare, allowed for the country's first national television broadcasts, and ruled during the elimination of malaria in

⁹⁵ Hess, 1995.

⁹⁶ Looney, 1990.

⁹⁷ Hess, 1995.

⁹⁸ Shils, Edward. (1962). "Political Development in the United States." In *Comparative Studies in Society and History* II. pp. 31-32. The Hague: Mouton & Co.

⁹⁹ Library of Congress. (2017). "Islamism in Saudi Arabia". In *The Library of Congress Country Study on Saudi Arabia*.

¹⁰⁰ Ibid.

Saudi Arabia¹⁰¹¹⁰². Despite this progress, the country began to destabilize when he was assassinated by his nephew in 1975¹⁰³. In the following years, Iranian-backed conservative groups pressured the Saudi government to revive their connection with Islam¹⁰⁴. In response, the new King Khalid increased funding for the *mutawiiin*, a division of civil service that enforced “religiously sanctioned behavior”¹⁰⁵. While the intent of Faisal’s reforms was to continue the stability oil wealth had created, his social reforms were too progressive for the region at the time. This political destabilization and momentary transition began an Islamic Revival that would impact the country for years to come.

Despite the major reform that took place throughout the 1960s and 1970s, oil continued to be the primary contributor to the Saudi GDP. While social progress advanced through most of this period, the government relied on oil as a means of stabilizing themselves, with no real attempt to produce another lucrative industry¹⁰⁶. Thus, the state purchase of the majority share in Saudi Aramco in 1980 had a stabilizing and destabilizing effect on the Saudi sociopolitical landscape for the coming years¹⁰⁷¹⁰⁸.

The Dominating Narrative of Oil Reliance

Faisal’s reforms from 1960-1985 were grouped into three development plans. Lasting five years each, these plans were designed to meet the long-term needs of the Kingdom while being short enough to allow for periodic re-evaluation if necessary. The First Development Plan

¹⁰¹ Shils, 1962.

¹⁰² Vassilev, 1998.

¹⁰³ Parker, 2008.

¹⁰⁴ Library of Congress, 2017.

¹⁰⁵ Ibid.

¹⁰⁶ Parker, 2008.

¹⁰⁷ B.B.C., 2013.

¹⁰⁸ Saudi Aramco, 2017.

(1970-1975) allocated spending for defense, education, transportation, and utilities¹⁰⁹. This plan, however, deviated in response to unexpected economic growth from oil revenue¹¹⁰. As the total budget for the grew, so did the demand for skilled labor in cities. Thus, funds were re-allocated to REDF loans and Saudi Industrial Development Fund (SIDF) loans, which were introduced during the Second Development Plan (1975-1980)¹¹¹. Also, the Second Development Plan called for, “free medical service, free education and vocational training..., subsidized prices for essential commodities, interest-free credit for people with limited incomes, and extended social security benefits”¹¹². In effect, the Second Plan provided more social support for the Saudi public and expanded the country’s infrastructure to be able to handle the increased capacity of trading being done, primarily surrounding oil¹¹³. Even with this increased expense (actual spending was 40% above the initial \$142B estimate and ten times the realized spending of the First Plan), the Saudi GDP rose below the ten percent per year goal¹¹⁴. This slow growth was reflective of the “slower-than anticipated growth in petroleum production”¹¹⁵. The Third Development Plan (1980-1985) continued to raise expenses, this time to counteract potential inflation from unforeseen development in the previous decade¹¹⁶. This plan centered around the development of skilled domestic labor to operate and maintain the buildings and production sites which were currently being developed¹¹⁷. All in all, Faisal’s development plans were well-organized and

¹⁰⁹ Library of Congress. (2018). “Five Year Plans.” In *The Library of Congress Country Study on Saudi Arabia*.

¹¹⁰ Ibid.

¹¹¹ Looney, 1990.

¹¹² Library of Congress, 2018.

¹¹³ Ibid.

¹¹⁴ Ibid.

¹¹⁵ Ibid.

¹¹⁶ Ibid.

¹¹⁷ Ibid.

largely successful. The amount of success for each plan, however, was dependent on oil production during each period.

Saudi reliance on oil as an international bargaining chip from 1960-1985 fostered a revolution of rising domestic expectations: that is, the Saudi government embraced their newfound power and wealth that stemmed from oil and extended that power and wealth to the public through Development Plans. Because of this broadening of power, the Saudis could not simply diversify their economy and slow production. Throughout the 1970s and 1980s, it was apparent that Saudi Arabia was going to continue to invest in oil production as their primary national business, for both the present and the future¹¹⁸¹¹⁹. C.I.A. reports indicate that from 1973 to 1979, the state developed long-term pricing and production strategies aimed at protecting oil prices during slack markets and preventing the deterioration of industrialization to the point that oil was devalued¹²⁰. Saudi Arabia framing oil production and policy changes as favors to struggling importers in the West from 1973-1977 spurned the initial development of the “oil weapon” as a bargaining tool on the global market¹²¹. While this harmed other OPEC member states whose reserves were depleting rapidly, Saudi Arabia used oil production as another means of developing partnerships with Western states¹²². In exchange, Western countries like Britain, France, and the U.S. continued to invest in Aramco and other forms of oil exploration and production within Saudi Arabia¹²³.

¹¹⁸ Looney, 1990.

¹¹⁹ Vincent, 2008.

¹²⁰ C.I.A., 1981. (See “Oil Policy”).

¹²¹ C.I.A., 1981. (See “Perspectives”).

¹²² Ibid.

¹²³ Parker, 2008.

While Saudi Arabia's increased reliance on oil production aided their ascent on the global stage, their long-term domestic infrastructure and oil policy suffered. Although their oil policy decisions reflected a concern for long-term protection of oil production, the government did not explore methods aside from limiting production. This narrow scope in exploration of alternatives can largely be placed on the shoulders of Saudi Aramco. American intelligence details overly-optimistic oil production estimates and a lack of testing regarding extraction technology. These generous estimates led to explosions at two research facilities in the 1970s¹²⁴. This optimism, combined with the ambitious and reckless application of untested technology, slowed the expansion of sustainability projects in the country. At the same time, oil production never dropped below ten million barrels of oil per day until the Islamic Revival began in 1979¹²⁵. Initially, this change did not adversely impact Saudi Arabia, who led global oil production during the 1979 oil crisis¹²⁶. Even so, this unforeseen jump in production during the global energy crisis led to a slack market until the 1990s¹²⁷. After this, the oil market dropped, but Saudi Arabia did not slow production. Rather than diversifying and further exploring a future in renewables, Saudi Arabia used this opportunity to bankrupt its competition. Beginning in 1982, Saudi Arabia intentionally drove oil prices down as a means of making the high-cost oil production facilities that existed in competitor states less profitable, in effect driving them out of business¹²⁸. In this way, although the oil market was on its way toward collapse in 1985, Saudi Arabia was more dependent than ever on oil production.

¹²⁴ C.I.A., 1981. (See "Oil Policy").

¹²⁵ Ibid.

¹²⁶ (n.a.) (1979). "Oil Squeeze". Published in TIME Magazine.

¹²⁷ Arezki, R., et. al. (2017). "Oil Prices and the Global Economy." In *IMF Working Papers*. 17:15.

¹²⁸ United States Energy Information Administration (2006). "OPEC Revenues Fact Sheet". Cited in "Petrodollars and Global Imbalances: Occasional Paper No. 1." U.S. Department of Treasury Office of International Affairs.

Summary

Although their environmental organizations were largely ineffective, Saudi Arabia did progress toward environmentalism from 1960 to 1985. In response to pressures from the West, which was becoming increasingly aware of the relationship between carbon emissions and long-term environmental damage, and the desire of the Royals to modernize, research institutions like the King Fahad University of Petroleum and Minerals and the King Abdulaziz City for Science and Technology were built as centers for the research and development of sustainable technology¹²⁹. These facilities worked alongside Saudi Aramco during the 1960s and 1970s to produce the Gulf's first regional environmental report, explore for new resources, and work on sustainable energy projects. Yet, oil was still the primary contributor to the Saudi GDP¹³⁰. Despite the oil market continuing to collapse through the 1980s, Saudi Arabia expanded their oil production capacity in an effort to eliminate international competition, primarily from other OPEC states. In practice, this strategy did not help them gain an edge on their competition. Their inability to comprehend the physical limitations of oil enabled the Saudis to improperly prioritize oil production above economic diversification and implementation of alternative energy production. Thus, while they did develop and had the capacity to install a localized renewable energy infrastructure, they continued to use oil simply because they were producing so much of it and it was cheaper in the short-term. In turn, their environmental organizations were not able to render any sort of true environmental protection, as ministers set unimpressive goals to maintain favor with the Saudi Royal family. Overall, King Faisal's modernization reforms perpetuated a cultural narrative of oil reliance. In addition, the existence of powerful religious groups like the

¹²⁹ Al-Gilani, 1998

¹³⁰ Ibid.

Wahhabi *ulama* and the *mutawiiin* ultimately led to continuation of the status quo. Although they continued to rely on oil production in the economy, the new, more religious federal government facilitated the re-adoption of traditional concepts of environmentalism in Saudi domestic policy during a time when oil prices were plummeting.

Chapter III: Progress - 1985-2001

“Sustainability can’t be like some sort of a moral sacrifice or political dilemma or a philanthropical cause. It has to be a design challenge.”

--Bjarke Ingels¹³¹

Introduction

In the 1980s, the world was geared toward change. From politics to pop culture, the public was ready to embrace innovation. Arguably, the most significant change that came out of the 1980s was the fall of the USSR. From 1985 to 1989, U.S. President Ronald Reagan and Soviet leader Mikhail Gorbachev worked together to change the international reputation of Communism and save Russia’s economic vitality¹³². The fall of the Berlin Wall in 1989 effectively ended communism’s Western foothold and also exemplified the success of Gorbachev’s hallmark policies, Glasnost and Perestroika. Meaning “Openness” and “Restructuring” respectively, these policies focused on economic and political rearrangement within the Kremlin as a means of alleviating the struggles of the Russian public¹³³. Despite these fundamental changes, the Soviet Union totally collapsed in 1991.

The fall of the Soviet Union had a lasting effect on the Middle East. Although U.S.S.R. held 15% of the global oil supply at home and was therefore less interested in the Middle East than the oil-scarce U.S., the U.S.S.R. played a significant role in shaping the Arab political and

¹³¹ Ingels, Bjarke. (2012). “Interview with Architect Bjarke Ingels.” On CNN, Air Date: April 22, 2012. Transcript Retrieved from: <http://www.cnn.com/TRANSCRIPTS/1204/22/nl.01.html>

¹³² Matlock Jr., Jack. (2004). “Reagan and Gorbachev: How the Cold War Ended.” New York: Random House.

¹³³ n.a. (2018). “Perestroika and Glasnost.” Retrieved from: <http://www.history.com/topics/cold-war/perestroika-and-glasnost>

social landscape throughout the 1980s and 1990s¹³⁴. Most notably, the Soviets kept the United States in check through disruption in Palestine and Afghanistan.

Palestine served two purposes as a proxy war for the Soviets. First, by disrupting the Palestinian peace process through the perpetuation of violence, the U.S.S.R. delayed the diplomatic success of the U.S. in the Middle East until the mid-1990s. Second, through funding Communist sympathizers within the Palestinian Liberation Organization (PLO), the Soviets won the favor of other Arab countries while promoting their policy interests¹³⁵.

Afghanistan, however, directly involved Soviet forces. After successfully staging a coup in 1979, Soviet forces joined the Afghan Communist Party in quelling popular uprising against their brutal public policies, such as the execution of political prisoners and murdering unarmed civilians¹³⁶. Although this war formally ended in 1988, decisions made by both the Soviets and Americans during this time influence foreign policy today.

By 1980, both the Islamic world and global leadership decided to take action against Soviet involvement in Afghanistan. That year, the Islamic Conference requested via resolution the “immediate, urgent, and unconditional withdrawal of Soviet troops (from Afghanistan).”¹³⁷. Similarly, the United Nations voted 104 to 18 in protest of the involvement of the U.S.S.R.¹³⁸. As a means of combatting Soviet influence without directly declaring war, the United States joined

¹³⁴ Polk, W.R. (2007). “Violent Politics: A History of Insurgency, Terrorism, and Guerrilla War, from the American Revolution to Iraq.” New York: Harper.

¹³⁵ Gowers & Walker. (1992) “Behind the Myth, Yasser Arafat and the Palestinian Revolution.” In *Journal of Palestine Studies*. 22:3. Institute for Palestine Studies: Washington, D.C.

¹³⁶ Kepel, Gilles, & Roberts, Anthony, trans. (2002). “Jihad: The Trail of Political Islam”. Harvard University Press.

¹³⁷ n.a. (2018). “Moslems Condemn Soviet Invasion of Afghanistan.” In *the Pittsburgh Post-Gazette*. 5:156. Published Jan. 29, 1980.

¹³⁸ n.a. (1980). “U.N. General Assembly Votes to Protest the Invasion of Afghanistan.” In *The Toledo Blade*. Published Jan. 15, 1980.

Gulf States in funding insurgent groups known as the *Mujahideen*¹³⁹. Agents of Holy War, the *Mujahideen* succeeded in driving the Soviets from Afghanistan by 1989, but not without cost. Returning home with a distorted and militaristic understanding of the world, some of the *mujahideen*, primarily from Saudi Arabia, broke from the fold and began their own jihadi group, the Taliban¹⁴⁰.

This chapter will examine the effect that Cold War proxy wars had on the prospects for environmentalism in Saudi Arabia from 1985-2001. Specifically, this section aims to analyze the rapid regional transition into industrialization, the sub-conflict of balancing tradition with Westernization, and the involvement of the international community in Saudi policymaking in regard to both regional threats and domestic concerns. From this analysis, I will assert that, while the research and development existed, no practical renewable energy infrastructure was in place in Saudi Arabia by 2001. This lack of renewable infrastructure is in part due to Saudi pre-occupation with the imminent threat in Kuwait, as well as changing public opinion regarding the monarchy. While there was some forward movement toward developing policies and environmental initiatives, Saudi Arabia continued to balk at the prospect of practical large-scale implementation of renewable energy at this time.

Ineptitude of State-Sponsored Environmental Authorities

As early as the publication of the First State of the Environment Report in 1985, it was evident that the newly-founded environmental authorities were ineffective. Although the MEPA set its first federal environmental protection standards in 1982, the 1980s and 1990s were largely

¹³⁹ Kepel & Roberts, 2002.

¹⁴⁰ Commins, David (2009). "The Wahhabi Mission and Saudi Arabia". London, England: I.B. Tauris.

dominated by international oil politics. As a result, renewable energy continued in its testing phase, and large-scale implementation remained in the distant future.

Like the general politics of Saudi Arabia, environmental policy was marked by international involvement between 1985 and 2001. There was a “colossal” cost of using oil at home rather than exporting it: oil use for infrastructure was growing 8.5% annually in the 1980’s and 1990’s. Nevertheless, the Saudis continued to reject this potential for capital gain, favoring domestic use of their primary revenue-bearing resource instead¹⁴¹. Domestic overuse of oil, however, compounded the excess in international exportation. As the Saudis continued to expand oil use in the power, water, and transportation sectors, they also continued to expand their production for international export¹⁴². The Saudis expanded production with the goal of establishing Saudi Arabian dominance in global oil production. This strategy worked, but the Saudis lost billions in potential gains from the establishment of this policy in the late 1980s until the oil glut in 1998.

Similar to their policy on oil production, Saudi environmental authorities were dominated by international actors. The Second State of the Environment report, completed in 1989, included only pictures, never mentioning anything about the environment in writing¹⁴³. Following this report, the Saudi Crown utilized the International Union for the Conservation of Nature (IUCN) to develop a comprehensive parks and wildlife conservation plan. This plan built upon the existing values of the Ministry of Agriculture and Wildlife (MAW), and set goals that were

¹⁴¹ Taher, N, & Al-Hajjar, B. (2014). “Chapter 2: Environmental Concerns and Policies in Saudi Arabia.” In *Energy and Environment in Saudi Arabia: Concerns and Opportunities*. Springer. pp. 27-51.

¹⁴² Ibid.

¹⁴³ Al-Gilani, Ahmad & Filor, Seamus. (1997). Policy and Practice Environmental Policies in Saudi Arabia, *Journal of Environmental Planning and Management*, 40:6, 775-788, DOI:10.1080/09640569711903

achievable, but more ambitious than those currently in place¹⁴⁴. Furthermore, in 1992, Saudi Arabia presented for the first time at the United Nations Conference for Economic Development (UNCED) in Rio de Janeiro. Here, Saudi Arabia submitted a national report on the status of its resources and the environment, which outlined the structure of their environmental management administration, as well as existing resource extraction policies and conservation laws¹⁴⁵. Further, along with 177 other countries, the Saudis signed Agenda 21, a “comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment.”¹⁴⁶ More specifically, Agenda 21’s goals included accelerating sustainable development through influencing social and economic norms, conservation resource development, strengthening the role of women, children, and industry leaders, and proposing a means by which this could be implemented¹⁴⁷.

Simply because Saudi Arabia had taken advice from the international community and signed a UN action plan did not mean that they kept any of their promises. Although the Crown ratified Agenda 21 in 1995, by 1997 it still had not been implemented in any context¹⁴⁸. Beyond that, Saudi Arabia passed two bills between UNCED and 1997, concerning environmental regulations, indicating a mixture of preoccupation with the Persian Gulf War, a concern for its subsequent adverse domestic effects, and a general disregard for sustainability as a practice.

¹⁴⁴ Ibid.

¹⁴⁵ Ibid.

¹⁴⁶ United Nations Department of Economic and Social Affairs (UNDESA). (2017). “Agenda 21: UNCED, 1992”. In *Sustainable Development: Knowledge Platform*. Retrieved from: <https://sustainabledevelopment.un.org/outcomedocuments/agenda21>

¹⁴⁷ United Nations Division for Social Development (UNSD). (1992). “Agenda 21: Contents”. In *United Nations Conference on Environment and Development: Rio de Janeiro, Brazil, 3 to 14 June 1992*. Retrieved from: <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>

¹⁴⁸ Al-Gliani & Filor, 1997.

One of the reasons environmentalism failed to take off during this period in Saudi Arabia was because of the lack of ambition in the heads of the environmental authorities. Eager to please the Crown, they continued to set low goals as a means of demonstrating their efficacy. For example, Al Gilani and Filor noted in the late 1990's that,

“the General Law of the Environment is in the revision stage. This document is being prepared by MEPA, and is expected to provide the legal base for environmental policies and laws in Saudi Arabia. However, it was halted in the decision-making processes for several years, with opposition from other agencies such as MAW and the Ministry of Municipal and Rural Affairs (MoMRA).”¹⁴⁹

Stalling by the MAW and MoMRA can be interpreted as two standing environmental authorities reluctant to see their responsibilities grow. On the other hand, this action represented a major step up by the MEPA. Unlike the other state-sponsored environmental authorities in Saudi Arabia, the MEPA made marked improvements on the landscape from their establishment in 1981 to 2000. According to the UN Global Environmental Outlook, the MEPA had experienced success in combatting desertification, reducing natural gas combustion, reducing lead content in gas used for transportation, industrial recycling, and sustainable development by this time¹⁵⁰. While the implementation of federal legislation varied, the MEPA had set itself apart as the most efficacious environmental authority within the Saudi government.

Even though Saudi Aramco maintained its rigorous emissions and environmental conservation standards left over from the 1960s, the period between 1985 and 2001 reflects the change in ownership. Now owned completely by the Saudis, Aramco operated at the will of the House of Saud. The launch of major ecological and environmental initiatives and subsidizing a

¹⁴⁹ Ibid.

¹⁵⁰ United Nations. (2000). “Laws and Institutions.” In *Global Environmental Outlook*. Retrieved from: <http://web.unep.org/geo/sites/unep.org/geo/files/documents/geo2000/english/0206.htm>

college preparatory program were the Americans' last acts as partial owners in Aramco¹⁵¹. When the Saudis ratified the complete takeover in 1988, focus shifted from public outreach and conservation to unparalleled production. With oil discoveries continuing to be made all over the country, Aramco grew its production capacity from 5.4 million barrels per day (bpd) in July 1990 to 8.4 million bpd by the end of the year¹⁵². Furthermore, offshore drilling expanded with the 1992 discovery of oil in the Red Sea.

Still, Aramco continued to make a difference when it came to environmental protection. In 1991, Saudi Aramco recovered more than 1.2 million barrels from the Persian Gulf after a major oil spill from production fields in Kuwait. Additionally, in 1999, Aramco produced its own independent environmental film, "Land of Khuzama"¹⁵³. Produced in Arabic and English, the message of the film centered around "the importance of preserving the environment and underscores the need to respect the Kingdom's wildlife."¹⁵⁴. Finally, in 2001, Saudi Aramco launched their Environmental Master Plan. This plan involved "funding capital projects aimed at improving environmental performance" inside Aramco¹⁵⁵. While the enforcement of environmental legislation by the Saudi government remained suspect between 1985 and 2001, Saudi Aramco continued to be an example of environmental stewardship in the oil and gas industry. Although they expanded at the request of their new owners, they continued to monitor their contribution to environmental degradation through annual reports, the maintenance of an

¹⁵¹ Saudi Aramco. (2018) "1980s". In *History*. Retrieved from:
<http://www.saudiaramco.com/en/home/about/history/1980s.html>

¹⁵² Saudi Aramco. (2018) "1990s". In *History*. Retrieved from:
<http://www.saudiaramco.com/en/home/about/history/1990s.html>

¹⁵³ Ibid.

¹⁵⁴ Ibid.

¹⁵⁵ Brierley, 2012.

entire staff dedicated to impact analysis, and expansion of their research and development sector¹⁵⁶.

While 1985-2001 appears to be a period of time marked by ravenous international oil consumption, it was also witnessed a growth of Saudi awareness about the environment and its fragility. While Saudi Arabia continued to produce enough to maintain its dominance on the world oil and gas market, state-sponsored environmental authorities began to move forward with the help of international authorities like the IUCN. The largest success of any of these federal authorities was the emergence of the MEPA as the primary environmental protection agency within Saudi Arabia. During the Gulf War, they worked successfully against other Saudi environmental agencies to challenge the country to meet loftier standards. Likewise, Saudi Arabia invested heavily in its research and development infrastructure, as well as in various projects and initiatives in order to mitigate the adverse effects that oil production has on the environment. All in all, by 2001, Saudi Arabia demonstrated promise towards the possibility of developing a renewable energy infrastructure.

Politics of Stability

The seizure of the Grand Mosque in 1979 by militants associated with the Wahhabi *ulama* damaged the relationship between Saudi Arabia and the rest of the Islamic World. In response, the Saudi Royals gave more power to the *ulama*, in hopes that stricter enforcement of religious behavior would limit deviations in interpretation. According to Robert Lacey, “(Saudi King) Khaled had come to agree with the sheikhs. Foreign influences and bida'a (heresy) were the problem. The solution to the religious upheaval was simple – more religion.”¹⁵⁷ At this point,

¹⁵⁶ Ibid.

¹⁵⁷ Lacey, Robert (2009). “Inside the Kingdom: Kings, Clerics, Modernists, Terrorists, and the Struggle for Saudi Arabia”. Viking. pp. 49–52.

it was ambiguous whether the Saudi Royals or Wahhabi *ulama* held the primary executive power within Saudi Arabia. As a result, from 1985 to 2001, the House of Saud declined in popularity, both within Saudi Arabia and internationally¹⁵⁸.

Much of what was going wrong inside Saudi Arabia could have been predicted from its actions abroad. During the Iran-Iraq War, Saudi Arabia, along with other Gulf States, supported Saddam Hussein. Although he was a tyrant and generally disliked by other Muslim countries, he was a favorable alternative to the Ayatollah¹⁵⁹. After the war, however, he became a much larger threat to the region as a whole. Desperate for money to repay debts and finance reparations from the Iran-Iraq War, Saddam began taking oil by military force¹⁶⁰. Soon thereafter, the Iraqi Regime annexed Kuwait, and Saudi Arabia turned to other states for help. According to Saudi King Fahd,

“We have noticed a massive troop buildup at the border which we share with Iraq and it is absolutely necessary that no Iraqi troops exist near that border. This is why we have agreed to station foreign and Arab soldiers in Saudi Arabia to help us. These troops will leave as soon as the crisis over Kuwait is resolved.”¹⁶¹

The decision to station troops in Saudi Arabia was reported two days after the Iraqi military entered Kuwait, indicating anxiety and a sense of urgency from the House of Saud. Asking for non-Muslim assistance in defending Islam’s holiest sites, however, was a serious violation of Islamic Law¹⁶². Adding to the insult was the Royals’ choice to allow the well-funded

¹⁵⁸ Benjamin, Daniel, & Simon, Steven. (2002). “The Age of Sacred Terror.” New York: Random House.

¹⁵⁹ Freedman, Lawrence, and Efraim Karsh. *The Gulf Conflict 1990-1991*. Princeton, N.J.: Princeton University Press, 1994. Print.

¹⁶⁰ Cited in: Schmid, Michael. (2007). “Did Desert Shield Lead to Desert Hate? A Case Study of Anti-Americanism in Saudi Arabia”. Anchor Publishing: Hamburg

¹⁶¹ Ibid.

¹⁶² Bearman, P.J., ed. (2007). “Khadim al-Haramayn al-Sharifayn”. In *Encyclopedia of Islam*. Vol. 4. Leiden: Brill.

and equipped Americans to enter and defend Mecca and Medina, rather than young Saudis interested in joining the cause to defend their homeland. Among these eager young Saudis was Islamic militant and family friend of the House of Saud Osama bin Laden¹⁶³.

Although the presence of non-Muslim troops angered many religious conservatives in the region, it sent a clear message of order within Saudi Arabia: the House of Saud held the primary power and the Wahhabis occupied subordinate administrative positions. Furthermore, the *ulama* enjoyed authority in religious interpretation, but had no sovereign power. These realities were exemplified by the compliance of the *ulama* in administering a *fatwa* (religious decree) in support of the Saudi decision to allow non-Muslims into Mecca and Medina, claiming that it was equally unholy for Muslims to threaten other Muslims¹⁶⁴.

One might assume that Saudi Arabia and the US were relatively friendly global partners throughout the 1990s. After all, the U.S. had exclusive rights to enter Saudi Arabia to protect its oil assets¹⁶⁵. Similarly, Saudi Arabia imported 18% of its goods from the U.S., the most of any single country¹⁶⁶. In reality, however, the relationship between the two powers was contentious: the week that the Royals announced the American entrance into Saudi Arabia, distrust was cultivated and radicalization spread. Regional news agency Al Dustur posited, “The American laws cannot even prevent Jews from joining the military. Therefore, with so many Jews already in the US military it is impossible to forestall Jews from coming to Saudi Arabia. They are coming in masses, disguised as Americans to kill Arabs.”¹⁶⁷ This fear resonated throughout the

¹⁶³ Schwartz, Benjamin. (2007). “America’s Struggle Against the Wahhabi/Neo-Salafi Movement”. *Orbis*, 51:1, pp. 107-128. doi: <https://doi.org/10.1016/j.orbis.2006.10.012>

¹⁶⁴ Cited in Schmid, 2007.

¹⁶⁵ Royal Embassy of Saudi Arabia in Washington, D.C. (1990). “Saudi Trade Balance Improves”. In *Monthly Newsletter*, 7:1.

¹⁶⁶ *Ibid.*

¹⁶⁷ Cited in Schmid, 2007.

Muslim world, which was still trying to cope with the permanence of the Israeli state. This task had become even more challenging given the recent Israeli tendency towards militarism in response to the rise of Hezbollah, HAMAS, and the First Intifada. This regional tension, in addition to the foreign presence in Muslim Holy Sites, hindered Saudi prestige within the Gulf Region.

Like the Saudi Royals faced tension abroad, they began to lose favor among their citizens. Upon being pressured to administer the *fatwa* permitting Americans to enter and defend Saudi Arabia, the *ulama* in other communities began looking elsewhere for leadership. This misstep promoted the radicalization of Wahhabi Islam, or neo-Wahhabism, as a separate interpretation of Islam¹⁶⁸. Osama bin Laden and Al-Qaeda followed this new form of Wahhabism. They believed that the Saudi King was no longer the protector of Islam, and that he should be overthrown, and all other enemies of Islam, including the United States, should be destroyed¹⁶⁹. In 1998, Osama bin Laden repeated the sentiments of *Al Dustur*, and called for an end to the American defense of Saudi Arabia:

“We believe that we are men. Muslim men who must have the honor of defending (Mecca). We do not want American women soldiers defending (it)... The rulers of the region have been robbed of their manhood. And they think that the people are women. By God, Muslim women refuse to be defended by these American and Jewish prostitutes.”¹⁷⁰

According to Schwartz, this opinion was common by the late 1990’s in Saudi Arabia¹⁷¹. Those individuals who worked in education during Faisal’s reforms in the 1960’s and 70’s also

¹⁶⁸ Moussalli, Ahmad (2009). “Wahhabism, Salafism, and Islam: Who is the Enemy?” Beirut: Conflicts Forum.

¹⁶⁹ Husain, Ed (2007). The Islamist: Why I Joined Radical Islam in Britain, What I Saw Inside and Why I Left, *Policing: A Journal of Policy and Practice*, Volume 2, Issue 4, 1 January 2008, Pages 506–507, <https://doi.org/10.1093/police/pan055>

¹⁷⁰ Al-Jazeera (1998). “Interview with Osama bin Laden.” Cited in: Avishai Margalit and Ian Buruma, “Occidentalism,” *New York Review of Books*, Jan. 17, 2002.

¹⁷¹ Schwartz, 2007.

experienced the alignment of Wahhabism with Neo-Salafism, another reformed sect of Islam. These events in turn produced the Islamic Awakening¹⁷². Following Operations Desert Shield and Desert Storm, a visible change in Saudi political language was present, which reflected the speech of prominent Revivalist preacher Safar al-Hawali¹⁷³. This speech considers American presence in Saudi Arabia as an insult to the Islamic faith, and declares the true war to be, “not the world against Iraq. It is the West against Islam.”¹⁷⁴.

Both domestically and internationally, the Saudi Crown began to lose its political hold between 1985 and 2001. While the House of Saud was, and still is, one of the wealthiest and most powerful families in the world, their mishandling of the defense situation during the Persian Gulf War led to the deterioration of their relationships with their citizens and other Gulf States. As a result, radicalized Wahhabi *mujahideen* combined with neo-Salafists to turn the public against the Crown. By 2001, the Saudi Royals held power in the state, but the neo-Wahhabi *ulama* enjoyed a better relationship with the public.

The Dominating Narrative of Oil Reliance

As a means of outlasting global oil competition by increasing their presence in the market, Saudi Arabia persuaded OPEC to increase production and drop of the price of oil in 1986 to \$12/barrel, a thirteen-year low¹⁷⁵. Previously, Saudi Arabia was hurt by the curtailing of

¹⁷² Ibid.

¹⁷³ Fandy, Mamoun (1999). *Saudi Arabia and the Politics of Dissent* (New York: St. Martin's Press, 1999), p. 118.

¹⁷⁴ Al-Hawali, *Kissinger's Promise: American Goals in the Gulf*, quoted in Joshua Teitelbaum, *Holier Than Thou: Saudi Arabia's Islamic Opposition* (Washington, D.C.: Washington Institute for Near East Policy, 2000), pp. 29–30.

¹⁷⁵ Gately, Dermot. (1986). “Lessons from the 1986 Oil Price Collapse.” In *Brookings Papers on Economic Activity*. Vol. 2. pp. 237-284.

production during the oil embargoes of 1973 and 1979¹⁷⁶. The increase in production and subsequent reduction in price in 1986 had the opposite effect. While all OPEC states lost revenue on the 1986 price gouge, Saudi Arabia was affected the least. Gately notes that, “for Saudi Arabia, revenue...declined only slightly: the 50 percent price declines were almost offset by increased input. But, for OPEC as a whole, revenue...declined sharply.”¹⁷⁷. In short, not only did Saudi Arabia use this price drop to strategically undercut other non-OPEC states, but also to establish dominance within OPEC itself.

While this move re-affirmed Saudi dominance in oil production, it also prevented policy leaders from diversifying the Saudi industrial profile. In 2000, Cappelen and Choudhury stated that, “In spite of the fact that the government on many occasions have expressed the wish for the economy to be more diversified away from the oil related industries, oil has dominated the economy, and still does.”¹⁷⁸ They also point out that, under this new strategy of decreasing prices and increasing output, it was no longer economically viable to continue to employ a majority of the population and employ a generous welfare system¹⁷⁹. While the Saudis continued to strive for international recognition, they did so in a way that perpetuated a reliance on oil.

The alliance between the Wahhabi *ulama* and House of Saud also depended in part on the success of oil. The Saudi Royals had long funded the agenda of the *ulama* using the money they received from oil profits (around \$3B USD annually since 1975)¹⁸⁰. In exchange, the *ulama*

¹⁷⁶ U.S. Department of Energy, Energy Information Administration (1985). *International Energy Outlook*. DOE/EIA-0484 (85) (DOE, 1985), table 3, p. 12.

¹⁷⁷ Gately, 1986

¹⁷⁸ Cappelen, Adne, & Choudhury, Robin. (2000). “The Future of the Saudi Arabian Economy: Possible Effects on the World Oil Market.” Oslo: Statistics Norway.

¹⁷⁹ Ibid.

¹⁸⁰ Birt, Yahya. (2007). Quoted in “Wahhabism: A Deadly Scripture.” In *The Independent*. Retrieved from: <https://www.independent.co.uk/news/uk/home-news/wahhabism-a-deadly-scripture-398516.html>

often overlooked actions of the Crown that violated religious law via issuing *fatwas* for international dealings, jihad, and other acts which they typically frowned upon¹⁸¹. With the financial support they received from the Crown, the *ulama* extended their reach further into the Gulf Region and cemented their claim as the predominant religious scholars within Saudi Arabia. By the time they were at war with Iraq, the *ulama* had diversified their income to include other wealthy families in the Gulf. When Saudi Arabia went to war with Iraq, revivalist groups, mainly from Afghanistan, Pakistan, and other Arab jihadi groups, supported Iraq¹⁸². Expanding their funding base allowed the Wahhabi *ulama* to rely less on the House of Saud. Thus, when the Saudi Royals pressured them to issue a *fatwa* for American defense, the *ulama* began to push away from the Crown. In doing this, their constituency followed¹⁸³.

Although the *ulama* distanced themselves from the House of Saud, the two parties remained connected through the state administration. Oil continued to be at the center of the relationship and could often predict its nature. For example, as the *ulama* and Saudi Crown grew apart, the oil market became more and more volatile. Finally, in 1998, oil prices and the Saudi-*ulama* relationship both tanked. After failing to reach an agreement to slow production and soak up the excess oil on the global market, OPEC allowed the global price of oil to reach a 25-year low¹⁸⁴.

At the same time, the Neo-Wahhabi Movement, a radicalized form of Wahhabi Islam, developed. The main difference between the two groups is the means by which they achieved

¹⁸¹ Commins, 2009

¹⁸² Kepel and Roberts, 2002.

¹⁸³ Schwartz, 2007.

¹⁸⁴ CNN Money. (1998). "OPEC Disappoints, Oil Slides." Retrieved from: <http://money.cnn.com/1998/11/30/economy/oilprices/>

their goals¹⁸⁵. Neo-Wahhabism lashed back at the House of Saud and the Wahhabi *ulama*, and separated itself as a new religious sect. The *ulama* in the Nejd formed this new movement, calling for “the formation of a *shura* council, the review of the laws' compatibility with Islamic shari'a, the just distribution of public funds and the restructuring of media and of foreign policy, away from alliances (with non-Muslim) not sanctioned by shari'a.”¹⁸⁶. In addition, this group was more violent than the traditional Wahhabis. Many neo-Wahhabis fought against the Soviet Union alongside Afghans during the Soviet-Afghan War in the 1980's. The Saudis returned home not only with a greater understanding of world politics, but also a more violent worldview¹⁸⁷. As a result of this newfound worldview and confidence in combat, when Saudi Arabia needed to defend against the Iraqi threat, the neo-Wahhabis, particularly Al-Qaeda founder Osama bin Laden, believed they were the rightful protectors of Islam's holiest sites¹⁸⁸. When they were denied this right, they included the Saudi Crown and United States of America among those who had committed holy atrocity, and thus must be destroyed¹⁸⁹. In 1996, bin Laden declared war on the United States. While the Clinton Administration reacted indifferently, the well-established and continually-growing Al-Qaeda moved forward with recruiting young men across the Gulf Region¹⁹⁰.

From 1985 to 2001, the relationship between the House of Saud and the Wahhabi *ulama* closely followed the trends of the oil market. Therefore, in watching the oil market lurch into its

¹⁸⁵ Dillon, Michael R. (2009). “Wahhabism: Is it a Factor in the Spread of Global Terrorism?” Calhoun Archive, Naval Postgraduate School. Monterey, CA: Calhoun.

¹⁸⁶ Moussalli, 2009.

¹⁸⁷ Dillon, 2009.

¹⁸⁸ Moussalli, 2009.

¹⁸⁹ Schwartz, 2007.

¹⁹⁰ Rosthauser, R. Craig. (2010) “Terrorism Conflict:: How the United States Responds to Al Qaeda Violence and Expressed Grievances.” *Electronic Theses and Dissertations*: University of Denver. Retrieved from: <https://digitalcommons.du.edu/cgi/viewcontent.cgi?article=1563&context=etd>

eventual depression in 1998, the *ulama* were at their greatest odds with the Saudi Royals in nearly 2 centuries. Furthermore, the *ulama*'s religious education and expansion backfired. Arabs, both within Saudi Arabia and around the Gulf, who were brought up on the religious teachings used by the *ulama* during the educational reform of the 1960s and 70s, began to follow neo-Wahhabism. The *ulama* interpreted the actions of the Saudi Crown, and their endorsement by the Wahhabi, as dissonant from their elementary religious teachings. In turn, the Saudi public looked to a body that was more consistent with the religion on which they were raised. Therefore, instead of embracing new, Western methods of energy production, the Saudi public reaffirmed their preference for oil.

Summary

In short, the period from the purchase of Aramco to the launch of their Environmental Master Plan, Saudi Arabia underwent substantial change politically, socially, and economically. While the Saudi Crown used its oil wealth to oversaturate the global market and outlast international competition, it also lost prestige at home with the rise of the neo-Wahhabi movement. At the instruction of the neo-Wahhabists, the public turned to tradition instead of modernization. Following this trend, both the monarchy and the people of Saudi Arabia rejected renewable technology, and once again turned to oil as their primary economic driver. Despite this rejection, environmental awareness grew among the people. Involvement from foreign interest groups led to the first set of comprehensive conservation policies in Saudi Arabia. Also, accountability at the federal level was promoted by the increased activity of the MAW. Finally, Saudi Aramco continued its tradition of environmental excellence, and integrated sustainable policies into their public outreach campaign as a means of promoting public information.

Chapter IV: Perseverance - 2001-2010

“We are active, fellow countrymen, in the wider international sphere within the framework of the United Nations. We are committed to the UN charter, we reinforce its endeavors. Our acts have reflected, and will continue to reflect, our sense of belonging to the world community.”

--King Fahd of Saudi Arabia¹⁹¹

Introduction

The 1980s and 1990s saw Saudi Arabia act in ways that indicated exceptionalism on the world stage. Ian Tyrrell’s definition of exceptionalism as applied to America also describes the Saudi case well:

“American exceptionalism is not the same as saying the United States is "different" from other countries. It doesn't just mean that the U.S. is "unique." Countries, like people, are all different and unique, even if many share some underlying characteristics. Exceptionalism requires something far more: a belief that the U.S. follows a path of history different from the laws or norms that govern other countries. That's the essence of American exceptionalism: The U.S. is not just a bigger and more powerful country — but an exception.”¹⁹²

On the oil market, Saudi Arabia exerted its will on competing producers. Disregarding the needs of other OPEC members, it flooded the oil market until it was the only producer able to remain in business. Similarly, attitudes toward foreign militaries, particularly that of America, demonstrate that the Saudi public believed they could defend the Holy Land on their own against Saddam Hussein. Further, more conservative Saudi Islamic groups saw the allowance of foreign militaries on their soil as a form of insult by the Saudi government, who rejected domestic contractors in favor of permitting Western forces to fight the Iraqis.

¹⁹¹ bin Abdulaziz Al Saud, Fahd HRH. (n.d.) “King Fahd: Some Quotations.” Retrieved from: <http://www.riyadhvision.com.sa/biographies/king-fahd-bin-abdul-aziz/king-fahd-quotations/>

¹⁹² Tyrrell, I. (2016). “What, Exactly, is American Exceptionalism?”. In *The Week*. Originally in *Aeon*. Retrieved from: <http://theweek.com/articles/654508/what-exactly-american-exceptionalism>

At home, however, Saudi Arabia was much less stable than it was portraying to the rest of the world. An internal power struggle between the neo-Wahhabi *ulama* and the House of Saud demonstrated a need for a clear delineation of power in Saudi Arabia. At first, the *ulama* came out on top, due to their closeness to the Saudi public and control over the national *madrasas*. This sent a message to the House of Saud that the neo-Wahhabists could now stand alone and were not afraid to exercise their power in attempts to establish their primacy over the Saudi government.

At the same time, the world was becoming more aware of the damage that conventional industrial practices did to the environment. Inspired in part by the oil spills and fires that occurred during the Kuwait War, environmental movements transitioned from country-specific actions to worldwide initiatives. This transition culminated in the Kyoto Protocol. This resolution, passed by the United Nations in 1997, aimed to alleviate anthropogenic climate change through a reduction in oil consumption by industrialized nations¹⁹³. Since recent research tied anthropogenic climate change to use of carbon-based fuels like oil, concerns were raised about the effects of international legislation like the Kyoto Protocol on the global oil market.

This chapter intends to explore the effects that international legislation had on the global oil market from 2001-2010. From there, the Saudi response to fluctuations in oil demand is measured via analysis of the Seventh and Eighth National Development Plans, as well as select policies which existed prior to the Seventh Plan. Additionally, the dynamic relationship between the *ulama* and House of Saud is further explored. Finally, Saudi progress toward a diversified

¹⁹³ n.a. (2004). "Saudi Arabia Approves Kyoto Climate Protocol." In *Reuters*. Retrieved from: <https://fp.brecorder.com/2004/12/2004122190728/>

economy is evaluated in the context of changing cultural values, as well as the promotion of the domestic science and technology industry.

Ineptitude of State Sponsored Environmental Authorities

From 2001-2010, Saudi Arabia continued to use oil as the primary fuel source for building their nation. This usage is reflected in the near-tripling of oil consumption in the power, water, and transportation sectors during that time¹⁹⁴. Although the population expanded considerably, the carbon dioxide emitted during that time reflects the continued inefficiency of environmental authorities: by 2010, oil use and emissions clean-up cost the Kingdom 137% of its annual revenue¹⁹⁵. Furthermore, estimates by the World Resources Institute and Institute of Energy Economics Japan indicate that since the turn of the century, nearly all carbon emissions in Saudi Arabia can be contributed to three energy sectors: electricity, construction, and transportation¹⁹⁶. Accordingly, total domestic oil consumption increased from 105 MT to 160 MT, and total environmental damage (combined weight of carbon emissions and waste) increased from 400,000,000 to 500,000,000 MT in the nine-year span¹⁹⁷.

According to the IMF, World Bank, and World Resources Institute, this increase in environmental damage is correlated with increased industrialization and economic activity in Saudi Arabia¹⁹⁸. As environmental damage increased from 2001-2010, GDP per capita increased as well (from 35,000 to 60,000 SAR)¹⁹⁹. Beyond that, Taher and Al-Hajjar claim that the increases in total environmental damage and per capita income in Saudi Arabia occurred *pari*

¹⁹⁴ Taher, N, & Al-Hajjar, B. (2014). "Chapter 2: Environmental Concerns and Policies in Saudi Arabia." In *Energy and Environment in Saudi Arabia: Concerns and Opportunities*. Springer. pp. 27-51.

¹⁹⁵ Ibid.

¹⁹⁶ Ibid.

¹⁹⁷ Ibid.

¹⁹⁸ Ibid.

¹⁹⁹ Ibid.

*pasu*²⁰⁰. From this, it can be inferred that the Saudi government used oil to meet the infrastructural needs of their growing population, without consideration of the long-term damage it would have on the environment. This makes sense when it is considered that, from 2001-2010, much of the environmental damage done by Saudi Arabia was not through solid waste. Rather, more than two-thirds of the damage done in this time was through carbon emissions²⁰¹. Rather than pile up in landfills, carbon emissions manifest themselves in more subtle ways: through acid rain, alterations to regional temperature and water supply, and smog, among others. These effects can in turn destroy buildings, destabilize regional agriculture, and toxify the air in and around cities over the course of hundreds of years. Given that this was known in 2001, why did the Saudi government choose to build their infrastructure on oil?

Mainly, because oil was the most available (and subsequently, least expensive) resource²⁰². Although 2001 was a relative low for GDP per capita and global oil price, Saudi Arabia continued to enjoy the largest combined oil and natural gas reserves in the world²⁰³. The global oil market, however, remained flooded from Saudi Arabia's actions in the 1990s. Therefore, Saudi Arabia also had an interest in reducing oil exports in 2001 as a means of driving the export price upward. Their production, however continued to increase through 2010²⁰⁴²⁰⁵. This increase occurred because, instead of reducing production, Saudi Arabia turned inward and

²⁰⁰ Ibid.

²⁰¹ Ibid.

²⁰² Alawaji, A. (2001). "Evaluation of Solar Energy Research and its Applications in Saudi Arabia – 20 Years of Experience." In *Renewable & Sustainable Energy Reviews*, Vol. 5. pp. 59-77. Retrieved from: http://wgbis.ces.iisc.ernet.in/biodiversity/sahyadri_enews/newsletter/issue45/bibliography/Evaluation%20of%20solar%20energy%20research%20and%20its%20application%20in%20saudi%20arabia.pdf

²⁰³ Taher & Al-Hajjar, 2014.

²⁰⁴ OPEC. (2009). "Daily and Cumulative Crude Oil Production in OPEC Members." In *OPEC Annual Statistics Bulletin*. Retrieved from: <http://www.opec.org/library/Annual%20Statistical%20Bulletin/interactive/2009/FileZ/XL/T36.HTM>

²⁰⁵ Taher & Al-Hajjar, 2014.

used the oil at home. This shift in energy sourcing meant that they would not have to cut the growing domestic labor force at the refineries and derricks and could funnel more resources into expanding cities and investing in science and technology.

Beyond that, photovoltaic (PV) solar panels were still not reliable enough to be implemented on a large-enough scale to justify the financial investment²⁰⁶. Alawaji states that, even though 20-30 renewable energy products were underway in Saudi Arabia by 2001, none of them could match the energy production efficiency of oil²⁰⁷. Furthermore, energy subsidies existed for oil-based production, but not renewables, making the purchase of renewable energy at the residential level unreasonable²⁰⁸. Additionally, reports done in 2001 concluded that PV-driven water desalination plants were only economically feasible in remote areas where oil-based energy production did not already reach, and often failed due to system error²⁰⁹. Also, PV-based electricity production was not ready for large-scale implementation because of its cost and maintenance requirements: they could only be implemented in population-dense cities like Riyadh due to their high development cost and required constant cleaning due to the dusty desert environment²¹⁰. All in all, it was simply easier for the Saudi government to ignore the long-term externalities associated with oil-based energy consumption, and once again forego the implementation of renewable projects.

This sentiment was reflected in the policies and actions of the Saudi environmental organizations from 2001-2010. The Seventh and Eighth National Development Plans (2000-2004

²⁰⁶ Baras, A. et. al. (2012). "Opportunities and Challenges of Solar Energy in Saudi Arabia." In *World Renewable Energy Forum, Denver*. Vol. 1. pp. 1-6. Retrieved from: <http://large.stanford.edu/courses/2012/ph240/aljamaan2/docs/Solar.pdf>

²⁰⁷ Alawaji, 2001.

²⁰⁸ Ibid.

²⁰⁹ Ibid.

²¹⁰ Ibid.

and 2005-2009, respectively) focused on stabilizing internal migration in Saudi Arabia as a means of slowing the country's rapid urbanization and maintaining the agricultural industry²¹¹. Thus, environmental considerations in policy took a step back, as economic prosperity and infrastructural development was championed²¹².

The Saudi government did, however, make some progress in terms of environmental regulation. This progress was largely made within the context of the Seventh and Eighth National Development Plans and meant to promote a safe living environment in the Kingdom. The first movement toward regulation in this period was the establishment of the Presidency of Meteorology and the Environment (PME). In 2001, this federal agency introduced the General Environmental Law and Rules for Implementation, which "introduced the first comprehensive legal framework in Saudi Arabia for the management of environmental impacts from industrial facilities and projects"²¹³. Although the program was comprehensive and did bring about a newfound interest in environmental policy among Saudi policymakers, the laws were poorly enforced, and did not gain traction as a result²¹⁴. Like the General Environmental Law, the PME failed to enforce the Kyoto Protocol in 2005. Although the Saudi government signed it, they did openly acknowledge that the Kyoto Protocol hurt their revenue stream: Oil Minister Ali Al-Naimi claimed that Saudi Arabia would lose \$19 billion annually by 2010 in reduced exports to industrialized nations²¹⁵. In addition, Saudi Arabia developed the Saudi Environmental Society

²¹¹ Al-Rushaid, Wafa. (2010). "Strengthening of National Capacities for National Development Strategies and Their Management: An Evaluation of UNDP's Contribution." pp. 1-24. Retrieved from: <http://web.undp.org/evaluation/documents/thematic/cd/Saudi-Arabia.pdf>

²¹² Ibid.

²¹³ Visser, W. & Tolhurst, N., ed. (2010). "The World Guide to CSR: A Country-by-Country Analysis of Corporate Sustainability and Responsibility." New York: Routledge. ISBN: 9781906093372.

²¹⁴ Ibid.

²¹⁵ n.a., 2004.

(SENS) in 2006 as a means of promoting green practices in the private sector²¹⁶. The group is purely dedicated to research and is run as a government organization. Therefore, it only offers solutions to the issues of private businesses and does not acknowledge the contribution of the Saudi government to environmental damage. Also, although the Eighth National Development Plan did not provide solutions, it did acknowledge the need for long-term strategy in the depletion of natural resources, especially water²¹⁷. Further, it did acknowledge the need for advancement in the science and technology industries as a means of keeping up with international competition, although it did not specifically link this to existing renewable projects²¹⁸. Finally, in 2009, the Saudi government opened the King Abdullah University of Science and Technology, which dedicated itself to postgraduate research in environmentally-friendly energy production²¹⁹. Thus, although Saudi Arabia did make some contributions toward environmental research and policy, their laws did not have strict enforcement behind them, and companies were largely allowed to continue with business as usual²²⁰.

Unlike the Saudi government, Saudi Aramco was able to enact positive environmental change in their business practices. Their Environmental Master Plan was endorsed in 2001, and 95% complete by 2011²²¹. The \$3.3 billion project aimed to reduce the release of pollutants and enhance the effectiveness of remediation, waste management, and environmental monitoring²²².

²¹⁶ Azhar, Bushra. (2012). "The Top 7 Environmental Movers and Shakers of Saudi Arabia." Retrieved from: <https://www.greenprophet.com/2012/02/environmental-movers-shakers-saudi-arabia/>

²¹⁷ Al-Rushaid, 2010.

²¹⁸ Ibid.

²¹⁹ Kte'pi, B. (2012). Saudi arabia. In S. Philander (Ed.), *Encyclopedia of Global Warming & Climate Change* (Vol. 1, pp. 1236-1236). Thousand Oaks, CA: SAGE Publications Ltd. doi: 10.4135/9781452218564.n616

²²⁰ Visser & Tolhurst, 2010.

²²¹ Hejazi, R. (2010) "Environmental Challenges and Opportunities at Saudi Aramco." [PowerPoint]. Retrieved from: <http://qc.cme-mec.ca/download.php?file=gfqta8cm.pdf>

²²² Ibid.

Primarily, this project was completed through technological innovation involving the natural world. For example, by 2010 Aramco had desulfurized their emissions and controlled their waste management through the use of Alkaline solutions and bacteria, both of which were environmentally neutral and readily available in the Kingdom²²³. The Environmental Master Plan funds hundreds of projects like these, with the aim of promoting comprehensive environmental stewardship²²⁴. Existing projects range from marine and coastline protection to worker safety in waste treatment facilities²²⁵. Due to their strategy and long-term planning before the turn of the century, Aramco enacted their Environmental Master Plan more effectively than the Saudi government did their General Environmental Law. Furthermore, Aramco's history of environmental stewardship allowed for stricter enforcement of their policies than Saudi Arabia, who prioritized urban development and planning from 2001-2010.

Politics of Stability

Coming into 2001, the delineation between the power of the neo-Wahhabi *ulama* and the Saudi Royal Family continued to blur. Saudi Arabia adopted the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 2001, under the condition that they would not act on "any clause in the agreement that contradicts Islamic sharia"²²⁶. Similarly, the Saudi legal system maintained its adherence to corporal and capital punishment for felonies and most petty crime²²⁷. Beyond that, the *mutawiiin* continued to enforce laws concerning the practice of non-muslim religions, often arresting Christian groups because their services were too

²²³ Ibid.

²²⁴ Brierley, Mark. (2012). "Green Machine: Saudi Aramco." In *Oil and Gas Agenda*. Retrieved from: <http://www.growthmarkets-oil.com/features/featureoil-gas-agenda-saudi-aramco-environment/>

²²⁵ Ibid.

²²⁶ Human Rights Watch. (2001). "Saudi Arabia: Human Rights Developments." In *World Report 2001*. Retrieved from: <https://www.hrw.org/legacy/wr2k1/mideast/saudi.html#top>

²²⁷ Ibid.

large to be considered private²²⁸. Even other forms of Islam were prohibited: Shia Muslims, who constituted roughly eight percent of the Saudi population in 2001, were routinely discriminated against in jobs, religious freedom, and in daily life²²⁹. This discrimination led to several violent incidents between the *mutawiiin* and Shia Saudis in 2001²³⁰. In response, the public began to fear the *ulama* and turn away from their teachings. As a result, the position of the *ulama* was hindered entering the new century.

Like the House of Saud, the Saudi public also lost faith in the *ulama* following 9/11. The attack on the World Trade Center was carried out by mostly Saudi nationals and led by Wahhabi Muslim and Al-Qaeda leader Osama bin Laden. Many foreigners, particularly Americans, became aware of this fact and began to view Wahhabism, and Islam in general, as a “doctrine of terrorism and hate”²³¹. Knowing that this destroyed their relationship with their close ally and protector during the Gulf War, the Royal family worked quickly to separate themselves from the Wahhabists. Crown Prince Abdullah held televised meetings with various religious and industrial leaders in Saudi Arabia to discuss strategies for preventing future incidents²³². The outcome of these meetings was a clear explanation of the roles of rulers and religious scholars in Saudi Arabia: The Royal family was to rule, and the *ulama* were to advise²³³.

Rather than subdue religious extremism, the actions of the Crown Prince agitated Al-Qaeda. The years following 9/11 saw an uptick in suicide bombings and attacks on non-Muslim

²²⁸ Ibid.

²²⁹ Ibid.

²³⁰ Ibid.

²³¹ Long, D. (2005). “Review of ‘Wahhabi Islam: From Revival and Reform to Global Jihad’ by Natana J. DeLong-Bas.” In *The Middle East Journal*. 59:2. pp. 316-319. Washington, D.C.: Middle East Institute. Retrieved from:

²³² Lacey, Robert (2009). “Inside the Kingdom: Kings, Clerics, Modernists, Terrorists, and the Struggle for Saudi Arabia”. Viking. pp. 49–52.

²³³ Lacey, 2009.

foreigners (roughly 30% of the Saudi population at the time)²³⁴²³⁵. The Saudi government's initial reaction to this was continued punishment of the *ulama* and openness to public opinion. The Royal Family held "National Dialogues" with "Shiites, Sufis, liberal reformers, and professional women"²³⁶. Furthermore, King Abdullah expanded the Council of Senior Scholars, his formal council of religious advisors, to include religious leaders from more schools within Sunni Islam²³⁷. Finally, in 2009, the king cemented his primacy over the *ulama* by decreeing that only religious scholars who were "officially approved" by the federal government could issue fatwas in Saudi Arabia²³⁸.

While King Abdullah used this opportunity to attack the Wahhabists and establish his family's power over the state religious institution, others in the House of Saud used the terror attacks in the early 2000's to attack a much larger, and older enemy of the state. Led by Minister of the Interior Prince Nayef, some in the Saudi Royal Family attacked the presence of the Muslim Brotherhood in Saudi Arabia²³⁹. They claimed that, while the Brotherhood had enjoyed decades of proliferation and support from Saudi oil revenue, they also spread a message of hate and extremism²⁴⁰. Also, independent investigator John Mintz and American journalist Douglas

²³⁴ *The Saudi Gazette*. (2014). "Census Shows Kingdom's Population at More Than 27 Million." Riyadh. Retrieved from: <http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentID=2010112487888&archiveissuupdate=24%2F11%2F2010>

²³⁵ Commins, D. (2009). "The Wahhabi Mission and Saudi Arabia". London, England: I.B. Tauris.

²³⁶ *Ibid.*

²³⁷ Boucek, C. (2010). "Saudi Fatwa Restrictions and the State-Clerical Relationship." New York: The Carnegie Endowment for International Peace. Retrieved from: <http://carnegieendowment.org/2010/10/27/saudi-fatwa-restrictions-and-state-clerical-relationship/6b81>

²³⁸ *Ibid.*

²³⁹ Rubin, E. (2004). "The Jihadi Who Kept Asking Why." In *The New York Times*. Retrieved from: <http://www.nytimes.com/2004/03/07/magazine/the-jihadi-who-kept-asking-why.html>

²⁴⁰ Rubin, 2004.

Farah claim that the Brotherhood used money donated by the Saudi government to grow their operation in the U.S. and rise to prominence in both religion and industry in America²⁴¹.

Understanding these facts in the wake of 9/11, Prince Nayef called for the expulsion of the Muslim Brotherhood from Saudi Arabia, calling them “the source of all the problems in the Islamic world”.²⁴²

While establishing their dominance over religion, the Saudi government also used their oil revenue to meet the needs of its rapidly-growing population. From 2001-2010, oil production was erratic, but never dropped below 8 million barrels/day, more than double that of any other OPEC member²⁴³. Although their economy was too reliant on oil to be considered diversified, Saudi non-oil GDP grew 4.5% annually between 1999 and 2009, representing a steady trend away from economic dependence on oil²⁴⁴. The Seventh and Eighth National Development Plans served to continue this trend and slow the urbanization of the country. The Seventh Plan, enacted from 2000-2004, aimed at promoting regional investments from the private sector by enhancing the infrastructural efficiency in rural areas, and establishing public information centers in each region²⁴⁵. While they enjoyed the largest GDP in the Arab world, Saudi Arabia was intent on using their income to enable its population to raise its own standard of living. From the Sixth to the Seventh Plan, budget cuts were made in infrastructure and social/health development, while

²⁴¹ Mintz, J. & Farah, D. (2004). "In Search of Friends Among the Foes: U.S. Hopes to Work with a Diverse Group." In *The Washington Post*. Retrieved from: <http://www.washingtonpost.com/wp-dyn/articles/A12823-2004Sep10.html>

²⁴² Ibid.

²⁴³ Ramady, M. (2010). "Reforms and Economic Planning." In *The Saudi Arabian Economy: Policies, Achievements, and Challenges*, 2nd ed. [PowerPoint]. New York: Springer Publishing. Retrieved from: <extras.springer.com/2010/978-1-4419-5987-4/Chapter%202.pdf>

²⁴⁴ Ibid.

²⁴⁵ Alshuwaikhat, H. M. (2018). "Sixth, Seventh, and Eighth Development Plans of Saudi Arabia." Dhahran: King Fahd University of Petroleum and Minerals. Retrieved from: <faculty.kfupm.edu.sa/crp/habibms/cp202/6-7-8th%20Development%20Plan.doc>

increases were made to economic and human resource development²⁴⁶. In both plans, human resource development accounted for over 50% of the budget²⁴⁷. The goal of this was to promote private business and equip domestic workers with the tools necessary to create and promote successful businesses apart from the government. On one hand, this program widened access to public education, allowed for greater export potential, and expanded Saudi Arabia's global transfer of and contribution to technology. On the other hand, this program brought about increased imports and thus inflation, and required expatriate labor for various aspects of technological management and production²⁴⁸.

The Eighth Plan was more sophisticated than the Seventh, and focused on the globalization of new domestic businesses, and building a balanced infrastructure to spread wealth to more rural regions, thus promoting industry outside of major cities²⁴⁹. This supplemental transition is reflected in the reduction of investment in human resources and social/health development, and budget increases in economic resources and infrastructural development²⁵⁰. The chosen foundation for the new Saudi economy, science and technology, required training and skilled labor²⁵¹. Thus, the Saudi government built and opened schools like the KAUST during the Seventh Plan, and facilitated their graduates opening businesses in the Eighth Plan. Thus, Saudi Arabia prevented their most educated youth from moving abroad and enhanced their competitiveness on the global market²⁵². This transition alleviated concern over

²⁴⁶ Ramady, *Reforms*, 2010.

²⁴⁷ Ibid.

²⁴⁸ Ibid.

²⁴⁹ Alshuwaikhat, 2018.

²⁵⁰ Ramady, M. (2010). "Saudization: A Viable Solution?" In *The Saudi Arabian Economy: Policies, Achievements, and Challenges*, 2nd ed. pp. 366-373. New York: Springer Publishing.

²⁵¹ Ibid.

²⁵² Ibid.

the erraticism of Saudi business cycles, and reduced, but did not eliminate, the domination of oil in the Saudi economy²⁵³.

The Dominating Narrative of Oil Reliance

The Seventh and Eighth National Development Plans encouraged infrastructural growth and economic diversification via the promotion of the private sector but did not do so enough to deliver Saudi Arabia from their traditional mono-economy²⁵⁴. Rather, job growth, in addition to oil production centers, was concentrated in areas that would supplement the expansion of oil and energy jobs. These areas included construction in and around cities, and non-manufacturing services like public transportation, real estate, and social services²⁵⁵. Thus, job growth was limited to only sectors that would bring the public closer to oil production. Rather than promote industrial growth in rural areas, this plan facilitated the expansion of urban centers, and drove the demand for energy in residential areas up through 2010.

From 2001-2010, many Saudis were employed by the government, but relatively few entered the social sector. In response, Saudization became a priority with the Seventh Plan²⁵⁶. This practice, first introduced in the Fourth Plan, stated that companies operating in Saudi Arabia were required to hire a certain number of Saudi laborers²⁵⁷. In 2003, if a private business were to employ 20 or more workers, 30% of the company's employees were required to be Saudi nationals²⁵⁸. While this plan seemed like a motivator for private businesses and an opportunity

²⁵³ Ramady, *Reforms*, 2010.

²⁵⁴ Ibid.

²⁵⁵ Ibid.

²⁵⁶ Ramady, *Saudization*, 2010.

²⁵⁷ Wynbrandt, J. (2010). "Public Projects." In *A Brief History of Saudi Arabia*. pp. 298. New York: Infobase.

²⁵⁸ Ibid.

for educated Saudi nationals, it was not an effective means of stimulating the workforce. In 2003, only 300,000 Saudis were employed in private businesses with more than 20 employees²⁵⁹.

This number did not change, and the emphasis on Saudization was ineffective through 2010. Ramady claims that Saudization did not improve for a number of reasons. First, he notes that negative attitudes around manual labor, coupled with a large expatriate workforce, made many of the growing job fields unattractive to Saudi nationals²⁶⁰. Next, he explains that “the combination of importing foreign workers while offering generous state welfare benefits to nationals has reinforced this negative attitude towards work and created a vicious cycle that encourages Saudis to stay out of a large part of the job market”²⁶¹. Evidence of this point is noted by the Ministry of Labor, which saw 150,000 Saudis not show up for guaranteed private sector jobs from 2005-2009²⁶².

While Saudization did not take off with the main workforce, there was some indication that it would improve in the longer term. Ramady and Wynbrandt estimate that 70-75% of Saudi nationals were employed in 2007²⁶³²⁶⁴. In addition, the younger generation appears to be more realistic in their expectations for job prospects; many men and women entering the workforce at the end of the Eighth Development Plan indicated a willingness to work in jobs typically rejected by their fathers. This newfound flexibility in occupation based on gender meant that Saudi Arabia would be more able to fill jobs requiring manual labor and more direct services, such as hotel and restaurant management²⁶⁵. Likewise, Saudi women were beginning to take jobs in the

²⁵⁹ Ibid.

²⁶⁰ Ramady, *Saudization*, 2010.

²⁶¹ Ibid.

²⁶² Ibid.

²⁶³ Ibid.

²⁶⁴ Wynbrandt, 2010.

²⁶⁵ Ramady, *Saudization*, 2010.

houses of other Saudi families, a job that was traditionally filled by foreign women²⁶⁶. This change in cultural acceptance of jobs allowed for the mobilization of the Saudi public. Beyond that, this change can be explained in relation to oil output at the time.

Oil production from 2001-2010 was erratic, unpredictable, and dominated by global trends. The early 2000s saw the world enter recession and reduce oil trade in response to slowing economic growth²⁶⁷. For the first time since the 1970s, the Saudi government limited their oil production in response to external factors, and not as a means of controlling the price of oil or punishing other states²⁶⁸. Saudi oil production finished at 8.5 million barrels/day in 2003, climbed quickly to nearly 9.5 million in 2005, and shot back down to 8 million in 2009²⁶⁹. At the 2008 fixed price of \$147/barrel, this fluctuation accounted for \$220,500,000 in lost revenue in 2009 alone²⁷⁰. Similarly, for exports to the U.S. alone, crude petroleum values fluctuated from \$13B in 2001, to \$46B in 2008, and back down to \$27B in 2010 in response to the collapse of the housing market in 2007²⁷¹. In response to unstable global demand, Saudi Arabia finished the decade with no significant difference in oil production from where it started²⁷².

Like the recession, the global realization of the immediacy of the climate change issue also affected international oil trade. In 2001, the public considered climate change “a problem for the future”²⁷³. Contrary to this belief, melting ice caps, drying rivers, and increasing global

²⁶⁶ Ibid.

²⁶⁷ International Monetary Fund. (2009). “World Economic Outlook - April 2009: Crisis and Recovery”. [PDF]. pp. 11-14.

²⁶⁸ Ramady, *Reforms*, 2010.

²⁶⁹ Ibid.

²⁷⁰ Ibid.

²⁷¹ Observatory of Economic Complexity. (2018). “What Does the United States Import from Saudi Arabia? (2001, 2008, 2010)” In *Visualizations*. Retrieved from: <https://atlas.media.mit.edu/en/profile/country/sau/>

²⁷² Ramady, *Reforms*, 2010.

²⁷³ Roach, J. (2009). “2000-2010: A Decade of (Climate) Change.” In *National Geographic News*. Retrieved from: <https://news.nationalgeographic.com/news/2009/12/091208-climate-change-decade.html>

temperatures brought the world face-to-face with this problem sooner than the public thought possible. In response, countries began to search for alternative methods of energy production as a means of promoting environmental stewardship. Rather than resist the trend of alternate fuel exploration, Saudi Arabia joined the fight against climate change. While openly condemning international laws that would negatively affect global oil consumption, Saudi Arabia continued to invest and explore alternative energy through international technological exchange and investment of projects at the KAUST²⁷⁴. While they continued to depend on oil as the primary driver of their economy, it appears that Saudi Arabia experienced a transition in their mindset from 2001-2010. This transition centered around the realization that oil, although abundant, is a finite resource. In conjunction with that realization, the worldwide exploration for new sources of energy meant a likely eventual downturn in the oil market once a cheaper, more abundant, or more efficient fuel source was discovered.

In sum, Saudi Arabia initiated the transition into becoming a globalized member of society by being forced to respond to instability in the international oil market. Their response was the beginning of a cultural shift away from dependence on oil, facilitated by a change in views of traditional jobs. Inspired by Abdullah's emphasis of pre-existing but rarely-enforced Saudization policies, young people and women sought jobs previously deemed undesirable by Saudi nationals. As a result, the Saudi economy, although still dominated by oil, underwent substantial diversification under the Seventh and Eighth National Development Plans. Although diversification was not widespread enough to witness other businesses reach the prominence of

²⁷⁴ Wynn, G. (2009). "U.S. Climate Talks Threaten Our Survival: Saudi Arabia." In *Reuters*. Retrieved from: <https://www.reuters.com/article/us-climate-saudi-bonn-interview/u-n-climate-talks-threaten-our-survival-saudi-arabia-idUSTRE5371QM20090408>

oil in the Saudi GDP, modest initial gains in the service and construction industries were sufficient starts to perpetuate the industrial diversification trend in the late 2000s.

Summary

In conclusion, if the 1980s and 1990s were a period of Saudi exceptionalism, the 2000s were a period of integration and assimilation on the world stage. While the last chapter detailed the rise of the neo-Wahhabi movement and the deterioration of the power of the Royal Family, this chapter explains that the early 2000s saw the reversal of this trend, and the re-establishment of the House of Saud as the definitive power in Saudi Arabia. Due to damage done to the global Saudi reputation during 9/11, the Saudi government worked to distance the state from the neo-Wahhabi movement, and reclaim their position of power over the *ulama*.

The Saudization process was closely related to a growing understanding in Saudi Arabia that oil was not going to last forever. A program existent since the 1980s, Saudization was only loosely enforced until the 2000s, when the government realized that it could not run its country reliably in the future if it were dependent on the oil market. Various global energy crises forced the Saudi government to emphasize Saudization and the advancement of the private sector. The combination of promoting both Saudization and private business inspired young Saudis to take on new jobs and opened the door for a broader cultural shift away from oil reliance.

The waning Saudi dependence on oil reliance can be explained by the global trend away from carbon-based fuel, inspired by a new understanding of climate change. Beginning with the Kyoto Protocol, countries around the world accepted their responsibility in producing an immediate global threat in anthropogenic climate change, and initiated exploration into mitigating risk and alleviating carbon footprint. While Saudi Arabia resisted the Kyoto Protocol and other legislation that would damage the oil market, they understood that climate change was

a threat to the security of their population. So, they opened the KAUST in 2009 with the goal of engaging in the global fight against climate change, both as a means of attracting young Saudi skilled laborers to stay in-country and promoting science and technology as another lucrative domestic industry to balance the Saudi economy. Despite this progress, oil remained the majority contributor to the Saudi GDP abroad, and the most-used fuel for energy production at home through 2010. No competitive clean fuel reached market by 2010, and as a result, oil continued to drive Saudi expansion as it met the needs of its growing population.

Chapter V: Conclusion - 2010-2018

“Our country is rich in its natural resources. We are not dependent solely on oil for our energy needs. Gold, phosphate, uranium, and many other valuable minerals are found beneath our lands. But our real wealth lies in the ambition of our people and the potential of our younger generation. They are our nation’s pride and the architects of our future. We will never forget how, under tougher circumstances than today, our nation was forged by collective determination when the late King Abdulaziz Al-Saud – may Allah bless his soul – united the Kingdom. Our people will amaze the world again.”

--Mohammad bin Salman bin Abdulaziz Al-Saud, Chairman of the Council of Economic and Development Affairs²⁷⁵

Introduction

This thesis explained that, from 1960-2010, a prevalent research and development infrastructure for renewable energy existed within Saudi Arabia. Despite a half-century in the development phase, this infrastructure was never implemented on a large scale due to the ineffectiveness of state-sponsored environmental authorities, a natural desire for political stability from the monarchy, and a culture of oil reliance within the country. For fifty years, the country ignored warnings from the rest of the world regarding the continued use and dependence on oil, both economically and in energy production. There began a change, however, in the 21st century: although oil still prevailed as the driving force of the Saudi economy and the leading producer in the energy sector, the Seventh and Eighth National Development Plans pushed economic diversification in Saudi Arabia. With an intentional focus on the private sector, the House of Saud promoted domestic employment through foreign investment by requiring that every business hire a percentage of their workforce from Saudi Arabia. Further, education was promoted through the foundation of national research universities like the KAUST. The goal in

²⁷⁵ bin Salman bin Abdulaziz Al-Saud, M. (2016). “Foreword.” In *Vision 2030*. Retrieved from: <http://vision2030.gov.sa/en/foreword>.

founding these universities was to explore and understand the different natural resources in Saudi Arabia and retain the country's brightest youths, who typically went abroad for secondary education. As a result, Saudi Arabia began to fully comprehend the role renewables could play in domestic energy production.

This chapter concludes the thesis by explaining how the Saudi mindset on energy completed its transition from oil-dependent to renewable-focused, evidenced by the Ninth and Tenth Development Plans, as well as Vision 2030. The chapter then explains that, while politics and culture were traditionally hindrances to the large-scale implementation of a renewable energy infrastructure in Saudi Arabia, the social change and economic diversification that occurred from 2001-2010 allowed for the introduction of a more renewable-friendly development plan. Finally, this chapter will look into the future through the lens of "Vision 2030", the Saudi long-term energy conversion initiative.

Creation of Opportunity within Environmental Authorities

While the half-century prior did not produce significant environmental protection policies within the Kingdom of Saudi Arabia, the federal government was active in pursuing environmentally-friendly policies from 2010 to the present. To accomplish this, they seized the window of social openness to change that presented itself in response to the growing domestic job market and cultural changes discussed in chapter 4.

Movement toward environmental policies, however, continues to move slowly. Even in 2017, the Kingdom produced less than one percent of its energy using renewable resources²⁷⁶. Despite this, advances have been made in other areas since 2010 which represent movement

²⁷⁶ Gamal, R., Shamseddine, R., Paul, K. (2017). "Saudi Arabia Pushes Ahead with Renewable Drive to Diversify Energy Mix." New York: Reuters. Retrieved from: <https://www.reuters.com/article/saudi-renewable/saudi-arabia-pushes-ahead-with-renewable-drive-to-diversify-energy-mix-idUSL8N1HP10B>

toward an environmentally-friendly Saudi state. More impressive is that leadership for these new initiatives has come from the federal level. For example, much of the plan for development since 2010 has followed policies aimed at promoting the individual laborer and private sector, while balancing infrastructural progress across regions. Mohamed Ramady outlines the Ninth National Development Plan, claiming that goals from 2010-2014 included, “raising the standard of living of citizens, diversifying the economic base, moving toward a knowledge-based economy, and achieving balanced regional development”²⁷⁷.

In this policy, it is evident that the House of Saud recognized that the Seventh and Eighth Plans succeeded in improving everyday life in Saudi Arabia through horizontal growth in business and continued to use those ideas in the Ninth Plan and beyond.

The Tenth Development Plan (2015-2019) continued the successes of the Seventh, Eighth, and Ninth Plans. Many of its goals were recycled from the previous policies: the House of Saud still felt that development of the private sector, promotion of foreign investment, and spending on infrastructure and oil production was the way in which the Kingdom should move²⁷⁸. Added to this plan, however, was the resource exploration and sustainability objective. In short, this objective focuses on, “raising the value added of natural resources in the national economy, diversifying their sources and ensuring their sustainability along with protecting the environment and conserving the wildlife”²⁷⁹. Methods by which the Saudi government plans on meeting this objective include continuing to maximize the efficiency of oil, but also improving

²⁷⁷ Ramady, M. (2010). “Chapter 2: Reforms and Economic Planning.” In *The Saudi Arabian Economy: Policies, Achievements, and Challenges, 2nd Edition*. New York: Springer.

²⁷⁸ United Nations Development Group (2018). “Objectives and Policies of the Tenth Development Plan (2015-2019)”. In *Information Management System*. Retrieved from: ims.undg.org.

²⁷⁹ Ibid.

their conservation habits²⁸⁰. Furthermore, the House of Saud called for the monitoring of agricultural water use, looking into energy production via solid waste, and developing stricter anti-pollution regulations²⁸¹. Although oil is still recognized as the central driver of the Saudi economy and energy grid, the Tenth Plan serves as a concrete timeline to which the House of Saud can be held. Now, it will be considered a failure if the Saudi government does not show improvements in water conservation, oil efficiency, and air pollution.

Further evidence of Saudi Arabia's commitment to the environment, and advancement of the state as a whole, is their Vision 2030 project. Introduced in April 2016 by Crown Prince Mohammad bin Salman, this program emphasized the goals of the Tenth Plan and outlined their implementation for the decade after the plan expired. Vision 2030 consists of three pillars: 1. Maintaining status as the center of the Islamic World, 2. Becoming a "global investment powerhouse", and 3. Using waterways to stimulate trade²⁸². Smaller goals mentioned include diversification of the energy profile through increased domestic mineral exploitation and the development of a sovereign wealth fund from the Public Investment Fund²⁸³. The Saudi decision to move in the direction outlined by the Tenth Plan and Vision 2030 is a testament to their commitment to providing the best economic opportunity for its people. While policies like these are naturally written with an optimistic tone, the consistency with which the House of Saud has completed goals outlined by previous plans leaves no indication that these are only words on a page. Because similar policies led to prosperity in the past, the House of Saud will likely

²⁸⁰ Ibid.

²⁸¹ Ibid.

²⁸² bin Salman, 2016.

²⁸³ Ibid.

continue to use and implement objectives involving economic diversification, infrastructure development, and social welfare long into the future.

Political Stability through Unity

While the House of Saud continues to strive for political stability, their hold on the throne is perhaps the firmest since the unification of the Kingdom a century ago. The last fifty years of rule was marred by struggle against competing religious groups and inter-house competition for the throne. Today's Royal Family, however, does not experience the same issues as their forefathers, and instead focuses on contributing to society internally, while demonstrating power externally.

Domestically, the House of Saud provides support for its people through their development plans and initiatives like Vision 2030. Since family members traditionally hold positions at the head of each ministry, the Saudi Royal Family is able to take credit for each of the country's successes. While this provides a weak spot for competing groups to attack in times of crisis, it affirms their consolidation of power in times of success. Since 2010, the House of Saud enjoyed affirmation, and continued the consolidation of power that began at the turn of the century. It appears that their strategy for maintaining their stability atop the Saudi social structure is accomplished through the promotion of social unity through the advancement of the individual. Evidenced by the social goals in the Ninth and Tenth Plans, the Saudi government is satisfying the public through increasing the standard of living for their citizens. In doing so, it seems likely that they will meet the rising expectations of their growing population. In 2011, the Ministry of Economy and Planning (MEP) reported that all twenty-one of their general social goals were either completed or on pace to be completed by 2015. To eliminate criticisms regarding bias in the report, the MEP provided verification of the comprehensiveness of the data

collection and statistical analysis at the beginning of the report. Goals included ensuring all children had access to primary education, universal access to reproductive health, and cutting the number of people without sustainable access to safe drinking water in half²⁸⁴. As a result of meeting these goals, the Saudi public lives as comfortably as any point in the history of the Kingdom.

On the world stage, Saudi Arabia has made it clear that they are prosperous, powerful, and driven by self-interest. Since 2010, they bolstered their domestic military as a means of decreasing reliance on foreign protection, in part to avoid an ethical and social dilemma reminiscent of the Persian Gulf War²⁸⁵. Similarly, they respected the wishes of the international community in emphasizing environmental protection in their recent development plans, but only under conditions which were convenient to them. While concerns for the environment were expressed at the international level as early as the 1990s, Saudi Arabia did not add a renewable energy program into their infrastructural development plan until the opening of the KAUST in 2009 and the King Abdullah City for Atomic and Renewable Energy in 2010²⁸⁶²⁸⁷. At this time, the public in Saudi Arabia was willing to accept change about which they might have been apprehensive a decade earlier. Cultural changes surrounding the role of women, traditional jobs,

²⁸⁴ Ministry of Economy and Planning. (2011). "Kingdom of Saudi Arabia: Millenium Development Goals." ISSN: 1658-2705. Retrieved from: http://www.undp.org/content/dam/undp/library/MDG/english/MDG%20Country%20Reports/Saudi%20Arabia/KSA_MDG_Report_6_2011_English.pdf

²⁸⁵ Hashem, M., Browning, N., & Paul, K. (2017). "UPDATE 2 – Saudi Arabia Launches Military Industry Company." In *Reuters*. Retrieved from: <https://www.reuters.com/article/saudi-security-arms/update-2-saudi-arabia-launches-military-industries-company-idUSL8N1IJ5ZG>

²⁸⁶ King Abdulaziz University of Science and Technology. (2018). "History of the KAUST." In *About the KAUST*. Retrieved from: <https://www.kaust.edu.sa/en/about>

²⁸⁷ King Abdullah City for Atomic and Renewable Energy. (2018). "The Establishing Order." In *About Us*. Retrieved from: <https://www.kacare.gov.sa/en/about/Pages/royalorder.aspx>

and religion in education opened the minds of the Saudi public toward new ideas. One idea that was particularly susceptible to change in this period concerned oil and its use in the community. Although international pressure existed for decades beforehand, the Saudi government finally committed to implementing large-scale renewable technology with the Ninth Plan in 2010.

The Role of Culture in Enriching the Renewable Narrative

Without a change in the culture surrounding oil reliance, the implementation of renewable energy infrastructure would have been even further delayed in Saudi Arabia. As the last chapter mentioned, changing norms regarding women in the workplace, acceptable jobs for males, and promoting a science-based education while curbing the fanaticism promoted by the neo-Wahhabi regime led to an openness among the Saudi public toward new ideas. Recognizing this alongside the successes that the diversification of the economy brought in the 21st century, the Saudi government seized the opportunity to establish renewable testing centers and research universities. Today, those centers are informing policy decisions at the federal level: by 2023, the government aims to have ten percent of its energy produced by renewables²⁸⁸. Specifically, feasibility studies have returned promising findings for the implementation of nuclear, wind, solar, thermal, and solid waste energy systems on the national grid²⁸⁹. Behind this US \$30-50 billion investment is the blessing of Allah²⁹⁰²⁹¹. As was demonstrated in previous chapters that the public believed that Allah bestowed them with the right to use their oil, the same is becoming true for the other natural resources in the Kingdom. Crown Prince bin Salman's foreword to Vision 2030 explains this by beginning with affirming the national commitment to preserve the

²⁸⁸ Gamal, Shamseddine, & Paul, 2017.

²⁸⁹ Ibid.

²⁹⁰ Ibid.

²⁹¹ bin Salman, 2016.

Holy Land, and later describing their wealth of diverse natural resources²⁹². In this way, the House of Saud led the way for renewable implementation by interpreting the transition to renewable energy through the same lens with which it viewed oil as a fuel for electricity since 1960. This interpretation, paired with the newfound openness of the Saudi public to change that has existed since the turn of the century, added to the strength of the renewable narrative in Saudi Arabia. Support from the public is essential to the success of any major governmental project, even in a monarchy, and the House of Saud holds that support today.

Summary

In sum, prospects for the implementation of a large-scale renewable energy infrastructure in Saudi Arabia today are significantly greater than they were half a century ago. While the country was bogged down in concerns regarding political stability, the ineffectiveness of state-sponsored environmental authorities, and a cultural narrative of oil reliance, the case in all three aspects is much different today. As it stands, Saudi Arabia is currently implementing more comprehensive environmental policies than ever and sticking to them by making public commitments through development plans and initiatives like Vision 2030. The promotion of renewable energy is being reinforced by a period of increased stability currently being enjoyed by the House of Saud as a result of their success in meeting the rising expectations of the public. Because they have a stable rule, the House of Saud was able to influence public opinion by framing the use of natural resources like sunlight, wind, and water in energy production as a usage of Allah's gift to their country, much like they did with oil in the fifty years prior. All in all, these three key factors continue to impact one another, and influence the economic, social, and political success of Saudi Arabia as a whole. This presents exciting prospects for the future,

²⁹² Ibid.

as they are now serving to magnify the benefits of renewable policy, rather than maintain the widespread, unsustainable use of oil in domestic energy production.

Bibliography

- Adunbi, Omolade. (2015). *Oil Wealth and Insurgency in Nigeria*. Bloomington: Indiana University Press.
- Al-Ajlan, S.A., Al-Ibrahim, M.A., Abdulkhaleq, M., & Alghamdi, F. (2006). *Developing Sustainable Energy Policies for Electrical Energy Conservation in Saudi Arabia*. Retrieved from: <http://doi.org/10.1016/j.enpol.2004.11.013>.
- Al-Gilani, Ahmad & Filor, Seamus (1997) *Policy And Practice: Environmental Policies in Saudi Arabia*, Journal of Environmental Planning and Management, 40:6, 775-788, DOI: 10.1080/09640569711903
- Al-Gilani, Ahmad Ali. (1998). *The Environment: Theories, Assessment Techniques, and Policies: The Saudi Experience*. PhD dissertation, The University of Edinburgh..
- Al-Hawali, *Kissinger's Promise: American Goals in the Gulf*, quoted in Teitelbaum, J. (2000). *Holier Than Thou: Saudi Arabia's Islamic Opposition* (Washington, D.C.: Washington Institute for Near East Policy, 2000), pp. 29–30.
- Al-Jazeera (1998). "Interview with Osama bin Laden." Cited in: Avishai Margalit and Ian Buruma, "Occidentalism," *New York Review of Books*, Jan. 17, 2002.
- Al-Natheer, Othman (2005). *The Potential Contribution of Renewable Energy to Electricity Supply in Saudi Arabia*. Retrieved from: <http://doi.org/10.1016/j.enpol.2003.12.013>.
- Al-Rasheed, Madawi. (2010). "A History of Saudi Arabia, 2nd Edition." London: Cambridge University Press.

- Al-Rushaid, Wafa. (2010). “Strengthening of National Capacities for National Development Strategies and Their Management: An Evaluation of UNDP’s Contribution.” pp. 1-24. Retrieved from: <http://web.undp.org/evaluation/documents/thematic/cd/Saudi-Arabia.pdf>
- Alawaji, A. (2001). “Evaluation of Solar Energy Research and its Applications in Saudi Arabia – 20 Years of Experience.” In *Renewable & Sustainable Energy Reviews*, Vol. 5. pp. 59-77. Retrieved from: http://wgbis.ces.iisc.ernet.in/biodiversity/sahyadri_enevs/newsletter/issue45/bibliography/Evaluation%20of%20solar%20energy%20research%20and%20its%20application%20in%20saudi%20arabia.pdf
- Alshuwaikhat, H. M. (2018). “Sixth, Seventh, and Eighth Development Plans of Saudi Arabia.” Dhahran: King Fahd University of Petroleum and Minerals. Retrieved from: faculty.kfupm.edu.sa/crp/habibms/cp202/6-7-8th%20Development%20Plan.doc
- Anderson, Betty. (2016). *A History of the Modern Middle East Rulers, Rebels, and Rogues*. Palo Alto: Stanford University Press. Pp. 227-336. Retrieved from: <https://ia600607.us.archive.org/6/items/BettyS.AndersonAHistoryOfTheModernMiddleEastRulersRebelsAndRoguesStanfordUniversityPress2016/Betty%20S.%20Anderson-A%20History%20of%20the%20Modern%20Middle%20East%20Rulers%2C%20Rebels%2C%20and%20Rogues-Stanford%20University%20Press%20%282016%29.pdf>
- Arezki, R., et. al. (2017). “Oil Prices and the Global Economy.” In *IMF Working Papers*. 17:15. Retrieved from: <https://www.imf.org/~media/Files/Publications/WP/wp1715.ashx>
- Assi, Seraj. (2017). “When Franklin D. Roosevelt met Ibn Saud.” In *Al-Araby*. Retrieved from: <https://www.alaraby.co.uk/english/comment/2017/6/26/when-franklin-d-roosevelt-met-ibn-saud>

- Ayubi, Nazih. (1995). *Over-Stating the Arab State: Politics and Society in the Middle East*. New York: I.B. Tauris.
- Azhar, Bushra. (2012). "The Top 7 Environmental Movers and Shakers of Saudi Arabia." Retrieved from: <https://www.greenprophet.com/2012/02/environmental-movers-shakers-saudi-arabia/>
- Baras, A. et. al. (2012). "Opportunities and Challenges of Solar Energy in Saudi Arabia." In *World Renewable Energy Forum, Denver*. Vol. 1. pp. 1-6. Retrieved from: <http://large.stanford.edu/courses/2012/ph240/aljamaan2/docs/Solar.pdf>
- Barth, H.K, & Quiel, F. (1986). "Development and Changes in the Eastern Province of Saudi Arabia." Published in *GeoJournal*, 13:3 pp. 251-259. Dordrecht: D. Reidel Publishing.
- BBC News (2013). "A Brief History of Climate Change". Retrieved from: <http://www.bbc.com/news/science-environment-15874560>
- Bearman, P.J., ed. (2007). "Khadim al-Haramayn al-Sharifayn". In *Encyclopedia of Islam*. Vol. 4. Leiden: Brill.
- Benjamin, Daniel, & Simon, Steven. (2002). "The Age of Sacred Terror." New York: Random House.
- Bin Laden, Osama. (1996). "Declaration of War against the Americans Occupying the Land of the Two Holy Places." London: Al Quds Al Arabi.
- bin Abdulaziz Al Saud, Fahd HRH. (n.d.) "King Fahd: Some Quotations." Retrieved from: <http://www.riyadhvision.com.sa/biographies/king-fahd-bin-abdul-aziz/king-fahd-quotations/>
- bin Salman bin Abdulaziz Al-Saud, M. (2016). "Foreword." In *Vision 2030*. Retrieved from: <http://vision2030.gov.sa/en/foreword>.

Birt, Yahya. (2007). Quoted in “Wahhabism: A Deadly Scripture.” In *The Independent*.

Retrieved from: <https://www.independent.co.uk/news/uk/home-news/wahhabism-a-deadly-scripture-398516.html>

Boucek, C. (2010). “Saudi Fatwa Restrictions and the State-Clerical Relationship.” New York:

The Carnegie Endowment for International Peace. Retrieved from:

<http://carnegieendowment.org/2010/10/27/saudi-fatwa-restrictions-and-state-clerical-relationship/6b81>

Brierley, Mark. (2012). “Green Machine: Saudi Aramco.” In *Oil and Gas Agenda*. Retrieved

from: <http://www.growthmarkets-oil.com/features/featureoil-gas-agenda-saudi-aramco-environment/>

Cappelen, Adne, & Choudhury, Robin. (2000). “The Future of the Saudi Arabian Economy:

Possible Effects on the World Oil Market.” Oslo: Statistics Norway.

C.I.A (1985). “Report, Saudi Oil Policy, January 28, 1985, Secret.” CREST. Retrieved from:

<http://primarysources.brillonline.com/browse/us-intelligence-on-the-middle-east/cia-report-saudi-oil-policy-january-28-1985-secret-crest;umeoumeob08159>

C.I.A. (1981). “CIA Report, Key Issues in Saudi Foreign Policy, March 1981, Top Secret

[codewords not declassified].” CREST. Retrieved from:

<http://primarysources.brillonline.com/reader/open?rotate=1&starEnabled=1&shareLink=http://primarysources.brillonline.com//browse/us-intelligence-on-the-middle-east/cia-report-key-issues-in-saudi-foreign-policy-march-1981-top-secret-codewords-not-declassified-crest;umeoumeob07009&workUri=us-intelligence-on-the-middle-east/cia-report-key-issues-in-saudi-foreign-policy-march-1981-top-secret-codewords-not-declassified-crest;umeoumeob07009&download=1&startPage=1&maxCopy=->

[1×tamp=2017-10-29T20:12:07&cite=1&watermark=BrillOnline_Primary_Sources_US_INTELLIGENCE_ON_CIA_REPORT_KEY_1826_29_10_2017&token=ibWMfCp8SXQ/6/W+gy+bUI9v/7k=&callbacks=0&pbox=1&userId=1826&maxPrint=-1&accId=1826](http://primarysources.brillonline.com/browse/us-intelligence-on-the-middle-east/cia-memorandum-saudi-arabia-perspectives-on-oil-policy-november-1981-secret-crest)

C.I.A. (1981). "Memorandum, Saudi Arabia: Perspectives on Oil Policy, November 1981, Secret." CREST. Retrieved from <http://primarysources.brillonline.com/browse/us-intelligence-on-the-middle-east/cia-memorandum-saudi-arabia-perspectives-on-oil-policy-november-1981-secret-crest>

CNN Money. (1998). "OPEC Disappoints, Oil Slides." Retrieved from: <http://money.cnn.com/1998/11/30/economy/oilprices/>

Commins, David (2009). "The Wahhabi Mission and Saudi Arabia". London, England: I.B. Tauris.

Cook, Steven. (2011). *The Struggle for Egypt: From Nasser to Tahrir Square*. London: Oxford University Press. ISBN 978-0199795260

Dillon, Michael R. (2009). "Wahhabism: Is it a Factor in the Spread of Global Terrorism?" Calhoun Archive, Naval Postgraduate School. Monterey, CA: Calhoun.

Eben Saleh, Mohammad Abdullah. (1998). Life and Death of Traditional Settlements of Southwest Saudi Arabia. *Journal of Architectural Education (1984-)*, 51(3), 177-191. Retrieved from <http://www.jstor.org/stable/1425506>

Encyclopedia Britannica (2017). "Saudi Arabia." Retrieved from: <https://www.britannica.com/place/Saudi-Arabia/The-Kingdom-of-Saudi-Arabia>

Fandy, Mamoun (1999). *Saudi Arabia and the Politics of Dissent* (New York: St. Martin's Press, 1999), p. 118.

Freedman, Lawrence, and Efraim Karsh. (2004). *The Gulf Conflict 1990-1991*. Princeton, N.J.: Princeton University Press. Print.

Gamal, R., Shamseddine, R., Paul, K. (2017). "Saudi Arabia Pushes Ahead with Renewable Drive to Diversify Energy Mix." New York: Reuters. Retrieved from: <https://www.reuters.com/article/saudi-renewable/saudi-arabia-pushes-ahead-with-renewable-drive-to-diversify-energy-mix-idUSL8N1HP10B>

Gately, Dermot. (1986). "Lessons from the 1986 Oil Price Collapse." In *Brookings Papers on Economic Activity*. Vol. 2. pp. 237-284.

Gowers & Walker. (1992) "Behind the Myth, Yasser Arafat and the Palestinian Revolution." In *Journal of Palestine Studies*. 22:3. Institute for Palestine Studies: Washington, D.C.

Hashem, M., Browning, N., & Paul, K. (2017). "UPDATE 2 – Saudi Arabia Launches Military Industry Company." In *Reuters*. Retrieved from: <https://www.reuters.com/article/saudi-security-arms/update-2-saudi-arabia-launches-military-industries-company-idUSL8N1IJ5ZG>

Hejazi, R. (2010) "Environmental Challenges and Opportunities at Saudi Aramco." [PowerPoint]. Retrieved from: <http://qc.cme-mec.ca/download.php?file=gfqta8cm.pdf>

Hepbasli, Arif, & Alsuhaibani, Zeyad (2011). A Key Review on Present Status and Future Directions of Solar Energy Studies and Applications in Saudi Arabia. Retrieved from: <http://doi.org/10.1016/j.rser.2011.07.052>.

Hess, A. C. (1995). "Peace and political reform in the gulf: The private sector." In *Journal of International Affairs*. 49:1, pp. 103. Retrieved from <http://proxy.lib.umich.edu/login?url=https://search-proquest-com.proxy.lib.umich.edu/docview/1290602778?accountid=14667>

- Human Rights Watch. (2001). "Saudi Arabia: Human Rights Developments." In *World Report 2001*. Retrieved from: <https://www.hrw.org/legacy/wr2k1/mideast/saudi.html#top>
- Husain, Ed (2007). The Islamist: Why I Joined Radical Islam in Britain, What I Saw Inside and Why I Left, *Policing: A Journal of Policy and Practice*, Volume 2, Issue 4, 1 January 2008, Pages 506–507, <https://doi.org/10.1093/police/pan055>
- Ingels, Bjarke. (2012). "Interview with Architect Bjarke Ingels." On CNN, Air Date: April 22, 2012. Transcript Retrieved from:
<http://www.cnn.com/TRANSCRIPTS/1204/22/nl.01.html>
- International Monetary Fund. (2009). "World Economic Outlook - April 2009: Crisis and Recovery". [PDF]. pp. 11-14.
- Jung, A., & Mascolo, G. (2006). "Energy Security Will Be One of the Main Challenges of Foreign Policy." [Interview]. In *Der Spiegel*. Retrieved from:
<http://www.spiegel.de/international/spiegel/the-war-over-resources-energy-security-will-be-one-of-the-main-challenges-of-foreign-policy-a-427350.html>
- Kennedy, John F. (1961). "Inaugural Address." In *John F. Kennedy, XXXV President of the United States: 1961-1963*. Retrieved from:
<http://www.presidency.ucsb.edu/ws/index.php?pid=8032>
- Kepel, Gilles, & Roberts, Anthony, trans. (2002). "Jihad: The Trail of Political Islam". Harvard University Press.
- King Abdulaziz University of Science and Technology. (2018). "History of the KAUST." In *About the KAUST*. Retrieved from: <https://www.kaust.edu.sa/en/about>
- King Abdullah City for Atomic and Renewable Energy. (2018). "The Establishing Order." In *About Us*. Retrieved from: <https://www.kacare.gov.sa/en/about/Pages/royalorder.aspx>

- Kte'pi, B. (2012). Saudi arabia. In S. Philander (Ed.), *Encyclopedia of Global Warming & Climate Change* (Vol. 1, pp. 1236-1236). Thousand Oaks, CA: SAGE Publications Ltd.
doi: 10.4135/9781452218564.n616
- Lacey, R. (2009). "Inside the Kingdom: Kings, Clerics, Modernists, Terrorists, and the Struggle for Saudi Arabia." New York: Viking. pp. 234–36.
- Lacey, Robert (2009). "Inside the Kingdom: Kings, Clerics, Modernists, Terrorists, and the Struggle for Saudi Arabia". New York: Viking. pp. 49–52.
- Library of Congress. (2017). "Islamism in Saudi Arabia". In *The Library of Congress Country Study on Saudi Arabia*. Retrieved from:
<http://www.au.af.mil/au/awc/awcgate/loc/sa/islamism.htm>
- Library of Congress. (2018). "Five Year Plans." In *The Library of Congress Country Study on Saudi Arabia*. Retrieved from: <http://countrystudies.us/saudi-arabia/37.htm>
- Little, D. (2008). *American orientalism: The United States and the Middle East since 1945*. Chapel Hill: University of North Carolina Press.
- Lombre, Traci (2006). "Saudi Arabia: Looking Beyond the Veil." In *University of Chicago Center for Middle Eastern Studies Newsletter*, Volume 2, No. 1. Chicago: University of Chicago.
- Long, D. (2005). "Review of 'Wahhabi Islam: From Revival and Reform to Global Jihad' by Natana J. DeLong-Bas." In *The Middle East Journal*. 59:2. pp. 316-319. Washington, D.C.: Middle East Institute. Retrieved from:
<https://www.jstor.org/stable/pdf/4330135.pdf?refreqid=excelsior%3Afbe94e4026cf52e8f727d41d87f20943>

- Looney, Robert E. (1990). "Infrastructure, Investment, and Inflation in Saudi Arabia." In *the Journal of Energy Development*. 14:1. Boulder: International Center for Energy and Economic Development.
- Mabro, Robert. (2018). "The Oil Weapon." In *Energy Policy*. Retrieved from:
<https://www.oxfordenergy.org/publications/the-oil-weapon/>
- Mahdavy, H. (1970). "The Pattern and Problems of Economic Development in Rentier States: The Case of Iran." In *Studies in the Economic History of the Middle East*. ed. M.A. Cook. Oxford University Press: Oxford.
- Matlock Jr., Jack. (2004). "Reagan and Gorbachev: How the Cold War Ended." New York: Random House.
- Ministry of Economy and Planning. (2011). "Kingdom of Saudi Arabia: Millenium Development Goals." ISSN: 1658-2705. Retrieved from:
http://www.undp.org/content/dam/undp/library/MDG/english/MDG%20Country%20Reports/Saudi%20Arabia/KSA_MDG_Report_6_2011_English.pdf
- Mintz, J. & Farah, D. (2004). "In Search of Friends Among the Foes: U.S. Hopes to Work with a Diverse Group." In *The Washington Post*. Retrieved from:
<http://www.washingtonpost.com/wp-dyn/articles/A12823-2004Sep10.html>
- Moussalli, Ahmad (2009). "Wahhabism, Salafism, and Islam: Who is the Enemy?" Beirut: Conflicts Forum.
- n.a. (1962). "A Matter of Foresight." In *Aramco World*. 13:4. Dhahran, Aramco Services Company.
- n.a. (1979). "Oil Squeeze". Published in TIME Magazine. Retrieved from:
<http://content.time.com/time/magazine/article/0,9171,946222,00.html>

- n.a. (1980). "U.N. General Assembly Votes to Protest the Invasion of Afghanistan." In *The Toledo Blade*. Published Jan. 15, 1980.
- n.a. (2004). "Saudi Arabia Approves Kyoto Climate Protocol." In *Reuters*. Retrieved from: <https://fp.brecorder.com/2004/12/2004122190728/>
- n.a. (2018). "Moslems Condemn Soviet Invasion of Afghanistan." In *the Pittsburgh Post-Gazette*. 5:156. Published Jan. 29, 1980.
- n.a. (2018). "Perestroika and Glasnost." Retrieved from: <http://www.history.com/topics/cold-war/perestroika-and-glasnost>
- Nehme, M. (1994). "Saudi Development Plans Between Capitalist and Islamic Values." In *Middle Eastern Studies*, 30:3. pp. 632-645. doi: [10.1080/00263209408701015](https://doi.org/10.1080/00263209408701015)
- Observatory of Economic Complexity. (2018). "What Does the United States Import from Saudi Arabia? (2001, 2008, 2010)" In *Visualizations*. Retrieved from: <https://atlas.media.mit.edu/en/profile/country/sau/>
- OPEC. (2009). "Daily and Cumulative Crude Oil Production in OPEC Members." In *OPEC Annual Statistics Bulletin*. Retrieved from: <http://www.opec.org/library/Annual%20Statistical%20Bulletin/interactive/2009/FileZ/XL/T36.HTM>
- Parker, C. (2008). "Transports of progress: the Arabian American Oil Company and American modernization in Saudi Arabia, 1945--1973." Ph. D. Dissertation, Indiana University.
- Parker, C. (2008). *Transports of progress: the Arabian American Oil Company and American Modernization in Saudi Arabia, 1945--1973*.
- Polk, W.R. (2007). "Violent Politics: A History of Insurgency, Terrorism, and Guerrilla War, from the American Revolution to Iraq." New York: Harper.

- Ramady, M. (2010). "Chapter 2: Reforms and Economic Planning." In *The Saudi Arabian Economy: Policies, Achievements, and Challenges, 2nd Edition*. New York: Springer.
- Ramady, M. (2010). "Reforms and Economic Planning." In *The Saudi Arabian Economy: Policies, Achievements, and Challenges, 2nd ed.* [PowerPoint]. New York: Springer Publishing. Retrieved from: extras.springer.com/2010/978-1-4419-5987-4/Chapter%202.pdf
- Ramady, M. (2010). "Saudization: A Viable Solution?" In *The Saudi Arabian Economy: Policies, Achievements, and Challenges, 2nd ed.* pp. 366-373. New York: Springer Publishing.
- Roach, J. (2009). "2000-2010: A Decade of (Climate) Change." In *National Geographic News*. Retrieved from: <https://news.nationalgeographic.com/news/2009/12/091208-climate-change-decade.html>
- Rosthauser, R. Craig. (2010) "Terrorism Conflict:: How the United States Responds to Al Qaeda Violence and Expressed Grievances." *Electronic Theses and Dissertations*: University of Denver. Retrieved from: <https://digitalcommons.du.edu/cgi/viewcontent.cgi?article=1563&context=etd>
- Royal Embassy of Saudi Arabia in Washington, D.C. (1990). "Saudi Trade Balance Improves". In *Monthly Newsletter*, 7:1.
- Rubin, E. (2004). "The Jihadi Who Kept Asking Why." In *The New York Times*. Retrieved from: <http://www.nytimes.com/2004/03/07/magazine/the-jihadi-who-kept-asking-why.html>
- Saudi Aramco. (2017). "History". Retrieved from: <http://www.saudiaramco.com/en/home/about/history.html>

Saudi Aramco. (2018) “1980s”. In *History*. Retrieved from:

<http://www.saudiaramco.com/en/home/about/history/1980s.html>

Saudi Aramco. (2018). “1950s”. Retrieved from:

<http://www.saudiaramco.com/en/home/about/history/1950s.html>

Saudi Aramco. (2018). “1990s”. In *History*. Retrieved from:

<http://www.saudiaramco.com/en/home/about/history/1990s.html>

Schmid, Michael. (2007). “Did Desert Shield Lead to Desert Hate? A Case Study of Anti-Americanism in Saudi Arabia”. Anchor Publishing: Hamburg

Schwartz, Benjamin. (2007). “America’s Struggle Against the Wahhabi/Neo-Salafi Movement”.

Orbis, 51:1, pp. 107-128. doi: <https://doi.org/10.1016/j.orbis.2006.10.012>

Shils, Edward. (1962). “Political Development in the United States.” In *Comparative Studies in Society and History II*. pp. 31-32. The Hague: Mouton & Co.

Simon, Adam. (2017). “Lecture 21: Agricultural Minerals.” [PowerPoint]. University of Michigan.

Taher, N, & Al-Hajjar, B. (2014). “Chapter 2: Environmental Concerns and Policies in Saudi Arabia.” In *Energy and Environment in Saudi Arabia: Concerns and Opportunities*. Springer. pp. 27-51.

The Saudi Gazette. (2014). “Census Shows Kingdom’s Population at More Than 27 Million.” Riyadh. Retrieved from:

<http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentID=2010112487888&archiveissuedate=24%2F11%2F2010>

Tyrrell, I. (2016). "What, Exactly, is American Exceptionalism?". In *The Week*. Originally in *Aeon*. Retrieved from: <http://theweek.com/articles/654508/what-exactly-american-exceptionalism>

U.S. Department of Defense (2017). "The Operation Desert Shield/Desert Storm Timeline." Retrieved from: <http://www.defenselink.mil/news/newsarticle.aspx?id=45404>

U.S. Department of Energy, Energy Information Administration (1985). *International Energy Outlook*. DOE/EIA-0484 (85) (DOE, 1985), table 3, p. 12.

U.S. Library of Congress (2017). "Oil Industry". In *Country Studies: Saudi Arabia*. Retrieved from: <http://countrystudies.us/saudi-arabia/40.htm>

Ulrichsen, Kristian C. (2015). "The Political Economy of Arab Gulf States." Rice University: James A. Baker III Institute for Public Policy. Retrieved from: <https://scholarship.rice.edu/bitstream/handle/1911/91831/CME-pub-PoliticalEconomy-050815.pdf?sequence=1>

United Kingdom-House of Saud. (1927). "Treaty Between His Majesty and His Majesty the King of the Hijaz and of Nejd and its Dependencies." Retrieved from: [http://treaties.fco.gov.uk/docs/fullnames/pdf/1927/TS0025%20\(1927\)%20CMD-2951%201927%2019-20-21%20MAY%3B%20TREATY%20BETWEEN%20HIS%20MAJESTY%20&%20HIS%20MAJESTY%20KING%20OF%20HEJAZ%20&%20OF%20NEJD%20&%20ITS%20DEPENDENCIES.pdf](http://treaties.fco.gov.uk/docs/fullnames/pdf/1927/TS0025%20(1927)%20CMD-2951%201927%2019-20-21%20MAY%3B%20TREATY%20BETWEEN%20HIS%20MAJESTY%20&%20HIS%20MAJESTY%20KING%20OF%20HEJAZ%20&%20OF%20NEJD%20&%20ITS%20DEPENDENCIES.pdf)

United Nations Department of Economic and Social Affairs (UNDESA). (2017). "Agenda 21: UNCED, 1992". In *Sustainable Development: Knowledge Platform*. Retrieved from: <https://sustainabledevelopment.un.org/outcomedocuments/agenda21>

- United Nations Development Group (2018). “Objectives and Policies of the Tenth Development Plan (2015-2019)”. In *Information Management System*. Retrieved from: ims.undg.org.
- United Nations Division for Social Development (UNSD). (1992). “Agenda 21: Contents”. In *United Nations Conference on Environment and Development: Rio de Janeiro, Brazil, 3 to 14 June 1992*. Retrieved from:
<https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>
- United Nations. (2000). “Laws and Institutions.” In *Global Environmental Outlook*. Retrieved from:
<http://web.unep.org/geo/sites/unep.org/geo/files/documents/geo2000/english/0206.htm>
- United States Energy Information Administration (2006). “OPEC Revenues Fact Sheet”. Cited in “Petrodollars and Global Imbalances: Occasional Paper No. 1.” U.S. Department of Treasury Office of International Affairs.
- Vassiliev, Alexei. (1998). *The History of Saudi Arabia*. London, UK: Al Saqi Books. [ISBN 0-86356-935-8](https://www.al-saqi.com/ISBN-0-86356-935-8).
- Vincent, Peter. (2008). “Environmental Protection, Regulation, and Policy”. In *Saudi Arabia: An Environmental Overview*. pp. 247-281. Boca Raton: CRC Press.
- Visser, W. & Tolhurst, N., ed. (2010). “The World Guide to CSR: A Country-by-Country Analysis of Corporate Sustainability and Responsibility.” New York: Routledge. ISBN: 9781906093372.
- Wynbrandt, J. (2010). “Public Projects.” In *A Brief History of Saudi Arabia*. pp. 298. New York: Infobase.

Wynn, G. (2009). "U.S. Climate Talks Threaten Our Survival: Saudi Arabia." In *Reuters*.

Retrieved from: <https://www.reuters.com/article/us-climate-saudi-bonn-interview/u-n-climate-talks-threaten-our-survival-saudi-arabia-idUSTRE5371QM20090408>