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IRAN'S NUCLEAR PROGRAM: A PRESAGING THE COMING U.S. AND ISRAELI REPONSE

ANALYTICS I

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I. INTRODUCTION

"I declare today, in all pride, that from this day, Iran is among the countries producing nuclear fuel on an [industrial] scale…Today, Iran's enemies are embarrassed by Iran's progress in various areas…(Cordesman, 62). These are the words of Iranian President Mahmoud Ahmadinejad on April 10, 2007 during Iran's Nuclear Day. But what is the meaning behind his words? Is this a political figure merely rallying the confidence of his people behind peaceful nuclear power production or is there something more sinister behind this statement? For the United States and Israel the ambiguity of Iran's actions have them concerned that Iran's nuclear ambitions go beyond passive energy production. These concerns are illustrated by comments made before the Senate Intelligence Committee in February 2009 from the U.S. Director of National Intelligence (DNI) Dennis Blair when he said:

> "The Iranian regime continues to flout UN Security Council restrictions on its nuclear programs. There is a real risk that its nuclear program will prompt other countries in the Middle East region to pursue nuclear options conducive to the development of nuclear weapons, and the advent of additional nuclear weapons programs might lead other countries in other regions to reassess their nuclear options" (Cordesman, 59).

Iran's history of nuclear activities is much older than one might think. It began in 1959 when The Shah, the term for the former hereditary monarch of Iran, ushered the establishment of a nuclear research center at Tehran University (Cordesman, 9). Contrary to our current situation the United States took a relatively positive position in support of Iranian nuclear aspirations. Indeed, the U.S. State Department in the early 1970s considered cooperating with Iran's royalty in the field of alternative energy and viewed it as a mutually beneficial effort that would strengthen the ties between the two countries. Efforts included a 1975 trade agreement between then U.S. Secretary of State Henry Kissinger and Iranian Finance Minister Hushang Ansari that entitled Iran to eight nuclear reactors valued at $6.4 billion dollars (Cordesman, 10). However,

these promising agreements would never be realized. The 1979 Iranian Revolution and subsequent eight year war with Iraq stymied any hope for bilateral agreements on nuclear proliferation between the United States and Iran. Subsequent the Iran-Iraq War, the newly elected President of the Islamic Republic, Ali Akbar Hashemi-Rafsanjani, reignited the nuclear energy program that had been heavily damaged during the fighting which "had lain dormant since the ouster in 1979" of the Shah who had acquired acquiescence from the U.S. (Bali, 13).

What we have today is the Islamic Republic of Iran increasingly at odds with the international community on it's well recognized right to develop nuclear energy and the regulations and restrictions emplaced by the International Atomic Energy Agency (IAEA) and Non Proliferation Treaty (NPT) aimed at denying Iran (and others) the ability to take their nuclear program too far. By too far we mean the transposition of a peaceful nuclear State into a nuclear armed Iran that would arguably threaten the stability of the region and presents an *immediate* national security concern for the United States and Israel. "This is especially the case for Israel, a microstate that remains fixedly in the annihilatory crosshairs of the Islamic Republic in Tehran" (Beres, 493). The IAEA is the chief organization given the precipitous challenge of inspecting Iran's facilities to ensure Iran's nuclear development and operations fall within the parameters of a peaceful program. In June 2003, following the inspections of a couple of Iranian nuclear facilities, the IAEA released a report that found no reporting violations for any obligations "related to the construction of facilities…" (Bali, 14). Reporting violations would entail failure to notify the IAEA of fissile materials located at nuclear sites or new imports of nuclear materials i.e. uranium hexafluoride, uranium tetra-fluoride, or uranium dioxide (Ibid, 14). However, several other inspections since that report have brought to light copious amounts of reporting violations. "The record of covert Iranian nuclear activities uncovered by the IAEA

includes undeclared enrichment activities, undeclared reprocessing experiments, the import of undeclared fissile materials from foreign suppliers in a quest for an indigenous nuclear fuel cycle…(and) the discovery of Iranian ties to the A.Q. Khan black-market nuclear supply network" (Ibid, 14).

Actions such as these further sharpen anxiety levels of the United States and Israel and strengthen their resolute position of increasing the pressure on Iran as more of these violations are uncovered. "The action of the Iranian government, at a time when consideration is still being given to the possibility of renewing negotiations with it, represents continuing erosion of international belief in the peaceful intentions of its nuclear program, and causes grave anxiety to the entire international community" (Pedatzur, 518). The business of gauging precisely how far along Iran has come and in what direction Iran is headed with it nuclear technology seems like an impossible task for the United States Intelligence Community (IC), Israeli Intelligence Community (IIC), and partnered nations. "No Consensus exists regarding the degree to which Iran's current nuclear activities are or are not designed to give it nuclear weapons…" (Cordesman, 25). Despite this, recent CIA projections envision Iran being capable of fielding a nuclear weapon by 2015 (Bali, 18). However, these estimates vary widely with regard to the intelligence agency that establishes them and change often as more information on Iran's program becomes available and word of setbacks in their program reaches open-source media.

While no consensus exists as to how far along Iran's nuclear activities has progressed few would refute that their actions have a times been disingenuous vis-a-vis their stated goal of peaceful nuclear energy production. Furthermore, the world community is in agreement that Iran continuous down a path toward nuclear proliferation. It has sparsely been denied that Iran moves "steadily nearer" to the "potential goal" of nuclear weapons and that over the years, and despite a

great deal of oversight from the IAEA and UN Security Council, Iran has acquired a tremendous amount of technical expertise and equipment that propels the country down a path the United States and Israel have expressed they will not stand idle as it comes to fruition. In light of this it begs the question what are the likely courses of action for the United States and Israel if Iran continues down this path of nuclear proliferation? .What focal events, achieved by Iran, would constitute adequate provocation for these courses of action? An in-depth literature review will expose us to these potential courses of action and focal events our policy makers need to be aware of. Moreover, we will look to garner the perspectives of three players concerned in this conundrum: Iran, United States, and Israel; that will benefit this predicative study immensely.

II. LITERATURE REVIEW

The US and the Iranian Nuclear Impasse: Bali, 2006.

This piece centers itself around the effort on behalf of the United States to strengthen the global Non-Proliferation Treaty (NPT) which had just gone under a review in May of 2005 and of the conference that ensued shortly thereafter. "The bone of contention at the conference was the bargain at the heart of the NPT: non-proliferation of atomic weaponry in exchange for disarmament by Iran and civilian nuclear energy cooperation from the nuclear powers" (Bali,12). By the end of negotiations not a single proposal had been adopted and Bali takes a position that disappointing results came about because of the heated contention between the United States and Iran (Ibid, 12). Bali takes a critical look inside the intentions of the United States and the inconsistency with which they enforce the parameters of the NPT. The article looks to explore the reasons why some known proliferators avoid harsh scrutiny and corrective action taken by the U.S. and why other "suspected proliferators" face "severe, punitive sanctions" (Ibid, 12).

Bali doesn't mention who these fortunate known proliferators are until later in his study when he hints at the double standard that must have been "especially resonant for Iran's neighbors, in light of Israel's well known clandestine nuclear program" (Bali, 15).. Moreover, we can assume from the author's words above the he feels Iran falls under the category of a suspected proliferator of nuclear weaponry. What does Bali believe is the reason behind the inconsistency of the United States? He argues that the world's most powerful nation wields the NPT with purely selfish geopolitical goals in mind rather than by its prescribed neutral and legal bindings (Bali, 13). The author takes a fairly neutral position himself when his study delves into the supposed infractions Iran has been involved with over the years and offers his readers some additional insight into why Iran had acted as it did. By the mid 1990s, Bali points out, the regime had grown increasingly frustrated with limited access it had to Western European markets due to the constant intervention of the United States to mitigate Iran's partnerships with other nations.

An $800 million contract with Russia's nuclear energy ministry to build a light-water reactor at Bushehr was never completed because of "repeated US efforts to" dissuade Russia and "to impede Iranian access to other materials" (Ibid, 13). The author then makes a connection between the U.S. effort to block Iran's access to open-market companies for civilian nuclear cooperation, permissible under the NPT, as the main catalyst that drove Iran into the arms of black market suppliers. "Indeed, the obstruction of Iranian efforts…was ultimately counterproductive from a non-proliferation perspective" because the nuclear material and technology Iran garners from the open-market is habitually subject to IAEA inspections (Ibid, 13). Bali does concede Iran should have reported, at the time of purchase, design materials for more advanced centrifuge parts and imported nuclear materials from China in 1991 used for

various phases of conversion and enrichment that went unaccounted for until 2003. Additionally, Iran relied on grey areas in IAEA safeguard agreements to cover its tracks when it cited Article 95 which specified that advanced reporting of imports is only required when the quantity is above one kilogram of nuclear material. Yet, the applicable provision for this situation, Article 34(C), requires that an import be reported regardless of quantity (Bali, 14).

Furthermore, while going off of Western intelligence reports and concerns from the IAEA's board of governors, the IAEA asked Iran to allow inspections of two military sites. It was not until eight months after the request that inspectors were granted access to the Parchin military complex and still were stonewalled when it came to accessing certain portions of the facility (Bali, 15). In addition to this, the IAEA sought access into the since "razed" Lavizan sight after allegations arose that activities conducted there had been moved elsewhere to "hide a nuclear program" (Ibid,15). Soil samples were eventually permitted by the regime but revealed no nuclear materials. The agency admitted, however, "detection of nuclear material in soil samples would be very difficult in light of the razing of the site" (Ibid, 15). Due to many of these violations and US persistent diplomatic pressure the IAEA ruled in September of 2005 that the failures on the behalf of Iran in regard to its obligations to the NPT Safeguards Agreement amounted to non-compliance (Ibid, 15). This, Bali points out, comes as a result of a somewhat positive report from the IAEA inspectors earlier but the specifics of which are not addressed in this article. This raises an important question as to what Bali regards as somewhat positive.

Regardless, Iran was threatened with referral to the UN Security Council unless it improved its relations with IAEA inspectors and halted it uranium enrichment activities; something it did in 2003 but has since resumed. Overall, despite the evidence produced in his study, Bali consistently points out that "…for all the protestations about Iran's bad faith in

dealing with the IAEA, there is ample reason to suspect that US motives are not pure either" (Bali, 21). His main point of contention behind this is that motives for the enforcement of regulations are relegated to political aspirations which weaken the foundation and true aim of the enacted treaties. "If developing countries are led to believe that non-proliferation means obstruction of access to new technologies or that pretextual enforcement may be a new instrument of great power politics, then 'success' in containing Iran will come at the price of far greater risks of future proliferation" (Ibid,21). Overall, this article seems to take the position that it's sometimes acceptable for Iran to subvert the efforts of the international community because US efforts may be rooted more so in self-serving political aspirations than in sincere regard for the rule of law as it pertains to the NPT. Even so, it introduces us to the tremendous complexity of this issue and forces one reflect on the questions Iran may have about the motivation behind US and Israeli positions regarding Iran's nuclear proliferation.

Iran: The Populist Threat to Democracy: Ehsani, 2006.

This article is set shortly after the August 31st, 2006 deadline that Iran let expire due to its importunate refusal to suspend it uranium enrichment activities. Ehsani takes the position that this should have come as no surprise to the International Community to include the US, IAEA, and UN Security Council. The article offers us insight into Iran's perception of the issue and assists us in answering some of the questions we formulated with Bali's literature and this multifaceted issue as a whole. Current President Mahmoud Ahmadinejad was in the nascent stages of his rule and wasted little time in supplanting the policies of his predecessor by lifting Iran's voluntary suspension of enrichment "claiming that Iran had received nothing substantial in exchange for the unilateral confidence-building measure" (Ehsani, 4). Given Bali's evidence above of US interference in bilateral agreements in the open market this statement is given

substantial credence. Ehsani explains that there were several reasons for Iran's defiance that go beyond the enrichment standoff. This includes the Israeli invasion of Lebanon, which the US failed to condemn, and the attacks on Hezbollah; viewed by the regime as an "attack upon itself..." (Ibid, 4). Moreover, there was a perceived helplessness on the part of the US because of its troubles in Iraq, increasing oil prices, and failure on the part of the West to come to a consensus on sanctions –"…the leaders of the Islamic Republic saw no reason to accommodate a sworn enemy" (Ibid,4).

The author further delineates problems that will arise from Iran's defiance by admitting that damage done to the Iranian people, democratic movements, and rights of citizens that will surely be further constrained by an ever repressive regime in light of impediments toward progressive democratization of Iranian politics (Ibid, 4). Just what are the reasons that convinced the regime they should take a hard-line approach to its people and the International Community? Ehsani points out that the inclusion of Iran into the axis of evil in 2002 has the Iranian government "convinced that Washington's goal is to change or seriously undermine the regime in Tehran" (Ibid, 4). A study conducted by Escriba-Folch in 2009 explains that the increase in repression is due to the constraints placed on regimes when sanctions restrict aid and trade. Dictators in his study are viewed as using repression as their primary means of retaining power (Escriba-Folch, 5). "The leaders' suspicions of US intentions make them loath to relinquish the strongest card they have for compelling Washington to the table: apparent progress in nuclear research" (Ehsani, 5). Here Ehsani suggests that the topic of nuclear proliferation is used by Iran to confront the US on an array of perceived injuries inflicted upon the Islamic Republic. This is because the conservative factions and Iranian military leaders are honest about their abilities to endure US military and economic pressures. Iran is "not willing to enter negotiations over the

nuclear program…from a position of weakness, fearing a cascade of further demands that will eventually lead to destabilization of the regime" (Ehsani, 6). Ehsani concludes his argument by educating his readers that while the US and international community are "obsessed with Iran's nuclear program," wasting away are the democratic freedoms enjoyed by the Iranian people (Ehsani, 9). Iran's attempts to squander efforts of dissidents have paid off, especially in the realm of free speech "as most opposition papers, even those adopting moderate tone, have been banned" (Ehsani, 7). In the end the author finds US threats to regime change have unquestionably enticed the regime to undertake greater abuses of its people and believes the only way to solve both this and the nuclear dilemma is to "accept the rational security concerns of Iran and open negotiations over the nuclear program…"(Ehsani, 9).

The Iranian Nuclear Threat & Israeli Options: Pedatzur, 2007.

The author argues from a perspective that after the elimination of the threat from an Eastern front against Israel, that being the present leader of Libya Muammar Al-Qaddafi's decision to stop development of WMDs and extensive weakening of Syria's military, the only legitimate threat to Israel is Iran. Given this threat Pedatzur offers two prevailing schools of thought on Israeli perceptions:

1) Israel and its Knesset (the Israeli parliament) identify Iran as a "bitter ideological enemy" that will stop at nothing to bring to fruition the destruction of the State of Israel (Pedatzur, 513). This view holds that regime change is unlikely at present and a nuclear armed Iran will eventually use such weapons against Israel (Ibid, 513).
2) Iran is a complex entity and although its policies are influenced by ideological beliefs they are more so influenced by national interests and survivability of the current regime

(Ibid, 513). This view also argues that in order for Iran to maintain its revolutionary image and to been seen as a leader in the Moslem world it must retain its highly contentious ideological preaching's (Ibid, 513). Interestingly enough, it is this second view and not the first that Israel's foreign intelligence agency, the fabled Mossad, muses. It even has considerable following in Israel's Ministry of Defense and the National Security Council (Ibid, 513).

In view of these paradigms the article's intentions are to assess the risks of a nuclear armed Iran as perceived by Israel and others e.g. the US. Additionally, it attempts to gauge the motives behind Iran actions and ponders the options Israel has at its disposal as well as the advantages and disadvantages of their utilization.

Israel's perception of danger from Iran is based on the radical rhetoric of the Iranian leadership, their support for terrorist activities aimed at Israel, the "official" policy of Iran of regarding Israel "as a mortal enemy…" and rejecting of Israel's right to exist (Pedatzur, 514). Moreover, Iran feels Israel was supplanted as a colonial tool of the West to advance their ambitions and propel their influence within the Moslem societies of the world that serves as a replacement for "old colonialism, but will carry out its tasks in a different guise" (Ibid, 514). Often Iran uses the expression "wipe Israel from the map" which Westerners take as the unembellished destruction of Israel. But this is not, supposedly, what the phrase equates to in Farsi. "In Farsi, it means not that Israel should be eliminated but that the existing political borders should literally be wiped from a literal map and replaced with those of historic Palestine" (Aslan, 2011). However, as the Pedatzur's article points out, Shahab-3 medium range ballistic missiles were on display during a 1999 military parade that carried slogans that read "Israel must be wiped off the map" in both Farsi and English (Pedatzur, 516).

The Israeli options in the face of a nuclear armed Iran as described by Pedatzur reflect what he believes Israeli decision makers are continually asked to evaluate and reevaluate as more information about Iran's capabilities are revealed. These options according to Pedatzur include (Pedatzur, 521-22):

a) A preventive military operation.
b) Retention of the existing policy (ambiguity).
c) Reliance on the protection of an American nuclear umbrella.
d) Negotiations with Iran regarding disarmament and inspection arrangements.
e) Passive defense.
f) Active defense.
g) Unconcealed Nuclear deterrence.

To which he then explores in great detail each of the above options along with their potential consequences. The first, preventive military operations, means a preemptive military strike is conducted against Iranian nuclear program before they are able to manufacture a nuclear weapon. This would not be the first instance that Israel has attacked a nation because of its nuclear development. Back in 1981 Israel attacked the Iraqi nuclear reactor of Osiraq (Pedatzur, 522). The author then traces statements by the Israeli government leading up to the attack which in hindsight could've foreboded the strike on Osiraq: "Under no circumstances would we allow the enemy to develop weapons of mass destruction against our nation; we will defend Israel's citizens, in time, with all the means at our disposal" (Pedatzur, 522). Yet, Pedatzur is quick to challenge anyone who would apply the facts of 1981 to the current predicament of Iran's nuclear program. While the destruction of Iraq's centerpiece nuclear facility set the Iraqi program back several years there is strong evidence that points to the Iranian regime having taken lessons from

this attack. "[T]he Iranians decided to diversify the channels of nuclear development" by spreading out their efforts across the country (Pedatzur, 522). In contrast, Iraq's facility was highly visible and all their efforts were conducted within the lone Osiraq facility (Ibid, 522). Because Iran has dispersed it nuclear efforts to an estimated 70 sites it would take an extended air campaign on the part of Israel to adequately affect the progress of the Iran's program but "…the IAF (Israeli Air Force) is not capable of an (air) campaign against a full array of targets" (Pedatzur, 524).

The second option, "Retention of existing policy" plays out well under current circumstances in the eyes of the author. He cites that many including Iran are fearful of an Israeli nuclear response but unfortunately as Iran draws nearer and nearer to the development of a nuclear arsenal this option quickly becomes less viable (Pedatzur, 526). The third option "Reliance on the protection of an American nuclear umbrella" is the idea to give Israel the status that would be on par with that of NATO members meaning "an attack on one of the member countries would be regarded as an attack on all member countries" (Pedatzur, 526). The author acknowledges the commitment of the United States to the survival of democratic states in Asia but wonders if the same can be applied to the Middle East and Israel's situation. He is cautious of relying on an American nuclear umbrella because it would "lack credibility…as a result of U.S. relations with its allies in the region,…Unlike in Asia, where the U.S. deterrent umbrella is more credible, in the Middle East the Iranian proliferation problem presents a different set of challenges" (Pedatzur, 527). Specifically, the moral question rises to the forefront of the deterrent umbrella position. What if the United States were asked to make good on this deterrent? Would they actually go through with the strike on Iran? More to the point, should Israel hedge their bets on American support for these strikes and disregard other alternatives i.e.

diplomacy? Essentially, the answer from the author is no, Israel can't afford to rely on America this stringently. If need be, Israel must be prepared to act on its own.

Another option is earnest negotiations with Iran regarding disarmament and inspections of its nuclear facilities. Although attractive Israel does not presently deem this a realistic alternative. Despite all of the dialogue with Iran, the plethora of sanctions, restrictions, as well as condolences, Iran simply has not slowed their ambitions or eased the international community's anxiety over their actions. One recommendation given by Pedatzur is for Israel to lead by example in these negotiations and calls for a dismantling of its nuclear facilities if Iran would do the same. Yet, the future of this option is deemed farcical given the Iran's current position. "Iran's negotiating record with the IAEA shows that the only nuclear bargain it finds of interest is one that runs out the clock, playing on the delusions of the willfully naïve and the appeasers until Iran has enriched enough uranium for a modest arsenal" (Pedatzur, 528).

So what is the most reasonable and viable option Pedatzur argues for? It would be that of unconcealed nuclear deterrence. "Deterrence is achieved not through the ability to defend but through the ability to punish" (Pedatzur, 531). If this is taken seriously, Israel can leave no room for ambiguity. It must be made clear to Iran "the insufferable price that he would have to pay for the attempt to launch a nuclear attack on Israel" (Ibid, 531). To this end, Pedatzur believes this option has been proven in the past "from the experience of the two superpowers" referring to the U.S. and former Soviet Union during the Cold War (Ibid, 531). However, he fails to discern that during the Cold War both powers already had in its possession a robust nuclear arsenal. If this option were approached under our present circumstances with vigor couldn't it conceivably give Iran all the proof it needed to develop nuclear weapons in order to counter this overt threat from Israel? Pedatzur furthers his argument for this position by insisting Israel would have to drop its

current position of nuclear ambiguity and, as a result, the newly adopted "deterrence must include clear explanations regarding the red lines that, by crossing them, the Iranians would risk an Israeli nuclear response" (Ibid, 531). But as the author has proven throughout this article, he again shows the ability to reflect on his judgments and offers counter arguments. The main issue with this "viable" option is the question of whether Iran will be truly deterred. Even if credibility is achieved by Israel with unconcealed deterrence "no state can know for sure that another state will refrain from retaliating even when retaliation would be irrational" (Predatzur, 532). This reveals to his audience a factor that is often, and with devastating consequences, overlooked or not accounted for. I am speaking to the actions taken as a matter of freewill. What one State views as irrational may be entirely rational to another State when seen through the paradigm of their own reality.

In the end, Pedatzur has presented a wide assortment of options for Israel and has along the way shown us the perceptions of all three players within our predictive issue. While it presents more questions for our study than it solves it has focused us on some of the very real considerations that each actor is musing diligently day by day. These options include earnest negotiations, increased penalties on Iran for defying the international community (nothing more than adhering to existing policy), relying heavily on America for deterrence and protection, and overt nuclear deterrence from Israel in order to dissuade Iran. We will need to conduct our studies further to see if this exhausts the list the options available to Israel and the U.S. as Iran draws nearer to its goals. Bur before we do Pedatzur leaves us with these words for our consideration: "The key strategic stability in a nuclear Middle East lies in the realization and acceptance by decision makers in Jerusalem and Tehran that there is no point to using nuclear weapons – if both sides have it…unlike the superpowers' decision makers (during the Cold

War), the ayatollahs are not rational and therefore one cannot rely on the possibility of deterring them from using the bomb" (Pedatzur, 535).

Iranian Weapons of Mass Destruction: Cordesman, 2009.

This is a comprehensive and expansive report that discerns amid the deluge of information on Iran's nuclear program essential information gaps, conflicting reports and assessments from intelligence communities, as well as the known or speculated developments of the Iranian regime's nuclear program. Anthony Cordesman begins his report by offering three factors that complicate the estimation of Iran's current nuclear capacity that I summarize below:

1) The U.S., the European Union (EU), and UN are in agreement that Iran has the right "to develop a full nuclear fuel cycle for peaceful purposes under the NPT" (Cordesman, 1).
2) Iran openly claims this as well and has pursued, with great effort, research and developments (R&D) in the field of nuclear technology that "has given it a rationale for rejecting Russia's offer to provide Iran nuclear fuel without giving Tehran the technology and expertise needed to use it for weaponization purposes" (Ibid,1).
3) A shadow of doubt is at all times in the mind of the international community regarding whether Iran possesses a military nuclear program that is detached from its civilian nuclear research. Furthermore, governments i.e. the U.S. and Israel have yet to provide sufficient evidence to contradict this (Ibid, 1).

Even so the author claims Iran has shown it has conducted "a skilled program capable of hiding many aspects of its activities" that are meant to befuddle the international community which Iran exploits with shrewdness (Ibid,1). Cordesman then moves into a study of Iran's perceived

deception and misdirection. He argues that Iran has learned from the U.S. invasion of Iraq which highlighted key intelligence shortcomings that have greatly complicated our present and future operations in the Middle East aimed at uncovering nuclear weapons programs (NWP). Cordesman takes the position that Iran is well poised, by exploiting the failure of our IC and their apparent over exaggeration of Iraq's WMD arsenal, to utilize a strategy that is an astute amalgam of ambiguity, compliance, and deception "to avoid unilateral preventative strike by the U.S. or Israel" (Cordesman, 2). Moreover, "misdirection has become a cornerstone of Iran's strategy in concealing its true intentions" (Ibid, 2).

The literature then explores the obstinate obstacles that surround the endeavor of the IC to analyze the Iran's WMD and Nuclear Weapons Program (NWP). In recognizing that much of the information on Iran is secret and compartmentalized this severely limits the flow of data to analysts seeking to make projections and judgments on Iran's intentions and abilities. As a result, estimates of Iran's centrifuge and reactor production of weapons grade material are "extremely uncertain" (Coredesman, 6). A key problem facing the analysts today in making sound judgments also stems from the "user" or recipient of finished intelligence estimates and products. Policy-makers and other senior level users often force estimates and rush the intelligence process to meet their needs or otherwise make their own calculations. "Intelligence analysts and managers are all too aware of this fact. Experience has taught them that complex intelligence analysis – filled with alternate cases, probability estimates, and qualifications about uncertainty generally go unused" (Ibid, 6).

An ample list of key milestones in the Iranian nuclear program spanning 1959-2008 is submitted by Coredesman with the information derived from IAEA, The Nuclear Threat Initiative, National Intelligence Estimate on Iran's Nuclear Program, and several other sources.

As discussed in my opening statements Iran had a history of dealing with the U.S. who began more serious talks of assisting Iran's nuclear program once they had signed the NPT on July 1, 1968 "the day it was opened for signature" (Cordesman, 9). But since the Iranian Revolution of 1979 and the subsequent eight year long Iran-Iraq War of the 1980s relations began to sour between the U.S. and Iran.

Iran by the early 1990s began to make broad agreements with Russia and China in the realm of nuclear technology and in 1994 Russian experts began work on the first unit of an Iranian 1,000 megawatt plant (Cordesman, 10). Shortly thereafter the US began to pressure countries that went into accords with Iran over plans to build or advance nuclear power plants. "The American pressure forced Turboatom, a Ukrainian manufacturer of steam turbines, to abandon its $45 million deal to supply turbines to Bushehr" a prominent Iranian Nuclear facility (Ibid,10). Still, an undeterred Iran pressed with its nuclear ambitions and in 2003 the situation had reached a boiling point when the IAEA report stated that Iran had failed to comply with the NPT and in 2004 the same agency complained of inadequate cooperation from Iran on inspections (Cordesman, 11). The time line ends in June of 2009 when the IAEA released its latest report that included several troublesome discoveries and stated "Iran is the only country with 'significant nuclear activities' not implementing safeguard provisions that provide the IAEA with access to design information prior to construction" (Cordesman, 15).

Next, and unlike any other document I've come across, Cordesman's article exposes his readers to the enormity and complexity of Iran's nuclear program. The literature explores, in detail, over 40 facilities that include laboratories, enrichment sites, nuclear technology centers, water production plants, power generations plants, research centers, uranium mines and processing plants, and universities all known or suspected to be key edifices for Iranian Nuclear

development. At a protuberant Fuel Enrichment Plant (FEP) located in Natanz, when completed, would contain 50,000 centrifuges for uranium enrichment. This is the magic number needed for a fully operational nuclear facility, and at the time this report was fashioned the FEP already stood at approximately 7,052 centrifuges which "Israeli experts believe…will come online in 2013" (Cordesman, 18). Additionally, at a Heavy-Water Reactor, called (IR-40) set to be completed this year would, if operating at top efficiency, produce over 9 kilograms of plutonium annually enough for two nuclear weapons each year "should Iran choose to separate plutonium from the reactor's irradiated fuel" (Albright and Brannan, 2008). This separation procedure requires a reprocessing facility that Iran has insisted it will not build; yet suspicion of course remains given the arguments made highlighting Iran's history deception (Ibid, 2008).

While this section of Cordesman's work offers a comprehensive review of Iranian nuclear research and production capabilities none of the information provided, as expected, gives us definitive proof that these structures are for anything other than peaceful purposes. More often than not the article must resort to ambiguous statements e.g.: "According to one report, scientists from Iran, Ukraine, Russia, and Kazakhstan were working at the Gorgan al-Kabir Center to develop nuclear weapons" but admits these reports are unsubstantiated (Cordesman, 22). Still, after reading this compilation of known and suspected facilities and developmental efforts from within Iran one begins to comprehend vastness of the Islamic Republic's nuclear ambitions. Furthermore, with the preemptive option still on the table for the U.S. and Israel these buildings would likely entail many of their proposed targets for sabotage or conventional military strikes in the more extreme scenarios to stave off Iran's progress.

Building off of the previous sections of his work Cordesman then focuses on Iran's current nuclear developments and several obstacles that the Islamic Republic needs to overcome.

He begins by reminding us that "no consensus exists regarding the degree to which Iran's current nuclear activities are or are not designed to help give it nuclear weapons..." (Cordesman, 25). He then points to contradictory statements made by IAEA Director General, Mohamed El Baradei, who at times seems confident in Iran's inability to produce nuclear weapons yet remains a skeptic of their true intentions. On October 20, 2008 he stated, "Even if they (Iran) walk out tomorrow from the NPT…we're still not going to see Iran tomorrow having nuclear weapons" (Cordesman, 27). But only a week later El Baradei seemed at least in part to retract that statement by conceding "I regret we are still not in a position to achieve full clarity regarding the absence of undeclared nuclear material and activities in Iran" and pleaded with Iran to be more cooperative (Ibid, 27). Moreover, Iran's current capacity to produce plutonium is a hurdle they have been actively seeking to overcome. Cordesman describes for us two paths toward plutonium production that Iran has as of late 2009 undertaken:

1) Iran is building heavy-water power reactors which the U.S. contends the only purpose for doing so is to produce heavy-water that is "optimal for producing weapons-grade plutonium (Ibid, 30).
2) Iran is building light-water power reactors; a main one in Bushehr that "Russia agreed to provide low-enriched uranium for…regardless of U.N. sanctions" and upon its completion could produce enough plutonium per year for up to 30 nuclear weapons according to former Secretary for Arms Control and International Security John Bolton. (Ibid, 30).

Also, Iran has experimented "extensively" with plutonium separation which will prove to be a key focal issue should Iran complete facilities used to extract plutonium that can be used for weapons from irradiated nuclear reactor fuels. In June 2005 Iran admitted that it had conducted

"small-scale experiments" for the production of plutonium which it had previously proclaimed to the IAEA it had ended it 1993 (Ibid, 32). Another important development the international community must be vigilant of is the development of fissile material that the U.S. National Intelligence Estimate (NIE) on Iran's nuclear programs released in 2007 highlighted the importance of: "We continue to asses with low confidence that Iran probably has imported at least some weapons-usable fissile material…we cannot rule out that Iran has acquired from abroad – or will acquire in the future – a nuclear weapon or enough fissile material for a weapon" (Cordesman, 29).

The study furthermore makes apparent that Iran is no longer dependent on imports to proceed with its nuclear ambitions. Iran, alarmingly and despite heavy oversight from the international community has the capacity to move forward toward wherever those ambitions lead. "In early February 2008, reports by European and American diplomats began to surface that Iran has tested a new domestically engineered centrifuge design to enrich uranium" (Cordesman, 37).

Cordesman also dedicates a considerable amount of its study toward analyzing the NIE Report on Iran's nuclear program which begins by arguing in opposition to any premature military action against Iran. "In broad terms, it reinforced the moderate, pre-negotiation positions of key officials and officers…" (Cordesman, 49). The NIE recognized Iran's suspension in 2003 of a nuclear weapons effort which may be taken as proof that Iran is "susceptible to international pressure and negotiation" (Ibid, 49). Because of the apparent ambiguity in the document Cordesman offers a strongly worded assessment of the NIE on Iran:

"The document (released to the public) is the summary of a 150 page NIE that the Washington Post reports was based on some 1,500 intelligence indications, including reports of

communications from Iranian military officers. It is not an intelligence report. It does not portray the range of opinion or most dissenting views. It does not describe the nature of indicators and analytical methods used. This is a critical point because past outside commentary on NIEs, and attempts to parse out the words in summary judgments, have proven to be highly unreliable…The NIE on indirectly addresses that limits in U.S. ability to detect and track Iranian covert programs…No hint is made of Iranian progress in completing fission, boosted, or thermonuclear weapons designs" (Cordesman, 50).

What followed in Cordesman's criticism of the unclassified report was an examination of some the NIE's key judgments. The report judged "with high confidence" that if Iran wants to have a nuclear weapon they would need to produce an abundance of fissile material indigenously but feels they have not yet done so (Ibid, 52). It also assessed that centrifuge enrichment would be the primary engine behind the production of fissile material for a weapon noting that Iran had made substantial gains in this area at its Natanz facility in 2007. To that end, it is judged "with moderate confidence" Iran faces substantial technical issues operating them efficiently (Ibid, 53). Furthermore, if Iran's current trends are not further impeded the report judged "with high confidence" that Iran will be capable of producing and reprocessing enough plutonium for a weapon before 2015; a date that is fast approaching (Ibid, 54). Some key issues that the report failed to address were the specific nuclear programs that were previously halted, uncertainties still being examined by the IAEA, or Iran's long range missile programs. The NIED also failed to mention the two new missile programs Iran announced a couple of months prior to the NIE that may be proof of the Islamic Republic's intention "to improve its ability to develop advanced nuclear delivery systems" (Cordesman, 55).

This critical assessment of the NIE on Iran's nuclear program prompts an important question: Was the apparent tepidness of the Iran NIE a result from the hangover and increased skepticism of the controversial Iraq WMD NIE? "Changes in the NIE process were most evident

in the community's estimate on Iranian nuclear capabilities…said to be the most rigorous ever produced" (Bruno & Otterman, 2008). A group-think dynamic that was apparent in the Iraq WMD study persuaded analysts, intelligence collectors, and managers to "interpret ambiguous evidence as conclusively indicative of a WMD program" which blinded them from information that would have refuted such a claim (Ibid, 2008). As we have examined there is clearly ambiguous information and circumstantial evidence amid the claims of Iran's desires to obtain a nuclear arsenal. The NIE report in 2007 does make clear that past efforts to pressure Iran have paid off and may have opened doors for negotiations with Iran but is careful not to makes any promises for the future or resolve the major credibility problems the United States incurred in providing incorrect intelligence on Iraq (Coredesman, 55).

The Virus: Bergman, 2010

This article invites us into the reality of covert operations are being prosecuted against Iran's nuclear programme. Bergman informs us of the worm attack, or STUNEX as it is called, of late 2010 that may have delayed Iran's progress by several months. Bergman cautions us that few leads pointing to a culprit have manifested. The main suspicions are directed at Russia, the United States, Britain, and especially Israel. The author describes the sheer complexity of this worm which was covertly planted in Iranian defense establishment computers. "Whichever organization tried to activate it, that organization invested a great deal of money and effort in the operation to insert this worm" (Berman, 2010). Stuxnet is effectively malware and it is explained that some of the most capable computer security companies around the world tried to defeat Stuxnet and succeeded on partially. "Stuxnet's real effect is above and beyond any threat we've seen before" (Ibid, 2010). It was assessed that in order to create such a formidable virus it would take 5-10 programmers from various fields to write the code inherent in the worm, build a

quality-control system, test it with a series or trials which all told would require hundreds of hours of work to complete (Ibid, 2010). Bergman then cites the magazine *Wired*, a leading source in the field of technology developments, which concluded that the worm was created with the intent of attacking computers controlling the activity of centrifuges during their production of uranium; in other words it was written to "create chaos" in Iran's nuclear program (Ibid, 2010).

> "…without going into the technical details in depth: 'Heavy' industrial computers contain software that is responsible for determining the tempo and order of production or, in other words, what is activated, when, and how much. If this software changes suddenly (for example the tempo is too slow or too fast), all the production goes haywire" (Bergman, 2010).

This is what the Stuxnet worm was equipped to do; it changed Iran's centrifuge operations suddenly and without warning. This unique method of covertly disrupting Iran's nuclear progress requires a great deal of knowledge into the inner working of their centrifuge mode of operation. Apparently, the creators of this worm were privy to this highly coveted information. Even more astonishingly, Iran's secret uranium computers at its facilities are not connected to the World Wide Web. So in order to have the worm affect the centrifuges the creators first had to overcome the obstacle of being able to "skip" from standalone computer to standalone computer until it finally reached its intended destination. To amazement of those closely following the event of the Stuxnet worm this obstacle was apparently overcome in spite of the "physical separation" between the computers (Ibid, 2010). It's no wonder this worm has been referred to the most sophisticated virus to date.

So how much damage did the world's most sophisticated virus create? In a report by Symantec security experts, it was estimated that 100,000 computers around the globe were infected the majority of them being in Iran; approximately 60,000 Iranian computer. This

included 155 countries to include the U.S. and Britain. Bergman notices a serious consequence of the worm being introduced to that many computers by acknowledging the widespread exposure of the virus's "unique capabilities" and "exposure of operating methods" that would make any similar attack in the future even more difficult to pull off. In his closing statements Bergman sums up the words from Iran's President Mahmoud Ahmadinejad that make apparent the affects it had Iran's and the mental toll it took on the nation's sense of security: "…[T]he worm caused them damage that was by no means simple, the one who achieved this should hold his head high" (Ibid, 2010). Overall, this article illustrates profoundly the extent to which states are willing to go who are concerned with Iran acquiring the bomb.

The US Must Empower the Green Movement: Takeyh, 2011.

The news article from Ray Takeyh of the Washington Post argues that as the street's explode with pro-democracy demonstration in Iran, it's is apparent the only viable option for the US has to alter regime's behavior is to back the Green Movement. The author argues that the religious leaders of Iran over the years have lost the backing of the people and have failed in their attempts to regain their composure. Furthermore, it is suggested that this "democratic upheaval" is likely to limit the US's conventional options for dealing with Iran's nuclear program. "…[T]he military options…has become implausible; it would be rash to employ force against Iran's suspected nuclear installations and radicalize the Arab populace just as forces of modernization and democracy seem ascendant" (Takeyh, 2011). The author recognizes the difficulty the U.S. faces with finding ways to interact and propel the Green Movement. He recommends we look to the diversity in the Iran's civil society by fostering a rapport with "labor syndicates, savvy youth, clerical dissidents, liberal protestors and universities – (which) exist in a state of perpetual rebellion…" (Ibid, 2011). Whether through overt means i.e. U.S. political

leaders coming out in support of protestors or searching for more clandestine ways to build the viability of dissidents Takeyh makes his argument clear; "the west must recognize that the only thing standing between the mullahs and the bomb is the Green Movement" (Ibid, 2011).

Who is Killing Iran's Scientists? : Aslan, 2010.

Reza Aslan, weaves two separate but synchronized accounts of assassination attempts on Iranian nuclear scientists Dr. Majid Shahriari, one of Iran's top nuclear scientists, and his colleague at Shahid Beheshti University in Tehran, Dr. Fereydoun Abbasi-Davani. The would-be assassins approached both of these men as they were on their way to their respective jobs. Weaving through congested roads on motorcycles toward their targets; they struck their victims by attaching bombs to the doors of the cars stuck in traffic that carried the nuclear experts. Dr. Shahriari was killed instantly. Dr. Abbasi-Dayani and his wife just barely escaped with their lives after Dr. Abbasi-Dayani's keen awareness of his surroundings allowed him to recognize what was unfolding and escaped the car just before detonation. The killers sped off never to seen again. Aslan explains that these targeted men were no one unimportant to Iran's nuclear development. "Shahriari was a member of Iran's Atomic Energy Agency and by all accounts an integral part of the country's nuclear program. Dr. Abbasi-Davani, an expert in lasers and reportedly a high ranking official in the Ministry of Defense, is also deeply involved in Iran's nuclear and ballistic missile activities" (Aslan, 2010).

Aslan believes this was a combined covert operation between the U.S. and Israel that was an effort of a much larger covert program to sabotage the Iranian nuclear program. This covert program has included the CIA attempts to attract would-be defectors of Iran's nuclear program and covertly giving Iran false components that break down and damage nuclear machinery when

implemented. “With cooperation from the United States, Israeli covert operations have focused both on eliminating key human assets involved in the nuclear program and in sabotaging the Iranian nuclear supply chain.” In sum, Aslan can’t say for sure who planned the attacks described in his article but does shed light on a growing trend toward more personal preventative measures to thwart Iran’s nuclear progression.

III. ACTORS AND THEIR PERCEPTIONS

Israel:

“As in all complex strategic affairs, the urgent matter of Iranian nuclearization is now closely interwoven with multilayered issues of intelligence and counterintelligence. This is especially the case for Israel, a microstate that remains fixedly in the annihilatory crosshairs of the Islamic Republic in Tehran” (Beres, 491). This basically assumes that Israel will continue to actively seek strategies for planning offensives against would-be attackers i.e. Iran. Israel is aware that it needs a comprehensive and coherent contingency plan for dealing with the Iranian Nuclear threat. Their overriding consideration is an “irrational adversary acquiring or developing a WMD” (Beres, 493). As a result, Israel’s deterrence posture will stay closely aligned with their perception of Iran’s intentions and capacity to produce nuclear weapons. They along with the rest of International community realize Iran is not yet nuclear. But for Israel this is a matter of survival which goes far beyond concerns for regional stability and decline in hegemony. Israel bases much of their perception on Iran from the extreme rhetoric that comes from Islamic Republic’s religious, military, and political leaders. “For the current Iranian

regime, based on the concepts formulated by the Ayatollah Ruhollah Khomeini, Israel's existence causes injustice in three ways" (Pedatzur, 515):

a) Harm to the legitimate rights of the Palestinians
b) Oppression of Moslems under Israeli rule
c) Control by Israeli infidels over land sacred to Islam

Iran has not been shy about denying Israel's right to exist as a state which for many in Israel's defense establishment has provided adequate substantiation of the dangers inherent in a nuclear armed Iran. Currently, Israel does not feel threatened by Iran's conventional forces and their ability to defeat their own superior military force. But the moment Iran acquires a nuclear arsenal this assessment will cease to be a measure of self-assurance for Israel's security as a nation. Israel is also not encouraged by the efforts of the international community to thwart Iran's nuclear ambitions or efforts to renew negotiations. Despite the Islamic Republics tumultuous beginning that witnessed the ouster of the Shah and the ushering in of the current regime, an eight year war with Iraq, and countless sanctions and restrictions imposed by the international community over the past few decades, Iran inches closer everyday to obtaining the nuclear know-how that Israel fears will one day soon lead to a nuclear arsenal. "[T]o date, 'sanctions' have been a mere parody of corrective action" (Beres, 495). Consequently, Israel's anxiety is heightened by the perceived failure on the part of Western intelligence organizations to garner information on Iran's nuclear program that would enable them to accurately gauge the status and intentions of Iran's progress. In light of this fact, "a dispute exists between the policy makers in Israel and the US regarding the urgency of the steps to be taken against Iran" (Pedatzur, 519). Israel tends to view the time available to those who have a marked interest in the prevention of a nuclear armed Iran as precious and ever fleeting. By contrast, the US is

inclined to a more optimistic view showing it believes considerable time remains to consider opportunities for an array of alternatives including diplomatic ones (Ibid, 519). Recognizing the dangers as more urgent, Israel is more willing to conduct military operations for removing the Iranian nuclear threat prior to its acquisition of nuclear arms "a recommendation fully consistent with longstanding international law regarding anticipatory self-defense" that would include preemptive strikes (Beres, 495). Overall, there are two prevailing views in Israel concerned with Iranian nuclear proliferation:

1) Israel and its Knesset (the Israeli parliament) identify Iran as a "bitter ideological enemy" that will stop at nothing to bring to fruition the destruction of the State of Israel (Pedatzur, 513). This view holds that regime change is unlikely at present and a nuclear armed Iran will eventually use such weapons against Israel (Ibid, 513).

This perception is more apt to believe that the Iranian leadership is irrational and at times "portrayed as an 'undeterable' state driven by the absolute imperatives of religion, rather than by the pragmatic concerns of statecraft" (Pedatzur, 534).

2) Iran is a complex entity and although its policies are influenced by ideological beliefs they are more so influenced by national interests and survivability of the current regime (Ibid, 513). This view also argues that in order for Iran to maintain its revolutionary image and to been seen as a leader in the Moslem world it must retain its highly contentious ideological preaching's (Ibid, 513). Interestingly enough, it is this second view and not the first that Israel's foreign intelligence agency, the fabled Mossad, muses; and it even has considerable following in Israel's Ministry of Defense and the National Security Council (Ibid, 513).

The second prevailing perception, by contrast, assumes with almost complete certainty that no leader of a country in control of nuclear weapons will act irrationally because "no aim…can be achieved by means of nuclear attack on Israel that would justify the payment of such a heavy price" (Pedatzur, 535).

United States:

"I want to be very clear in addressing the Iranian nuclear capability. First there are three parts to an effective nuclear weapons capability:

1. Production of fissile material
2. Effective means for weapons delivery
3. Design and weaponization of the warhead itself

We assess…that warhead design and weaponization was halted (back in 2003), along with covert military uranium conversion and enrichment related activities which will enable the production of fissile material" (Cordesman, 55). These words from then Director of National intelligence (DNI) John Michael McConnell on February 27, 2008 sum up the perception of the United States that time remains for diplomatic options and that Iran, at times, has shown they are susceptible to international pressure. The US judges that a strong impediment of Iranian nuclear weapons development came as the result of intense international scrutiny and the resulting exposure of Iran's previously undisclosed nuclear work. The U.S. remains concerned about Iran's intensions and believe they are at least keeping open the option to develop nuclear weapons. "We have high confidence that Iranian military entities were working under government direction to develop nuclear weapons until Fall 2003" (Cordesman, 56).

Should diplomacy and sanctions fail, military alternatives will be considered to force the Iranian regime to alter its current path. The U.S. sees a need for a comprehensive contingency

plan and has insisted in the past for pursuing plans that address many possible outcomes regarding Iran's nuclear program. The fear of many in Washington is that Iran will construct or obtain all the necessary parts it would need to develop a nuclear weapon but stop just shy of amassing those components for a fully operational weapon until Iran deems it advantageous to do so. This would allow for Iran to remain a "signatory" member of the NPT while also converting into "what strategists call a 'virtual' nuclear weapons state" (Sanger & Shanker, 2010). The United States aims to keep Iran from reaching the point to where they would have a 'nuclear breakout' a term that nuclear experts relate to a country that suddenly forsakes their obligations to the NPT and uses the technology it has accumulated over the years to build a respectable nuclear arsenal (Ibid, 2010).

Preparing for every contingency would also include the U.S. successfully galvanizing a coalition of nations to cut off Iran's attempts to develop nuclear weapons and pressure it to remain true to the obligations the international community has laid out. The U.S. perception that Iran will look to modernize their ballistic missile fleet has it considering construction on a regional missile defense with the capability to intercept and eliminate the threat from an incoming missile being hurled at an ally i.e. Israel. "The (Obama) administration has been stepping up efforts to contain the influence of Iran and counter its missiles, including placing Patriot anti-missile batteries…in several key states around the Persian Gulf" (Ibid, 2010).

IV. RESEARCH DESIGN

Lockwood Analytical Method for Prediction (LAMP):

The subject of Iranian nuclearization is continually evolving. There is need for a methodology that can keep pace with the chaotic nature of this study. The analytical

methodology best suited to deal with the chaos is Dr. Lockwood's Analytical Method for Predicition (LAMP). It recognizes there could be a significantly greater number of "alternate futures" depending on how a regime like Iran may approach the issue of nuclear proliferation. The strength of this method lies in its ability to take into consideration the varied perspectives and political ideologies that are at the heart of our international dealings. We have thus far studied the issue of Iran's nuclear program from the viewpoint of our national actors, the United States and Israel, "since it is that national actor's free will" that will transform our future (Lockwood & Lockwood, 27).

Included in the method are 12 comprehensive steps listed below (Lockwood and Lockwood 1993, p. 27-28):

1) Determine the issue for which you are trying to predict the most likely future

2) Specify the national actors involved

3) Perform a in-depth study of how each national actor perceives the issue in question

4) Specify all possible courses of action for each actor."

5) Determine the major scenarios within which you will compare the alternative futures.

6) Calculate the total number of permutations of possible alternative futures for each scenario

7) Perform a 'pairwise comparison' of all the alternative futures to determine their relative probability

8) Rank the alternative futures for each scenario from the highest relative probability to the lowest based on the number of votes received

9) Assuming that each future occurs, analyze each alternative future in terms of its consequences for the issue in question

10) State the potential of a given alternative future to transpose into another alternative future

11) Determine the focal events that must occur in our present in order to bring about a given alternative future

12) Develop indicators for the focal events

The LAMP method's formula to calculate the possible alternative futures for each scenario is "$\boldsymbol{X^y = Z}$." The letter "X" signifies the possible courses of action you developed for each national actor and the letter "y" equals the number of national actors. The letter "Z" represents the total number of alternative futures the study will analyze and compare. To evaluate the alternative futures the LAMP method requires the analyst to conduct a *"pairwise comparison"* of each alternative future to determine which future is more probable using the following formula: *"**X=(n-1)+(n-2)+(n-3)+…..+(n-n)**."* The letter "X" equals the number of *"pairwise comparisons."* The letter "n" equals to the number of alternative futures analyzed. Each alternative future is voted on during the *"pairwise comparison"* which reveals to us the most viable alternate futures to then be analyzed.

After completing our "either-or" decisions based on our formulated range of possibilities for each scenario we then rank the alternate futures from highest to lowest. For the purposes of this study, after we obtain our alternative futures for a given scenario we will look to examine the five most likely to occur and the consequences they have for our issue of Iranian nuclear proliferation. Our next step will be to explore any possibility for our alternate future to "tanspose" into another alternate future. As we've noted, there remains the element of freewill that has the potential to change the course of history as we know it. Once we derive our most likely scenarios it won't serve well the aspirations of this study to stop there. We will need to envision, based off the in-depth study we've conducted, how one of our alternate futures could

"transpose" into another. Lastly, after the above procedures are accomplished we will determine "focal events" or momentous occurrences in the Iranian nuclear program that could alter the actions of the United States and Israel. This will allow the study to determine if a possible future has occurred or will likely come about as a result of indicators met. Developing indications is a cardinal procedure for our study. We know more insight into Iran's nuclear program and intentions will become available with the passage of time. The development of focal events and indicators will allow us to revisit this study and ascertain which alternate future is more likely given that a focal event has occurred and an indicator met.

V. CASE FINDINGS

Courses of Action for the United States and Israel:

The national actors for this study are of course the United States and Israel. They are arguably the biggest proponents of the following courses of action which are driven by an Iranian nuclear program whose true intentions are veiled by a message of ambiguity, secretive developments and dealings, an amalgam of defiance and cooperation with international law, and bombastic statements made by its most influential leaders. Given the detailed study and current information available to us the following are definitions for the options available to the United States and Israel:

1) Retention of Existing Policy (REP). This involves a continuation of the effort to convince the Islamic Republic that a nuclear weapons program is not in their best interest. As with all nations the Iranian Government is seeking to expand its influence and regional hegemony in an ever increasingly connected world. The United States and Israel look use Iran's aspirations to influence the regime's potentially volatile actions. It

involves the United States and Israel continuing to seek sanctions that constrain the Iranian economy. Furthermore, it involves leaving open the channels for a constructive dialogue process with Iran in order to ease the anxiety of United States and Israel about Iran's nuclear advancements. Moreover, REP would hold the IAEA and members of the UN Security Council accountable for the international laws that were passed. It would look to arm these agencies with additional information on Iranian facilities and developments obtained by ongoing collection efforts of U.S. and Israel intelligence entities. Overall, REP recognizes that while the U.S. and Israel remain suspicious of Iran's true intentions there is still too little tangible evidence that would give the U.S. and Israel the equivalent of "a smoking gun" serving as adequate provocation for more extreme measures in dealing with Iran's progressing nuclear capabilities.

2) Earnest Diplomacy and Compromise (EDC). This option entails the lifting or lightening of sanctions on Iran. Moreover, certain concessions would be made for Iran's nuclear development. This would include accepting Iran's dealings with other nations i.e. Russia and China assured with the fact that neither of those countries wish to have a nuclear armed Iranian government. It is a well recognized right that Iran be allowed to develop nuclear energy for the benefit of its people. Talks between Iran and our actors would take place and topics would include economic cooperation for strengthening Iran's economy, development of trade as well as infrastructure for its nuclear energy program. Provided Iran has made significant strides to remove the shroud of secrecy behind its nuclear program so too would Israel in good faith.
3) Preventative Action-Overt (PAO). The United States, Israel or both feel as though they have come to" a point of no return" in regard to Iran's nuclear development. They're

convinced Iran has made unacceptable strides in overcoming many of the technological obstacles that keep it from obtaining a nuclear arsenal. The U.S. and Israel lose faith in the international law that has attempted to contain the threat of a nuclear armed Iran and the time has come to act overtly to convince the Islamic Republic to abandon its ambitions. This would involve military strikes to include an extended air campaign aimed at destroying critical nodes of infrastructure both military and commercial, research and development (R&D) facilities, uranium enrichment factories, etc. Some of the Iranian key facilities are capable of surviving bombardment from above because of their deeply buried or hardened infrastructure. The approach to these edifices requires a more face to face approach. Congruently, the actor would express their support for possible Iranian dissidents looking to take advantage of the ensuing power vacuum that engulfs the current regime. Finally, our actors would make it clear to the Iranian regime that not only do they possess a nuclear arsenal but are also willing to use it to ensure their survival or Iran's mutual destruction.

4) Preventative Action-Covert (PAC). Not satisfied with the current situation and speed with which Iran approaches full independent nuclear operations, to include the prospect an autonomous nuclear weapons program, the United States, Israel, or both engage in covert operations with the goal of stalling, halting, or destabilizing Iran's nuclear program or regime. United States and Israeli fears of Iranian nuclear intentions reaches a boiling point and they can no longer remain idle amid the failures and futile nature of other options available to them. Furthermore, the prospect of passive deterrence has lost its luster. It is not enough to rely on the military might of the other actor or international

community and ballistic missile defenses offer little in hopes of shielding an actor or its allies from nuclear annihilation.

Actions to be considered under this option are assassinations of Iranian leadership or nuclear scientists and experts. Also, cyber warfare in the form of "worms" or viruses is undertaken to inhibit Iran's progress. Moreover, there is an option of infusing faulty equipment into the nuclear black market that when introduced to Iranian facilities easily break down, further stalling any progress. Also to be considered is clandestine support for anti-regime movements that look to topple or destabilize the current government from within. Our actors would also look to entice scientists, developers, or any other personnel with an understanding of Iran's nuclear intentions and capabilities to defect or serve as moles. All of these efforts that fall under the PAC option entails an additional benefit for the actor's consideration; that of "plausible deniability." It is very difficult to pin any of the above efforts on an actor short of that actor being caught red-handed. Iran may claim an assassination or virus was an attack orchestrated by one our actors but they can never be entirely sure. To this end, it creates an atmosphere of paranoia within the regime about whether specific episodes causing setbacks were due to covert efforts from without or incompetence from within.

Major Scenarios:

The course or courses of action the United States and Israel are willing to commit to is contingent on two major scenarios that could or are currently unfolding. The Iranian regimes decision to advance its nuclear program fall along two paths it could conceivably choose in light

of the information available to us. These two paths are our major scenarios that serve as the crux for US and Israeli responses toward the Islamic Republic of Iran.

1) Iran falls into line with international law, obligations to the NPT Safeguards Agreement, UN Security Council Resolutions, and IAEA requests. Iran opens up the channels of communication to the international community which could include the United States and Israel. They come to the table willing to consider the positions held by international community, US, and Israel on its nuclear future. They consider proposals which allow for IAEA inspector's unfettered access to documents, R&D programs associated with a nuclear program, and facilities. Iran makes a concerted effort to addresses any "outstanding issues, particularly those which give rise to concerns about the possible military dimensions of the Iranian nuclear programme" (Security Council Department of Public Information, 2010). Iran denounces the acquisition of a nuclear arsenal but maintains its right to develop peaceful production of nuclear energy to advance its prosperity.
2) Iran continues down a path of ambiguous nuclear proliferation. In effect, Iran continues to resist the international community's call for more transparency. The regime faced with ongoing sanctions and the threat of new ones demonstrates it will remain undeterred in their efforts. Moreover, Iran is unwilling to enter negotiations on its nuclear program regarding its dismantling or increased scrutiny. The protagonist regime maintains its right to the development of nuclear energy but to the main point of contention, the restarting of its nuclear weapons program, Iran is remains reticent.

Possible Alternate Futures:

The LAMP method's formula for determining the number of alternate futures is $\boldsymbol{X^Y = Z.}$ The letter "X" will be the number of courses of action open to Israel and the United States e.g. REP. The letter "Y" equals the number of national actors; in our case the United States and Israel. When the equation is formulated "Z" will equal the total number of all alternate futures. This study has the equation of $4^2 = 16$; where 16 represents the total number of alternate futures for each scenario given.

Pairwise Comparison:

Once the total number of possible futures was derived a 'pairwise' comparison for each of the 16 alternate futures. Every alternate future must be compared to all other alternate futures. By comparing one alternate future to another strictly on the merits of those two alternate futures alone we have a total of 120 votes to be conducted for each scenario. The equation provided to us by the LAMP method to obtain the correct number of votes is "$\boldsymbol{X = (n-1) + (n-2) + (n-3) + \ldots + (n-n)}$." The more votes an alternate future receives the more likely that future will come to pass. The equation for this study is $120 = (16-1) + (15-1) + (14-1) + (13-1) \ldots + (2-1)$. Tables were then constructed for each scenario and its possible futures.

Scenario 1: Iran falls into line with international law, obligations to the NPT Safeguards Agreement, and IAEA requests:

Alternate Future #	United States	Israel	Votes
1	REP	REP	14
2	REP	EDC	12
3	REP	PAO	6
4	REP	PAC	12
5	EDC	REP	15
6	EDC	EDC	12
7	EDC	PAO	5
8	EDC	PAC	10
9	PAO	REP	1
10	PAO	EDC	0
11	PAO	PAO	2
12	PAO	PAC	3
13	PAC	REP	9
14	PAC	EDC	8
15	PAC	PAO	4
16	PAC	PAC	7
		Total	**120 votes**

Scenario 2: Iran continues down a path of ambiguous nuclear proliferation:

Alternate Future #	United States	Israel	Votes
1	REP	REP	14
2	REP	EDC	6
3	REP	PAO	13
4	REP	PAC	15
5	EDC	REP	4
6	EDC	EDC	0
7	EDC	PAO	6
8	EDC	PAC	8
9	PAO	REP	4
10	PAO	EDC	1
11	PAO	PAO	6
12	PAO	PAC	9
13	PAC	REP	9
14	PAC	EDC	2
15	PAC	PAO	11
16	PAC	PAC	12
		Total	**120 votes**

We then rank order beginning with the alternate future that received the most votes on down to the alternate future that received the fewest votes for each of our scenarios. This depicts the relative probability of each alternate future to occur in an easy to discern descending arrangement. Once we have our calculations organized and easily identifiable we will then begin the process of examining each of our alternate futures and the likelihood that one day our policy makers will need to address this "alternate universe."

Probability Ranking of Alternate Futures in Descending Order:

Scenario 1: Iran falls into line with international law, obligations to the NPT Safeguards Agreement, and IAEA requests:

Alternate Future #	United States	Israel	Votes
5	EDC	REP	15
1	REP	REP	14
2	REP	EDC	12
4	REP	PAC	12
6	EDC	EDC	12
8	EDC	PAC	10
13	PAC	REP	9
14	PAC	EDC	8
16	PAC	PAC	7
3	REP	PAO	6
7	EDC	PAO	5
15	PAC	PAO	4
12	PAO	PAC	3
11	PAO	PAO	2
9	PAO	REP	1
10	PAO	EDC	0

Scenario 2: Iran continues down a path of ambiguous nuclear proliferation:

Alternate Future #	United States	Israel	Votes
4	REP	PAC	15
1	REP	REP	14
3	REP	PAO	13
16	PAC	PAC	12
15	PAC	PAO	11
12	PAO	PAC	9
13	PAC	REP	9
8	EDC	PAC	8
2	REP	EDC	6
7	EDC	PAO	6
11	PAO	PAO	6
5	EDC	REP	4
15	PAC	PAO	4
14	PAC	EDC	2
10	PAO	EDC	1
6	EDC	EDC	0

Examining Three of the Most Likely Alternate Futures:

What follows is an analysis of what this study has concluded are the most probable futures that will come to bare. Keeping in mind our major scenarios we will discuss three of these most likely alternate futures as they pertain to their given scenario. For scenario one, in which Iran's actions becomes more agreeable to our actors, the most probable alternate futures are Future number 5, 1, and 2. For scenario number two, which entails Iran continuing down its current path of nuclear ambiguity, our most probable alternate futures are Future number 4, 1, and 3 respectively.

Scenario 1 — Most likely future Alternate Future (#5): The United States feeling confident their efforts to dissuade the Iranian regime have paid off take steps toward earnest diplomacy and compromise(EDC) while Israel remains skeptical and assents to a retention of existing policy(REP).

If Iran should fall into line with international law, obligations to the NPT Safeguards Agreement, and IAEA requests the U.S. will look to open up the channels of communication between the international community and Iran. The U.S. will come to the table willing to consider the positions held by Iran on its nuclear future. Iran's attempts to remove the shroud of secrecy surrounding their nuclear program will be reflected in future IAEA reports. Sites that were once restricted are now opened to the investigative process of the IAEA. Soil samples are taken and sites that Iran claims will no longer be used for its nuclear program are inspected by the international community before being razed in order to determine what possible nuclear testing had taken place there. The U.S. would be hard-pressed to continue its current position on the Government of Iran. Steps would be initiated by the U.S. that would begin the work of assisting Iran in achieving its goals aimed at increasing prosperity and position in the region.

For example, the US would join other nations in putting forward a series of commercial incentives to include support for Iranian membership in the World Trade Organization, something Iran has longed to be a part of (Bali, 17). The proposal would arguably bolster Iran's economy and instill some confidence in other nations that would lead to future technology needed to advance peaceful purposes for energy production for Iran. The U.S. understanding that the region grows increasingly more unstable and acknowledging their role and alliances remain feeble look to the new posture emanating from the Islamic Republic as a chance to bolster their own reeling economy and standing in the world. By the same token, the U.S. would fear a diplomatic backlash from the international community and Iran for continuing their oppressive stance on the regime despite Iran's earnest effort to negotiate. U.S. fears would be further compelled by the unwillingness to give the Government of Iran all the incentive it needed to break away from the NPT. With increased sympathy from the international community for

Iran's plight the U.S. having stonewalled Iran's earnest effort would hardly be in the position to ask for more sanctions much less gain support for military strikes. If the U.S. is not in part open to Iran's intentions for compromise then all of Iran's proclamations regarding the U.S. position of regime change will be given all the credibility it needs.

Israel on the other hand, is not as convinced. They would use their standing with the U.S. to persuade the policy makers in Washington remain scrupulous as well. Given Iran's advancements till this point and their refusal to recognize Israel as a State they would opt to keep the pressure on Iran. Reason being, Israel is well aware that at any moment Iran could restart their NWP. The view within Israel's Defense Ministry that the Iranian leadership is irrational and undeterable; driven by religious ideology rather than reasonable concerns for the prosperity of their state has prevailed. Israel is only accepting of U.S. negotiations with Iran as long as the U.S. remains unflappable on Iran's halt of a NWP and condemnation of extreme anti-Israeli rhetoric.

The roadblocks that persist between Israel and Iran go much farther than nuclear proliferation. For Israel to consider a lightening of their policy toward Iran other contentious subjects must be addressed beforehand. These issues include Iran's supposed funding to entities such as Hezbollah and Hamas which threaten and carry out attacks on Israeli citizens. Furthermore, in light of the softening of the U.S. position on Iran, Israel would reserve the option for preventative strikes and military action even if the U.S. abandons their own preemptive options. Israel would view this as yet another ruse by the Islamic Republic to by it more time. Given the fact that Iran has been weakened by the efforts from the U.S. and international community Israel would likely see this as a desperate tactic from the Iranian regime in an attempt to relieve the mounting pressure on its nuclear program. Should Iran prove persuasive Israel will

push for a REP lest the eyes of the international community be averted allowing Iran a window of opportunity to reestablish a covert NWP and moving nearer to their goal of full independent nuclear production capabilities.

Scenario 1 — Most likely future Alternate Future (#1): The United States and Israel remain skeptical and opt for a retention of existing policy (REP).

This situation is similar to the one above but differs in regards to the view of the U.S. Not only does Israel remain skeptical but so does the U.S. Support for the only fully functional democracy and ally in the region has the United States take a cautious route that is reluctant to react excessively to Iran's sudden change of heart. The fundamental mistrust between Iran and our actors remain. Given Iran's advancements till this point and their refusal to recognize Israel as a State the U.S. and Israel would opt to keep the pressure on Iran. Israel and the U.S. are well aware that at any moment Iran could restart their NWP. The U.S. would feel the need not to further isolate Israel and damage the relationship they share. The U.S. may decide to show the strong support they have for their ally by addressing Iran's perceived support to Hezbollah and Hamas in concert with negotiations on nuclear proliferation that would follow Iran's change in policy.

In so doing, negotiations between the U.S., Iran, and Israel are unlikely but the door may be open for renewed talks between Iran and the European Union, Russia, and China. Also, the U.S. and Israel are under the perception this as a desperate tactic from the Iranian regime in an attempt to relieve the mounting pressure suffocating its nuclear program. Given Iran's negotiating record with the IAEA and EU this new nuclear bargain would be viewed as a ploy with the aim of gaining the trust of appeasers within the international community who are eager to see an end to this ongoing debate. To this end, the U.S. and Israel will not accept a lifting or

softening of policy towards Iran but would also not find itself in a position to advance their arguments for any increase in sanctions or restrictions on the Islamic Republic.

Moreover, the actors would maintain that a preemptive strike is still an option should Iran's regime choose to reverse itself again. The retention of existing policy for the U.S. and Israel would be serving as a check on Iran even if the international community were to soften their stance on Iran's nonproliferation. This would show the political and religious leaders of Iran that while their actions are well received by others the U.S. and Israel are still weary of their intentions. This would serve as notice for Iran that it would be in the best interest of the regime to follow through with their decision for increased transparency and cooperation. Lastly, the guarded response by our actors would be an attempt to buy some time of their own in order to assess the motivations behind Iran's sudden policy change. By discerning the stimuli behind Iran's concessions Israel and the U.S. would be better prepared to respond to any subsequent requests the regime has.

Scenario 1 — Most likely future Alternate Future (#2): The United States assents to a retention of existing policy (REP) and Israel decides on earnest diplomacy and compromise (EDC) with Iran.

Alternate Future no. 2 is similar to our most likely Alternate Future no. 5 except that the roles are reversed. The United States maintains its position of retaining the existing policy toward Iran. They are not in a position to increase the pressure on the regime but are reluctant to give Iran a clean slate and carte blanche to do what it will with its nuclear program. Israel while also weary of loosening the reins on Iran's regime seizes the opportunity to address Iran who now seems willing to negotiate from a position of weakness. The view within the Israeli Defense Ministry that Iran is a complex entity strongly influenced by regime survival and

national interest has prevailed. Israel will not accept a nuclear armed Iran and looks to openly engage the regime about its nuclear program as well as their own. This would lead to more insight on the capabilities of Israel's current nuclear program that could be used as a leveraging tool in negotiations. For example, Israel would use these negotiations not as a replacement to strengthening their defense but rather as a means to augment them. Israel looks to entice the regime in Iran to begin termination of activities related to nuclear weapons and in return Israel would offer to cease the production coming from one or more of their own declared nuclear facilities. There would be discussions arranged between the IAEA, Iran, and Israel that would concern the inspection arrangements and disarmament for both nations; thus avoiding any claim of unbalanced treatment. This would go a long way in building the credibility of what Israel has always claimed is an imperative aspect of their diplomatic process: seeking peace through negotiations. The credibility Israel gains with the international community would also prove to be strategic advantage over Iran should the situation sour again.

Scenario 2 — Most likely future Alternate Future (#4): The United States assents to a retention of existing policy (REP) relying on the notion that there is still time. Israel decides that it cannot remain idle and acts covertly (PAC) against Iran's nuclear program.

This alternate future for scenario 2 is similar to the situation we currently find ourselves in. Iran's nuclear ambitions for the future are difficult to discern. They have defied the IAEA and the international community's calls for increased transparency and continue to gain much of the needed technology and expertise to develop what the U.S. and Israel governments surmise will one day soon lead to a nuclear breakout. The U.S. and Israel cannot accept a nuclear armed Iran. The two actors contend that if Iran continues down this path of ambiguity, slowly overcoming technological impediments, the leaders will day soon make the decision to reignite

their nuclear weapons program. The United States, concerned with the health of the region believes that there is still time to exercise means less dramatic than military intervention. The U.S. is encouraged by the progress diplomacy has made in deterring Iran from pursuing nuclear weapons. Iran has demonstrated they are not wholly immune to the sanctions and restrictions that have been levied against the regime as exemplified by their halting of a NWP back in 2003.

Moreover, the U.S. is further enthused by recent Chinese support for more stringent resolutions i.e. UN Security Council resolution 1929 passed on 9 June 2010, which few felt would pass much less gain the support of China (Rogin, 2011). The aim of this resolution is to treat Iran as an entity seeking nuclear weapons proliferation while supporting Iran's right to develop nuclear fuel for peaceful purposes. The U.S. committed to this "P5+1" process with Iran that includes other nations like the U.K., France, Russia, China (P5) trying to build the international community's confidence in a peaceful Iranian nuclear program (Security Council Department of Public Information, 2010). For confidence on Iran's peaceful nuclear energy production to be made the U.S. will act more forcefully for implementation of all UN Security Council Resolutions; something that it has struggled to remain consistent on.

Israel on the other hand sees little hope for full implementation of these resolutions. The failure of past resolutions furthers their argument that sanctions have been negligible strategy. Countries like China may have signed on to more stringent restrictions but enforcing them is a different matter entirely. Israel in believing Iran has bought itself more time with the recent measures enacted by the Security Council decides it cannot remain idle. Some other measures must be taken to deter or deny Iran the ability to achieve a nuclear arsenal. Israel's Ministry of Defense decides to strike at Iran's nuclear facilities and experts. Israel does not believe it has the proof it needs to justify overt military action so it looks to keep its footprint within Iran to a

minimum. Israel will look to place an "invisible hand" inside of their enemy's boarder in order to slow or debilitate Iran's nuclear developments. Measures include assassination attempts on key Iranian scientist and nuclear experts known or suspected to be involved with Iran's nuclear programme.

Likewise, Israeli covert forces will look to introduce viruses to Iranian nuclear facilities with the goal of causing irreparable harm. The relative success of Stuxnet and the absence of leads as to its creator, regardless whether Israel carried that attack out or not, could only serve as motivation for the Israeli defense establishments to inaugurate similar efforts. Israel knows the chances of derailing Iran's nuclear development with this tactic are slim but it will buy time for the international community's diplomatic efforts and more importantly give Israel intelligence agencies time to ascertain more information on Iran's nuclear capabilities. Covert operations such as the ones described above carry with them the added benefit of plausible deniability. Investigations into such events rarely lead back to a source and further serve Israel's preventative goals by creating a sense of paranoia within the regime. These actions represent events that have already occurred. Israel does not require any more provocation from Iran to carry out such acts. The rest of the international community to include the U.S. is in a far better position to retain the existing policy and advance their diplomatic agendas. But for Israel, it is a matter of survival. As long as Iran's regime continues down a path of nuclear ambiguity Israel is unlikely to join in diplomatic proceedings that look to engage Iran on its nuclear programme. Israel will use these covert actions as a means of augmenting efforts by the United States to increase the pressure on the Iranian regime.

Scenario 2 — Most likely future Alternate Future (#1): The United States and Israel assent to a retention of existing policy (REP).

Alternative Future no. 1 differs from Alternative Future no. 4 in that Israel has also decided to retain the existing policy that plagues the Iranian regime's efforts to develop a nuclear arsenal. In this reality, which could very well play out, Israel's hand is for the moment staid. The gains of the U.S. to acquire more stringent resolutions from the international community and the lack of key indicators or evidence equivalent to a "smoking gun" that would provoke Israel otherwise have not materialized. Israel would continue to claim the imperativeness of negotiations toward peace with Iran but will abstain from any such dealings as long as the Islamic Republic continues down a path of nuclear ambiguity.

In addition, Israel will continue to claim its right to protect Israeli citizens by whatever means necessary. In order to further convince Israel that the diplomatic option is still viable the U.S. will engage Israel through partner building measures to include strengthening its defense, economy, and encouraging their cooperation in dialogue on issues of nonproliferation. Israel believing that Iran has at times proven to be a rationale actor concerned with the survival of the State and regime will not, for the time being, retract from the NPT or announce the reestablishment of a nuclear weapons program. The diligence by our actor's intelligence agencies to collect on Iranian nuclear programs and facilities, both covert and overt, will remain exceedingly active. This will continue in an effort to gain essential information on Iran's nuclear progress and intentions that will serve their current policy well. The U.S. and Israel under REP will continue utilize intelligence collection as a cardinal endeavor to convince the international community of their fears and to help guide their future actions against the Iranian Regime.

Scenario 2 — Most likely future Alternate Future (#3): The United States assent to a retention of existing policy (REP) but Israel feeling increasingly threatened and isolated decides to act militarily (PAO).

Again, as with our other two alternate futures for Scenario 2 the U.S. opts to retain its current policy stance on Iran, optimistic of its potential to affect the Iranian regime. However, in Alternate Future no. 3 there is a breakdown in the relationship between Washington and Tel Aviv. The issue of Iran's proliferation has strained the dialogue between the U.S. and Israel. One is quick to assert options i.e. diplomacy with Iran is still a possibility while the other strongly believes they will yet again lead to a dead end allowing Iran more time to circumvent current restrictions and accrue a nuclear arsenal. Further disheartened by the growing instability in the region Israel goes it alone deciding on a similar action like the one they took against Iraq's Osiraq nuclear facility back in the 1980s. The Israeli perception within the Defense Ministry that Iran is an irrational actor motivated by religious and ideological beliefs has prevailed and the fear that Iran will one day use the bomb to enact its hatred against the "injustice" that is the State of Israel is the overriding factor for overt military action.

Before taking this step there will be a drastic increase in statements made by the Israeli Government and key defense officials that they will protect its people by whatever means necessary. Moreover, they will remind the international community of the threat the Iran posses to their existence and will begin a campaign to win the hearts and minds of its people that military action against Iran's nuclear facilities is needed. Israel will attempt an extended air campaign aimed at destroying critical nodes of Iran's nuclear infrastructure such as known uranium enrichment facilities. Israel does not have many friendly skies it can operate in outside of their own and without the backing of the U.S. they will not be able to traverse, more safely, the majority of airspaces between it and Iran in order to strike.

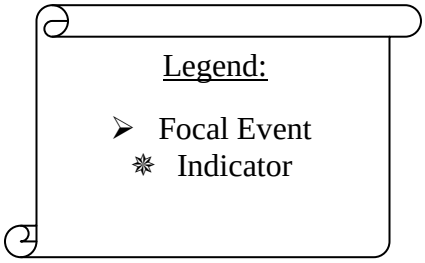
Israeli aircraft do not have the means for refueling aircraft by returning to a carrier or and launching again with minimal delay in order to maintain air dominance. Any naval

positioning by Israel in the Strait of Horumz to give them the ability to deploy an amphibious assault force to attack critical Iranian facilities, those nuclear edifices resistant to aerial bombardment, more personally is currently not an option for a country with a brown-water navy. In September of 2010 it was discovered that Iran was constructing a new uranium enrichment plant buried inside a mountain near Qum (Sanger & Shanker, 2010). As more and more nuclear provocations like these come to light one could imagine the increasingly precarious position the U.S. will surely be put in. Israel would almost certainly, before attacking, increase circulation of propaganda and facts about Iran's nuclear capability to its people and the world at large to rally support or "justify" a more hard-line response. Israel likewise would likely look to the U.S. and its superior aircraft carriers, fighter jets, and refueling tankers to assist the Israelis in their struggle to prosecute the wide spread nuclear facilities inside of Iran. The U.S. will be faced with the difficult decision to either side with their ally or denounce their initiative and seek an end to the conflict. In any case, future U.S. administrations should carefully consider this possibility and prepare themselves for how the government will respond to a sudden Israeli incursion into Iran. The odds of the U.S. being caught off guard by an unexpected Israeli declaration of war on Iran are too great not to have U.S. Intelligence agencies keeping an eye on key focal events that would alarm U.S. military and government leaders of an impending Israeli offensive.

Key 'Focal Events' and their Indicators:

Having described the most likely alternate futures we must now address the key 'focal events' and the indicators that will bring about these realities. These 'focal events' are incidents that are relevant to the predictive issue of the study. Congruently, should a relevant incident or more unfold it serve as sign to our policy makers that a certain alternate future is likely to come

to fruition. By drawing a line in time from where we are presently to a potential future, "a focal event would resemble an interaction with two or more branches into other futures" (Lockwood & Lockwood, 55). Indicators are linkages to the 'focal events' and facilitate our discernment of whether an alternate future is occurring, about to occur, or has not yet met key indicators that would allow that potential future to establish itself.



Scenario 1 — Most likely future Alternate Future (#5): The United States feeling confident their efforts to dissuade the Iranian regime have paid off take steps toward earnest diplomacy and compromise(EDC) while Israel remains skeptical and assents to a retention of existing policy(REP).

- Iran renounces the return of its Nuclear Weapons Program
  - Allows enriched uranium to be provided by other nations e.g. Germany, Russia
  - Iran encourages dialogue and direct contact with international community
  - Open to having their spent fuel and radioactive waste managed by other nations
  - Seeks support for R&D in nuclear energy
  - Shows support for summits on the security of the region
  - Promotes dialogue for regional security, nuclear responsibility, & nonproliferation
  - Suspends production of fissile material and employment-related activities
  - Iran does not begin new efforts to develop fissile material and employment-related activities
  - Seeks to establish long-term and wide-ranging strategic energy partnership with the European Union and other willing partners, with concrete and practical applications/measures.

- Conforms to obligations under the NPT
  - Seeks terms for technological/financial assistance needed for peaceful use of nuclear energy
  - Iran encourages dialogue and direct contact with international community
  - Suspends all reprocessing, heavy water-related and enrichment-related activities
  - Iran does not begin new efforts to build reprocessing, heavy water-related and enrichment-related activities
  - Discontinues any enduring construction of uranium-enrichment, reprocessing, or heavy water-related facilities
  - Iran ceases efforts to acquire commercial technology from another State in regard to reprocessing, heavy water-related and enrichment-related activities

- Takes steps to resolve outstanding questions/serious concerns raised by the construction of an enrichment facilities in breach of its obligations
- Establishment of ambitious consultation, cooperation, and inspection mechanisms with IAEA inspectors

- Iran softens emphatic rhetoric toward U.S. and or Israel
  - Affirms the goal toward a Middle East free of nuclear weapons
  - Denounces the threat or use of force against the territorial integrity or political independence toward the State of Israel
  - Takes steps to negotiate their increased access to the international market e,g. admittance into the World Trade Organization
  - Supports summits to discuss security measures for the region
  - Seeks the acknowledgment of Iran's right to peaceful nuclear production from Israel and the U.S.
  - Seeks assistance on economic, social, and humanitarian necessities

Scenario 1 — Most likely future Alternate Future (#1): The United States and Israel remain skeptical and opt for a retention of existing policy (REP).

- Iran renounces the return of its Nuclear Weapons Program
  - Allows enriched uranium to be provided by other nations e.g. Germany, Russia
  - Iran encourages dialogue and direct contact with international community
  - Open to having their spent fuel and radioactive waste managed by other nations
  - Seeks support for R&D in nuclear energy
  - Shows support for summits on the security of the region
  - Promotes dialogue for regional security, nuclear responsibility, & nonproliferation
  - Suspends production of fissile material and employment-related activities
  - Iran does not begin new efforts to develop fissile material and employment-related activities
  - Seeks to establish long-term and wide-ranging strategic energy partnership with the European Union and other willing partners, with concrete and practical applications/measures.

- Conforms to obligations under the NPT
  - Seeks terms for technological/financial assistance needed for peaceful use of nuclear energy
  - Iran encourages dialogue and direct contact with international community
  - Suspends all reprocessing, heavy water-related and enrichment-related activities
  - Iran does not begin new efforts to build reprocessing, heavy water-related and enrichment-related activities
  - Discontinues any enduring construction of uranium-enrichment, reprocessing, or heavy water-related facilities
  - Iran ceases efforts to acquire commercial technology from another State in regard to reprocessing, heavy water-related and enrichment-related activities

- ❋ Takes steps to resolve outstanding questions/serious concerns raised by the construction of an enrichment facilities in breach of its obligations
- ❋ Establishment of ambitious consultation, cooperation, and inspection mechanisms with IAEA inspectors

- Iran softens emphatic rhetoric toward U.S. and or Israel
  - ❋ Affirms the goal toward a Middle East free of nuclear weapons
  - ❋ Denounces the threat or use of force against the territorial integrity or political independence toward the State of Israel
  - ❋ Takes steps to negotiate their increased access to the international market e,g. admittance into the World Trade Organization
  - ❋ Supports summits to discuss security measures for the region
  - ❋ Seeks the acknowledgment of Iran's right to peaceful nuclear production from Israel and the U.S.
  - ❋ Seeks assistance on economic, social, and humanitarian necessities

Scenario 1 — Most likely future Alternate Future (#2): The United States assents to a retention of existing policy (REP) and Israel decides on earnest diplomacy and compromise (EDC) with Iran.

- Iran renounces the return of its Nuclear Weapons Program
  - ❋ Allows enriched uranium to be provided by other nations e.g. Germany, Russia
  - ❋ Iran encourages dialogue and direct contact with international community
  - ❋ Open to having their spent fuel and radioactive waste managed by other nations
  - ❋ Seeks support for R&D in nuclear energy
  - ❋ Shows support for summits on the security of the region
  - ❋ Promotes dialogue for regional security, nuclear responsibility, & nonproliferation
  - ❋ Suspends production of fissile material and employment-related activities
  - ❋ Iran does not begin new efforts to develop fissile material and employment-related activities
  - ❋ Seeks to establish long-term and wide-ranging strategic energy partnership with the European Union and other willing partners, with concrete and practical applications/measures.

- Conforms to obligations under the NPT
  - ❋ Seeks terms for technological/financial assistance needed for peaceful use of nuclear energy
  - ❋ Iran encourages dialogue and direct contact with international community
  - ❋ Suspends all reprocessing, heavy water-related and enrichment-related activities
  - ❋ Iran does not begin new efforts to build reprocessing, heavy water-related and enrichment-related activities
  - ❋ Discontinues any enduring construction of uranium-enrichment, reprocessing, or heavy water-related facilities
  - ❋ Iran ceases efforts to acquire commercial technology from another State in regard to reprocessing, heavy water-related and enrichment-related activities

- Takes steps to resolve outstanding questions/serious concerns raised by the construction of an enrichment facilities in breach of its obligations
- Establishment of ambitious consultation, cooperation, and inspection mechanisms with IAEA inspectors

- Iran softens emphatic rhetoric toward U.S. and or Israel
  - Affirms the goal toward a Middle East free of nuclear weapons
  - Denounces the threat or use of force against the territorial integrity or political independence toward the State of Israel
  - Takes steps to negotiate their increased access to the international market e,g. admittance into the World Trade Organization
  - Supports summits to discuss security measures for the region
  - Seeks the acknowledgment of Iran's right to peaceful nuclear production from Israel and the U.S.
  - Seeks assistance on economic, social, and humanitarian necessities

Scenario 2 — Most likely future Alternate Future (#4): The United States assents to a retention of existing policy (REP) relying on the notion that there is still time. Israel decides that it cannot remain idle and acts covertly (PAC) against Iran's nuclear program.

- Develops a nuclear weapons capability
  - Snubs measures for enriched uranium to be provided by other nations e.g. Germany, Russia
  - Discourages dialogue and direct contact with international community, U.S, and Israel
  - Independently pursues R&D in nuclear energy
  - Significant development of fissile material and employment-related activities achieved
  - Tests ballistic missiles and employment-related activities
  - Conducts uranium enrichment
  - Iranian military entities work under government direction to develop nuclear weapons
  - Discovery of reprocessing plants used in separation of plutonium from a reactors irritated fuel
  - Completion of heavy-water reactor
  - Increases propaganda campaign against Israel and U.S.
  - Reaches goal of 50,000 operating centrifuges (full nuclear cycle) at any facility

- Iran walks out on NPT
  - Removal of IAEA inspectors from Iran
  - Regime cracks down on dissidents/protestors in country
  - Assassinates or arrests rivals to power/regime change
  - Increases propaganda against Israel and U.S.
  - Cancels agreements with other nations for cooperation with nuclear facilities, technology, training

- Keeps open a return of its NWP
    - Defies IAEA safeguard agreements/UN Security Council Resolutions
    - Denies IAEA inspectors access to facility/facilities
    - R&D projects applicable to commercial and/or military purposes
    - Installs/develops centrifuges
    - Leaves outstanding questions/serious concerns raised by the construction of an enrichment facilities in breach of its obligations unresolved
    - Has commercial activity agreements in another State involving uranium mining, production or use of nuclear materials and technology

Scenario 2 — Most likely future Alternate Future (#1): The United States and Israel assent to a retention of existing policy (REP).

- Develops a nuclear weapons capability
    - Snubs measures for enriched uranium to be provided by other nations e.g. Germany, Russia
    - Discourages dialogue and direct contact with international community, U.S, and Israel
    - Independently pursues R&D in nuclear energy
    - Significant development of fissile material and employment-related activities achieved
    - Tests ballistic missiles and employment-related activities
    - Conducts uranium enrichment
    - Iranian military entities work under government direction to develop nuclear weapons
    - Discovery of reprocessing plants used in separation of plutonium from a reactors irritated fuel
    - Completion of heavy-water reactor
    - Increases propaganda campaign against Israel and U.S.
    - Reaches goal of 50,000 operating centrifuges (full nuclear cycle) at any facility

- Iran walks out on NPT
    - Removal of IAEA inspectors from Iran
    - Regime cracks down on dissidents/protestors in country
    - Assassinates or arrests rivals to power/regime change
    - Increases propaganda against Israel and U.S.
    - Cancels agreements with other nations for cooperation with nuclear facilities, technology, training

- Keeps open a return of its NWP
    - Defies IAEA safeguard agreements/UN Security Council Resolutions
    - Denies IAEA inspectors access to facility/facilities
    - R&D projects applicable to commercial and/or military purposes
    - Installs/develops centrifuges
    - Leaves outstanding questions/serious concerns raised by the construction of an enrichment facilities in breach of its obligations unresolved

- ❋ Has commercial activity agreements in another State involving uranium mining, production or use of nuclear materials and technology

Scenario 2 — Most likely future Alternate Future (#3): The United States assent to a retention of existing policy (REP) but Israel feeling increasingly threatened and isolated decides to act militarily(PAO).

- ➢ Develops a nuclear weapons capability
  - ❋ Snubs measures for enriched uranium to be provided by other nations e.g. Germany, Russia
  - ❋ Discourages dialogue and direct contact with international community, U.S, and Israel
  - ❋ Independently pursues R&D in nuclear energy
  - ❋ Significant development of fissile material and employment-related activities achieved
  - ❋ Tests ballistic missiles and employment-related activities
  - ❋ Conducts uranium enrichment
  - ❋ Iranian military entities work under government direction to develop nuclear weapons
  - ❋ Discovery of reprocessing plants used in separation of plutonium from a reactors irritated fuel
  - ❋ Completion of heavy-water reactor
  - ❋ Increases propaganda campaign against Israel and U.S.
  - ❋ Reaches goal of 50,000 operating centrifuges (full nuclear cycle) at any facility

- ➢ Iran walks out on NPT
  - ❋ Removal of IAEA inspectors from Iran
  - ❋ Regime cracks down on dissidents/protestors in country
  - ❋ Assassinates or arrests rivals to power/regime change
  - ❋ Increases propaganda against Israel and U.S.
  - ❋ Cancels agreements with other nations for cooperation with nuclear facilities, technology, training

- ➢ Keeps open a return of its NWP
  - ❋ Defies IAEA safeguard agreements/UN Security Council Resolutions
  - ❋ Denies IAEA inspectors access to facility/facilities
  - ❋ R&D projects applicable to commercial and/or military purposes
  - ❋ Installs/develops centrifuges
  - ❋ Leaves outstanding questions/serious concerns raised by the construction of an enrichment facilities in breach of its obligations unresolved
  - ❋ Has commercial activity agreements in another State involving uranium mining, production or use of nuclear materials and technology

The Transposition of Alternate Futures:

The final step in our predictive journey using the Lockwood Analytical Method for Prediction (LAMP) is to assess the likelihood of our alternate futures to 'transpose' into another. A result of transposition changes the possibility for an alternate future to occur. By analyzing the potential for a possible future to transpose and become more viable it allows the analyst or group of analysts to hone the results of their predictive issue. It creates a narrative of an alternate universe that may come to pass should a key focal event and its indicators change the course of history. What follows is an exploration of what it would mean for one of our alternate futures to 'transpose' which would cause a reexamination of the 'pairwise comparisons' and alter the rankings awarded. With Scenario 2 and our Most likely Alternate Future (#4): The United States assents to a retention of existing policy (REP) relying on the notion that there is still time. Israel decides that it cannot remain idle and acts covertly (PAC) against Iran's nuclear program. The chances for a transposition of Alternate Future #4 into another future are highly conceivable. For example, if Iran's military, at the behest of the regime, were to test fire ballistic missiles and employment-related munitions after the world had discovered the existence of a reprocessing plant used in separation of plutonium from a reactors irritated fuel within Iran; these reproachable offenses could alter our universe entirely.

The testing of ballistic munitions that could carry a nuclear warhead and the discovery of a reprocessing plant, that Iran has agreed they would not construct, are two of the key indicators for the focal event of Iran acquiring a nuclear weapon. These actions would have far reaching implications for our two actors. The discovery of these two indicators could 'transpose' Alternate Future #4 into Alternate Future # 11 which entails both the United States and Israel concluding that military action against the regime, in order to keep it from acquiring a nuclear arsenal, is necessary. The newly invigorated alliance and resolve of our two actors give the

possibility of annihilating Iran's nuclear capability a greater chance than if Israel were to decide to go it alone as is the case for Alternate Future #3. Israel would now have the ability to wage an extended air campaign with the backing of the U.S. military's might and the danger of navigating the waters in the Strait of Hormuz would be mitigated having U.S. Destroyers out in front.

Finally, for the more unlikely scenarios that take account of Iran enacting drastic efforts to comply with various resolutions and renouncing a rebirth for its NWP our Alternate Futures numbers 5, 1, and 2 could in theory transpose. Case in point, if Iran, for the purposes of attaining their peaceful nuclear energy ambitions, allows enriched uranium to be provided for them from outside the country it would be a very stark indication indeed of compliance and confidence building. In addition to this, if Iran follows up this action by encouraging dialogue with the international community to address the management of their spent fuel and radioactive waste our actors would find it a precipitous challenge to argue for retention of their existing policy toward Iran.

In light of these welcomed policy changes from Iran our actors would need to carefully consider their next moves. They would be scrupulous of the fact that repudiating this open handed gesture from the Islamic Republic could squander, perhaps for good, any hopes of keeping Iran from becoming a nuclear weapons state. Our Alternate Futures numbers 5,1, and 2 (in order of number of most votes received) have the potential to 'transpose' into Alternate Future number 6 which includes both the U.S. and Israel willing to come to the table and negotiate diplomatically in the sincere (EDC). Having sufficient proof that Iran is willing to compromise from a position of weakness the U.S. and Israel would look to garner more concessions for Iran i.e. the establishment of comprehensive inspection mechanisms with the IAEA in return for a U.S. and Israel proclamation acknowledging Iran's right to peaceful nuclear

energy. This could be followed by proposals for summits to discuss Iran's inclusion in the World Trade Organization culminate in a win-win scenario that allows Iran to obtain greater prosperity and fosters our actor's goals for stability in a volatile region of the globe. Thus, Alternate Future #6 could become our most likely scenario and demonstrates the powerful concept behind the LAMP's practice of transposition which keeps an analysts mind alert to all possibilities.

Conclusion:

As our study reveals the strife of our two actors, Israel and the U.S., will continue to grow in complexity as they carry on the perilous effort to dissuade Iran from building the bomb by whatever means they deem necessary. Along the way we have explored the history of Iran's developments.. These developments in the majority of cases succeeded despite the enactment of many resolutions and safe guards by the IAEA and UN Security Council aimed at keeping the Islamic Republic from taking further steps toward a nuclear arsenal. Safe guards that in large part, while paved with good intentions, have proven folly in the eyes of our actors. To that end, we have explored the perceptions the U.S. and Israel and exposed their potential courses of action to deal with the threat they feel a nuclear armed Iran imposes. We then applied these possible courses of action to the major scenarios Iran could or has presently assumed. Calculations of all potential alternate futures revealed some very important findings for anyone looking to predict how the United States and Israel may act against Iran.

We found that our most likely alternate future at this moment in time was Alternate Future #4. It entails the United States assenting to a retention of existing policy (REP) relying on

their perception that there is still time to deal with Iran under less extreme measure. Israel, on the other hand, decides that it cannot remain idle and acts covertly (PAC) against Iran's nuclear program. As our literature review makes known there are covert operations being taken against Iran in a an effort to buy more time or dismantle the Iranian nuclear program; thereby directly or indirectly augmenting the diplomatic routes and avoiding overt military intervention. While it is difficult to pin-point who the culprits are of these covert operations it does not take much imagination to realize these are fundamental options available to our actors. By contrast, our first scenario that entails Iran falling into line with its obligations to resolutions and Safe Guard Agreements, while essential to monitor, is presently farfetched. And this should come as no surprise given our chosen method of analysis. The LAMP procedure accounts for the more "bizarre" futures and recognizes more events or indicators need to be met "in order to change our present into that future" (Lockwood & Lockwood, 56).

One can see from looking at our focal events and the number of indicators that Scenario 2 has more focal events and indicators attached to it when compared to our alternate futures in Scenario 1. Moreover, it would not be a stretch to denote the indicators for Scenario 2 as being "bizarre." When looking at them one can easily discern from our in depth study that Iran is far from willing to establish ambitious consultation, cooperation, and inspection mechanisms with IAEA inspectors. Nor has Iran warmed up to the idea of ceasing uranium enrichment efforts and allowing other nations to supply it with the fuel needed for peaceful nuclear energy. Indeed, too few of these indicators have been met for analysts to credibly assess that Iran is willing to reform its nuclear policy stance.

By distinction, when we look to the focal events and indicators that follow Scenario 2 one can easily recognize that fewer indications are attached to its focal events. More importantly,

there is reason to believe that many of the indicators are currently taking place or are about to. Iran has continued to defy the IAEA and UN Security Council Resolutions. Iran is independently pursing R&D in nuclear developments and continues to enrich uranium. Additionally, Iran has made efforts in the past to develop fissile material and modernize its ballistic missile fleet. Up until 2003 they even had a NWP. The most likely alternative futures under Scenario 2 have the least path of resistance which lends credence to this study's findings.

While we have illuminated the most likely scenarios and their alternate futures and provided a comprehensive list of key focal events and indicators that our policy makers need to respect; there are a number of intelligence gaps that must be addressed in order to more accurately gauge the possibility of our alternate futures coming to life. For instance, what are the "red-lines" to not be crossed that Israel and the U.S. must make known to Iran? The clear explanation of what the U.S. and Israel feel should be a line in the sand would arguably go a long way in deterring Iran from certain acts of aggression. For example, the U.S. and Israel could make it known to Iran that if there is a discovery of a covert NWP then the two countries will look to strike that facility and perhaps take their military options farther.

However, if the U.S. and Israel do uncover a covert NWP they will have to make good on their stated "red-line" or risk giving Iran the perception that there is no need to fear retaliatory actions from the U.S. and Israel. Also, what is the current state of the Israeli-U.S. relationship? Has it been strained by this drawn out issue? Is there reason to believe that the relationship the U.S. and Israel share could one day fail? Should there be reason to believe the U.S. and Israel relationship has been weakened significantly one may need to reassess the likelihood Israel would act irrationally and go it alone in a war against the Islamic Republic. Similarly, does the U.S. currently have a contingency plan in place in the event Israel attacks Iran? Regardless, this

study will need to be updated as more information comes to light. The procedures inherent in LAMP allow us to revisit the findings of this study, reassess the nature of our scenarios and their alternate futures, and address them accordingly. This is essential to the accurateness of our predictions in the ever evolving freewill environment that is Iran's nuclear proliferation.

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