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Israel's Newfound Petroleum Wealth: A Critique of the "Resource Curse"

A Capstone Project Submitted in Partial Fulfillment of the
Requirements of the Renée Crown University Honors Program at
Syracuse University

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and Renée Crown University Honors
May 2013

Honors Capstone Project in International Relations

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I. Abstract

In 1999, a company in Israel did what no one thought could be done – it struck natural gas and lots of it. Since then, two of the largest offshore natural gas fields have been found in Israel’s waters, disproving the belief that Moses led the Jews to the only Middle Eastern country to not have petroleum. In 2011, it found what is believed to hold 250 billion barrels of shale oil – an amount that rivals the 260 billion barrels of crude oil in Saudi Arabia. Most economists argue, however, that this is not good news for Israel due to the “resource curse.” The concept claims that finding an abundant amount of natural resources actually harms the local economy, politics and society as a whole through means of abuse of power, manipulation and pure disregard for societal welfare. This usually is applied to small, poor and previously corrupt governments.

Currently, Israel is in a good position to avoid the resource curse. It is a militarily and economically strong, democratic nation. It has many resources available to it as well as lessons from the past to help it avoid the turmoil that historically faces nations with newfound petroleum wealth. This paper argues that not only can Israel beat the resource curse, but that the concept of the resource curse itself is flawed. Through historical examples of Nigeria and Canada, it is proven that not only small and weak governments fall victim to the greed and temptation that follows new resource wealth. The United States and Norway will show that with correct policy response, governments can avoid the curse highlighting the fact that an avoidable “curse” is, in fact, no “curse” at all.

Finally, this paper will outline the appropriate political response for Israel containing several policies that limit sector transfers and exports as well as outlines the establishment of two sovereign wealth funds. Israel, like others before, can avoid the resource curse and boost all parts of its economy by taking several intricate steps.

II. Advice to Future Honors Students

The biggest piece of advice I can give to juniors reading this either because you're overzealous, overachieving or in Eric's capstone prep class is to just enjoy senior year. I know this section is supposed to be about how to do well on the capstone, how to manage your time and how to exceed honors' expectations. But that's not what I am going to tell you – *you know all of that already or you wouldn't be in honors*. No, what I am going to tell you is that it is possible to have fun, maybe too much fun if you ask my mother, and still complete a good capstone. My junior spring, my advisor surprised me with the news that he was going on sabbatical my senior fall. I was freaking out! How was I supposed to do my capstone without my advisor?! Then he had the *audacity* to tell me that I wouldn't actually start working on it until next spring, anyway. I was appalled. How could he think I would wait that long to start? Well, he was right. I'm not going to give the exact date I actually started my capstone...but let's just say that it was not last spring. The point is, don't let it take over your senior year. Honors students are the *best* at procrastinating and still presenting exceptional work, so show yourself, your advisor and honors what you're made of and wait last minute on a few deadlines; turn in your civic engagement hours the last week of senior year (wait who does that?...); and just take satisfaction in the fact that you turned in a project in 1/xxx of the time it would take most people. If you ask me, that's a skill all in its own. I do suggest making the first deadline in April though, the last few weeks of your senior year will be much more fun and stress free that way. If you take only one thing from this, or are lightly skimming this looking for bold words, let it be this:

Be smart. Have fun. Go to Chuck's.

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III. Introduction

“Let me tell you something that we Israelis have against Moses; he took us 40 years through the desert in order to bring us to the one spot in the Middle East that has no oil.” Israeli Prime Minister Golda Meir spoke these words at a banquet in Tel Aviv in 1973¹. For the first half century Israel was a state, it was energy poor and energy dependent. It was not until the turn of the 20th century that Israel joined its neighbors in a resource richness of its own made up of oil and natural gas. This discovery, however, was not met with open arms by all scholars, scientists, politicians or citizens of Israel. Many fear that it could be a victim of the resource curse: a phenomenon that suggests finding an abundance of any natural resource is cause for distress rather than excitement. It claims that “natural resource abundant countries tend to grow at a slower pace” and, in many occasions, turn out to be “development failures.”² However, this “curse” holds true only if it is both inevitable and self-perpetuating. This paper argues that not only is the situation described by the resource curse avoidable with the correct reaction to the newfound natural resources, but it is also directly caused by actions by

¹ Buck, Tobias. “Field of dreams: Israel’s natural gas.” *Financial Times Magazine* 31 August 2012.

² Papyrakis, Elissaios. “The resource curse hypothesis and its transmission channels.” *Journal of Comparative Economics* 10 November 2003.

governments and companies that deal with the resources. Israel's newfound petroleum resources have opened up the country to a potentially powerful change economically, politically and socially. With appropriate policy implementation Israel can both avoid the resource curse and grow to be one of the world's largest energy exporters.

IV. Dependency History

Israel's first drill attempt to find oil was in 1947, before the territory was officially declared a state. Though it did find minimal amounts in its first discovery of 1955 in the *Heletz Field*, very trivial and non-productive amounts were discovered for the next forty-five years.³ As a member of the Middle East, Israel was expected to have black gold under its surface. Its neighbors Libya, Saudi Arabia and Iran all had some of the largest reserves in the world at this time.⁴ Israel, however, suffered from an extreme resource lack and, therefore, dependency on foreign petroleum products.

Israel was, and still is today, plagued by a western standard of living partnered with a developed country's economic and population growth. It cannot sustain its current living expectations at its current growth rate. It spends as much as two-percent of its GDP on energy imports, including natural gas, oil and coal,

³ "Petroleum and Natural Gas Prospecting." *Israel's Ministry of Energy and Water Resources* 3 March 2013. Web.

⁴ "The World's Biggest Oil Reserves." *CNBC* 2012. Web.

which is more than most developed countries in the world today.⁵ In 1980, ninety-nine percent of its energy derived from crude oil alone was met by foreign imports totaling to over 165,000 barrels per day and about \$2.2 billion expenditure.⁶ This number was almost equal to all of Israel's industrial exports, making payment for the energy demand very difficult as its trade balance could rarely reach a surplus. It was not, however, the hardest part of Israel's energy dependence. Only two countries, aside from the United States, were willing to sell to Israel publically as recent as 1980. Egypt and Mexico together only made up fifty-five percent of Israel's imports, leaving the oil-starved nation to look for exporters willing to trade with Israel out of the public eye.⁷

Luckily, Israel was not alone in its time of need. In September of 1975, it signed the Second Sinai Agreement with the United States and Egypt. This agreement promised Israel to evacuate the Sinai oilfields that it accumulated in the 1967 war and to return them to Egypt. This agreement was done in the interest of easing tensions with its neighbor, Egypt and western ally, the United States. This political ploy, however, came at a price. Israel was able to extract annually 4.5 million tons of crude oil from the Sinai oilfields at the time of this deal, saving it about \$350 million a year on import expenses. In efforts to lessen the economic blow caused by returning the field, the United States and Israel signed the 1975 U.S. – Israel Memorandum of Agreement. This agreement did several things to

⁵ Mason, M., and Mor, A. Renewable Energy in the Middle East: Enhancing Security through Regional Cooperation. NATO Science for Peace and Security Series C: Environmental Security, 2009. Web.

⁶ Bahbah, Bishara A. “The United States and Israel's Energy Security.” *Journal of Palestine Studies* Vol 11, No 2. Winter 1982. 113 – 131.

⁷ Ibid.

reassure Israel of its decision to release Sinai. First, the United States promised to compensate the loss of the Sinai oilfields for five years starting in 1976. The second method of insurance for Israel lay in another five-year period to be started whenever Israel first showed a demand for more energy that it could not find independently through either internal or external means. There were to be annual meetings between United States experts and Israeli representatives to determine Israel's true demand for energy. If the United States then believed that Israel put its best efforts into meetings that need, and still could not fulfill it, the United States would make available for purchase the determined amount of oil, gas or coal. This took place assuming the United States was under no energy-related hardships of its own, including embargos and its own energy insecurity. The United States also agreed to provide funding for oil storage facilities with the estimated cost of \$350 million.

Though this was a safe and effective method of insurance for Israel, it still meant that it would have to find 4.5 million tons of crude oil in the foreign market to make up for its new and larger lack. This deal, in fact, made Israel more dependent on foreign energy. Israel turned to Iran to make up for its higher foreign demand shortly after the deal was made. However, when Iran's supply fell short in reaction to its revolution, Israel was forced to look into new international market and new potential trade partners including Venezuela, Gabon and Nigeria. In 1978, Israel was about to convince Mexico increase its crude exports. This however, was still not enough, so Israel began looking harder for more internal options. An oil field it still had near the Sinai Peninsula, Alma, was currently producing 26,000 barrels per day. Believing the infrequent reserve reports that

claimed this was not enough, the government aggressively thought it could do more; soon it was producing over 160,000 billion barrels per day. This came at a cost however, as it quickly depleted the nation's reserves.

In 1979, a deal between the United States and Israel extended the 1975 Agreement for another ten years. This was deemed an appropriate safeguard and incentive for Israel to remain energy secure. This was also perfect timing for the Camp David talks and the Peace Treaty of March 1979 between Egypt and Israel. It was “widely believed that had Israel not acquired energy security, no peace treaty would have been made possible.”⁸ Though Israel was temporarily aided by the market oil-glut in 1981, it eventually fell back into same dependency on and barely sustainable search for foreign oil. Several more Agreements between Israel and the United States followed in 1979 and in the early 1980's to curb Israel's still-dire dependency. This was effective at first, causing Israel to diversify its imports and create better relations with other nations, but it eventually led to a very heavy United States dependency – an unexpected outcome.⁹

Between 1950 and 2000, almost five hundred wells were drilled in Israel. Fewer than ten of these wells produced noticeable amounts of oil or natural gas, only one of which was significant (note the Sinai field above). In 1962, Lewis Weeks, then the former chief Geologist of Exxon, prepared a report for the Israeli government that estimated five hundred million to two billion barrels of oil would

⁸ Bahbah, Bishara A. “The United States and Israel's Energy Security.” *Journal of Palestine Studies* Vol 11, No 2. Winter 1982. 124.

⁹ This section and its analysis relied heavily upon the facts provided in: Bahbah, Bishara A. “The United States and Israel's Energy Security.” *Journal of Palestine Studies* Vol 11, No 2. Winter 1982. 113 – 131.

ultimately be recovered in Israel.¹⁰ In 1979, James Wilson, then the former chief geologist of Shell Oil Company, prepared a report for the Israeli government that estimated that the onshore natural gas reserves potential of the country was 330 million to 2 billion barrels.¹¹ Though these reports were initially welcomed news, after years of no results they were not expected to come true. In 1999, this attitude changed with the discovery of the offshore Noa field. In 2000, the future of Israel changed with the discovery of the Mari B field. Together, the two fields contained an estimated forty-five bcm of natural gas.¹²

V. Oil and Natural Gas Discoveries

Noble Energy, based out of Houston, TX, USA, was the main company responsible for both historical finds. It is one of the United States' leading independent oil and gas companies and operates both domestically and internationally in the Gulf of Mexico, Argentina, China, Ecuador, Equatorial Guinea, the Mediterranean Sea, the North Sea and Vietnam. Since its first discoveries in Israeli territory, Noble Energy has been instrumental in discovering several more offshore reserves around the world.¹³ As seen below, the most prominent and bountiful of the finds have been the Tamar and Leviathan fields with 246 bcm and 480 bcm of natural gas, respectively. The Tamar field alone, at the time of its discovery the largest deep-water natural gas discovery in the world,

¹⁰ "Petroleum and Natural Gas Prospecting." *Israel's Ministry of Energy and Water Resources* 3 March 2013. Web.

¹¹ *Ibid.*

¹² *Ibid.*

¹³ "Eastern Mediterranean." *Noble Energy* 5 March 2013. Web.

has enough natural gas to meet Israel's current demand for more than two decades.¹⁴ By simply moving further away from the Israeli Coast, Noble Energy along with several Israel state-owned and other international companies, including Delek Group, have been able to uncover more than 800,000 proven bcm of Israeli natural gas and another estimated 680 bcm.¹⁵ Though this does not solve Israel's oil dependency, the opportunities offered by abundant reserves of natural gas provide Israel with a much brighter energy and economic future.

¹⁴ Wurmser, David. "The Geopolitics of Israel's Offshore Gas Reserves." Jerusalem Center for Public Affairs 4 April 2013.

¹⁵ Barkat, Amiram. "Israel's gas reserves near export threshold." *Globes: Israel's Business Arena* 10 March 2013.

Table 1: Israel's Largest Natural Gas Reserves in 2012, Offshore

Reserve	Size	Estimate¹	Partners²
Leviathan	480 bcm	2c	Delek Group (45%) Noble Energy (40%) Ratio Oil (15%)
Tamar	246 bcm	2p	Noble Energy (36%) Delek Group (32%) Isramco (29%) Dor Gas (4%)
Tanin	31 bcm	17 bcm (2c) 14 bcm (best estimate)	Delek Group (53%) Noble Energy (47%)
Mari B	30 bcm	1p	Delek Group (53%) Noble Energy (47%)
Shimshon	15.6 bcm	2c	Isramco (60%) ATP Oil & Gas (40%)
Dalit	14 bcm	2c	Noble Energy (36%) Delek Group (32%) Isramco (29%) Dor Gas (4%)
Dolphin	2.3 bcm	2c`	Delek Group (45%) Noble Energy (40%) Ratio Oil (15%)
Noa	1.3 bcm	1p	Delek Group (53%) Noble Energy (47%)
Pinnacles	1.3 bcm	1p	Delek Group (53%) Noble Energy (47%)

¹The SPRE-PRMS uses three uncertainty categories, or scenarios, to identify estimates of recoverable resources: reserve scenarios are categorized as proved (1P), proved + probable (2P) and proved + probable + possible (3P); contingent resources are categorized as 1C, 2C and 3C; and prospective reserves are categorized as low estimate, best estimate and high estimate.

²Percentages have been rounded. Totals may not add up to 100%.

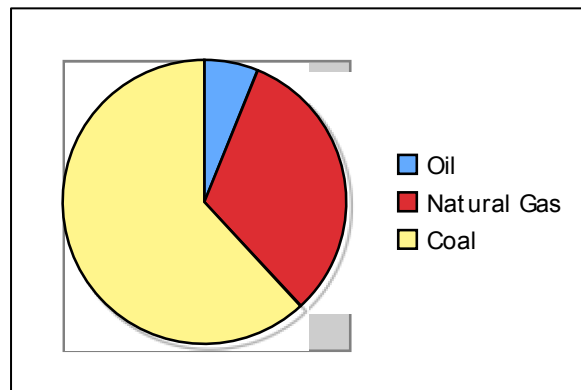
Source: APCO Forum. "Israel's Natural Gas Sector." *APCO Worldwide* 2012. Web.

Though current discoveries are more than enough to have a great impact within Israeli politics, economics and social society, there are experts that believe this is only the beginning. A U.S. Geopolitical Survey predicts that the sea area between Egypt and Turkey, known as the Levantine Basin, could contain up to 3400 bcm

of natural gas, forty-percent of which lies within Israel’s maritime borders.¹⁶ That means 425% more natural gas findings than Israel has already discovered offshore.

Israel has also struck shale oil, or “black gold”, in recent years, though not to the extent of its natural gas reserves. In April of 2011, energy company Israel Energy Initiative estimated its discovery in the onshore Shelfa Shale to hold nearly 250 billion barrels of shale oil. Put into perspective, this rivals the total crude oil supply in Saudi Arabia of 260 billion barrels. Currently, Israel uses a great majority of its oil as fuel for transportation.¹⁷ However, it still uses a small part of it for electricity conversion as see below.

Figure 1: 2011 Electricity Generation by Source



Source: “Israel Statistics.” IEA 2013. Web.

Professor Carol Parish, of the chemistry department at the University of Richmond in Virginia, has labeled the oil found in the Shelfa Shale and “game

¹⁶ Buck, Tobias. “Field of dreams: Israel’s natural gas.” *Financial Times Magazine* 31 August 2012.

¹⁷ “Israel Statistics.” IEA 2013. Web.

changer.”¹⁸ Parish completed a Fulbright Fellowship with Professor Sason Shaik, the director of the Lise Meitner Minerva Center for Computational Quantum Chemistry at Hebrew University.¹⁹ Though the exact science and the environmental impacts behind extracting shale oil is still heavily debated, the reserves themselves fall under the “proven” category of reserves and available for economically viable extraction.²⁰ The most recent offshore oil discoveries are the Gabriella and Yitzhak reserves found in shallow waters off the coast of Tel Aviv in March of this year.²² Additionally, the latest Noble Energy forecast estimates a twenty-five percent chance of discovering two offshore oil fields within the Leviathan Basin, both of which are predicted to have about 300 million barrels of oil.²³ If this comes to pass, Israel can be one of the world’s biggest energy players within the next 50 years. With such large reserves and estimated discoveries, here began the concern about the resource curse. How long before the government falls for the “wrong incentives” set by these sources?²⁴ Upon discovery, some groups claimed “Israel and Israelis must be wary of the significant potential that the

¹⁸ Udasin, Sharon. “250 b. barrels of shae discovery a ‘game changer.’” *The Jerusalem Post* 17 December 2012.

¹⁹ Ibid.

²⁰ Ibid.

²¹ “Proven” resources defined by British Petroleum Statistics are “the estimated quantities of [a resource] which geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under current economic and operating conditions.”

²² Globes. “Oil gas discovered off Tel Aviv coastline.” *The Jerusalem Post* 13 March 2012.

²³ Barkat, Amiram. “Dreaming of Leviathan oil.” *Globes: Israel’s Business Arena* 2 April 2013.

²⁴ Pear, Jason. “Israel’s Resource Curse.” *The Bennett Commentary* 23 August 2011.

Leviathan gas fields will harm the state and, more importantly, its citizens.”²⁵ The concept has followed Israel’s government in each decision it has made so far and will continue to do so until it has set appropriate policies and has successfully beaten the curse.

VI. The Petroleum Law

In response to the current and expected high amounts of commercial traffic and demand, Israel must control the actions and behaviors of the companies and countries within its borders and maritime property lines. Established in 1952, The Petroleum Law in Israel has three levels of petroleum rights, laid out in Articles Two, Three and Four, as follows²⁶:

1. *Preliminary Permit*: This is the lowest level right, which may be granted for a period not exceeding 18 months. The permit allows the prospector to conduct preliminary investigations, except for test drilling, to determine the possibility of discovering petroleum in the permit. The recipient of a preliminary permit is entitled to request a “priority right” on the permit area, which, if granted, prevents the government from awarding any other petroleum right(s) on the area. There are no restrictions as to maximum size of the permit area or to the number of permits which may be held by one prospector, however the prospector must have a reasonable plan of operation and must show possession of the necessary financial resources to execute the plan for the size of the permit area requested.
2. *License*: This second type of petroleum right bestows an exclusive right for further exploration work. It requires the drilling of test wells to determine if the license area does in fact hold reserves. The initial term of a license is up to three

²⁵ Ibid.

²⁶ The following descriptions of the Petroleum Law are summaries of the actual Law: The Petroleum Law. Israel. 5712 - 1952. Revised 1965. Web.

years and may be extended up to an additional four years. A license area may not exceed 100,000 acres. If petroleum is discovered, the prospector has the statutory right for the third type of petroleum right.

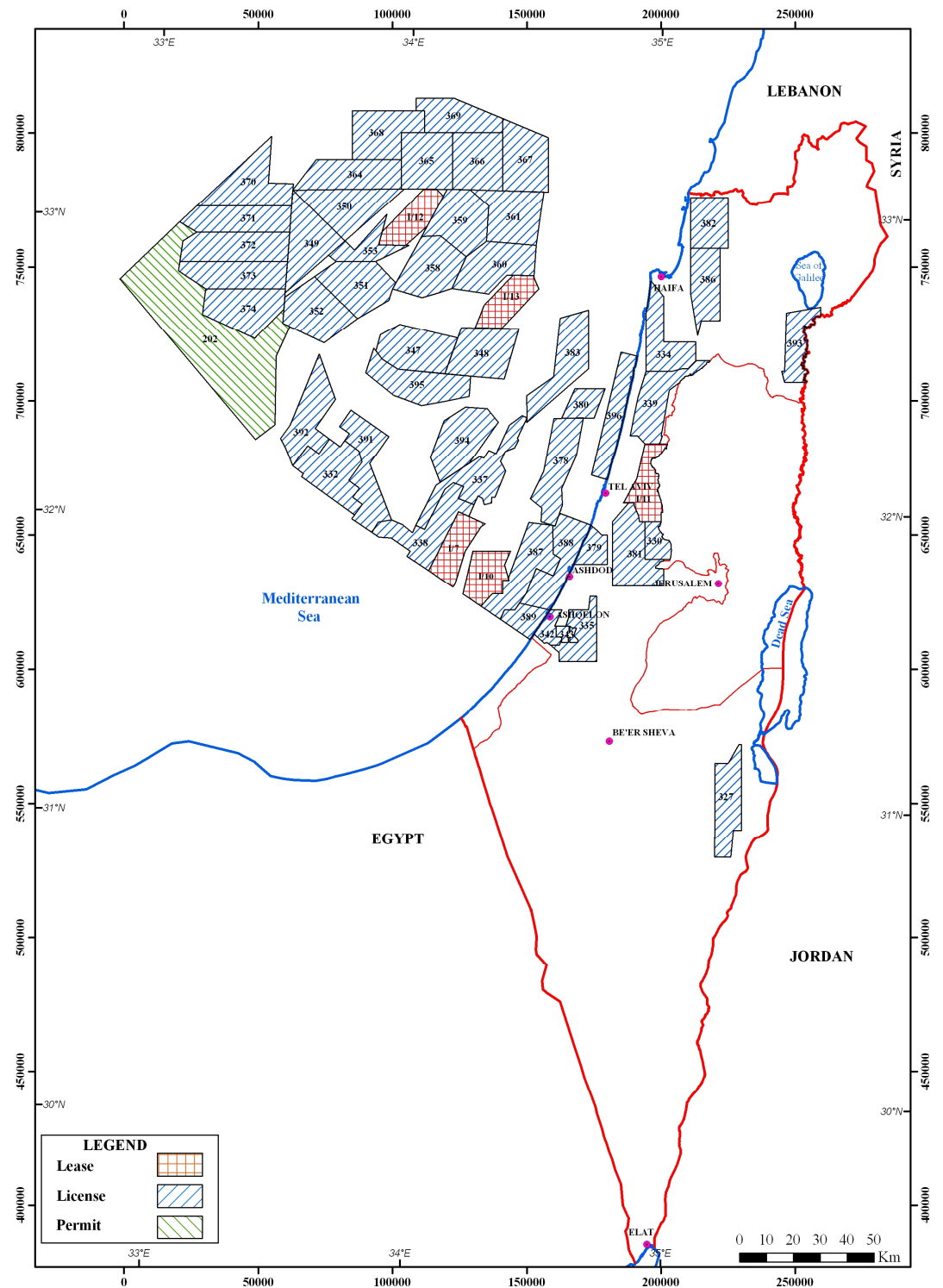
3. *Lease*: The initial lease term is 30 years, extendible to a maximum period of 50 years. A lease provides the prospector the exclusive right of exploration, extraction in the lease area and requires that the prospector produce petroleum in commercial quantities. The prospector is entitled to transport and market the petroleum produced in the lease area, subject to the right of the Government to call upon him to supply local needs first at the market price. The prospector is liable for a royalty of one-eighth, 12.5 %, of the quantity of petroleum produced and stored, excluding that used in operating the lease area. It is also subject to a minimum royalty.

All petroleum resources within Israeli borders belong to the government. To apply for a preliminary permit for both on-and offshore, a company must submit an application to the Petroleum Commissioner. If the commissioner denies the permit, the applicant may appeal to the Knesset for approval. The Ministry of Energy and Water Resources, previously the Ministry of Infrastructure, oversees the process and the companies once they receive petroleum rights. The map on the following page shows the division of permits, licenses and leases for Israeli reserves as of April 2012.



Petroleum Rights

Updated April 2, 2012



VII. Current Energy Demand

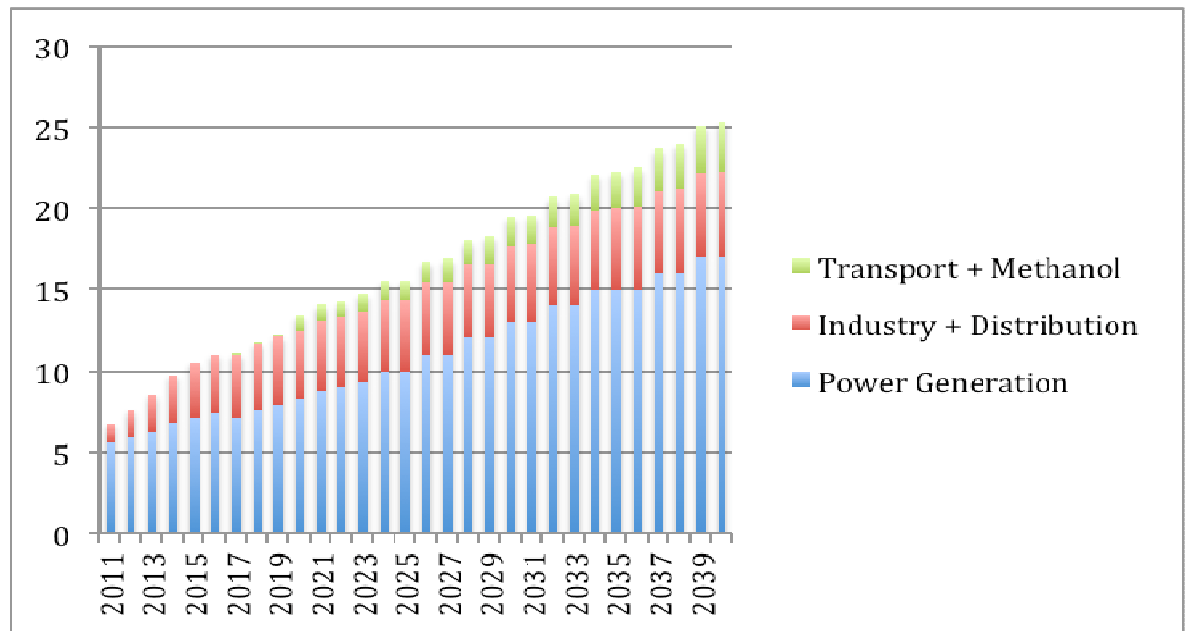
Although the discoveries began taking place over ten years ago, as shown in the map there are still very few leases that have been awarded. Most of the reserves are not yet being accessed. Today, Israel is still a major importer of energy and its energy demands are expected to grow in every sector.

Table 2: Israel's 2011 Net Energy Consumption

	Production	Consumption	Net Import/Export
Oil (thousand b/d)	5.84	263.01	-257.17
Natural Gas (bil, cubic ft.)	92	117	-25
Coal (mil. short tons)	0	13.909	-13.909

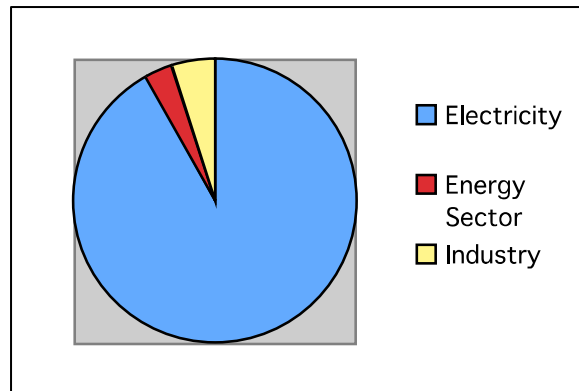
Source: "Israel." Energy Information Agency, USA 2013.

Figure 2: Israel's Natural Gas Demand Forecast



Source: "Forecasted Demand." Israel Ministry of Energy and Natural Resources 2013. Web.

Figure 3: 2009 Natural Gas Use by Sector



Source: "Israel." *Energy Delta Institute* 2009.

Israel's major trade partners for energy are the United States, Egypt (until 2012), Iraq and the Caspian Region including Russia and Azerbaijan. Israel receives ninety-percent of its oil imports from the Caspian Region via the Baku-Tbilisi-Ceyhan, BTC, pipeline area.²⁷ This is a dangerous political and economic move to place such a dependency on one area for oil. This lesson was well learned last year in April when Egypt cancelled the 2005 Natural Gas Deal it had with Israel, proving almost fifty-percent of Israel natural gas imports at below market prices.²⁸

There were several reasons for Egypt's decision. What started as a payment dispute turned into a full on political and economic conflict. In 2011, Israeli diplomats were run out of the Cairo Embassy.²⁹ The people did not agree with the amiable relations the new government was having with Israel and wanted to show "the gap between the views and policies of the region's leaders and the

²⁷ Mizroch, Amir and Nadel, Ryan. "Israel pushes to reduce oil dependency." *The Jerusalem Post* 3 November 2006.

²⁸ "Egypt scraps Israel gas supply deal." *BBB News* 23 April 2012.

²⁹ Kurtzer, Daniel. "Is the Egypt-Israeli Relationship Over?" *Foreign Affairs* 18 September 2011.

attitudes of the Arab street” according to *Foreign Affairs*.³⁰ They were upset with the constant ground violence at the Sinai border as well as resented the 2005 Natural Gas Deal as it was a reminder of President Mubarak’s previous corrupt administration. The government in Egypt, however, could not reverse the decision of the companies to break the deal. It saw an opportunity to appease the people as well as seize back their source of natural gas that they currently need as production in Egypt has been dwindling. Aside from forcing Israel to nearly deplete its stored natural gas in 2012, this cancellation of a trade deal has political implications and roadblocks. It ended one of Israel’s only positive relations with an Arab country and subsequently one of its few opportunities to ease relations with the rest of its Middle Eastern neighbors. This is discussed more later.

VIII. Political Implications and Future Roadblocks

Israel’s Government: The Small Party Dilemma

Israel is a parliamentary democracy: a system of government in which the executive branch derives its power from the legislative branch, or the Knesset in Israel. There is a Head of State, President Shimon Peres, and a Head of Government, Prime Minister Benjamin Netanyahu. After elections in January of this year, there are twelve parties with seats in the 120-member Knesset, ranging from two to thirty-one seats per party.³¹

³⁰ *Ibid.*

³¹ Central Intelligence Agency. “The CIA Factbook: Israel.” 16 April 2013. Web.

Table 3: Israel's 13th Knesset by Party

Likud Yisrael Beitenu	31	Hatenua Chaired...	6
Yesh Atid	19	Meretz	6
Israel Labor Party	15	Hadash	4
HaBayit HaYehudi	12	Ra'am-Ta'al	4
Shas	11	Nat. Democratic Assembly	3
United Torah Judaism	7	Kadima	2

Source: The Central Elections Committee, Israel

With such a small population, 7.7 million in 2013, Israel has a high number of small yet active political parties creating an interesting balance, or lack thereof, in its government. The set up of parties in the Israeli system is mostly based off of party coalitions as no single party has won the majority since Israel's statehood in 1948.³² Because of this, even the smallest parties have the opportunity to make a difference and have a strong voice. This seems ideal for any type of democracy, but not necessarily for efficiency. This could provide Israel with difficulty moving forward with policy structure concerning its new resources.

Likud Yisrael Beitenu is the majority coalition with 31 seats. It is fairly liberal with its economic views for identifying with right-sided and Zionist ideologies. It supports free-markets, free-trade agreements and has pushed for several privatizations of government-owned companies.³³ Prime

³² "Guide to Israel's political parties." *BBC News: Middle East* 21 January 2013.

³³ *Ibid.*

Minister Netanyahu, the leader of the coalition, is very much for oil and natural gas exploration and extraction. The Prime Minister celebrated the Jewish Sabbath on March 30 this year in a press conference following the first flow of the Tamar field's gas to Israel. "We are taking an important step toward energy independence," he said. "We have advanced the natural gas sector in Israel over the last decade, which will be good for the Israeli economy and for all Israelis."³⁴

Though there were concerns from other parties that this historic moment happened on one of the holiest days of the year, there seems to be no large opposition within the Knesset to drilling offshore gas. In fact, the more strict Zionist parties believe that this was meant to happen to them due to biblical signs. "Blessed of the LORD be [Joseph's] land, with the choice things of heaven, with the dew, and from the deep lying beneath... " [ch. 33:13] and "they will draw out the abundance of the seas [*natural gas*], and the hidden treasures of the sand [*oil*]. [ch. 33:19].³⁵ The small party set up presents a dilemma for the future of Israeli energy – although right now there is no major political opposition to the natural gas extraction, any coalition could potentially determine policy outcomes and potentially manipulate the system. The other issue this political situation raises for Israel's future concerning the newfound petroleum wealth involves the resource curse. Because the government is susceptible to change via small party coalitions, the opportunity for governmental corruption and private lobbyist manipulation

³⁴ Kershner, Isabel. "Israel Taps and Offshore Natural Gas Field." *The New York Times* 31 March 2013.

³⁵ *Dueteronomy* 33:13 & 33:19. The Holy Bible: Biblegateway 2013. Web.

is very apparent and accessible. The state must be aware of its internal actors' behavior when the time comes to make decisions concerning profit for individuals and welfare for the people. This is something to be monitored.

Environmentalist Groups

There are, however, several groups within Israel that oppose extraction of these new petroleum discoveries. One United States based group, "Jews Against Fracking", claims that "the expansion of hydrofracking is not aligned with our Jewish values."³⁶ The largest environmentalist opposition in Israel is led by the "Green Zionist Alliance." GZA representative David Krantz has written many articles cautioning Israelis' excitement about the oil and natural gas discoveries warning them that "the oil isn't crude; it's shale oil."³⁷ His concern is that the extraction method, hydraulic fracturing, is more dangerous than simply extracting crude oil like that found in Saudi Arabia and the United Arab Emirates. The benefit of outspoken environmental groups in relation to the resource curse is their ability to see past profit and toward a bigger picture. Groups like the GZA can push the government toward more environmentally benign policies in the interests of the broader public welfare. This can avoid issues like in Nigeria or Saudi Arabia where environmental degradation afflicts large sections of the country.

³⁶ Goldsmith, Dr. Mirele. "Why Jews Should be Against Fracking." *Jews Against Hydrofracking* 2011. Web.

³⁷ Krantz, David. "Israel: The New Saudi Arabia?" *Green Zionist Alliance* 1 May 2011. Web.

Hydraulic Fracturing

Hydraulic Fracturing, more commonly known as hydrofracking or fracking, is the method used to horizontally extract petroleum that is locked in a shale rock below ground. *FracFocus* is an American organization that collects hydrofracturing data, deposits, wells, chemicals, etc., and provides the information to the public via its website.³⁸ It describes the hydrofracking process as a “technique [that] uses a specially blended liquid which is pumped into a well under extreme pressure causing cracks in rock formations underground. These cracks in the rock then allow oil and natural gas to flow, increasing resource production.”³⁹ The petroleum reservoirs are typically 6,000 – 10,000 feet below the surface while cement, steel and other casings are inserted into the wells every 1,000 - 4,000 feet to help prevent leaks of the water mixture or the extracted substance. The water mixture is around 99% water and sand, with the remaining consisting of chemical additives used for tasks such as cleaning, corrosion inhibiting and friction reduction. The website notes that fracking increases resource availability by providing a method that can reach more reserves, extraction efficiency by minimizing manual labor and costs and therefore increase overall profit. Part of this hails from its ability to extend the life of existing wells by providing access to damaged or tight shale formations.⁴⁰

³⁸ Noble Energy. “Hydraulic Fracturing.” *Noble Energy* 2013. Web.

³⁹ FracFocus. “Hydraulic Fracturing & How it Works.” *FracFocus* 2013. Web.

⁴⁰ This description of hydraulic fracturing relies on the following:

Water Conflict

As expected of most new technologies, the benefits of hydrofracking do have potential costs and risks. The process uses gargantuan amounts of fresh water, which must be readily available to extraction companies. In a country like Israel, historically at high risk of water scarcity, extra water is not easy to come by. This can be problematic for a country newly at risk for the resource curse. If Israel were to reallocate its water sources solely to energy extraction, the people and other sectors would suffer. It must find other sources to compensate. Water conflicts, though rarely resorting to military interaction, are common in the Middle East and have been for many years.⁴¹ With ten percent of the world's land, five percent of its population and only one percent of its fresh water, this can be expected.⁴² Three major bodies of water and causes of Middle Eastern dispute have been the Euphrates, Tigris and Nile Rivers. Though these do not directly affect Israel, they cause tensions to rise amongst countries from which Israel could potentially import water as well as heighten the importance of areas that do concern Israel, such as Golan Heights and the Jordan River. Golan Heights is an Israeli occupied area,

FracFocus. "Hydraulic Fracturing & How it Works." *FracFocus* 2013. Web.

ProPublica. "What is Hydraulic Fracturing?" *ProPublica: Journalism in the Public Interest* 2013. Web.

⁴¹ Juusola, Hannu. "Water Conflicts in the Middle East." *International Relations and Security Network* 18 October 2012. Web.

⁴² Abu Ju'ub, Ghassan. "Water Conflicts in the Middle East between the Present and the Future." *Al-Azhar Educational Website*. Online.

annexed in 1982 from Syria.⁴³ It is very rich with its water resources and supplies several rivers and Lake Tiberias. This is partially why Israel has consistently refused to return the land to Syria, even under international pressures. The Jordanian River is and has been the other major water conflict for Israel. An American diplomat, sent as an envoy of President Eisenhower in 1953, established a plan to share the water resources of the Jordan River between Palestine, Jordan, Israel, Syria and Lebanon.⁴⁴ The Johnston Plan was as follows:

Table 4: Shares of Riparian Countries in the Jordan River's Water According to the Johnston Plan

Country	Planned Water Shares (mm³ / yr)
Palestine	257
Jordan	463
Israel	400
Syria	132
Lebanon	35
Total	1287

Source: Abu Ju'ub, Ghassan. "Water Conflicts in the Middle East between the Present and the Future."

These numbers were respected for a few years – until Israel needed irrigation for expansions in the Negev Dessert, hoping to attract more Jewish immigrants. The National Water Carrier was created in 1964 to channel fresh water from the Sea of Galilee and the Jordan River to the new establishments

⁴³ Ibid

⁴⁴ Ibid.

in the southern Israel dessert.⁴⁵ Seen as an act of aggression against Arab land, Lebanon, Syria and others created the Jordanian Diversion Authority to develop dams that would prevent Israel from accessing the necessary water sources. This led to several border conflicts and eventually, after more unrelated political clashes, the Six Day War of 1967. Former Minister of Defense and Prime Minister Ariel Sharon had no doubts about the significance that water played in the war. “People generally regard 5 June 1967 as the day the Six-Day War began. That is the official date. But, in reality, it started two-and-a-half years earlier, on the day Israel decided to act against the diversion of the Jordan.”⁴⁶

Table 5: Current Usage of Jordan River's Water

Country	Actual Usage of Water (mm³ / yr)
Palestine	0
Israel	700
Jordan, Syria and Lebanon	410
Total	1110

Source: Abu Ju’ub, Ghassan. “Water Conflicts in the Middle East between the Present and the Future.”

Israel took both Golan Heights and the West Bank under occupation in that war. As seen in the table above, Israel today uses more than its allocated shares by the Johnston plan, whilst Palestine uses none. It was after 1967 that

⁴⁵ Dunstan, Simon and Dennis, Peter. The Six Day War 1967: Jordan and Syria. Volume 2. Oxford and Osprey, New York. 2009.

⁴⁶ Ibid

Palestine lost access to its main water source, the Jordan River.⁴⁷ As of 2009, Palestine received only 25% of the amount that Israel does from the scarce West Bank water supply.⁴⁸ If Palestine were to lose another water source in order to fuel Israel's energy sector, this could be seen as an overspill effect of the curse into a neighbor.

Even today, there are water struggles as the overall supply becomes scarcer throughout the Middle East and the world. A United Nations report projects that thirty nations will be water scarce in 2025, up from 20 in 1990. Eighteen of them are in the Middle East and North Africa. This list includes Israel.⁴⁹ There is a fear that violence, and eventually more war, will break out if countries cannot work together to overcome this specific resource lack. The GZA is correct to be concerned about the origin of the newly demanded water in Israel – in 2009, Israel used 1.811 million cubic meters of the 1.849 mcm of water it produced.⁵⁰ This does not leave enough for companies in Israel to use for fracking – will it find new sources or reallocate what it has from other sectors? Can it find new sources in its deprived region? In 2000, Israel crafted a deal with Turkey to purchase 1.75 cubic feet of water per year for twenty years.⁵¹ Although Turkey canceled this deal in 2010 following the Israeli

⁴⁷ Abu Ju'ub, Ghassan. "Water Conflicts in the Middle East between the Present and the Future." *Al-Azhar Educational Website*. Online.

⁴⁸ McCarthy, Rory. "Israelis get four-fifths of scarce West Bank water, says World Bank." *The Guardian* 27 May 2009.

⁴⁹ Arsenault, Chris. "Risk of water war rises with scarcity." *Al-Jazeera* 26 August 2012.

⁵⁰ Jewish Virtual Library. "Israel Overview – Water." *Jewish Virtual Library* 2013. Web.

⁵¹ *Ibid.*

shooting of nine Turks in waters near the Gaza Strip, the opportunity to import water from elsewhere still remains.⁵² Though it is a very expensive process, the oil and gas shale will hopefully be lucrative enough to still profit after water demands are met.

In-situ Extraction

Another option, one that avoids the water scarcity problem, is a different type of shale oil extraction called In-situ. Invented by Dr. Fredrik Ljungström in 1940, the In-situ process allows extraction of shale petroleum without mining and without fracking. It involves heating the kerogen in rock while it is still underground causing it to expedite its natural process, eventual transformation into a shale reserve, and release its hydrocarbons upon reaching a specific heat for a certain amount of time.⁵³ This is a method that allows for a mixture of crude oil extraction and hydrofracking – it does not use the water amounts that are used by fracking because it uses horizontal techniques to turn the reserve into a reserve then obtainable by traditional drilling methods. Though there are many methods used in preparing the rock for underground heating, Israel Energy Initiatives, the main extraction company in the Shelfa Basin, applies its in-situ technology during extraction with no water use. It does, however, use some water when cleaning equipment

⁵² Miskin, Maayana. "Turkey Cancels 20-Year Water Sales." *Arutz Sheva: Israel National News* 20 June 2010.

⁵³ Israel Energy Initiatives. "Production Process." *Israel Energy Initiatives* 2013. Web.

and later separating the shale oil from shale gas.⁵⁴ Krantz argues that because this process uses electricity to heat the rock, it is simply “trading natural gas for oil.”⁵⁵ However, with the IEI’s calculated ratio of 3.1:1, the trade is economically smart and possible for Israel.⁵⁶ Professor Parish of UVA also believes that there is an “advantage to the Israeli way” in relation to the IEI claimed “impenetrable layer of material that separates oil shale deposits from the water table.”⁵⁷ If the science can be perfected, this will be a timely and miraculous method for Israel’s economy and political environment.

As of now, GZA and “Jew Against Fracking” have had little effect on the Israeli government’s decisions concerning oil and natural gas. A third group, Life & Environment,” has gathered, as of 2012, 132 members in its alliance to protect Israel’s environment.⁵⁸ It granted IEI its “Black Globe” award for “activities detrimental to the environment” during the national Green Globe Awards in 2011. The ironic award went to Mr. Netanyahu in 2010.⁵⁹ Even still, the election results in January have showed no impact from environmentalist groups yet.

⁵⁴ Ibid.

⁵⁵ Krantz, David. “Israel: The New Saudi Arabia?” *Green Zionist Alliance* 1 May 2011. Web.

⁵⁶ Israel Energy Initiatives. “Production Process.” *Israel Energy Initiatives* 2013. Web.

⁵⁷ Udasin, Sharon. “250 b. barrels of shale discovery a ‘game changer.’” *The Jerusalem Post* 17 December 2012.

⁵⁸ Chernick, Karen. “Israeli Black Globe Award Went to IEI for Oil Shale Agenda.”

⁵⁹ Ibid.

International Relations

Aside from internal roadblocks, Israel faces several foreign issues in its start as an energy rich nation. Firstly, its relations with Turkey and Cyprus directly affect its ability to extract and distribute offshore the natural gas. The relations with these two nations are crucial in Israel's role as an exporter to Europe. Furthermore, the international law, vague in its respects to national borders, is causing delay in exploration as well as political tensions around Israeli neighbors.

Turkey and Cyprus, and the rest of the Middle East

In May of 2010, the Miva Marara sailed illegally toward the port in Gaza. Seen as a threat by the Israeli military, this led to the deaths of eight Turkish activists and a Turkish-American aboard the ship.⁶⁰ Since the incident, the Turkish-Israeli political and military ties have been severed. In response to the lethal reaction to the voyage, Turkey immediately cast away Israel's Ambassador from Ankara and in 2012 held what Israel dismissed as a "show trial" that sentenced four former Israeli commanders to several life-long imprisonments each.⁶¹ This was met by large-scale Israeli criticism. The demands by Turkey to salvage the countries' relations were three-prong: a formal apology, compensation of one million dollars to each activist's family

⁶⁰ Ya'ar, Chana. "Turkish Price Tag: \$1 Million Per Mavi Marmara Death." *Arutz Sheva: Israel National News* 27 March 2013. Web.

⁶¹ Sherwood, Harriet. "Turkey prosecutes Israeli commanders for Gaza flotilla deaths." *The Guardian* 6 November 2012. Web.

and the closing of the Gaza blockade.⁶² The formal apology, from Israeli Prime Minister Netanyahu to Turkish Prime Minister Erdogan, was not expressed until almost three years later in March of 2013. Israel then countered the one million dollar compensation with an offer of one hundred thousand and still refuses to shut down the blockade on Gaza.⁶³

Though this was an enormous setback in Turkish-Israeli relations, Turkey still remains one of the few Arab nations that has “recognized and [will] continue to recognize the Israeli State, within the framework of the 1967 borders and on the basis of the two-state solution” according to Prime Minister Erdogan.⁶⁴ This is the main reason for which Israel needs to reinvest in its relationship with Turkey – it can be the major player in bettering relations between Israel and other Arab states. Turkey is growing in power and importance in the Middle East making it a strategically important ally for Israel in current times. U.S. President Barack Obama also noted that relations between the two countries are crucial “in order to achieve regional peace and security.”⁶⁵

Despite the political issues that have risen in the past few years, trade between Turkey and Israel has grown thirty percent since 2010.⁶⁶ A senior

⁶² Ya’ar, Chana. “Turkish Price Tag: \$1 Million Per Mavi Marmara Death.” *Arutz Sheva: Israel National News* 27 March 2013. Web.

⁶³ Ibid.

⁶⁴ Isherwood, Julian. “Exclusive Erdogan-interview: ‘We see a human tragedy before ours eyes.’” *Politiken* 19 March 2013. Web.

⁶⁵ Obama, Barack. “Statement by President Obama On Turkey and Israel.” *The White House* 22 March 2013. Web.

⁶⁶ Dagoni, Ran. “Israel defense firms court Turkish customers.” *Globes: Israel’s Business Arena* 4 April 2013. Web.

Turkish procurement official claimed that there is currently a “need [for] a stable period of confidence-building measures” before they can discuss projects with Israel suppliers.⁶⁷ Concerning the natural gas industry explicitly, Turkey is the cheapest export destination for Israel with the opportunity for a supply deal earning up to four billion dollars of income a year for Israel.⁶⁸ Reconciling ties to Turkey, though politically a stretch would really open up Israel’s export sector and prove to be a beneficial move in the long run. This also holds a potential threat to Israeli security. Turkey is a larger nation with interests in Israeli energy as well as the political power to help Israel address challenging bi-lateral relations with its Arab neighbors. This puts Turkey in the position to abuse its influence over Israel in a way that would reflect the resource curse. However, with a strong military presence and even stronger allies, Israel is well equipped to avoid outside interference such as this.

A country that affects Israel’s natural gas in a more immature stage is Cyprus. Right now, relations between the two countries concern the building of a liquefying natural gas plant.⁶⁹ The two nations have planned to finance and operate the plant together, promoting an export profit for both of their newfound offshore reserves. The major concern with this deal, however, is the relationship between Cyprus and Turkey. Currently, Turkey does not

⁶⁷ Ibid.

⁶⁸ Mitnick, Joshua. “Israel and Turkey Explore Energy Ties.” *The Wall Street Journal* 26 March 2013.

⁶⁹ Reed, Stanley. “For Cyprus, Gaslight at the End of Tunnel?” *The New York Times* 5 April 2013.

recognize Cyprus as a state.⁷⁰ This has resulted in Turkey claiming some of the offshore reserves in Cyprus's international jurisdiction as its own and threatening to "react strongly to further gas exploration by Cyprus."⁷¹ The best option may be to build underwater pipelines to Turkey directly, but this would upset Cyprus-Israeli relations.⁷² However, if Israel were to go ahead with its plans to work with Cyprus, it could weaken already torn ties with Turkey and lose its opportunity to better economic relations with the rest of the Middle East.

International Law

Aiding in the settlement of border and territory conflicts is international law as determined by the United Nations. The UN Convention on the Law of the Sea states that: "Coastal states have sovereign rights over the *continental shelf* (the national area of the seabed) for exploring and exploiting it; the shelf can extend to at least 200 nautical miles from the shore, and more under specified circumstances."⁷³ However, parts of this law are vague. Measuring "natural prolongation" of a nation's seabed proves to be ambiguous and is causing issues between Israel and its water-sharing neighbors.⁷⁴ The Leviathan Basin lies within more than just Israel's maritime borders. Currently, there have been no economic or military threats

⁷⁰ Associated Press. "Cyprus to build gas plant with or without Israel." *Haaretz* 5 April 2013.

⁷¹ *Ibid.*

⁷² LeVine, Steve. "When Israel starts exporting natural gas, Cyprus and Lebanon could be the big losers." *Yahoo! Finance* 1 April 2013. Web.

⁷³ "The UN Convention on the Law of the Sea." United Nations 1982.

⁷⁴ *Ibid.*

concerning this area, but political tensions between Israel, Turkey and Lebanon are beginning to surface. On December 17, 2010, Israel and Cyprus signed an agreement that laid out the borders of each country's exclusive economic zone. This is the only official maritime border for this sea area. Even when direct lines are finally drawn and borders are set for the other nations involved, the opportunity provided by horizontal drilling to extract resources from other's seabeds may be the greatest cause of concern.⁷⁵

IX. The Resource Curse

After surpassing the initial shock, disbelief and eventual delight, the Israeli government needed to make the proper arrangements primarily to avoid what has come to be known as the resource curse. Defined in many ways, the resource curse generally refers to the paradox that a country with an abundance of a natural resource wealth will suffer poor or negative economic growth and potentially worsen the welfare of the entire nation. This is also referred to as the "Paradox of Plenty" and can eventually lead to the Dutch disease.⁷⁶ A term coined after oil discoveries in the Netherlands went wrong, the Dutch disease refers to the eminent appreciation of real exchange rate and switch of capital and labor to the booming mineral sector which harms the competitiveness of non-booming export goods. A country then becomes

⁷⁵ This paragraph relied heavily upon the work:
Kaplan, Josh. "The Economics and Politics of Israel's Offshore Energy Discoveries." *Israeli Strategist* October 2011. Web.

⁷⁶ Karl, Terry Lynn. The Paradox of Plenty. University of California Press, Berkeley and Los Angeles. 1997.

dependent upon one good, one export and one market price – a risky decision for any country to make. An example of the disease’s quickness is Equatorial New Guinea who in 1991 received sixty percent of its GDP from cocoa and coffee exports; by 2001, that number had fallen to nine percent.⁷⁷ The entire agricultural sector was almost destroyed completely by the discovery of oil.

Nigeria: Oil

Philippe Le Billon claimed several effects of the resource curse: higher risk of civil war, poor economic growth after the initial boom, governmental corruption and manipulation to mention just a few.⁷⁸ In many cases, his claims were correct. Nigeria, for instance, is the most oil rich and cash poor per capita country in Africa. Since its independence from British colonialism in 1960, Nigeria has raised over \$350 billion in oil revenues and still remains one of the poorest countries in the world.⁷⁹ In July of 2012, the government made \$5.3 billion in oil revenues, meanwhile 50% of the total population lives below the poverty line. The people living in the areas where extraction takes place have yet to see almost any of the oil money that is destroying their homes, families and livelihoods. The Niger Delta has one of the worst living conditions in the world. Native tribes fight each other for what little clean

⁷⁷ Weinthal, Erika and Luong, Pauline Jones. “Combating the Resource Curse: An Alternative Solution to Managing Mineral Wealth.” *Perspectives on Politics* Vol. 4, No. 1, March 2006. 35-53.

⁷⁸ Le Billon, Phillipe. “The Resource Curse.” *Adelphi Papers* Vol. 45, No. 373. 2005. 11-27.

⁷⁹ Weinthal, Erika and Luong, Pauline Jones. “Combating the Resource Curse: An Alternative Solution to Managing Mineral Wealth.” *Perspectives on Politics* Vol. 4, No. 1, March 2006. 35-53.

water there is after the oil companies have explored, drilled and contaminated their land. In 2004, oil giant Shell had a pipeline spill for which it waited a week to start cleaning up.⁸⁰ The locals are abused by government militia that are sent to control them as they try to fight back against the companies, against the men destroying their lives.⁸¹ This is a prime example of government manipulation. Most of the money in Nigeria is in the hands of the government. But this is also an example of governmental failure to fulfill its role as the protector of its people. The political leaders know the methods through which this turmoil can be avoided yet do not ensure that these methods are used. Also at fault are the companies that abuse the lax regulations to save money. What is meant through this example is to show the fault – it lies not on the inanimate resource in the ground but on the shoulders of the people who react to its discovery. The Nigerian government did not take any measures to protect its people. As a direct product of British colonialism, the Nigerian government was already set up as a centralized and potentially corrupt decision-making body. The treatment of the people in the Niger Delta is not by means of ignorance or complete lack of care, but in fact an example of higher importance placed upon wealth and power than total welfare. It also shows the power that companies, like Shell, have in smaller and more manipulative countries as its profits are greater with more environmentally detrimental methods of extraction and waste. In 1999, the Corruption Index compiled by Transparency International rated Nigeria the

⁸⁰ "In Pictures: Polluting Nigeria." *BBC News* 2004.

⁸¹ *Ibid*

most corrupt country in the world, followed by many other top oil-producing nations.⁸² Just as responsible, the oil companies are not taking any steps to avoid environmental defects. It is, therefore, the *reaction* by internal actors and external forces to the abundance of resource that is causing the negative affect described by Le Billon, not the presence of the resource itself.

Chile and the United States: Copper

Le Billon, along with others, would then reason that if this were the case each time copious resources are found then his argument of the resource curse stands for the negative externalities cannot be avoided. Another example will prove this invalid, as well. The United States was the world's leading mineral economy from 1890 to about 1920. This was, non-coincidentally, the same period in which the United States' manufacturing industry boomed leading it to become the world's largest goods manufacturer. It was because of the great amount of resources that the manufacturing success occurred. In fact, resource extraction aided the United States in establishing exploration, transportation, geological knowledge and many technologies used today. It also taught proper methods of investment as well as mixing sectors in an appropriate manner, ie mineral and manufacturing. The minerals sector "constituted a leading edge of the knowledge economy."

Look to the copper industry. Michigan copper mining boomed well into the 1920s. This was rivaled by the arguably more sophisticated industry

⁸² Karl, Terry Lynn. "The Perils of the Petro-State: Reflections on the Paradox of Plenty." *Journal of International Affairs* Vol. 50, No. 1. Fall 1999. 39.

of Chile. Chilean copper ore was of a higher grade than the United States', yet it still fell victim to the acclaimed resource curse. This difference was caused by the U.S. investment in new extraction technologies – it could access more low-grade copper with less expensive technologies. Though the Chilean grade was higher by more than ten percent, the sheer volume of ore accessed could not rival that of the United States'. When the reserves of high-grade copper ore began to deplete, so did the Chilean industry. Without quick, decisive action, investment into the industry's technologies, and understanding of future potential outcomes, any economy can fall a victim to mineral richness – even one as advanced as Chile's.⁸³

Even today, the minerals sector is one of the more high-tech industries, incentivizing nations and companies to keep up with demand and forward technologies that can help do that. It pushes humankind to be better, faster and smarter – how can that be a curse? Handled incorrectly, like any good thing, can turn poorly. However, when handled appropriately, it can lead to prosperity not just for the resource rich country but for the world as a whole in terms of advancement and knowledge. Yes, the opportunity to take-it-and-run is always there, but the countries that come out on top; the countries that do not send their people into a hellish life of poverty and hunger and disease; the countries that do the right thing are the ones that disprove this so-called curse. It is not a curse, but a choice. Throughout history, most have made the wrong

⁸³ The Chilean Copper section relies extensively on narrative and facts by:
Wright, Gavin and Czelusta, Jesse. "The Myth of the Resource Curse." *Challenge* Vol. 47, No. 2. March-April 2004. 6-38.

choice. Or did not have the right knowledge or help to make the right one. But they made a choice, nonetheless. The *Dutch Disease* is no curse at all, simply a possibility that historically has been very difficult, for many reasons and many countries, to avoid.

Norway

In a similar situation to Israel, Norway was a country that lagged behind its neighbors in oil, and in Norway's case, other types of production. This all changed for Norway in 1969 with the discovery of oil and subsequent extraction in 1971. By the mid-1980's, Norway had surpassed its fellow Scandinavian nations in GDP per capita and kept growing. This completely goes against the idea of the resource curse and the *Dutch Disease*. Erling Røed Larsen in his analysis of the situation argues that both the curse and the disease "seem attributed to some unwelcome arrangement of institutions or inappropriate policies" and that "proper management can contain the problems."⁸⁴ Norway was upon the same opportunity as Nigeria and as Chile to fall to the curse, but its government was as strong willed to fight selfish and rash urges as it was eager to create prosperity for its country now and for future generations. There were several policies put into place to secure the labor market, promote education and research and the establishment of a

I. ⁸⁴ Larson, Erling Røed. Røed. "Escaping the Resource Curse and the Dutch Disease? When and Why Norway Caught Up with and Forged Ahead of Its Neighbors." *The American Journal of Economics and Sociology* Vol. 65, No. 3. July 2006.

sovereign wealth fund that would protect, sustain and eventually grow the oil profits. Since 1969, Norway's economy has boomed not just in the oil sector, but overall. Its sovereign wealth fund has become a source of revenue for the people of Norway, providing for social programs that better their lives as well as providing stability to the economy.⁸⁵ The government acted properly to avoid the curse and the disease – it did not rush into development; it did not try to make a quick buck; it did not allow individual government officials to individually benefit from the oil wealth; and it did set up proper policies and regulations that ensured Norway's stability, growth and prosperity for the future. Norway beat the so-called resource curse, and so can Israel.

Canada: Oil

There is another factor of the curse that is argued as reason for its validity. As stated, an abundant amount of natural resources can weaken a government's will and limit its vision of long-term economic prosperity. The types of countries that have historically fallen to the curse are non-democratic, poor and/or previously **corrupt**. This would exclude the United States and Norway from falling victim. This argument is flawed in two ways. First, the curse does not only affect small and poor countries. Note Chile, though a small country geographically, had a stable economy upon its discovery of copper. Its government made choices that kept Chile's goals in the short term, which hurt the economy in the long run. A more recent example is Canada. Currently in northern Canada, there are projects extracting from the oil sands

⁸⁵ Ibid.

(more commonly referred to as tar sands). This is not only detrimental to the environment and the lives of many natives; it shows the first signs of poor judgment within the Canadian government.⁸⁶ An Exxon Mobil report claims that “for more than sixty years, Canada’s energy sector has provided a reliable supply of affordable energy to U.S. and Canadian markets,” claiming vast opportunities for both countries.⁸⁷ Meanwhile, groups such as Greenpeace Canada focus on the environmental damages that “lace the air with toxins and convert farmland into wasteland.”⁸⁸ Meeting in the middle, there is clearly an economic and energy advantage to using the bitumen found in the sands. However, is the environmental damage worth it? The government seems to believe so as it still allows the extraction process to take place. According to a Nanos Research poll in 2012, forty-two percent of Canadian people disagree with their government.⁸⁹ Ignoring its people is one step toward corruption and ignorance for the Canadian government. It is experiencing a transfer of capital and talent into the tar sands industry, weakening other parts of its economy. Canada’s current government is very conservative with its base in Alberta, where most of the tar sands are located.⁹⁰ This has allowed for Alberta, the prime province in favor of tar sands, to hold much weight within the

⁸⁶ Homer-Dixon, Thomas. “The Tar Sands Disaster.” *The New York Times* 31 March 2013.

⁸⁷ Exxon Mobil. “Canada’s Oil Sands.” *Exxon Mobil Corporate* 21 May 2012.

⁸⁸ Greenpeace Canada. “Tar Sands.” *Greenpeace* 2013. Web.

⁸⁹ ICTMN Staff. “‘The Tar Sands Disaster’: Canadians Against Keystone XL, in the New York Times.” *The New York Times* 1 April 2013.

⁹⁰ Homer-Dixon, Thomas. “The Tar Sands Disaster.” *The New York Times* 31 March 2013.

government. Canadian Green Party Leader and Member of Parliament Elizabeth May furthers questions of the Canadian government's legitimacy concerning the energy sector claiming that Canada "[does] not have a grip on energy security."⁹¹ She continues, "Stephen Harper, [the Prime Minister], has a single-minded number one goal no matter what you are talking about—oil sands development."⁹²

Canada is a large, economically sound and democratic nation. Yet, its government is still littered with people who make decisions not based on what the people want or what is best for them, but what is best for the wallets of the energy companies and the elite. The size and government in a country, though trends indicate a certain pattern, really do not hold as much weight as proponents of the resource curse would have one think. The second critique of the notion that poor, non-democratic nations fall victim to the curse is parallel to an argument made earlier in this paper; it is the *reaction* to the newfound resources that makes or breaks a country. Granted, the smaller and poorer countries are more likely to fall into traps of energy companies looking for a prophet or the manipulation of larger

⁹¹ Schilling, Vincent. "A Chat with Green Part MP Elizabeth May: Canadians Do Not Want Keystone XL." *Indian Country Today Media Network* 25 February 2013. Web.

⁹² Ibid.

countries looking for control. However, the point still remains that it is human action that causes the effects of the so-called resource curse and Dutch disease. The action of the companies using cheap and environmentally damaging methods and the action of the larger countries negotiating one-sided contracts is what, in many cases, causes governmental corruption and subsequently the negative results of resource abundance. They simply *act upon* the government to achieve their ends. In order for Israel to avoid the resource curse still, it must not only set up proper policy and watch for manipulation within its government, but also upon its government. It is possible to beat all aspect and causes of the resource curse, drawing the conclusion that it is not, in fact, a curse, and that Israel, as a strong democratic nation, can overcome the challenge it faces.

X. Policy Recommendations for Israel

Tzemach Committee

As one of Israel's largest roadblocks to energy-driven success, export policy is something upon which the government has already started working. In October of 2011, Mr. Netanyahu and the Minister of Energy and Water Resources appointed the Natural Gas Inter-ministerial Committee to examine

Israel's petroleum policies.⁹³ In 2012, the Committee, led by director general of the Ministry of Energy and Water Resources Shaul Tzemach (for which the Committee was publically nicknamed), released a report containing its recommendations and advice for the Israeli government. To create its report, the Committee held public hearing with private companies, environmentalist groups and government-owned companies as well as hosted a conference for potential stakeholders to express their opinions and concerns. Its suggestions concerning exports were as follows:

Natural Gas- Supply	BCM
Prospective resources, as of today	680
(Of which, resources with 90% probability)	150
Reserves and conditional resources	800
Total natural gas supply	1,480
Total natural gas for policy	950
Cumulative domestic demand for 25 years	450
Total amount allowed for exports	500

Source: Tzemach Committee Official Report, 2012

The estimated domestic demand for Israel for twenty-five years is 450 bcm. Subtract that from the proven, or mostly prove, natural gas reserves and the amount left for exports is 500 bcm. Companies must also follow specific domestic market guidelines:

⁹³ Henderson, Simon. "Israel's Natural Gas Challenges." *The Washington Institute* 7 September 2012.

- Lease owners of gas field with reserves of more than 200 BCM will supply to the domestic market at least 50% of their reserves (there is an opportunity to increase exports to 75% with the export quota trade scheme)
- Lease owners of gas field with reserves of 100-200 BCM will have to supply to the domestic market at least 40% of their reserves
- Lease owners of gas field with reserves of 25-100 BCM will have to supply to the domestic market at least 25% of their reserves

Lease owners will be allowed to sell their export quotas to others with government approval. Leased areas that are not exclusively in Israeli territory will be subject to special measures taken by the Israeli government and any other necessary political body.⁹⁴

Infrastructure

In the domestic sphere, aside from policy, the government also needs to invest in its natural gas infrastructure. There will be a need for more sea-to-shore pipelines, handling facilities and refineries. Also, as was discovered in the mid 20th century, storage facilities for natural gas liquefied (for exports) and not, will need to be built. This is going to be a hard task with such little land available.

At current prices, it would benefit Israel to export to Europe or Asia, with higher prices than Israel of \$12 /mBtu and \$16 /mBtu, respectively. However, because pipelines can only transfer gas across land, there will be a need to establish liquefaction plants to reach target markets across bodies of water. To do this, Israel must get government approval – there is sure to be a

⁹⁴ All specifics were provided by: The Natural Gas Inter-ministerial Committee. “The Recommendations of the Inter-ministerial Committee to Examine the Government’s Policy Regarding Natural Gas in Israel Executive Summary.” 2012.

backlash from environmental groups as well as nimbysts. It must also secure proper financing as liquefaction plants can cost up to five billion dollars to construct, not to mention operation and wage expenses.⁹⁵ It will also be beneficial for Israel to get strategic partners in this part of the process. This means companies that know the business, know the technology and are not turned off by Israel's lack of experience. As mentioned previously, there are currently negotiations with Cyprus concerning a LNG plant to be built in Cyprus. This would benefit bi-lateral relations, but complicate policies and regulations concerning exports. The best thing for Israel to do is invest in its own land, development and sector. That, along with the policies set forth by the Tzemach Committee, once implemented, will show a more confident, stable and seriously energy-minded Israel. This is the push that companies like Exxon, BP and Shell need before they invest in areas of question.

Policy

As seen through Norway's example, there needs to be a great deal of preventative policy measures to protect other sectors as well as ensure success of the newfound energy sector. The first of these policies is a "factor movement policy." It will utilize a centralized wage formation system that can limit wage increases in the oil sector. This can help fight the Dutch disease by preventing a mass migration of labor from other sectors, which helps stabilize the entire economy. This is necessary with the initially lucrative nature of the energy sector – laborers tend to migrate to it and leave other industries

⁹⁵ APCO Forum. "Israel's Natural Gas Sector." *APCO Worldwide* 2012. Web.

without sufficient capital to continue production and expansion. Norway's "spillover-loss and education, research and development policies" are a push for self-efficiency within the technological side of the energy sector.⁹⁶ This is a means through which Israel should invest into its people by providing education, training and expertise to Israelis. There also needs to be a monetary investment into the technology and research of exploration, extraction, refining and exporting. Israel should encourage its citizens to study abroad, learn from those who know how to get the most out of this sector, and bring their knowledge back to Israel. Finally, Israel needs to establish a type of petroleum fund abroad that it can use to ensure future stability and prevent present day catastrophe in its economy.

Sovereign Wealth Fund

A Sovereign Wealth Fund is "a state-owned investment fund or entity that is commonly established from a balance of payments surpluses, official foreign currency operations, the proceeds of privatizations, governmental transfer payments, fiscal surpluses, and/or receipts resulting from resource exports."⁹⁷ It is a fund that "generates economic security for future generations by converting endowments of natural resources into financial endowments."⁹⁸

⁹⁶Larson, Erling Røed. "Escaping the Resource Curse and the Dutch Disease? When and Why Norway Caught Up with and Forged Ahead of Its Neighbors." *The American Journal of Economics and Sociology* Vol. 65, No. 3. July 2006.

⁹⁷ Sovereign Wealth Fund Institute. "What is a SWF?" *Sovereign Wealth Fund Institute* 2013. Web.

⁹⁸ The Milken Institute. "Structuring Israel's Sovereign Investment Fund." *The Milken Institute* December 2011.

If Israel is to utilize its newfound petroleum wealth in the most lucrative and positive way possible, it must set up at least one type of abroad fund. The Milken Institute sets out clear guidelines in establishing such a fund.

To set up a proper and effective Sovereign Investment Fund:

Determine a clear mission. This must be in place and understood from the outset. The government must look at its balance sheet and decide the fund's purpose. This will drive all subsequent investment decisions. For example, if the government elects to create a *stabilization fund*—designed to shield the economy from commodity price volatility—the investments would be lower risk and shorter term for liquidity. A *savings fund*, designed to build long-term reserves over a longer time horizon, would enable the government to accept more risk.

Formulate a governance framework. A proper governance structure is essential to shield the fund from political influences. The fund's governance must remain independent, transparent, and subject to checks and balances. Participants discussed whether to create a single legal entity or a subsidiary department within either the Ministry of Finance or the Bank of Israel. They noted that good governance would also strengthen Israel's credit ratings.

Designate the fund's revenue source. Besides investing natural gas commodity revenues and royalty payments, the fund could invest fiscal surplus and foreign exchange reserves, which the Lab recommends. The government must determine what share of commodity revenues to transfer into the fund and if other funding sources will be considered.

Define the withdrawal and spending rules. The fund's goal(s) will determine how the government will spend the returns. A stabilization fund, for example, might transfer some profits back to the fiscal budget so that government expenditures do not fluctuate dramatically. International experience has shown that best practices result if the legislature determines the rules for transfer in and withdrawal.

Design the investment strategy. Investment policies must be in line with the fund's primary mission.

Source: The Milken Institute's "Structuring Israel's Sovereign Investment Fund"

Determine a Clear Mission

Israel's mission through its fund will be a combination of two agendas: macroeconomic stabilization and future generation savings. This must be officially decided upon in the Knesset to be most effective. One of the biggest

internal challenges facing the Israeli peoples' well being is the squeezed Middle Class. With protests occurring over the past few years, Israel must focus on the demands and needs of its people. The protestors, most members of the middle class, "[call] for affordable housing, lower prices, higher taxes on the rich and better childcare."⁹⁹ A fund that is set up to provide monetary relief as soon as possible to the people is crucial for Israel's survival as a democratic and just state. It must, however, be careful not to spend all of its revenues now, even if it is to better its social classes. The fund must also store savings in form of emergency funds and monetary aid for future generations. With these two missions in mind, Israel should create two separate yet linked funds: a savings fund and a stabilization fund.

Formulate a Governance Framework

The Tzemach Committee was an impressive start to establishing experts to help survey and regulate the new industry. Likewise, there needs to be a permanent agency that can monitor this fund. Members from the Ministries of Finance, Energy and Water Resources and Infrastructure, private and public sector representatives and the Bank of Israel should be represented in the advisory committee. However, the Board of Directors, which may cast votes concerning governance matters, mustn't hold positions within the government nor energy sector. The President of the Board shall be nominated by the Prime Minister and approved by Knesset. The Knesset should determine the objectives, but the committee and board itself should be

⁹⁹ Buck, Tobias. "Israel's middle-class revolt hits fresh peak." *Financial Times* 12 August 2012.

sovereign in its methods and approaches to reaching its goals concerning the fund. If members of the committee or board are not performing their duties, however, they can be removed by a Knesset vote. This is a way through which Israel can deter the government from holding too much power over the fund and potentially abusing its wealth. Solid and unbiased governance over the fund could help to better Israel's credit rating and attract potential foreign investors.

Designate the Fund's Revenue Source

Taxes, royalties and revenues shall provide the fund's primary revenue. It is also suggested to invest some of Israel's fiscal surplus and foreign exchange reserves in the fund. The investment recommendations for each fund are as follows:

- Savings Fund: 60% of energy sector revenue for first five years; 40% for the following ten years; and 25% for each remaining year. This is to ensure that the fund grows its assets quickly in the beginning for potential emergency response and maximized interest revenue.
- Stabilization Fund: All revenues not sent to the Savings Fund will be directed to this fund to be used for internal betterment of the Israeli people through social programs, infrastructure enhancement, etc as voted on by the Knesset.

Define Withdrawal and Spending Rules

These rules should be determined by the Knesset, but centered on the mission of each fund. The rules should be sensitive to the common factors that cause fall to the resource curse and Dutch disease.

Design Investment Strategy

Investment policies must also be in line with the primary missions of the funds. Investment strategies should be under the jurisdiction of the committee and the board, following the governance framework. Outsourcing asset management to a large and well-known company could also prove beneficial in attracting foreign investors as it shows a decreased risk with more experience.

XI. Conclusion: The Holy Land's Newest Blessing?

XII.

In 1999, the State of Israel discovered an offshore natural gas field that can change the course of its history for many years to come. With the discoveries in the past fourteen years, Israel will be able to break through its energy dependency on foreign imports and boost its economy as a whole. All of the natural gas reserves combined could satisfy Israel's domestic needs for the next 150 years.¹⁰⁰ However, with this massive discovery come many roadblocks to the success and prosperity that could be achieved. Environmental groups are concerned with extraction damages; political groups are concerned with trade and bi-lateral relations; and economists are concerned about the resource curse. This phenomenon has proven time and time again that countries that become suddenly resource wealthy can and do fall victim to things such as slow economic development, governmental corruption and overall poor welfare in their communities. This paper argued

¹⁰⁰ Bloomberg. "Israel has enough gas to last 15 years." *Israel Business & Finance* 8 May 2012. Web.

that this so-called “curse” cannot be a curse simply by means that it can be avoided. Examples of the United States and Norway show that with correct political response through policy implementation, the newfound resources can, in fact, boost economies. Canada shows that not only poor, non-democratic nations can fall victim to the curse. All of these countries, also including Chile, Nigeria and others, prove that the curse is not a reaction to great amounts of resources but an effect of poor decisions and actions of people. Whether it is the reaction of the local government to the discoveries or the action upon that government by outside sources, the response itself causes the negative affects. Companies in Israel have discovered some of the largest oil and natural gas fields in history. Israel is a small country, but one with a democratic government and strong allies. By implementing policies such as those described previously, the Israeli government will not only avoid the resource curse but also provide a stable and healthy future for its people.

XIII. Executive Summary

Between 1947 and 1999, over 500 exploratory sites were drilled in Israel. Of those searches, very few produced any type of petroleum. Israel was known as the one country in the Middle East without oil, leaving it dependent on foreign imports and its relations with other nations. However, even until the 1980's only two countries other than the United States would publically trade with Israel, Egypt and Mexico. In the 1975 Sinai Agreement with the United States, Israel agreed to return its largest oil field, which it claimed during the 1967 war, to Egypt in an effort to support regional peace. Though politically this was a wise and bold statement, economically it left Israel more dependent on foreign oil. This pattern of constantly searching for trade partners continued until 1999 and 2000 when Israel's course of history was changed with the discovery of the Noa and Mari B fields, with 1.3 and 30 billion cubic meters (bcm), respectively.

Since the original discovery just miles off the coast of Tel Aviv, Israel has been found to be home to many offshore natural gas fields and one of the largest onshore fields in the world. The Tamar field, at the time of its discovery in 2009, was the largest offshore gas field to be

discovered with its 246 bcm. It held this record until in 2010 when the Leviathan field was discovered to hold 480 bcm. The Tamar field alone is enough natural gas to meet Israel's current demands for more than two decades. In 2011, the Shelfa shale was discovered onshore containing an estimated 250 billion barrels of oil, a number very comparable to Saudi Arabia's 260 barrels. If these fields can be harvested, Israel will become not only self-sufficient, but one of the world's largest exporters.

However, not everyone is excited for Israel to be swimming in black gold. Many economists and historians turned to the resource curse to help explain what is "surely" to happen to Israel after all its petroleum discovery. The resource curse is a theory that when a country finds suddenly an abundance of any natural resource, this will cause the economy and social welfare to collapse. This idea is founded by the nature of governments, especially small and non-democratic, to take advantage of the situation in a way that enriches themselves and not their people. It is a means by which to explain the blood diamonds throughout Africa and the unbearable living situations in the Niger Delta where the people are not only harmed by the extraction of their natural resources, but never see a benefit. Supporters of this theory

claim its inevitability, however this paper argues that not only is the so called “curse” not inevitable, it is flawed in its primary assumption that the natural resource itself is responsible for the patterned downfall of resource rich nations.

First, look toward the Niger Delta. Since its independence from British colonialism in 1960, Nigeria has raised over \$350 billion in oil revenue and still remains one of the poorest countries in the world. In 1999, Nigeria was rated the most corrupt nation in the world. The government takes all of the revenue, sharing none with its people, and pours most of it back into oil development and the rest goes into their pockets. Oil giants drilling in the Niger Delta do nothing to help to situation, either, using the methods that cause the worst environmental effects to save every cent possible. The theme throughout this explanation is thus: the oil isn't causing the living turmoil that the people in the Niger Delta face, it's the government and the oil companies making decisions that only better themselves that is causing it. It is a human decision and a human *reaction* to the resource that actually causes the curse. Yes, Nigeria is a politically weak nation with little bravery to stand up to outside forces that typically follow natural resource discoveries, but the government still cares little

enough about its people to try to protect them. *That* is the source of the curse, not the oil.

Another example of mass oil discoveries is Norway. Since its discovery of oil in 1969, Norway's economy and social welfare have boomed. Israel did not fall victim to the curse as Nigeria did for a few reasons. The government did not rush into extraction for the quick profit. Before anything else was done, Norway's leaders set up policies that protected the country. It invested into the research and development of the new sector, provided incentives for people to stay in their respective sectors (so that all the labor force wouldn't flock to the new, more lucrative jobs in oil), and, arguably the most important decision, it set up a sovereign wealth fund. A sovereign wealth fund is an account into which governments can place their surpluses from many areas. The Norwegian government chose to put its oil revenue into this fund so that future generations can also benefit from the resource money. By acting slowly, responsibly and considerately, Norway was able to do what one would expect a country with newfound resource wealth to do: prosper.

Israel, too, can beat the resource curse. It is a small, democratic nation with a government that has the ability and will power to act

appropriately and implement policies that will actually benefit the people. Though it has other roadblocks, such as environmentalist groups, its poor relations with its Middle Eastern neighbors and lack of experience in energy extraction and exports, Israel will be able to prosper just as Norway did if it follows a few crucial steps. It must first take its time in determining the policies. Acting too rash can cause the inflow of money to manipulate the future decisions of the Knesset, Israel's parliament. It must work to keep all of its other sectors developing and thriving, as a major side effect of the curse is dependence on one sector. And finally, it must set up a sovereign wealth fund of its own so that future generations can benefit from the recent discoveries and the economy can stay stable with a steady flow of petroleum revenues.

In 1999, Israel became one of the luckiest or the luckiest countries during the turn of the century. Will it luck out and prosper with its newfound petroleum wealth? Or will it turn into another small, deteriorated country that is dependent on large international petroleum companies to destroy its land and take its resource to survive? The choice is up to Israel's government. The reaction that the Knesset and other leaders have in the next decade will determine

Israel's future. The curse is, in fact, a choice for them to make. This paper argues that they will make the right one, and shows them how to do it.