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# Iran's Nuclear Program

Johnson Lin

## I. Introduction

The potential Iranian nuclear weapons program is an issue of utmost concern to the international community. Iran has been deemed by the U.S. State Department as a state sponsor of terror, and it has the dangerous potential to use its nuclear program to construct nuclear weapons. Iranian leaders have consistently declared Iran's right to pursue peaceful nuclear technologies, but they have not fully adhered to the international inspections and regulations that are necessary to ensure its peaceful nature. While there isn't irrefutable evidence linking Iran's nuclear advancement to nuclear weapons, many signs seem to point in that direction.

The problem of Iran's nuclear program fits perfectly within the realist theory of international relations. Despite the existence of the United Nations and other multinational organizations, realism argues that states exist in an anarchic environment. Uncertainty about the capabilities and intentions of Iran's nuclear program creates serious security dilemmas for the international community, particularly the U.S. and Israel. The international community has acted to thwart Iran's suspect nuclear weapons program. Some of the options available can be successful and others are doomed to fail. Understanding the history of Iran's nuclear program is necessary for understanding how the international community ought deal with this potentially deadly problem.

## II. History of Iran's nuclear program

Iran's nuclear program began in 1957 through the United States "Atoms for Peace" program. Under President Dwight D. Eisenhower, the program promoted the development of safe and peaceful nuclear technologies. It strengthened the alliance between the two, which was vital to U.S. national security interests because of the Cold War and Iran's strategic location on the border between the Soviet Union and the Middle East. President Eisenhower sought to increase military, economic, and civilian assistance to gain a greater strategic position with Iran. The aid to Iran's nuclear program grew from U.S. national security interests, an example of international realism. Under Atoms

for Peace, the United States agreed to lease "Iran up to 13.2 pounds of low-enriched uranium (LEU) for research purposes" and also supplied a five-megawatt reactor for the production of electricity.<sup>1</sup> In return for U.S. nuclear assistance, Iran signed the Nuclear Non-Proliferation Treaty (NPT) on July 1, 1968, the first day the treaty was open for signature.

The NPT originated from the international community's growing awareness of the inherent dangers of the proliferation of nuclear arms. After witnessing the destructiveness of nuclear weapons against Japan during World War II, many believed an increase in the number of countries with nuclear weapons threatened global security. The treaty served international security interests by advancing nuclear non-proliferation, disarming and dismantling existing nuclear weapons, and advocating for peaceful nuclear development.<sup>2</sup> Iran, having just initiated a meaningful nuclear program, signed the treaty as a non-nuclear signatory, agreeing not to acquire or manufacture nuclear weapons, to accept safeguards that verified nonproliferation obligations and to negotiate in good faith for the cessation of the nuclear arms race. These conditions were supposed to bar Iran, and other non-nuclear states, from developing nuclear weapons. In return for its agreement to these provisions, under Article IV of the treaty, Iran gained recognition of its "inalienable right...to develop research, production and use of nuclear energy for peaceful purposes" in accordance to articles I and II.<sup>3</sup> Iran's signing of the NPT publicly signified its intention to abstain from developing nuclear weapons.

With a commitment to peaceful and responsible nuclear development, Iran was able to acquire nuclear assistance from Western states such as France and Germany throughout the 1970s. The nuclear program was a priority of Shah Reza Pahlavi, Iran's leader, because he believed that the exploration and development of alternative forms

<sup>1</sup> Greg Bruno, "Iran's Nuclear Program," *Council on Foreign Relations* (March 10, 2010)

<sup>2</sup> Paul Lettow, "Strengthening the Nuclear Nonproliferation Regime," *Council on Foreign Relations* 54 (April 2010)

<sup>3</sup> Lettow, "Strengthening the Nuclear Nonproliferation Regime"

of energy production was necessary for the Iranian economy given the economic uncertainty resulting from regional wars that disrupted Iran's oil production and from predictions of looming energy shortfalls.<sup>4</sup> Instability in the Middle East in the 1970s pushed Iran towards developing nuclear energy, a means of meeting its energy demands beyond oil. In March 1974, Iran announced its plans to produce 23,000 megawatts of electricity from nuclear power. This ambitious goal would have been able to meet a great deal of Iran's energy needs, but the amount of nuclear energy necessary to do so was also enough to produce about 600-700 nuclear warheads.<sup>5</sup> Iran's growing ambitions about the possibilities of a large nuclear program began to rattle its partners around the world.

Despite the Shah's assurance that his nuclear program had only peaceful intentions, foreign governments increasingly became reluctant to aid Iranian nuclear development. A United States special national intelligence estimate asserted, "The ambitions of the Shah could lead Iran to pursue nuclear weapons, especially in the shadow of India's nuclear test in May 1974."<sup>6</sup> Furthermore, in an interview with the French newspaper *Le Monde*, the Shah was quoted as saying that Iran would, "sooner than is believed" be "in possession of a nuclear bomb," and Assadollah Alam, the Shah's court minister, claimed on several occasions that the Shah wanted a nuclear bomb but found it expedient to adamantly deny it at the time.<sup>7</sup> These indications that Iran's nuclear ambitions was leaning towards more than merely energy production pushed the U.S. towards taking a stiffer approach against Iran.

By the time of Iran's Islamic Revolution in the late 1970s, France and Germany began withdrawing their support of Iran's nuclear program. The chaos resulting from the revolution, primarily the hostage crisis and the regime change to a hostile Islamic republic, created a dangerous situation that Western governments believed would only be exacerbated with the inclusion of nuclear technologies. During this period, Iran's nuclear program slowed dramatically. The deterioration of the program was the result of a combination of factors: the absence of foreign assistance, Supreme Leader Ayatollah Khomeini's opposition to nuclear

technology, the mass exodus of nuclear scientists, and Israel's destruction of Iraq's nuclear facility at Osirak, which removed an immediate threat to Iran.<sup>8</sup> However, this break in Iran's nuclear development was ephemeral. It ended with the death of Ayatollah Khomeini in 1989 and the subsequent ascension of Ayatollah Khamenei. This change of Iran's leadership changed the trajectory of Iran's nuclear desires.

Ayatollah Khamenei had much more of a positive view of nuclear power than his predecessor, and initiated plans to rebuild the nuclear program in Tehran. In the 1991 Gulf War against Iraq, coalition forces, of which Iran was not a participant, discovered a clandestine Iraqi nuclear program. With the increase of a Western presence in the Persian Gulf and the real possibility of Iraqi nuclear armament, Iran perceived increasing security threats. With a neighboring rival having almost developed nuclear weapons, and Western powers exerting influence in the region, Iran believed that it could no longer depend on its traditional non-nuclear defenses.<sup>9</sup> Following the tenets of realism, insecurity pushed Iran to further develop an indigenous nuclear program.

In addition to defense, nuclear weapons would also be useful for Iranian attainment of regional hegemony. Iran remembers the glories of the ancient Persian Empire, which was decimated by raiding Arabs, who were spreading Islam across the region. Iranians beam with nationalism and see themselves as separate and superior to neighboring Arabs. This is evident in Iran's adherence to Shi'a Islam as opposed to the Sunni sect popular among Arabs. Following the fall of the Soviet Union, the Middle East was no longer a battleground between superpowers. New regional leaders could emerge, and a functional Iranian nuclear weapon would cement Iran's superiority over its Arab rivals and leadership in the region. In order to construct nuclear weapons, Iran has received assistance from non-Western states such as Russia, China, Pakistan, and North Korea.<sup>10</sup>

As Iran accelerated its development of nuclear technologies in the 1990s, it began moving astray from its commitments as a signatory to the Nuclear Non-Proliferation Treaty. With insufficient oversight from the International Atomic Energy Agency (IAEA), Iran developed "a vast network of uranium mines, enrichment plants, conversion sites,

<sup>4</sup> Bruno, "Iran's Nuclear Program"

<sup>5</sup> Abbas Milani, "The Shah's Atomic Dreams," *Foreign Policy* (December 29, 2010)

<sup>6</sup> Bruno, "Iran's Nuclear Program"

<sup>7</sup> Milani, "The Shah's Atomic Dreams"

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

and research reactors” and constructed other nuclear facilities, to supply domestically produced nuclear fuels. This immense network of uranium production now allows Iran to produce an estimated 2.77 kg of low-enriched uranium per day.<sup>11</sup> Due to Iranian duplicity, diplomatic stalling, and unwillingness from the international community to enforce the conditions of the NPT in a meaningful way, Iran has been uninhibited in its enrichment of uranium “on a scale that cannot plausibly be meant to produce fuel for a nuclear power reactor but could be used to produce the fissile material for a nuclear weapon.”<sup>12</sup> In addition to the large scale of Iran’s nuclear development, the nuclear program has been kept extremely secretive. This secrecy seems indicative of intent to hide aspects of a nuclear program that are unacceptable to the international community. If it were completely peaceful, it could likely gain foreign assistance in return for international oversight. Iran consistent refusal of international oversight, despite the possible benefits of it, signals that its nuclear ambitions are not completely peaceful.

Despite speculations of Iran’s intention to construct nuclear weapons, there isn’t any conclusive evidence proving it. There is uncertainty about its intentions because the “existing means of detecting, determining, and enforcing violations of safeguard obligations, and the will to do so, are inadequate for the task.”<sup>13</sup> The IAEA is incapable of decisively determining Iranian intentions. While unlikely, in light of the lack of evidence, it is still a possibility that Iran’s nuclear technology will pursue strictly peaceful purposes. Iranian antagonism towards international interference in its nuclear development may be more indicative of its distrust of the international community rather than of its intentions of secretly constructing nuclear weapons.

Iran’s current nuclear technology and weapons technology necessary for the transportation of possible nuclear warheads is largely based on foreign assistance, particularly from North Korea. North Korean technicians and military experts have supported Iran’s path to achieve nuclear bomb capability and have aided in increasing the range of its ballistic missiles. A majority of Iran’s nuclear centrifuges are primarily based on North Korean designs, which are more technically advanced and

greater in size than those indigenous to Iran<sup>14</sup>. This relationship between Iran and North Korea is extremely alarming given North Korea’s status as the only state to have officially withdrawn from the NPT, and to have developed nuclear weapons after signing the treaty. Iran’s dependence on North Korea may be a signal of its intentions to follow a similar path of nuclear development.

It is also believed that Iran gained some nuclear assistance from Pakistan. Abdul Qadeer Khan, the father of Pakistan’s nuclear program, had operated an international nuclear black market in the 1990s. In 2004, he confessed to this network of proliferation, and is believed to have contacted and sold centrifuges and blueprints to Iran in 1994. Following his confession, Pakistan took steps to neutralize Khan’s network to safeguard its nuclear weapons and technologies. However, there is still concern that parts of Khan’s black market network could still be open, and that Iran is the most active customer in the nuclear black market. Iran’s access to nuclear materials beyond the supervision of the international community is a source of concern.<sup>15</sup>

In recent years, the international community has become increasingly alarmed at the potential of a nuclear-armed Iran. Western intelligence agencies have attained large amounts of information that “provide snapshots of an extensive and sophisticated weapons program whose goal is to produce a uranium implosion device.”<sup>16</sup> In response to criticisms and accusations of its nuclear ambitions, Iran consistently declares its sovereign right to pursue nuclear technology. This pursuit of nuclear technology has gotten alarmingly close to nuclear capability, and Israeli intelligence estimates that with the current rate of Iran’s development, it is about three years away from developing a nuclear weapon.<sup>17</sup> Many believe that Iranian nuclear weapons are imminent. While a nuclear-armed Iran would be a threat to the entire international community, Israel would face the

<sup>14</sup> Global Security Newswire, “Iran Seeks Nuclear Scientists, Former Diplomat Asserts” (December 23, 2010)

<sup>15</sup> David Montero, “Report: Pakistani scientist A.Q. Khan aided Iran,” *Christian Science Monitor* (May 4, 2007)

<sup>16</sup> Mark Fitzpatrick, “Iran’s Nuclear, Chemical and Biological Capabilities – Executive Summary,” *International Institute for Strategic Studies* (February 3, 2011)

<sup>17</sup> Arthur Bright, “Iran nuclear program delayed, says Israeli minister,” *Christian Science Monitor* (December 30, 2010)

<sup>11</sup> Ibid.

<sup>12</sup> Lettow, “Strengthening the Nuclear Nonproliferation Regime”

<sup>13</sup> Ibid.

greatest security threats from Iran, aptly expressed in current Iranian President Ahmadinejad's persistent anti-Zionist rhetoric. In 2006, during the war between Israel and Hezbollah in Lebanon, Ahmadinejad said in regards to the conflict, "...the main solution is for the elimination of the Zionist regime" because Israel "is an illegitimate regime, there is no legal basis for its existence."<sup>18</sup>

Along with President Ahmadinejad's harsh rhetoric, Iran's weapons capabilities have greatly increased in recent years, and now pose a serious threat to Israel's national security. Its advanced weapons are seen as a precursor to greater military ambitions that include nuclear weapons. In 2008, Iran test-fired nine missiles, including an advanced version of the Shahab-3, a medium-range ballistic missile. It reportedly has a range of up to 2,000 kilometers, and can be armed with a conventional high-explosive warhead, a chemical warhead, submunitions warhead, or a nuclear warhead.<sup>19</sup> The Shahab-3 missiles can theoretically carry possible Iranian nuclear warheads to Israel, placing Israel in a very precarious situation. As such, Israel is often the most assertive member of the international community in calls for actions to stop Iranian nuclear development. Regardless of whether or not there is international support, Israel may act unilaterally to stop Iran's nuclear program.

Under the assumption that Iran is in fact developing nuclear weapons, the international community has sought to implement means of disrupting Iran's nuclear advancement. Multilateral and unilateral, specifically Israeli, approaches have been discussed. Some efforts, such as sanctions and covert operations, have already been implemented. Others, such as preventive strike and regime change, are viable options in the near future. These options approach the problem from different perspectives and are not mutually exclusive. Regardless of which options are taken against Iran, success must be measured not only in whether Iran is able to construct nuclear weapons, but also cost to the quality of life of the Iranian population, and the potential of escalation to war.

<sup>18</sup> Sean Yoong, "Ahmadinejad: Destroy Israel, End Crisis," *Washington Post* (August 3, 2006)

<sup>19</sup> BBC News, "Iran sends missile test warning" (July 9, 2008)

### III. Option 1 - Accept proliferation

Although many believe that the dangers posed by allowing Iran to continue its nuclear program demand international actions preventing its construction of nuclear weapons, the potential dangers may be overblown. The fact that there isn't any conclusive evidence about the purpose of Iran's nuclear program must be emphasized. Also, recent events in the Middle East and within Iran have triggered a de-emphasis on the nuclear program as Iranian leaders seek to satisfy economic demands by its public. Moreover, even if Iran were to develop nuclear weapons, it may not be any more threatening to the international community than it currently is. The option of inaction, and thereby allowing Iran to continue its nuclear program with the possibility of its constructing a nuclear weapon, is one that needs to be seriously considered by the international community.

With the unrest across the Middle East and rising inflation in Iran, Iran's nuclear program is not currently a priority for its leaders. 2011 has been a year in which the Iranian regime has placed greater emphasis on its domestic agenda because of rising inflation resulting from recent cuts to government subsidies on gasoline, fuel, and bread. With public outcries against its dampened economy, developing nuclear technology has become less urgent for the regime. Inflation is "not at 10 percent but perceived by average Iranians to be 50 percent."<sup>20</sup> Sanctions on Iran have restricted its economy, forcing it to divert resources and attention away from producing a nuclear arsenal and towards dealing with its economy. A de-emphasized nuclear program means that immediate forceful action is neither required nor prudent. The pressures on its economy may force Iran to work with foreign states, opening the door to solving the nuclear problem diplomatically. Iran's nuclear advancement does not appear to be a threat in the immediate future.

On the other hand, even if de-emphasized, Iran's nuclear program is still a serious threat in the long run. If the international community allows Iran to continue its nuclear program and it successfully produces nuclear weapons, the international community fears that Iran will have increased coercive influence over its neighboring states. These fears may be unfounded since

<sup>20</sup> Scott Peterson, "New Year priorities: Tehran focused on turmoil at home, not nuclear program," *Christian Science Monitor* (December 31, 2010)

coercion backed by threats of nuclear weapons historically have not been more successful than coercion without such threats. For example, the United States' nuclear arsenal did not enhance the effectiveness of its demands of North Korea to release the USS *Pueblo* in 1968, Israeli threats against Syria prior to the 1982 Lebanon War were unsuccessful, and British threats against Argentina over the Falkland Islands in 1982 failed despite its possession of nuclear arms.<sup>21</sup> One possible reason for the ineffectiveness of nuclear-backed threats is that the state threatened understands the unlikelihood of the actual use of nuclear weapons. Deterrents are ineffective unless the opposition believes that the threat is real and imminent. Any possible use of nuclear weapons would universally be condemned by the international community and would lead to serious repercussions, thereby neutralizing the threat. Following historical trends, Iran's possible nuclear weapons would not increase its coercive influence over regional neighbors.

Another fear of a nuclearized Iran is its potential to unleash a nuclear arms race in the Middle East. Secretary of State Clinton and Vice President Biden have both warned "Iran's actions risk sparking a nuclear arms race in the Middle East."<sup>22</sup> While this is a possibility, it is also an overstated danger. There are only a handful of countries in the region, such as Libya, Syria, and Saudi Arabia, which have the technological capacity and the economic wherewithal to develop a meaningful nuclear program. Some of these states have previously had nuclear programs but have since given them up. Even if nuclear arms proliferated in the region, the real danger is not necessarily nuclear proliferation, but from a nuclear conflict.<sup>23</sup> The dangers of nuclear arms are not necessarily inherent, but result from their use.

Although Israel would be the most likely target of Iranian nuclear weapons, history indicates that nuclear proliferation has the effect of deterring nuclear wars rather than provoking them. Nuclear states may still conflict with one another, but nuclear weapons have never been brought into the conflict. For example, during the Cold War, neither the U.S. nor the U.S.S.R. used their massive

stash of nuclear weapons. In the current state of Indian-Pakistani relations, the two have not used nuclear arms despite mutual animosities. While these states conflict with one another, both sides understand the dire consequences of a nuclear attack. Pax Atomica, the theory of mutually assured destruction, deters the use of nuclear weapons. It is unlikely that nuclear war between Iran and Israel would occur even if Iran were to develop nuclear arms. Nuclear war between the two would be too dangerous and the notion of mutually assured destruction would encourage greater prudence in their bilateral relations. Iranian leaders understand that if they were to use nuclear arms, it would be reciprocated leading to massive destruction on both sides. This diminishes the likelihood of a nuclear conflict.

Although it is unlikely that Iran will use any nuclear weapons it possibly develops, a major fear is that the weapons will fall into the hands of terrorists. The proliferation of nuclear arms may spread to Al-Qaeda, Hezbollah, or other groups. In 1998, the U.S. Justice Department charged that Osama bin Laden called for "al-Qaeda to put aside its differences with Shi'ite Muslim terrorist organizations, including the government of Iran and its affiliated terrorist group Hezbollah, to cooperate against their perceived common enemy, the United States and its allies." Iran has indirectly supplied al-Qaeda and its affiliated groups with resources in their mutual war against the United States. However, it is unlikely that Iran would directly supply al-Qaeda with a nuclear weapon. The two share a common enemy, but also have divergent ideologies. Iran promotes Shi'a fundamentalist movements in the Middle East, while al-Qaeda is a Sunni jihadist movement. Iran would much more likely share its nuclear weapons with Hezbollah, a terrorist organization essentially created by Iran's Revolutionary Guards. Hezbollah has caused several conflicts with Israel since its founding in the 1980s and Iran has several weapons smuggling routes to the group that can be used to smuggle nuclear warheads to Hezbollah. Neither al-Qaeda nor Hezbollah has demonstrated reluctance in the possibility of using nuclear weapons.

The potential of terrorists groups using Iranian-developed nuclear weapons is a very deadly one, and is the most dangerous aspect of accepting proliferation. This may be the best argument against allowing Iran to continue its nuclear program. However dangerous this threat is, the possibility of it actually occurring is low when considering the reasons why Iran wants nuclear

<sup>21</sup> Matthew Fuhrmann & Todd S. Sechser, "Would a nuclear-armed Iran really be so dangerous?" *Christian Science Monitor* (January 12, 2011)

<sup>22</sup> BBC News, "US leader Biden says Iran may spark nuclear arms race" (May 6, 2010)

<sup>23</sup> Stephen M. Walt, "Iran, arms races, and war," *Foreign Policy* (October 1, 2009)

weapons. If the construction of nuclear weapons were key to Iran's regional hegemony, terrorist use of those weapons would surely diminish Iran's leadership in the region and would instead solidify Iran's status as a dangerous pariah state. The use of its nuclear weapons would be counterproductive to Iran's interests, and it would be in its best interest not to allow terrorist organizations to use it.<sup>24</sup>

An Iranian nuclear weapons program is more likely to be used for defensive rather than offensive purposes. One of the key reasons for Iranian nuclear ambitions is perceived threats in the region. With the 2011 NATO air strikes in Libya, some see nuclear weapons as the only useful deterrent against foreign intervention. The North Korean regime has stated "Libya's dismantling of its nuclear weapons program has made it vulnerable to military intervention by the West." Halting a nuclear program is seen as a bait and switch approach that left Libya defenseless against consequent Western attacks.<sup>25</sup> Iran's regime, with close nuclear ties to North Korea, likely has a common understanding of the use of nuclear weapons as a deterrent against the West. With an increasing foreign presence in the Middle East, Iran sees its nuclear program as the only means of providing defense against perceived hostilities.

The option of accepting proliferation may not be as dangerous as is often assumed. While proliferation of nuclear weapons is dangerous, a nuclear-armed Iran will not likely be any more dangerous than any other nuclear-armed state. Based on historical precedents, Iran will not have any more coercive influence over its neighbors, nor will it start a nuclear conflict. It is possible that a nuclearized Iran would ignore historical precedent and launch a nuclear war, but in reality, Iran's leaders should be too rational to actually do so. The only serious threat of Iranian nuclear weapons is that terrorist organizations may procure and use them. However, this would run counter to Iran's interests. Instead, nuclear weapons will most likely be used for defenses against Western threats. Allowing Iran to construct a nuclear weapon, through inaction from the international community, is an option that needs to be considered by world leaders.

<sup>24</sup> Steven Emerson & Joel Himelfarb, "Would Iran Provide A Nuclear Weapon to Terrorists?" in *Focus Quarterly* 3 (Winter 2009)

<sup>25</sup> Mark McDonald, "North Korea Suggests Libya Should Have Kept Nuclear Program," *New York Times* (March 24, 2011)

#### IV. Option 2 - Sanctions

Sanctions have been supported on a unilateral and multilateral basis as a means for curbing Iranian access to nuclear materials necessary and dissuading it from developing nuclear weapons. Despite Iran's persistent claims that its nuclear program is strictly for peaceful purposes, its development seems to go beyond what is necessary for mere energy production. The goal of sanctions is to put pressure on Iran's ability to continue its nuclear program. Sanctions are a method of "hard" power and they operate within the framework of international liberalism, which emphasizes diplomacy as the solution to international problems. While sanctions do have an effect in delaying nuclear development, thus far, they have not been very effective in suppressing Iran's ambitions for nuclear weapons.

On July 31, 2006, the U.N. Security Council passed Resolution 1696, which "demanded that Iran suspend all enrichment-related and reprocessing activities," including research and development, and gave it one month to do so or face the possibility of economic and diplomatic sanctions.<sup>26</sup> Iran refused to comply with this resolution. Facing Iranian defiance, the Security Council unanimously passed Resolution 1737 on December 23, 2006, which imposed "sanctions on Iran's trade in sensitive nuclear materials and technology."<sup>27</sup> This tougher round of sanctions demanded that Iran halt its uranium enrichment program within 60 days, with threats of further sanctions. Again, Iran defied the will of the Security Council, so following the 60-day grace period the Security Council passed Resolution 1747 on March 24, 2007. This intensified the previous sanctions, named specific officials as the targets of the sanctions, and added additional sanctions against Iranian financial institutions.<sup>28</sup> On March 3, 2008, the U.N. passed Resolution 1803, which reaffirmed the previous sanctions and asserted greater IAEA rights to verify information provided to it by Iran.<sup>29</sup> With Iran continuing its violations

<sup>26</sup> Security Council 5500<sup>th</sup> Meeting (AM), "Security Council Demands Iran Suspend Uranium Enrichment by 31 August, Or Face Possible Economic, Diplomatic Sanctions" (July 31, 2006)

<sup>27</sup> Global Policy Forum, "UN Sanctions Against Iran"

<sup>28</sup> *Ibid.*

<sup>29</sup> Security Council 5848<sup>th</sup> Meeting (PM), "Security Council Tightens Restrictions on Iran's Proliferation-Sensitive Nuclear Activities, Increases Vigilance Over

of international calls for an end to its nuclear program, the U.N. passed Resolution 1929 on June 9, 2010. This resolution imposed additional sanctions, expanded an arms embargo, and tightened restrictions on “financial and shipping enterprises related to ‘proliferation-sensitive activities.’”<sup>30</sup>

These sanctions have seemingly succeeded in complicating Iran’s ability to further develop its nuclear program, but have failed to change Iran’s behavior. Iran continues to assert its right to enrich uranium without external interference. In response to international criticisms, Iran has argued that “the countries that have backed sanctions have provided no evidence” to prove that it hopes to construct nuclear weapons and it points to a 2007 U.S. National Intelligence Estimate that declared that Iran had ended its nuclear weapons research in 2003.<sup>31</sup> The fact of the matter is that although its excessively large amounts of uranium enriched is suspicious, that alone is not sufficient proof that Iran is aiming towards nuclear arms. Iran has continued to demonstrate its unwillingness to allow foreign states to determine what it claims is a purely domestic issue. With a great deal of assistance from North Korea, Iran is not dependent on the West for nuclear assistance. Thus, sanctions that limit Iranian trade of nuclear materials and technologies with participating U.N. states have had little effect on Iran’s program.

The failure of sanctions is evident by the September 2009 revelations about the construction of a uranium enrichment facility buried inside a mountain near the city of Qom.<sup>32</sup> This facility, which can hold approximately 3,000 centrifuges, is disturbing because it appears to be directly aimed at developing nuclear weapons. Iran has openly admitted that the site is too small for peaceful civilian purposes, leading the international community to believe that it will be used for arms development. Additionally, the facility is “located in an underground tunnel complex on the grounds of an Islamic Revolutionary Guard Corps Base.”<sup>33</sup>

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Iranian Banks, Has States Inspect Cargo” (March 3, 2008)

<sup>30</sup> Security Council 6335<sup>th</sup> Meeting (AM), “Security Council Imposes Additional Sanctions On Iran, Voting 12 In Favour To 2 Against, With 1 Abstention” (June 9, 2010)

<sup>31</sup> Global Policy Forum, “UN Sanctions Against Iran”

<sup>32</sup> Ibid.

<sup>33</sup> Nima Gerami & James M. Acton, “What Else Is Iran Hiding?” *Foreign Policy* (September 28, 2009)

The close proximity between the nuclear facility and Iran’s military institution gives further credence to the belief that it is being used for military and weapons purposes. Sanctions failed to stop Iranian construction of new nuclear facilities, and seem incapable of altering its hostile behavior.

Following the exposure of the Qom facility and with increasing fears of more undisclosed nuclear facilities, the international community felt greater urgency in developing stricter sanctions to limit Iran’s access to nuclear materials and technologies. The U.S. has sought to build a stronger coalition in the U.N. to strengthen future sanctions. In the past, China and Russia, two veto-holding members of the Security Council, have resisted calls for tough, multilateral sanctions. China, an increasingly self-confident power on the world stage uses “its diplomatic weight to protect countries that Beijing considers to be its allies.”<sup>34</sup> It considers Iran an ally out of economic convenience because it has sought increased trade with Iran, particularly in the sale of oil, which is in great demand because of China’s rapid development. Russia has also argued against the use of sanctions on the grounds that sanctions are counterproductive because they force Iran to be more secretive. Instead, it believes that “all efforts must be focused on supporting the negotiating process.”<sup>35</sup>

Following the discovery of Qom, China and Russia began cooperating with the West on the Iran issue. With their support, the Security Council was able to pass Resolution 1929, which was much stricter than previous sanctions by expanding sanctions with hopes of applying pressure on the Iranian economy. In order for more successful sanctions, there must be greater support from the rotating members of the Security Council who have traditionally called for softer methods of engagement with Iran. Members of the 2010 Security Council, such as Brazil, Turkey, and Lebanon advocated for the use of diplomacy rather than sanctions. They argued “the sanctions that have been slapped on Iran have not made the Iranian government more responsive to the demands of the Security Council and the IAEA. However, these sanctions have caused Iranian

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<sup>34</sup> Louis Charbonneau, “Analysis – More Iran steps seen tougher sell on new UN council,” *Reuters Africa* (December 31, 2010)

<sup>35</sup> Megan K. Stack, “Russia opposes tougher sanctions against Iran,” *Los Angeles Times* (October 14, 2009)

civilians much hardship.”<sup>36</sup> Members of the 2011 Security Council, such as India and South Africa, have also demonstrated reluctance towards increasing new rounds of sanctions on Iran, which would be targeted the Iranian energy sector.<sup>37</sup> They oppose sanctions on the grounds that they would severely disrupt the international oil markets. For developing economies, maintaining Iran’s oil output is of greater importance than the addressing the threat of nuclear weapons. Nuclear proliferation is not as serious of a concern for the developing world as it is for the developed world. Developing countries are more concerned with economic development rather than insecurity from the nuclear powers. Iran’s oil production is its trump card against calls for stricter economic sanctions. The countries that oppose further sanctions against Iran question the legitimacy and efficacy of the sanctions. While the developing countries on the Security Council have expressed hesitation in applying sanctions, President Obama’s openness to engagement with Iran will help to ensure that India, South Africa, China, and Russia keep an open mind in regards to further U.N. sanctions.<sup>38</sup>

The consensus amongst the U.S. and its allies is that multilateral sanctions have slowed Iran’s nuclear program and its suspected effort to develop nuclear weapons. Officials in the United States, Europe and Asia believe that their international campaign “has restricted Iran’s ability to procure the raw materials needed to build an atomic bomb,” particularly “carbon fiber and a particular high-strength steel.”<sup>39</sup> The inability to acquire these materials has stalled Tehran’s efforts of constructing advanced centrifuge machines that could accelerate the enrichment of uranium for nuclear weapons. While sanctions have slowed Iran’s uranium enrichment, it is clear that by no means have they achieved their goal of subduing Iran’s ability to construct nuclear arms. Estimates from the U.S. and Israel show that Iran “already has enough low-enriched uranium stockpiled to create as many as four atomic weapons.”<sup>40</sup> There is also

<sup>36</sup> Global Policy Forum, “UN Sanctions Against Iran”

<sup>37</sup> Charbonneau, “Analysis – More Iran steps seen tougher sell on new UN council”

<sup>38</sup> Ibid.

<sup>39</sup> Jay Solomon & Charles Levinson, “Sanctions Slow Iran’s Nuclear Capability,” *Wall Street Journal* (January 8, 2011)

<sup>40</sup> Solomon & Levinson, “Sanctions Slow Iran’s Warhead Capability”

the worry that Iran could possibly have advanced centrifuges at nuclear facilities that are unknown to the IAEA. Israel still suspects that Iran will be able to build a nuclear weapon within the coming few years. Sanctions are unable extinguish the ambitions for nuclear weapons, which is largely based on security concerns and hegemonic desires. Instead, all it can do is slow Iran’s process by limiting its access to the nuclear materials market. If Iran wants nuclear weapons, sanctions alone will not be able to prevent it from doing so.

## V. Option 3 - Covert Operations

In addition to sanctions, covert operations have been used to slow Iran’s nuclear program by sabotaging nuclear equipment and diminishing expertise. Covert operations against Iran’s nuclear facilities have utilized cyber-attacks against nuclear facilities, and attacks against Iranian nuclear scientists. Given the nature of covert operations, it is unknown what specific actions have been taken and their effectiveness. Known covert operations against Iran’s nuclear program are the Stuxnet computer worm, and the Mossad’s assassinations of Iranian scientists.

Stuxnet, known as the world’s first cyber missile, is a computer worm that is designed to destroy the power supplies used in nuclear fuel-refining centrifuge systems. It is a very mysterious computer virus because of its encrypted nature and unknown origins. A Belarus antivirus company discovered it in June 2010 and its purpose of destroying specific nuclear targets was not understood until September of that year. While the origins of the worm are still unknown, many computer scientists, nuclear experts, and former intelligence officials believe that Stuxnet is a joint project between the Americans and the Israelis, possibly with some help, from the Germans and the British.<sup>41</sup> In the last year of his presidency, President George W. Bush “authorized new covert action intended to sabotage Iran’s suspected effort to develop nuclear weapons.”<sup>42</sup> This authorized covert action is believed to be the origins of the development of Stuxnet.

<sup>41</sup> William J. Broad, John Markoff & David E. Sanger, “Israeli Test on Worm Called Crucial in Iran Nuclear Delay,” *New York Times* (January 15, 2011)

<sup>42</sup> David E. Sanger, “U.S. Rejected Aid for Israeli Raid on Iranian Nuclear Site,” *New York Times* (January 10, 2009)

Following its complex trail, researchers in California and Germany have discovered how Stuxnet operates. They believe that the worm gains access to computer systems using an array of devious exploits. Upon entry, it “searches for and infects only a specific Siemens-made programmable logic controller (PLC) performing specific functions.” Upon finding these targets, the worm hunts for “identification numbers unique to a special kind of ‘frequency converter drive’ made by only two firms in the world: one headquartered in Finland, the other in Tehran.” Of these frequency converter drives, Stuxnet only targets those operating at speeds resembling those that centrifuges must achieve in order to separate and concentrate uranium to produce nuclear fuel. The worm can either bring these centrifuges to “a grinding slowdown or an explosive surge” by forcing it to constantly swing its speeds from extremes for a long period, which causes the centrifuge to break down.<sup>43</sup>

In 2009, Stuxnet hit Iran’s uranium enrichment facility at Natanz, home to about 5,000 centrifuges. The worm damaged and forced the replacement of about 1,000 centrifuges. Through IAEA cameras installed at the plant, U.N. inspectors recorded “workers hauling away crate after crate of broken equipment.”<sup>44</sup> Initially, analysts who studied the Stuxnet attack on Natanz estimated that the attack set Iran’s nuclear program back two years. They claimed, “this was nearly as effective as a military strike, but even better since there are no fatalities and no full-blown war. From a military perspective, this was a huge success.”<sup>45</sup> The worm was able to destroy Iranian machines and its unknown origins prevent the Iranian regime from retaliating.

Despite the initial enthusiasm about the efficacy of Stuxnet in slowing Iran’s nuclear program, it appears that the worm was less effective against the nuclear program than believed. Following the attack, Iranian scientists engaged in a “feverish – and apparently successful – effort” to contain the damage done by Stuxnet and to replace

<sup>43</sup> Mark Clayton, “How Stuxnet cyber weapon targeted Iran nuclear plant,” *Christian Science Monitor* (November 16, 2010)

<sup>44</sup> Joby Warrick, “Iran’s Natanz nuclear facility recovered quickly from Stuxnet cyberattack,” *Washington Post* (February 16, 2011)

<sup>45</sup> Yaakov Katz, “Stuxnet virus set back Iran’s program by 2 years,” *Jerusalem Post* (December 15, 2010)

the damaged parts despite sanctions against Iran’s purchase of equipment used in uranium enrichment. According to an anonymous Western diplomat with access to confidential IAEA reports, Iran seems to have been able to “maintain a constant, stable output” of low-enriched uranium despite the damage to the centrifuges. In fact, a February 2011 IAEA report shows that Iran maintained “steady or even slightly elevated production rates” at the Natanz enrichment plant in 2010. The damage to Iranian equipment had little to no lasting effect on the rate of Iran’s uranium enrichment.<sup>46</sup>

Although Iran seemed to have been able to easily and quickly replace the damaged centrifuges, Stuxnet was not a complete failure. Iran is believed to have only “finite supplies of certain kinds of high-tech metals needed to make the machines” due to the trade restrictions from the U.N. sanctions.<sup>47</sup> The forced replacement of the Natanz centrifuges strains Iran’s limited amount of nuclear supplies, and also diminishes its ability to construct new machines. Furthermore, the specificity of the worm’s encoding seems to imply that its designers had intimate knowledge of the Iran’s centrifuges. Despite Iran’s attempted veil of secrecy surrounding its nuclear program, Stuxnet demonstrates the level of foreign intelligence about Iran’s nuclear program. International computer analysts who have examined the worm believe that it was created with access to inside information. Moreover, the computers at Natanz that control the centrifuges are not connected to the Internet, which means that Stuxnet could only have been introduced through a hand-held USB device.<sup>48</sup> Natanz, and possibly other nuclear facilities, must have been infiltrated by foreign intelligence agencies. Iran’s cloak of secrecy has failed to protect its nuclear program from foreign interference.

In addition to the Stuxnet cyber-attacks, the Mossad, Israel’s intelligence agency, is believed to have implemented assassination plots against key Iranian nuclear scientists. On November 29, 2010, Majid Shahriari, Iran’s top nuclear scientist and senior manager of Iran’s nuclear effort, was killed when “an explosive charge placed in his car was detonated by remote control after he climbed into

<sup>46</sup> Warrick, “Iran’s Natanz nuclear facility recovered quickly from Stuxnet cyberattack”

<sup>47</sup> Ibid.

<sup>48</sup> Roula Khalaf & James Blitz, “The Sabotaging of Iran,” *Financial Times* (February 11, 2011)

the vehicle.”<sup>49</sup> The details of this assassination are characteristic of the Mossad, which has carried out similar plots in the past. The effects of Shahriri’s assassination have been twofold: it caused the immediate loss of “operational expertise and detailed knowledge of an effort that has gone on for decades” and has also served as a threat to other scientists working on Iran’s nuclear program.<sup>50</sup> In addition to Shahriri’s assassination, Ali Mohammadi, an Iranian quantum physics expert, was killed when a bomb exploded near his house. Many suspect that these assassinations were committed by the Mossad. Both Shahriri and Mohammadi were Iranian participants to the Sesame project, a scientific study of atomic structures that brings together scientists from Israel, Arab states, and Iran.<sup>51</sup> It is likely that is through the Sesame project that the Israelis came into contact with the key Iranian nuclear scientists. The Mossad’s assassinations of nuclear scientists have diminished Iran’s intellectual supply of scientists needed for a successful nuclear program.

In conjunction with the Mossad’s attacks against Iranian nuclear scientists, the United States has worked covertly to prevent Iranian construction of nuclear weapons. In 2007, the U.S. escalated covert operations in Iran through the C.I.A. and the Joint Special Operations Command. These operations were primarily designed to destabilize the Iranian regime through support of dissident organizations and to gather undermine Iran’s nuclear program. While the exact nature of U.S. involvement in Iran is unknown to the public, it correlated to an increase in violence in Iran.<sup>52</sup>

Publicly known covert operations have been successful in limiting Iran’s access to nuclear technology and operational knowledge. Because of its clandestine nature, covert operations are advantageous because they do not force Iranian retaliation. They are effective tools for disrupting Iran’s nuclear progress beyond the public eye, decreasing the pressure on Iranian leaders to retaliate. Yoel Guzansky, former head of the Iran desk on the Israeli National Security Council, praises covert operations as the moderate option between sanctions and a use of military force

<sup>49</sup> Time, “Is Israeli’s Mossad Targeting Iran’s Nuclear Scientists?” (November 30, 2010)

<sup>50</sup> Time, “Is Israeli’s Mossad Targeting Iran’s Nuclear Scientists?”

<sup>51</sup> Khalafa & Blitz, “The Sabotaging of Iran”

<sup>52</sup> Seymour M. Hersch, “Preparing the Battlefield,” *The New Yorker* (July 7, 2008)

because it delays Iran’s actions and creates time for sanctions and diplomacy to work.<sup>53</sup> Covert operations have successfully slowed aspects of Iran’s nuclear development, but have not yet completely stopped it. They may be incapable of changing Iranian motives for much of the same reasons sanctions can’t. They do not address Iran’s desires for nuclear weapons, but instead merely places hurdles between Iran’s nuclear program and the capability to construct weapons.

## VI. Option 4 - Preventive strike

As opposed to the safer options of sanctions and covert operations, preventive strike is a very controversial and risky option proposed for dealing with Iran’s nuclear program. The most likely form of a preventive strike would be an air raid against key Iranian nuclear sites to destroy enough centrifuges and other nuclear machines. The most likely candidates to conduct such attacks are Israel and the United States. Israel, when threatened, has a history of preventively attacking facilities in the Middle East believed to be a part of a nuclear weapons program. In 1981, Israel struck Iraq’s nuclear facilities in Osirak, and in 2007, attacked Syria’s Deir Ezzor Research Station. The U.S., under both the Bush and Obama administrations, has stated reluctance towards the use force against Iran’s nuclear program, in spite of encouragement to do so by some Arab allies. Israel, on the other hand, has the military capability to unilaterally destroy Iranian nuclear facilities and appears to be seriously considering it. Preventive strikes are the quintessential course of action within the realism paradigm. Uncertain of Iranian motives, Israel may use the option of eliminating the threat through use of force.

Israel’s history of preventive strikes against enemy nuclear facilities gives important insight into potential future strikes on Iran. In 1981, Iraq was in the midst of constructing a 70-megawatt uranium-powered reactor at Osirak, a facility that Israeli intelligence believed was designed for the production of nuclear weapons. Acknowledging Iraq’s history of aggression against Israel, Israel decided to use its air force to prevent Iraq from attaining nuclear arms. On June 7, 1981, Israeli F-15 interceptors and F-16 fighter-bombers struck and decimated the Osirak nuclear reactor near Baghdad, about 700 miles from Israel. Justifying

<sup>53</sup> Khalafa & Blitz, “The Sabotaging of Iran”

this air strike, the Israeli government stated, “the atomic bombs which that reactor was capable of producing whether from enriched uranium or from plutonium, would be of the Hiroshima size. Thus a mortal danger to the people of Israel progressively arose.”<sup>54</sup> The potential for such a deadly weapon falling into the hands of Israel’s enemies justified the use of force for self-defense, and this justification would apply to any preventive strikes on Iran. While Israel was able to successfully destroy the Osirak reactor relatively easily, preventive strikes were by no means successful in curtailing Iraq’s nuclear weapons program in the long run.

The strike against Osirak was successful in the immediate destruction of the Osirak nuclear reactor. While important, a reactor is not an entirely essential part of a successful nuclear weapons program. The Iraqis “would have needed to construct a separate plutonium reprocessing plant” if it were interested in immediately attaining nuclear weapons.<sup>55</sup> There was no evidence of Iraq having a plutonium reprocessing plant or that it had plans to construct one in the immediate future. The strike against the Osirak nuclear reactor was unnecessary because Iraq wasn’t in a position to construct a nuclear weapon. Israel prevented the construction of nuclear weapons that was not yet imminent. In doing so, the attacks revealed Israel’s means of attack and its strong intent in doing so. Rather than suppressing Iraq’s nuclear intentions, the repercussions of the strikes were that they forced Iraq to develop nuclear technology more secretly, hampering Israeli intelligence of future Iraqi nuclear developments.

A decade after the attacks on Osirak, the U.S.-led coalition forces fought Iraq in the first Persian Gulf War. After this conflict, U.N. inspectors “unearthed a huge infrastructure for nuclear development that had been completely unknown to Western intelligence before the war.”<sup>56</sup> Unbeknownst to the international community, Iraq had secretly been developing a nuclear program that came close to the production of a nuclear weapon. The Israeli strikes against Osirak, while delaying Iraq’s nuclear development a decade earlier, did not deter Iraq from continuing its nuclear program. The fact that Iraq was capable of

<sup>54</sup> BBC News, “1981: Israel bombs Baghdad nuclear reactor”

<sup>55</sup> Richard K. Betts, “The Osirak Fallacy,” *The National Interest* 83 (Spring 2006) 22-25

<sup>56</sup> *Ibid.*, 22

almost constructing nuclear weapons demonstrates how preventive strikes failed to stop a nuclear weapons program.

In an echo of the Osirak strike, Israel attacked the Deir Ezzor Research Station in Syria in September 2007. The targets of the attack was a site that foreign intelligence analysts believed was a partly constructed nuclear reactor that was “modeled on one North Korea has used to create its stockpile of nuclear weapon fuel.”<sup>57</sup> It appeared to have been the beginning stages of a Syrian nuclear program with North Korean assistance. A senior Israeli official speaking on the condition of anonymity stated that the strike’s intention was to “re-establish the credibility of our deterrent power.”<sup>58</sup> The message behind the strike against the Syrian reactor, which did not pose an immediate threat to Israel, seemed to be directed towards Iran. It asserted Israel’s willingness to use preventive force to assure its security.

While Israel has relied on the use of preventive strikes against hostile nuclear-ambitious states in the past, it is much less of an attractive option for the current situation with Iran. Iran poses a uniquely dangerous threat to Israel. It understands Israeli military capabilities and its means of attacks. In response to the potential of an Israeli air strike, Iran’s nuclear program entails a large nuclear complex that is carefully concealed, extensively spread throughout the country, and provides multiple routes to nuclear weapons capability.<sup>59</sup> The immensity of the nuclear network and the geographic diversity of its various facilities make difficult the prospects of successfully halting the nuclear program through preventive strikes. Unlike Iraq and Syria, Iran’s nuclear program does not provide a clear, singular target because it has diversified the locations of its most critical nuclear fissile material production sites. These critical nuclear fissile material production sites are the uranium conversion facility in Isfahan, the large uranium enrichment facility at Natanz, and the heavy water plant and plutonium production reactors under construction at Arak. These facilities are each about 950 to 1,000 miles away from Israel,

<sup>57</sup> David E. Sanger & Mark Mazzetti, “Israel Struck Syrian Nuclear Project, Analysts Say,” *New York Times* (October 14, 2007)

<sup>58</sup> *Ibid.*

<sup>59</sup> Whitney Raas & Austin Long, “Osirak Redux? Assessing Israeli Capabilities to Destroy Iranian Nuclear Facilities,” *International Security* 31 (Spring 2007) 7-33

the far end of the distance margin that Israeli fighter planes can safely reach. These sites are imperative to the success of a nuclear weapons development, and “destruction of these facilities would have the greatest impact on Tehran’s ability to manufacture nuclear weapons.”<sup>60</sup> In addition to the difficulty of striking the numerous facilities throughout Iran, the types of facilities discourage any use of force.

The uranium conversion facility at Isfahan would be a deadly target for a military strike because of the nature of the site. It is estimated that tons of uranium exist at Isfahan in chemical form, and preventive strikes against this facility “could result in the release of tons of UF<sub>6</sub>, UF<sub>4</sub>, and other fluorine and uranium products into the atmosphere,” which would very likely “result in significant production of hydrofluoric acid, a highly corrosive chemical” in the atmosphere.<sup>61</sup> Unleashing this chemical into the atmosphere could prove deadly for the 1.5 million residents of Isfahan, Iran’s third largest city, and can affect the lives of millions of people in the region. The results of an attack on the Isfahan uranium conversion facility would be detrimental to not only Iran’s nuclear weapon ambitions, but also to the lives of millions of innocent people as well.

Like Isfahan, air strikes against Natanz and Arak may not be necessary. Preventive strikes against Natanz would not be dangerous in the same ways as strikes against Isfahan would be. However, preventive attacks may be superfluous given Stuxnet’s infiltration of Natanz. The fact that the worm must have been introduced manually by a USB drive indicates that outside intelligence has access to Natanz. It has been demonstrated that the machines at Natanz can be attacked and destroyed without the controversy of a preventive strike. Arak is currently in the process of constructing a heavy water plant and plutonium production reactors. These heavy water reactors pose a great risk of plutonium proliferation because those produced by the Arak reactors would be weapons grade. It is suspected that the Arak facility will be used to recover plutonium from fuel spent in the process of producing weapons-grade plutonium. A reliable means of recovering nuclear fuel would be vital for the successful construction of nuclear weapons. Its destruction would “significantly slow Iran’s future ability to plutonium” and limit Iran’s

<sup>60</sup> Ibid., 15.

<sup>61</sup> Ibid., 14.

supply of nuclear materials.<sup>62</sup> However, its construction is not yet complete, and it is possible that those Arak will be infiltrated in the same manner as Natanz. It is too early to contemplate preventive strikes against Arak because it has yet to be determined how large of a threat it actually poses. Preventive strikes against Natanz and Arak are neither currently necessary nor smart given that they can be attacked in other ways. In the immediate future, there isn’t much urgency for the destruction of these nuclear missile production sites.

While Israel’s air force has demonstrated its capability of successfully destroying nuclear facilities in Iraq and Syria, Iran poses strategic difficulties. Israel needs U.S. cooperation in case of an airstrike because it controls much of the air space between Israel and Iran. This cooperation may be difficult given the unpopularity of preventive strikes. Iran also has greater means of disrupting Israeli attacks. Iran’s air defense capabilities consist of three elements: aircrafts, surface-to-air missiles, and anti-aircraft artillery.<sup>63</sup> While these defenses are technologically outdated, with most dating back to before the Islamic Revolution, they cannot be fully discounted. They are still capable of disrupting the flight of Israeli aircrafts. In addition to its outmoded air defense system, the Iranian air force has forty modern MiG-29s jet fighter aircrafts that can engage in air-to-air combat with the Israeli air force. In any event, Israel will not be able to strike Iran’s nuclear facilities easily.

Despite Iran’s technological disadvantages, it has two important advantages against an Israeli airstrike in Iranian airspace. First, Iran’s aircrafts would be operating in airspace near their docking bases. This will allow them to carry more fuel than their Israeli counterparts, giving them an edge during instances of protracted air-to-air combat. Second, Iranian aircrafts can rely on Ground Control Intercept radars to disclose the position of Israeli aircrafts. This would allow the Iranian air force to begin engagement with its Israeli adversaries from a favorable position, such as attacking from behind.<sup>64</sup> These advantages can create difficulties for Israel if it were to decide to attack Iranian nuclear sites.

<sup>62</sup> Ibid., 15.

<sup>63</sup> Ibid., 21.

<sup>64</sup> Ibid., 22.

Prior to the pro-democracy protests across the Middle East, several Arab states showed support for preventive strikes against Iran. According to U.S. State Department cables revealed by WikiLeaks, Arab states such as Saudi Arabia, and Bahrain lobbied for the U.S. to strike Iranian nuclear facilities. Referring to Iran's suspected nuclear weapons program, Saudi King Abdullah asked the U.S. to "cut off the head of the snake" before it was too late.<sup>65</sup> Arab states that have traditionally conflicted with Iran fear the power and influence that nuclear weapons would afford Iran. The cables also highlight "Israel's anxiety to preserve its regional nuclear monopoly" and its readiness to strike Iran alone.<sup>66</sup> Arab states neighboring Iran have shown support for preventive attacks. Without Arab opposition to preventive strikes against Iran, Israel may find unilateral preventive strikes very appealing.

While they are advantageous in some respects, preventive strikes are too risky to be carried out. Israeli air strikes would likely overcome Iranian defenses and succeed in the destroying Iranian nuclear targets, but doing so will most likely demand retaliation from the Iranians. Given Iran's views on Israel, tensions would rapidly escalate and force Iran to launch counter attacks that can escalate into an all-out war. War with Iran is particularly perilous because it "has the largest and most ideologically committed military of any state in the Persian Gulf region."<sup>67</sup> In addition to the Iranian military, in case of a war, Hamas and Hezbollah, terrorist groups with close ties to Iran, would likely assist Iran in inflicting catastrophic damage to Israel. War with Iran will also further complicate Israel's prospects of peace with its surrounding countries. These risks are not worth the delaying of an Iranian nuclear program preventive strikes are unable to suppress Iran's nuclear ambitions. They do not address the reasons for Iran's nuclear ambitions, and could only slow its nuclear advancement. Like Iraq, Iran can covertly continue its nuclear development after the

<sup>65</sup> Borzou Daragahi & Paul Richter, "Iran 'must be stopped': Arab leaders implored U.S. to attack, WikiLeaks disclosures show," *Los Angeles Times* (November 29, 2010)

<sup>66</sup> Max Fisher, "WikiLeaks Shines Light on Israel-Arab-Iran Triangle," *The Atlantic Wire* (November 29, 2010)

<sup>67</sup> George Friedman, "Bahrain and the Battle Between Iran and Saudi Arabia," *Stratfor Global Intelligence* (March 8, 2011)

destruction of its most visible facilities if it chose to do so. A clandestine Iranian nuclear program would be even more dangerous to the international community.

Ultimately, the likelihood of preventive strike against Iran's nuclear facilities must be understood through the perspective of Israel's leaders. Despite the shortcomings of preventive strikes, Israel sees the world within the theory of realism. With uncertainty and constant security threats, Israel may find preventive strikes as the only means of halting the potential for Iranian nuclear weapons. Iran's threat to Israel must be understood in the context of the Holocaust and Israeli existential concerns. Iranian threats of annihilation may justify Israeli use of force. While the rational deterrence theory would theoretically prevent a nuclear war, the Israeli leadership may not believe that it applies in the case of Iran. Former Iranian President Rafsanjani has said "the use of an atomic bomb against Israel would destroy Israel completely while [a nuclear attack] against the Islamic countries would only cause damages." Nuclear war between the two may only assure the destruction of Israel, and not Iran. This increases the pressure on Israel to terminate Iran's nuclear weapons program before it achieve weapons capability. The likelihood of preventive strikes hinges on the Israeli leadership's perception of the threat. Further development of Iran's nuclear program with increased threats by Iranian leaders may force Israeli military action.<sup>68</sup>

## VII. Option 5 - Regime Change

Regime change is an option to prevent Iran from attaining nuclear weapons by replacing its nuclear ambitious leaders with ones open to diplomacy. Iran's current nuclear program has largely been designed by Ayatollah Khamenei and galvanized by President Mahmoud Ahmadinejad. This regime zealously defends Iran's right to pursue nuclear technology, limits outside knowledge of its nuclear development, and has encouraged violence in the Middle East. Removing these nuclear zealots from power would thwart Iran's ambitions for nuclear weapons.

Attempts at Iranian regime change can come either internally or externally. External attempts to overthrow the current Iranian regime are unlikely. Israel, the state most threatened by the current

<sup>68</sup> Jeffrey Goldberg, "The Point of No Return," *The Atlantic* (September 2010)

Iranian regime, has demonstrated, at least publicly, little interest in actively overthrowing Iran's government. Doing so would require the use of military force and inevitably lead to a deadly, protracted war and would disrupt the international oil market, among other things. This would lead to condemnation by many in the international community. Overall, external changes to Iran's regime are not a viable option.

An internal regime change is conceivable, and has become increasingly plausible given the current unrest in the region. Iran has a history of indigenous revolutions leading to dramatic regime changes. In the 1979 Islamic Revolution, the Iranian people rose up against the Shah, and replaced the monarchy with a fundamentalist Islamic republic. If Iran's current regime were to be replaced by one less hostile to the international community, the issue of the proliferation of nuclear weapons could be solved diplomatically. Iran's political climate since 2009 seems to indicate that regime change towards democracy is a possibility.

In the disputed 2009 Iranian Presidential election, Mir Hossein Mousavi, a reform candidate, sought to "wrest the presidency and executive power away from radical hard-liners whose term in office had been marked by economic incompetence, foreign-policy adventurism, and an ideological doctrine that included limits on civil right."<sup>69</sup> Following President Ahmadinejad's electoral victory, Mousavi and other opposition candidates charged that the elections were rigged. Supporters of opposition leaders organized the Green Movement, with hopes of annulling the presidential election. They began protesting in several major cities. Despite the initial peacefulness of the protests, they quickly turned violent. There were numerous reports of "beatings and murders of some demonstrators on Iran's street" by police forces and the Revolutionary Guards.<sup>70</sup> Violence against protestors transformed the Green Movement from a movement against a disputed election into a movement against Ayatollah Khamenei and the Iranian form of government. With this development, Ayatollah Khamenei "ordered a crackdown on any challenges to his leadership."<sup>71</sup> Many key opposition leaders understood that Khamenei was prepared to

massacre thousands of people, and were dissuaded from organizing large protests. The increased governmental use of force suppressed the 2009 Green Movement protests.

In 2011, following the success of demonstrations in Tunisia that brought down President Ben Ali and in Egypt against President Mubarak, the Green Movement reinvigorated protested throughout Iran. On February 14, 2011, thousands of protestors gathered in the streets of Tehran and other major Iranian cities to demand greater democracy and governmental accountability. However, unlike the preceding protests in Tunisia and Egypt where the governments were reluctant to use excessive force against demonstrators, the Iranian regime resumed its 2009 policy of forceful action to quell anti-governmental protests. The Revolutionary Guard and other security forces were prepared to react with force, and in some locations where protests were planned, "witnesses reported that police officers and baton-holding mercenaries outnumbered the protested."<sup>72</sup> The state-sanctioned violence against demonstrators was again successful in subduing the protests, at least for the time being.

In addition to its use of violence, the Iranian government greatly restricted the impact of the protests by cutting access between demonstrators and opposition leaders. The two main opposition leaders, Mir Hussein Moussavi and Mehdi Karroubi, disappeared just prior to the February 14<sup>th</sup> protests. There were contradictory reports over whether they had been jailed or had been placed under extreme house arrest, completely cut off from the outside world.<sup>73</sup> It is widely speculated that the Iranian government detained the two with hopes of containing the protest's democratic fervor. If true, this detention of opposition leaders is a risky course of action for the Iranian regime. Cutting access to opposition leaders can limit the strength and direction of the demonstrators, but it can also galvanize protestors by fueling their anger. Ali Afshari, an exiled former student leader, believed that there is fear in the Iranian government that imprisoning the opposition leaders "would give their restless supporters in the Green Movement a

<sup>69</sup> Hooman Majd, "Think Again: Iran's Green Movement," *Foreign Policy* (January 6, 2010)

<sup>70</sup> Ibid.

<sup>71</sup> Robert Tait, "Iran's green revolution refuses to wither and die," *The Guardian* (December 27, 2009)

<sup>72</sup> Liz Robbins, "Protests in Tehran Are Stifled by Security Forces," *New York Times* (February 20, 2011)

<sup>73</sup> Neil MacFarquhar, "Mystery Deepens on Status of Iran Opposition Leaders," *New York Times* (February 28, 2011)

new cause to rally around.”<sup>74</sup> The regime’s actions for suppressing the protests may backfire and engender greater protests, now and in the future.

In addition to the regime’s use of force against Iranian protestors, Iran has also played a role in the protests in nearby countries. It is deeply involved in some protests and recognizes that its interests are connected to the regional protests. One regime that Iran is aiding is Syria, where pro-democracy protests have turned violent. Iran has provided Syria with the equipment necessary to disperse protestors, block the Internet, and track cellphones. These are the techniques that Iran uses to successfully suppress its own protests. Iran’s interest in buttressing the Syrian regime is due to their shared ideology and Syria’s location, which allows Iran to send weapons to Hezbollah and Hamas. Because of the relationship between Iran and Syria, the fall of the Syrian regime would likely galvanize the protests for regime change in Iranian. To protect itself from collapse, Iran’s regime is protecting the Syrian regime.<sup>75</sup>

While suppressing protests in Iran and Syria, the regime has also fomented protests in Bahrain, a small country with a Shi’a majority and a Sunni regime. The protests have increasingly become a proxy war between Iran and Saudi Arabia. With the collapse of the Sunni monarchy in Bahrain, which is supported by Saudi Arabia, Iran would gain greater influence in the region.<sup>76</sup> The replacement of a Sunni regime with a Shi’a one would increase Iran’s clout of leadership. This perception of regional leadership may decrease public desire in Iran for regime change, and increase the regime’s willingness to use force to quell protests. Increased regional leadership would encourage nationalism in Iran that would shield the regime from some criticisms. Ultimately, it is impossible to determine whether Iran’s anti-government protests will succeed because events in Iran are tied to events throughout the Middle East. The success of the Iranian protestors partly depends on the success of pro-democracy protests elsewhere in the region.

If the Iranian opposition is successful in overthrowing the current regime, the form and ideology of any subsequent regimes is unclear.

<sup>74</sup> Ibid.

<sup>75</sup> Ariel Zirulnick, “US officials: Iran helping Syria’s Assad put down protests,” *Christian Science Monitor* (April 14, 2011)

<sup>76</sup> Friedman, “Bahrain and the Battle Between Iran and Saudi Arabia,”

While Iranian opposition leaders have embraced democratic values, there isn’t a guarantee that these values will materialize in a new regime. Even if democratic, a new Iranian regime may continue the current regime’s policies for nuclear development. While a democratic government is likely to be more receptive to meaningful negotiations on the nuclear issue with the international community, history shows that democratic governments can defy the international community in pursuit of nuclear weapons. For example, the democratic regimes of the Republic of India, the State of Israel, and the Republic of South Africa have all developed nuclear weapons in the past. There is no guarantee a new Iranian regime would give up ambitions for nuclear weapons.

Iranian opposition leaders have defended Iran’s pursuit of nuclear technology, but have stated that they are open to reforming Iranian nuclear policies. During the 2009 elections, Mir Hussein Moussavi stated that if elected, he would be open to negotiations with the United States if it changed its policy towards Iran. He has said that “the consequences of giving up the country’s nuclear program would be irreparable and that the Iranian people support the nuclear program” because the program is “considered a source of national pride.”<sup>77</sup> His comments demonstrate an unwillingness to give up nuclear development entirely, but also openness to compromise on the purpose of nuclear technology and on the degree of international regulation. The Nuclear Non-Proliferation Treaty does allow for Iran to develop nuclear technology for peaceful purposes, and on the basis of the treaty, diplomacy can be used to halt Iranian production of nuclear arms. Diplomacy can be used to enforce NPT stipulations. If the current protests in Iran successfully lead to a democratic regime, there is an opening for the U.S. and Israel to work with Iran in order to prevent the construction of nuclear weapons.

## VIII. Conclusion

Iran’s nuclear ambitions and the fears of the international community can be understood within the framework of realism. Iran wants nuclear weapons primarily for security purposes and to

<sup>77</sup> Associated Press, “Iran’s Reform Candidate, Mir Hossein Mousavi, Says Open to U.S. Negotiations” (April 6, 2009)

attain regional hegemony. These desires do not necessarily pose dangers to the international community. Nuclear proliferation isn't inherently dangerous, only the use of nuclear weapons is. While the international community has been primarily focused on how to stop its nuclear program, the real concern ought to be to limit Iran's nuclear program to strictly peaceful purposes. To ensure that Iran's nuclear program remains peaceful, the reasons for its nuclear ambitions must be addressed. Otherwise, Iran will continue its nuclear program belligerently defiant of the international community.

The best means of ensuring a peaceful nuclear program would involve a combination of some of the options presented. Sanctions are an important aspect of any package of actions for preventing Iran from developing nuclear weapons, but they cannot be the only option. History shows the ineffectiveness of solely relying on sanctions to change undesirable behaviors. Current sanctions on Iran limit its access to nuclear materials, and also threaten the prospects for Iranian hegemony by detaching it from the international community. Despite these benefits of sanctions, they may be detrimental to the average Iranian citizen. This is a major concern brought up by some members of the Security Council who fear that sanctions punish the wrong entities. It may turn the Iranian public against the international community, which can stimulate Iranian nationalism against the outside world. As such, all unilateral and multilateral sanctions need to be targeted strictly against parts of the nuclear program.

Covert operations should also be continued, but done so more prudently. These operations can effectively slow Iran's nuclear development without forcing Iran to retaliate. Insofar as Iran's nuclear program is a source of national pride, publicly known attacks on the program may lead to public desires for retributions, which can escalate into war. In order to avoid this, covert operations must be done more carefully. A very effective use of covert operation would be to use it to lend support to the Green Movement. With regime change increasingly likely due to the state of affairs in the Middle East, international powers can empower protestors.

The Green Movement is no longer merely a movement against the re-election of President Ahmadinejad, but has taken on an ideological fervor for democracy. The success of the Green Movement will be tied to the success of similar revolutions across the Middle East. Success in

countries like Libya and Syria will encourage protesters in Iran. Covert aid to demonstrators can help protect them from excessive governmental force. The clandestine nature of this aid is very important though because protests need to be indigenous in order to succeed. Regime change that doesn't appear to be purely indigenous would be quickly characterized as Western imperialism and would give the Iranian regime greater justification for its use of force.

Regime change to a democratic regime in Iran is the best outcome for the international community. Sanctions and covert operations should try to encourage regime change in order to directly address Iran's nuclear weapons ambition. A truly democratic Iran may not give up its nuclear program entirely, but it will be open to better relations and diplomacy with the West. This can lead to greater international inspections and regulations of Iran's nuclear program to ensure that it is for peaceful objectives. Beyond the issue of nuclear proliferation, regime change would also be very desirable to diffuse other pressing issues in the Middle East that originate from the Iranian regime.

Ultimately if this fails, allowing Iran to develop its nuclear program is better than the option of preventive strikes Iranian nuclear facilities. The risks associated with Iranian nuclear weapons are insufficient in warranting preventive strikes that will surely lead to a deadly war. Iran's vast military and association with terrorist organizations make it a strong adversary in a war. Preventive strikes are also unable to suppress the ambition for nuclear weapons, but can only delay its production. After a strike, Iran can rebuild and resume a nuclear program more clandestinely. A covert nuclear program would be much more deadly than the current Iranian nuclear program with its limited international oversight. The dangers of Iran's nuclear program are not as great as is commonly perceived. While it is in the best interest of the international community to prevent Iran from developing nuclear weapons through diplomacy and safe attacks on its program, if these options fail, the international community must come to terms with Iranian ambitions for nuclear technology and possibly nuclear weapons.

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