WORCESTER POLYTECHNIC INSTITUTE

Nuclear Proliferation Policy Debate

A Discussion of Nuclear Technology's Impact on Foreign Policy

Stephen Kressaty, Justin Torres, Mathew Skerritt

3/2/2012

Table of Contents

Overview: The Nuclear Proliferation Policy Debate

In today's world, there are many growing concerns regarding the vast dangers of weapons of mass destruction. This report focuses, in particular, on the proliferation of nuclear weapons and its technology, dealing specifically with the impact this has on the social policies of several countries. Controlling the spread of nuclear technology is directly connected to the spread of nuclear weapons and has been an ongoing struggle since the capability was developed. Throughout this project, public policies, along with various past, present, and suspected inevitable future events pertaining to this topic are studied and analyzed to gain a deeper understanding of key countries' positions. From these determined positions, predictions and policy recommendations are crafted.

Phase I

This project has three phases to it. The first phase entails gaining a comprehensive perspective on each country that is to be considered. The countries selected to be studied were chosen due to the key nature they have as an influential world power in the nuclear world. The coverage is divided as follows: Stephen Kressaty undertakes studying Iran and its perceived illicit arms program, Justin Torres looks into the United States' current issues with Russia and the significant role that China plays around the world, and Mathew Skerritt delves into North Korea and India's current battles with Pakistan. To make accurate analyses, it is important for the team members to gain a thorough understanding of their countries' nuclear history. Sources used include websites, books, and various other sources of media. After the background research is done, the second phase will begin.

Phase II

The second phase of this project entails the bulk of the workload, covering all the research needed to educate ourselves on the countries that were selected. Various sources, mostly current news articles due to the popularity of this issue, are used to draft briefing papers on the countries. These policy papers provide the countries' current stance toward nuclear weapons and nuclear power and their goals for the future of their nuclear program. More specifically, topics covered include:

1) A discussion of the United States' and Russia's nuclear programs. This involves issues such as out of date weapons, large stockpiles of weapons, the possibility of new weapons being manufactured, UN and IAEA cooperation with the NPT, START and other reduction measures taken, and setting the standard as world powers for a move towards nuclear disarmament.
2) A discussion of North Korea's nuclear program. This involves the debate about its impact on surrounding countries and other countries around the world (United States, Russia, Japan, China, S.Korea, etc.), Kim Jong Il's death and Kim Jong Un's takeover, and the difficulty of negotiations with North Korean leaders due to its isolation from the world.
3) A discussion of Iran's nuclear program. This includes topics such as its impact on surrounding countries and other countries around the world (United States, Russia, Israel, Lebanon, Syria, European countries, Turkey, etc.), Mahmoud Ahmadinejad and his radical leadership, Iran's stability as a state, and the terrorist network that is enabled by Iran's leaders.

4) A discussion of India, Pakistan, and their stand-off. This includes topics such as its impact on the surrounding countries and countries around the world, how China plays a role in the stand-off, terrorist presence in Pakistan, and the battle of Kashmir.

After these position papers are drafted, a transition to Phase III occurs.

Phase III

The third and final phase of this project is the actual resulting product. Using the well-researched position papers that were drafted, a policy recommendation is written suggesting a course of action to be taken. The recommendation is based on knowledge gained from researching past, present, and future actions and policies implemented by the governments of the countries studied. The aim of the proposal is to promote ethical control of the spread of nuclear weapons and the technology that enables it. The final recommendation is a document intended for the United States Department of State and is from an American citizen's point of view. It includes actions and stances endorsed by the United States and enforced by the IAEA, United Nations Security Council, and other international nuclear watchdogs. Topics covered include various recommendations such as:

- The suspected direction of countries' nuclear program.
- Any recommended changes to the current state of any nuclear programs.
- Any precautions that should be taken to secure a nuclear program's weapons and technology.
- Any efforts to secure the nuclear weapons programs of possible nuclear-capable states.

To demonstrate full understanding of our recommendations, suspected reactions of the various countries are also included in the final report. This will keep our proposal in line with realistic circumstances and prevent any impractical recommendations.

Nuclear Proliferation in Iran

A Report on Radical Ideologies, Sponsored Terrorism, and Tehran's Drive for Nuclear Weapons

Stephen Kressaty

Introduction

Throughout the past decade, global concerns surrounding Iran's nuclear program have grown to unprecedented levels. The Iranian drive to acquire nuclear capabilities has worried the governments of many countries who fear that this seemingly uncontrollable technology may fall into the wrong hands. While some countries are worried about the regional "superpower" status that Iran may gain along with the bomb, others (Israel in particular) could face a more serious threat of mass destruction. Preventing Iran from becoming a nuclear state may be extremely difficult given the unusually strong ambitions of its leadership, but it is an important task that must be undertaken.

In order to fully comprehend the dangers of Iran's nuclear program, it is important to have a clear understanding of present-day Iran, its leaders, and their goals. While a vast majority of the world's countries separate religion from government, a handful operate as theocracies, where religious law presides over the country. Since the 1979 Islamic Revolution in Iran, the country has been known as the Islamic Republic of Iran and has been governed by Sharia Law, which is the religious law of Islam.

Muslims around the world have historically been divided into many denominations based on different beliefs. The vast majority of Muslims fall into two major denominations: Sunni and Shi'a Islam. The schism between the two sects lies in a disagreement over who is the true successor of the prophet Muhammad after his death in 632. While Sunnis make up over 80% of Muslims around the world, Shi'ites have occupied the Persian region, which includes Iran, for hundreds of years (Shi'a–Sunni relations, 2011). Because of the emergence of Shi'a Islam and

the occupation of this region, Iran has historically been governed by Shi'ites and their interpretation of Sharia Law.

An important distinction of the Shi'a religion and its interpretation of Sharia Law is that its leaders are believed to be chosen spiritually, unlike the Sunni religion where leaders are chosen by the people. Since the 1979 Islamic Revolution, the highest ranking figure in the Iranian government has been the Ayatollah, or "Sign of God," who presides over the religious councils, approves appointments for many other high-ranking officials within the government, and even has the power to decide the legality of the President, who is elected by the people (Politics of Iran, 2011). The current Supreme Leader of Iran, Ayatollah Ali Khamenei, and the President, Mahmoud Ahmadinejad, have repeatedly stated alarming goals for Iran that they plan to carry out using their nuclear program as a tool. The President has abused his appointment powers and surrounded himself with members of Iran's military, the Revolutionary Guard, who share many of the same chilling views as the two top leaders.

The Shi'a worldview as seen by the leaders of Iran is extremely important to understand when weighing the seriousness of an Iranian nuclear weapons program and the state's commitment to it. Even before the Islamic Revolution, Iranians strongly expressed ambitions to return to the days of the Persian Empire, in which it was a strong regional power. Bringing back the Persian Era would mean expanding Iran's recognized borders into neighboring countries and becoming a dominant force in that region. President Khatami, who was predecessor to President Ahmadinejad, often boasted about "Iran's glorious civilization," and made comparisons to "the Greek city states and the Roman Empire" (Yossi, 2009). These overwhelming ambitions are openly one of the goals of the Islamic Republic of Iran and it is actively employing a number of different tactics to fulfill them.

Iranians believe that becoming very technologically advanced is a necessary part of bringing back their regional supremacy and that crossing the nuclear threshold will help solidify their place as a world power. Only a handful of countries possess nuclear weapons today and there have been numerous global efforts to keep it that way since the emergence of the technology in the 1940s. The Nuclear Non-Proliferation Treaty was drafted in 1968 to stop the spread of nuclear weapons and weapons technology by disarming nuclear states while promoting the peaceful use of nuclear energy. Because the treaty was signed before the Islamic Revolution of 1979, the current leadership in Iran sometimes conveniently chooses when to abide by the treaty and when to take advantage of it. Nevertheless, they are still not legally allowed to fabricate nuclear weapons or possess them. They have been found in violation of this treaty numerous times which has led the world to believe that the allegedly civilian Iranian program has an ulterior motive.

When the world gets suspicious about increased nuclear activity in Iran, its leaders insist that they are just exercising their "inalienable right to pursue nuclear technology and that its program [is] for peaceful civilian uses" (Gold, 34, 2009). It is often argued that a nuclear reaction is harder to contain and harvest energy from than to let it explode in a nuclear weapon. For this reason, some countries want to keep all forms of nuclear technology away from Iran due to suspicion about intent to abuse the knowledge about nuclear reaction devices that comes even with a civilian power plant.

While becoming a nuclear capable state is one way Iran plans to assert dominance in the region, the Iranian government also has aspirations of using its Shi'a influence in the Middle East to expand its borders. Many Iranian leaders view the 1979 Islamic Revolution as a regional change that is still going on today. The idea of 'exporting the Islamic Revolution' is endorsed by

many Iranians, who believe that Shi'a Islam should be spread throughout the world by any means necessary. The Iranian Constitution boldly calls for the "continuation of the Revolution at home and abroad," (Gold, 23, 2009) which has become increasingly militant and violent over the years.

In addition to having influence in bordering countries, Iran has attempted to assert its presence in the region by founding and supporting Islamic militias throughout the Middle East. While Iran's involvement with some terror groups could possibly, but not strongly, be debated, its involvement with the Shi'ite militia Hezbollah is open and strong. Hezbollah, which was secretly founded in part by ex-Iranian interior minister Ali Akbar Mohtashemi in 1982 to combat the Israeli invasion of Lebanon (Gold, 86, 2011), is considered a terrorist group by many nations including the United States. Iran has played a big part in Hezbollah becoming the powerful and dangerous resistance force it is today across the Middle East. For this reason, Iran is designated by the U.S. Department of Defense as a 'State Sponsor of Terrorism' (State Sponsors of Terrorism, 2011).

Many extreme groups in the Middle East follow radical ideologies that include killing Americans, Jews, and other Westerners in what they see as an ongoing battle for the spread of Islam by any means necessary. Iran often uses these various militias as front groups for attacks on the West without having to bear responsibility for them. Iran's current president, Ahmadinejad, is a follower of an unusually extreme sect of Islam that has hauntingly apocalyptic visions about the end of the world. He has referred to the United States as "the criminal America" who "is the cause of all misfortunes of the Muslims" (Gold, 73, 2009) and has repeatedly called for Israel to be "wiped off the face of the world" (Gold, 206, 2009).

Ahmadinejad has made his goals clear and has certainly given the world enough reasons to keep Iran nuclear free at all costs.

Perhaps the scariest ideology endorsed by Iranians at the highest level of government is the level of sacrifice deemed acceptable for the spread of Islam. Right after the Islamic Revolution in 1979 was completed, the first Ayatollah of Iran, Ayatollah Ruhollah Musavi Khomeini, said, "We do not worship Iran, we worship Allah… I say let this land go up in smoke, provided Islam emerges triumphant in the rest of the world" (Gold, 23, 2009). These radical views are particularly important to understand when dealing with nuclear weapons because of the scale of destruction they make possible. If the Iranian leadership feels that it is justifiable to sacrifice their people and their land, then the deterrence concept of mutually assured destruction becomes meaningless and they become a significantly bigger threat as a nuclear capable state.

The historic volatility throughout the Middle East further points to the need to keep nuclear arms away from Iran under its current regime. Events over the last century have continually proven that it is unusually challenging to establish secular democracies across a region which has historically governed by regimes committed to a religion, though Turkey and Israel have had success and the Arab Spring gives a sense of hope. An arms race triggered by Iran would only add fuel to the fire of many battles stemming from religious beliefs and associated power struggles in a region that is famous for them.

While the United States and its allies seem very determined to stop Iran at all costs from developing nuclear capabilities, they often find this task harder than it seems. Its strong Shi'a following in the region coupled with their place in the global energy economy as an oil exporter has enabled Iran to continuously defy international agencies like the United Nations Security Council and the International Atomic Energy Agency (IAEA) and withstand economic and

political sanctions. Stopping Iran's advancement in the nuclear field may not be easy, but it is imperative and requires a strong allied international effort to carry out.

Understanding Present-Day Iran

While many of Iran's past theocratic leaders have been somewhat defiant or apathetic toward the West, the current leader, President Mahmoud Ahmadinejad, seems to have a unique hatred toward it. His radical ideologies and extreme statements undoubtedly raise red flags and are an obvious cause for concern. He is fiercely anti-American and anti-Semitic, believing that Americans, Jews, and other Westerners in the region are occupying Muslim land and slowing the export of the Islamic Revolution. While many Muslims across the Middle East also endorse the goal and share the dream of removing all Western influence, his strong animosity coupled with his influential position as president of Iran seems to set him apart from the rest of the extremists.

Ahmadinejad's vision of the world includes a complete Shi'a takeover and a return to the glorious Persian Era. These views are endorsed by many high-level officials of Iran, including the Supreme Leader, Ayatollah Khamenei, who ultimately has the last say on Iran's positions and decisions. While many governments would like to keep Iran's ambitions in check, the Shi'a following in the region often expands Iranian influence beyond its geographical borders. The reason behind this leverage dates back to the 16th century Safavid dynasty, when Persian borders stretched from the far west into Iraq, Syria, and Turkey out to the east in Afghanistan, Turkmenistan, and Pakistan. It is also important to note that these borders extended south and encompass Kuwait, Bahrain, and parts of the United Arab Emirates and Saudi Arabia, an extremely oil-rich region where a large portion of the world's energy comes from (Gold, 23, 2009). The significance of these extended borders lies in the strong Shi'a following in neighboring countries and their support for Iran as a powerful and proactive Shi'a state in the region.

Since the governments in these countries are predominantly Sunni, Shiites have traditionally been deemed as nonbelievers and considered unwelcome. This presents an opportunity for Iran to provide comfort, support, and sometimes refuge to these marginalized people, bolstering Iranian support outside of its borders and empowering Iranian expansion.

A prime location for expansion includes the oil-rich country of Bahrain, which is governed by the Sunni al-Khalifa family, but is a historically Persian region where the population is still predominantly Shiite (Gold, 129, 2009). In 2007, a spokesman for Ayatollah Khamenei said, "Bahrain is part of Iranian soil" and that "the principle demand of Bahraini people is to return this province… to its mother, Islamic Iran" (Gold, 234, 2009). He went on to remind the countries in the region that "most of them were once part of Iranian soil, when [parts of Iran] stretched from Egypt to Syria" (Gold, 234, 2009). On two occasions in 1981 and 1995, the Bahraini government had to break up attempted government overthrows by Shiite militias with ties to Bahraini Hezbollah, an organization founded in Iran (Gold, 129, 2009). Such actions are particularly disturbing because they show the length to which Iran will go to fulfill their expansionist aspirations grounded in its religious motivation.

Religion has been used to justify Iranian expansion many times in the past, but the most recent example shown in present-day Iraq represents an attempt to exploit a recently revolutionized country. With the United States officially declaring the war in Iraq over on December 15th, 2011 (Shanker, 2011), the repressive Sunni regime of Saddam Hussein in the past, and a democratic system installed, the overwhelmingly Shiite population is now in electoral control of the nation. Because Iraq's eastern border is pressed up against Iran, it is thought that the newly-reformed country is the next target for Iranian expansion and thus the undermining of the new democracy by a theocratic state. During the period of Sunni repression, several current

Shi'ite leaders fled to Iran and spent time there as refugees. Now, Iran is sending millions of pilgrims to Shi'a shrines, building hospitals, and providing water and electricity in an effort to build up relations with their Iraqi neighbors and construct an alliance with the past adversary (McEvers, 2011). It seems to many that Iran has a somewhat hidden motive of territorial expansion and that pouring financial and other support into Iraq and other countries is a means to this end.

Because a large portion of the world's oil comes from countries in the Middle East, it is important to weigh the economic impact that a largely Iranian-controlled oil market would have on the global economy. Many Western nations have economic sanctions or embargos that prohibit the purchase of Iranian oil. Therefore, a strong Iranian influence over Middle Eastern oil sources could mean a limited supply of available oil for Western countries like the United States who are unwilling to enrich the current regime. This, in turn, would empower the remaining Sunni sources like Saudi Arabia (an American ally). Hence, keeping Iranian power in check in the region is always a high priority for the United States, Britain, and many other nations attempting to embargo Iranian oil.

While expansion and regional influence seems to dominate the foreign policy of Iranian leaders, their ideologies glorifying sacrifice in the name of the faith stimulate curiosity about the deeper motives behind the rhetoric of fostering the spread of Islam. As noted earlier, President Ahmadinejad is a follower of a particularly extreme sect of Shi'a Islam that embraces radical and ominous apocalyptic beliefs. Mahdism is a school of thought within Twelver Shi'ite tradition that advocates the second coming of Mahdi, a descendant of the Prophet Muhammad's son-in-law, Ali (*Shi 'at 'ali* literally means "Party of Ali") (Gold, 21, 2009). It is thought that the reincarnation of Mahdi will signal the end of all days "before the Day of Judgment, when a new

era of divine justice will prevail, and Shi'ite Islam will be recognized as the true global faith" (Gold, 209, 2009).

Ahmadinejad has made the second coming of Mahdi a goal of his presidency, often stating that he is sure it will happen before his time as president is up (in 2012). In his speech to the Iranian people shortly after his election in 2005, he stated, "Our revolution's main mission is to pave the way for the re-appearance of Mahdi" (Gold, 210, 2009).

These beliefs are quite alarming for a number of reasons. According to the traditions of Mahdism, the re-appearance is to be concurrent with global destruction and disorder. In Mehdi Khalaji's *Apocalyptic Politics: On the Rationality of Iranian Policy*, it is argued that within these traditions, it is believed that "the Imam's return will come at a time of world chaos, and [Ahmadinejad] seems at times to promote chaos for that end" (Khalaji, 26, 2008). The Iranian president has even publicly stated that he is looking forward to mass devastation. At a European Union meeting in New York on September 15th, 2005, he abruptly shifted the conversation and asked, "Do you know why we should wish for chaos at any price?" Answering his own rhetorical question he stated, "Because after chaos, we can see the greatness of Allah" (Gold, 212, 2009).

The apocalyptic aspirations grow even larger under some beliefs that the death of two-thirds of the world's population must coincide with Mahdi's reincarnation and that these conditions can be man-made (Khalaji, 32, 2007). For man to create such unimaginable conditions, conventional weapons could not do the job, leaving a task that can only be fulfilled by weapons of mass destruction. Clearly, it is not the Shi'ite Islamic population of the world that would be considered most expendable, but heavy Iranian losses are considered tolerable given the end being sought.

Not all Shi'ites within the government of Iran share Ahmadinejad's beliefs in Mahdism. In fact, it is only a small percentage of Shi'ites who follow Ahmadinejad's beliefs. Many of his fellow believers were part of a secretive Islamist movement in the 1970s called the Hojatieh Society, a cult where many Mahdist ideologies were embraced (Gold, 214, 2009). Extreme cults exist all around the world, but it is not very often that one produces the president of a powerful country like Iran with the possibility of gaining nuclear capabilities. The presidency generally comes with the ability to surround yourself with people of similar beliefs through appointments, and this president has actively promoted his co-believers. Many top figures in the Iranian government seem to have strong ties to Mahdism indicated by their early studies of Islam. Positions like the Deputy Chief of Staff of the Revolutionary Guards, Minister of Intelligence and Security, and top positions in Iranian press and cultural institutions all have links to Mahdism (Gold, 217, 2009). As stated before, any of these appointments can be deemed illegal by the Supreme Leader of Iran, yet he has not found the need to block any of Ahmadinejad's appointments of Mahdism believers.

Even with a comfortable circle of cronies surrounding Ahmadinejad, there has been strife within his administration. Ahmadinejad, who is viewed even within Iran as a radical, has been accused of corrupting the administration by picking only people who share his beliefs for appointments. On the other side of the debate are the conservatives in Iran, headed by ex-president Ayatollah Ali Akbar Hashemi Rafsanjani. Ahmadinejad has accused his opposition with corrupting Azad Islamic University, one of the world's largest universities, by filling the university management with allies (Beaumont, 2010). In November 2011, Iran's judicial officials, who are largely influenced by the conservative party of Iran, attempted to topple one of Ahmadinejad's top aides. Ali Akbar Javanfekr, the president's media advisor, was arrested in a

raid and sentenced to one year in prison for insulting Ayatollah Khamenei (Gillison, 2012). This power struggle exposes the level of instability within Iran's government. Concern about stable control of nuclear arms and information is yet another reason why Iran should not be in possession of nuclear technology. However, unlike Pakistan the concern is not that extremists with terrorist links could take over the government. The concern is rather that extremist leaders may provoke a war as they begin lose power to the displeased population in which they could use nuclear devices while they have control of them.

One move of Ahmadinejad's presidency that has perhaps not gained the scrutiny that it deserved was the decision to not replace the head of the Iranian Atomic Energy Organization when he was elected president. Gholam Reza Aghazadeh is rumored to be a member of the secret Hojatieh Society mentioned before and shares many of Ahmadinejad's chaotic visions (Gold, 214, 2009). Haunting apocalyptic convictions common to numerous Iranian leaders coupled with clearly unresolved internal strife suggest that recent revelations about Iran's secret nuclear program should be taken very seriously. Stopping Iran from acquiring the necessary technology to advance in the nuclear field is imperative to prevent a deliberate policy of seeking widespread chaos and destruction on a global scale.

The Iranian People

While foreign policies are undoubtedly easier to understand given information about a group of leaders' worldviews and agendas, the treatment their own people receive can also be revealing. Repression and mistreatment, rigged elections, and suppression of political opposition have been recurring themes for the Iranian general population under both the Shah and the Ayatollahs. The current governments' support for countries like Syria and North Korea leave little ambiguity surrounding their commitment to humanitarian policies and hostility toward democratic rule.

In December of 2011, the United Nations General Assembly passed a resolution denouncing serious human rights violations in Iran. The resolution pointed out scary facts about daily Iranian life such as "a dramatic increase" in executions, the use of torture, and the systematic targeting of human rights defenders (UN Condemnation of Iran, 2011). Violent oppression within the general population deserves its own debate, but the blatant disregard for human life combined with statements about a willingness to sacrifice the Iranian population brings up an important point in the discussion of Iran's nuclear program.

Key Iranian leaders say they have no reservations about letting the homeland burn to the ground for the sake of Shi'a Islam, and those who disagree are prevented from building a legitimate political challenge to the regime through forceful repression. The use of violence to uphold the Sharia Law demonstrates the willingness of Iranian leaders to justify any means to an end and ignore the voice of their people. Sakineh Mohammadi Ashtiani became a topic of international debate in 2006 when she was sentenced to death by stoning for an "illicit relationship outside marriage" (Chiaramonte, 2011). Iranian leaders have continually voiced support for repressive countries that also used violence to crack down on their citizens. In

November 2011, the head of Iran's Human Rights Council criticized Arab nations for "meddling" in Syrian affairs and insured continued relations after Syria was suspended from the Arab League for using massive force against its own people in protest (Iran's Support for Assad, 2011). While Iran's support for the Syrian regime also could be explained by an ulterior motive of sponsoring terrorism in the region (which will be discussed later), it also shows their support for violent repression and disregard for their own citizens.

The human rights debate is fundamental when considering Iran and the implications of its nuclear program. It is important to remember that their main goal as a Shi'ite state in the region is to "export the revolution" and use their dominance in the region to spread Shi'a Islam throughout the world. With leaders who have no compunctions about expected casualties to their own population, determining what would deter Iran from this goal poses a simple question with a uniquely complex answer. Within the careful diplomatic negotiations surrounding nuclear weapons, the concept of mutually assured destruction (MAD) has so far kept nuclear nations in check. Emerging and showing its strengths in the period of the Cold War, MAD prevented the use of nuclear weapons by the United States and U.S.S.R. for fear of a retaliatory strike that would incur massive civilian losses. However, Iran's leaders have historically been unmoved by large civilian losses, which presents an uncommon challenge in deterring them from using nuclear weapons.

Within Iran's Revolutionary Guard, there is a mobilization force called the Basij which is an extremely loyal group that is wholeheartedly committed to the ideology of the Islamic Revolution (Gold, 303, 2011). This militia is filled with self-proclaimed martyrs who are more than willing to give their own lives for the sake of the revolution. Throughout Iran's post-revolutionary history, the Basij have proven the difficulty in deterring Iran from costly counter-

attacks, most notably in the Iran-Iraq War from 1980-1988. During this conflict, sparked by Iraqi worries that Iran was using its Shi'a influence within Iraq's borders to expand the revolution that had recently occurred, the Basij were used at will by Iranian leaders, who had very little concern about casualties among these "volunteers". Commanders launched attacks of human waves that consisted of whole formations of twelve to fifteen-year-old children who were recruited by the Revolutionary Guards to clear minefields for the real troops to follow (Kuntzel, 2006). Other tactics like suicide bombings were also employed by the Basij, who emulated the martyrdom of the Third Imam, Hussein (Gold, 25, 2011).

Even though Iran had recovered all of the territories initially lost to Iraq by 1982, its leaders insisted on continuing the offensive. A better-equipped Iraqi army and repeated chemical weapons attacks left Iranian casualties in the hundreds of thousands, yet the conflict lasted another six years in a massive war of attrition with mostly Iranian casualties until a ceasefire was agreed upon in 1988 (Gold, 25, 2011). That display of persistence to "export the revolution" and become the region's dominant state despite massive casualties leaves an uneasy feeling that is still shared by many world leaders. It is frightening to think of how far a radical Iranian government could go if the cost of the Iranian people is not a consideration.

It is hard to determine whether or not most of the people of Iran share similarly radical worldviews to those that their leaders openly announce to the world. This is partly because of intense restrictions on the freedom of speech outside of state-sponsored media and bloody crackdowns towards dissidents. An example of the strict oversight can be seen in the 2009 Iranian presidential election and the ensuing protests. The election has come to be a heavily debated event that sparked massive protests within Iranian borders and led to great speculation outside of them. Many people, who believed that the election was rigged, flooded the streets of

Tehran to protest the outcome that Ahmadinejad, the incumbent, had won again by impossible margins.

The sheer numbers in the election statistics make the results of the election seem suspicious to an unsuspecting outsider. According to the Ministry of Interior of Iran, President Ahmadinejad had won 63% of the vote, which is almost double the tally of what Mir Hossein Mousavi, the leading challenger won (Final Results of the Tenth Presidential Election, 2009). The official results also cited an 85% turnout and suggested that the other three candidates had lost their own home regions (Iran Election Aftermath, 2009). Perhaps the most suspicious aspect of it, however, was the Iranian government's announcement of Ahmadinejad's victory less than two hours after the polls closed, which is astoundingly quick considering the 40 million paper ballots that were cast (Slackman, 2009). Facts like these sent thousands of Iranian people into the streets to protest the results.

It is important to understand that the Iranian people's main concern was not the continued presidency of Mahmoud Ahmadinejad, but the violation of their rights. They felt that their freedoms were being heavily infringed upon and that their government was deceiving them. The people feared that the election results marked the end of the republic and the start of a theocratic regime that was no more accountable to the people than the Shah was. Both Ahmadinejad and his leading competitor, Mousavi, were and still are both strong supporters of the Iranian nuclear program, with Mousavi playing a key role in acquiring black-market centrifuges in 1987 (Melman, 2009). Hence, the direction of the nuclear program would likely not have changed had the election not been subverted. However, Ahmadinejad's re-election coupled with Ayatollah Khamenei's support for the flawed election results enabled them to use force to quiet the

opposition. In a sermon given by Khamenei at Tehran University days after the election, the Supreme Leader warned of "bloodshed and chaos" if the demonstrations continued (Fathi, 2009).

Despite the warnings, the Iranian people flooded the streets in protest. While most of the rioting and heavy clashing was concentrated in Tehran, smaller demonstrations popped up around the country and around the world. Protesters shouted 'Death to the Dictator' as Mousavi marched with hundreds of thousands of supporters through the streets of Tehran (Ahmadinejad Defiant, 2009). Mousavi appealed to the people by giving a speech to his supporters and saying, "The vote of the people is more important than Mousavi or any other person" (Protester Killed After Opposition Rally in Iran, 2009). The demonstrations lasted until early 2010 and led to over 4000 arrests. While the actual death toll is a strongly debated topic that some protesters claim to be over 100, the Iranian government claims that only thirty-six lives were lost (Iran Official Says 36 Killed, 2009).

Ahmadinejad has since abused his authority in the ongoing power struggle in Iran. He has used every possible legal and illegal resource he has to retain his position as president. The ongoing conflicts within the Iranian government have included many questionable actions taken by each side in the conflict. A couple of examples can be seen in the unexplained closing of three news agencies by Ahmadinejad (Dehghan, 2011) and an attempt by the opposition to arrest one of the president's top officials during a press conference(Greenslade, 2009). The power struggles and abusive behaviors demonstrate the lack of respect and trust among Iranian officials for the Iranian people and their views. Features built into the Islamic Republic's government that allow the will of the people to be disregarded presents a particularly problematic situation that can easily turn violent.

Iranians are seemingly becoming more and more discontent with the level of corruption occurring within their government. The current situations in Egypt, Libya, and Syria have made the Iranian people and government well aware of what is possible if the people are oppressed to the point of open revolt. The backlash from the continued prevention of the emergence of a popular democracy has proven extremely harmful to tough leaders. A population-led leadership change could be an opportunity for Iran to change policy direction to a more international-friendly one; but until then, deception and deceit of the Iranian people by their own leaders, continues to shape Iranian policies and make them hard to change.

Sponsored Terrorism

Acts of terror have unfortunately grown to be common tactics of many radical groups around the world. This is to be expected when an insurgent group takes on a state, but it is a whole other matter when a state takes on another state indirectly by creating a terrorist group to do its bidding, and avoids responsibility for acts of war. Iran has done the latter and is increasingly turning to this strategy of aggression. Shocking attacks with unprecedented levels of violence culminating in the September 11th attacks have allowed militant groups such as al-Qaeda to take on the West, especially the United States, and try to drive it out of the Holy Lands in the Middle East with considerably fewer financial resources and support than a nation.

The terrorist aim is often to kill as many people as possible and instill fear. The resulting unpredictability and irrationality often impact the economy and make it costly for a government to continue its policies. When considering Iran's drive for nuclear weapons, it is perhaps most important to understand ties between the Iranian government and key terrorist groups throughout the region. Ensuring that terrorist groups do not gain possession of a nuclear weapon could mean the difference between an attack with 100 casualties and one with 100,000 casualties.

Understanding the reasoning of violent terrorist organizations is not always an easy task. Before his death, infamous leader of al-Qaeda, Osama bin Laden, stated, "We do not differentiate between those dressed in military uniforms and civilians; they are all targets in this *fatwa*" (Miller, 1999). In Islam, Fatwas are religious rulings or opinions given on a matter of Islamic law by a recognized Muslim scholar. Many terror leaders use these rulings to rationalize violent actions serving many different causes. In the case of Iran, the leaders are attempting to use the cost, fear and intimidation that terrorism brings to rid the region of Western influence and facilitate the export of revolutionary Islam.

In order to carry out these goals, Iran has built a pervasive terror network that extends well beyond its own borders.

There are many terrorist groups supported by Iran, but the Lebanese-based Iranian-backed Shi'ite militia group Hezbollah is the government's most actively used means of establishing an Iranian presence throughout the Arabian Peninsula. Literally meaning "Party of God," Hezbollah has been notorious for forcefully spreading Shi'a Islam with great amounts of support from the Iranian government. Hezbollah started in 1982 with funding and military support from Iran's Revolutionary Guard to help drive Israeli forces out of Lebanon. Since its creation, countries like Iran and Syria have used Hezbollah and its growing support from Shi'ites across the Middle East to launch terror attacks against Western forces, allies and assets all around the region.

Hezbollah is recognized as a terrorist group by many nations, including the United States, and it is often the source of much of the turmoil and destabilization in the region. Their tactics, which include surprise attacks and suicide bombings, are aggressively aimed at Westerners and especially Jews. There is a statement in the manifesto published by Hezbollah in 1985 that "Our struggle will end only when this entity [Israel] is obliterated" (Rabinovich, 2008). Because of these goals, the United States and other supporters of Israel are seen as aggressors occupying Islamic lands. While this view may seem radical or extreme, it is also important to note that many top leaders of Iran agree and have also made the destruction of Israel a priority.
The rhetoric is often ambiguous toward whether the goal is to bring down the "Zionist" state or carry out genocide against all Jews. In the event of a nuclear attack the difference could be insignificant. In 2001, Ayatollah Khamenei stated that "the perpetual subject of Iran is the elimination of Israel from the region" (Gold, 207, 2009). In a more violent statement made by

Ali Akbar Rafsanjani in 2001, who is believed to be a moderate figure in the Iranian government, the ex-president stated, "The use of an atomic bomb against Israel would totally destroy Israel… Such a scenario is not inconceivable" (Rubin, 2006).

Recognizing similar ambitions to remove Western influence and destroy Israel, Iran developed a strong and open relationship with the violent group. As a result, Hezbollah became indebted to its sponsor and Iran has exploited the opportunity to use the network as a tool for expansion of its influence throughout the region. Now, any country crossing Iran could face an organized and violent resistance movement trying to bring down their government.

Hezbollah has been responsible for many violent attacks since the 1980s that have claimed numerous American lives. One of the deadliest events that shed light on the dangers of Hezbollah was the 1983 attack on the U.S. Marine Barracks and French military headquarters in Beirut, Lebanon that killed 241 servicemen. This assault was essentially orchestrated by the "fiercely anti-American" Iranian ambassador to Syria, Ali Akbar Mohtashemi, who was also one of the founders of Hezbollah (Gold, 302, 2009). The attack was unfortunately the first of many which demonstrated that Iranian technical support for terrorist organizations with suicide bombers could be decisive.

In 1995, Bahraini officials produced evidence of a plot by Bahraini Hezbollah to overthrow the pro-American government with the support of Iranian intelligence and an aid directly connected to Ayatollah Khamenei (Pollack, 281, 2004). A year later, the Saudi branch of Hezbollah bombed the Khobar Towers in eastern Saudi Arabia, killing another nineteen U.S. servicemen. After an investigation, FBI director Louis J. Freeh concluded that the bombing had been "sanctioned, funded and directed by senior officials of the government of Iran" (Freeh, 29, 2005).

While Iranian support was originally kept secret due to the violent nature of Hezbollah, overwhelming evidence has built up that points to financial help, training, weapons, supplies, political support, and organizational aid from Iran to Hezbollah, which is increasingly becoming a client organization and arm of the Iranian government and military.

Hezbollah claims to be like Al-Qaeda in that its main sources of income are investments and donations from wealthy Shi'ites. However, there is substantial evidence showing that Iran gives Hezbollah tens of millions of dollars per year in financial aid (Wilson, 2004). In addition to monetary support, Iran has openly armed Hezbollah with weapons including long-range Fajr-3 and Fajr-5 missiles capable of striking Israel (Hezbollah: A Force to be Reckoned With, 2006). These claims were substantiated in 2006 when a senior Iranian official and ex-ambassador to Lebanon confirmed that Iran did indeed supply Hezbollah with various weapons (Harel, 2006).

Enabled by Iranian support, Hezbollah now has a strong influence in many countries throughout the Middle East and growing support around the world. In Lebanon, its home state, the Hezbollah party has democratically been voted into 12 of 128 parliament seats and 2 of 30 cabinet seats (Hezbollah, 2011). Branches of the militia have spread across the region to countries like Bahrain, Saudi Arabia, and Yemen. Around the world, Hezbollah has also built up relations through Shi'a Muslims in countries like Paraguay, Brazil, and Argentina in an attempt to spread the Islamic Revolution to South America (Gold, 27, 2009). It is extremely important to understand the extent of Iranian involvement in an organization like Hezbollah. Organizing and mobilizing the Shi'ite communities around the world (and exploiting them for political and evangelistic ends) is a tactic that should be watched closely. Iran is clearly trying to expand its influence around the world beyond what it can attain as an oil producing state working through the market.

Beyond Hezbollah

While Hezbollah receives a lot Iranian support due to the level of commonality in their strategic goals and origins, there are many other terrorist organizations in the Middle East that receive some sort of support from Iran. It is unlikely that the true extent of Iranian support for terrorism will ever be known, but the evidence of support in some way to groups like Hamas, the Palestine Liberation Organization (PLO), the Armed Islamic Group (GIA), al-Qaeda, and the Taliban is well established. These are all recognized as terrorist groups by the U.S. State Department and their connection to a nuclear-capable Iran is certainly a cause for concern.

Iran has continually showed support in some way, shape, or form for terror groups that share similar views of Western aggression in the Middle East. Hamas, a violent Palestinian Sunni Islamic group, opened an office in Tehran in 1994 and soon started employing Hezbollah strategies such as suicide bombings (Gold, 131, 2009). Iranian support for the PLO dates back to the 1970s when strong relations were built between the leader of the PLO, Yasser Arafat, and Ayatollah Khomeini, who used trained PLO soldiers that Arafat put at his disposal during the revolution against the Shah (Gold, 67, 2009). The extremely radical GIA often used the Iranian embassy in Algeria to hold meetings and one of its leaders even held an Iranian passport (Schindler, 137, 2006).

In a court ruling in November of 2011, evidence was presented that indicated Iran had provided al-Qaeda with knowledge of how to bomb U.S. embassies in 1998. Judge John Bates stated that "Prior to their meetings with Iranian officials and agents, Bin Laden and al Qaeda did not possess the technical expertise required to carry out the embassy bombings" (Joscelyn, 2011). This support, while not direct funding or arms shipments, is just as dangerous to the

United States and their allies in the region and around the world as more tangible aid is provided to terrorists.

The asymmetric warfare waged by the Iranian government on the West lost some of its ambiguity during the U.S. invasion of Iraq from 2003-2011. After the U.S. Forces had established themselves in Iraq, Iranians felt that Operation Iraqi Freedom was a little too close for comfort. The fall of the Sunni Ba'ath party and capture of Saddam Hussein in late 2003 had Iranians worried that the same could happen to them, considering the invasion pretext was to stop a weapons of mass destruction program. The massive U.S.-led coalition forces just across Iran's western border in Iraq made them extremely apprehensive over what the army might do next. Due to tensions between Iran and the United States, Iran felt the need to engage itself on many levels with Iraq and help the Shi'ite majority come to power while also helping the Sunni minority inflict heavy damage on the coalition forces.

As a result, Iranians became very involved in the Iraqi insurgency, doing everything from supplying weapons to offering political support to end the occupation. As early as 2005, the U.S. was aware of support for the Iraqi rebels, particularly the Shi'ite militias. On the streets, Iran had begun supplying the Iraqi insurgents with a new generation of Improvised Explosive Devices (IED's) called Explosively Formed Penetrators (EFP's) that were capable of piercing American and British armored vehicles (Gold, 171, 2009). Secretary of Defense at the time, Robert Gates, even described the Iranian-made EFP's as "able to take out an Abrams Tank" (Gordon, 2007).

With the withdrawal of U.S. troops from Iraq in late 2011, a power vacuum has been left with Sunnis and Shi'ites competing for control of the country. Merely days after U.S. Forces left the country, car bombs ripped through Shi'ite communities in Baghdad killing over 60 people and reviving sectarian violence between Sunnis and Shi'ites (Salman, 2011).

Without American forces in the region to keep order, violence between the two groups will likely escalate, opening the door for Iran to start building support through Shi'ite militias. Iran is particularly interested in an Iraqi power grab because of the geographical advantages that would come with it. Historically, Iran has maintained very strong relations with Syria in order to keep supply routes to Lebanon and Hezbollah open. A power grab in Iraq would give Iran a direct ground route to move forces to the border of Israel through Syria and Lebanon. Considering Iran's stated ambition of destroying Israel and Hezbollah's geographical position to carry the fight to the Israelis, Iranian influence in Iraq is not in Israel or United States' best interests.

When considering the nuclear ambitions of a country like Iran, it is extremely important to understand the dangers of a network of state supported terrorists. The possibility of using any of these groups as a deliverer of a nuclear bomb would have massive implications. Groups with no home country are hard to hold accountable since one can't strike back against the population of a government. Many top Iranian government officials have openly made it their goal to kill as many Americans and Jews as possible and in their minds, a nuclear strike would be the most efficient means of doing so. Further, this is the ultimate attack that could collapse the state of Israel. While Iran has often stated its willingness to accept the massive martyrdom of innocents that would result from nuclear retaliation against Shi'ite Muslims, it would seem more practical to create a situation in which the sacrifice of Iranian land and people can be avoided by having another group act for Iran. Iran's blatant and overt support for radical anti-American terror groups without a home country is more than enough to convince most people that keeping nuclear arms out of Iran is necessary to defend and secure the United States and its allies from a terrorist attack using weapons of mass destruction.

Even assuming that Iran does not intend to purposefully give one of their nuclear weapons to a rogue organization, the security of the nuclear technology and capabilities within the Iranian government is also a matter of concern. Extremists in high levels of the government with access to nuclear information might do what the government would not – leak or steal equipment or technology for a terrorist group. Because of churning internal power struggles within Iran, the stability of the government must be considered questionable. Radical leaders coupled with large amounts of discontent throughout the population could even set the stage for a Libya-like revolution with the emergence of a more radical and violent terrorist group leading the nation. This threat directly translates to a weapons security issue, which would become an increasingly more dangerous situation if Iran had nuclear weapons.

One thing that separates nuclear weapons from conventional weapons is the vast knowledge necessary to start and maintain a nuclear program. As the A.Q. Khan case made evident in Pakistan, dissemination of sensitive nuclear technology can prove to be just as dangerous as supplying equipment when it comes to stopping nuclear proliferation. Therefore, if Iran gains nuclear weapons capabilities, there is the possibility of this practical knowledge spreading the technology to other problematic countries such as Syria.

With so many violent groups that share the common goal of killing so many Americans and Jews, it is extremely important to weigh the impact of a nuclear-capable Iran in strategic planning by the United States and moderate Arab states. The examples mentioned here are merely indications that the Iranian government has regularly employed violence against the United States. In late November of 2001, President Bush stated, "We fight the terrorists and we fight all of those who give them aid. America has a message for the nations of the world: If you harbor terrorists, you are terrorists… and will be held accountable by the United States" (Bush,

2001). Iran has proven time and time again that they aid and harbor terrorists who have the clearly stated goal of killing Americans. Whether Iran's goal is to avoid blame for a massive attack or take credit for it, the damage done would be massive and irreversible if nuclear means became available to terrorists capable of an attack.

An Illicit Program

While Iran's ambitions are great and its drive to acquire nuclear weapons is strong, its operations are not legal, despite its claims to the contrary. Iran currently has nine known operational nuclear facilities that include fuel enrichment plants, research and development sites, and reactors (Nuclear Facilities in Iran, 2011). The Iranian government continues to claim that its nuclear program is solely for civilian purposes like power generation, medical research, and agricultural uses; however, there is considerable evidence to fuel speculation as to whether or not that is the truth. The Nuclear Non-Proliferation Treaty (NPT), which Iran became a signatory of at its inception 1968, is a document that takes into consideration "the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert [it]" (NPT, 2005). It articulates the necessity for guidelines that ensure the containment of nuclear technology and yet Iran's current leadership invokes it and follows its directives only when it is convenient.

The NPT is a carefully drafted document that Iran has cunningly navigated along the edges of for years. The document is an attempt to stop the spread of nuclear weapons that specifically states in Article II that any non-nuclear states may not "manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices" (NPT, 2005). Needless to say, this would make Iran's drive to acquire nuclear weapons illegal and subsequently leave them open to international sanctions. However, what has allowed Iran to "legally" get this far in their program is Article IV Section 1 within the NPT which states that "Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop, research, produce and use of nuclear energy for peaceful purposes" (NPT, 2005). Iranian officials have

repeatedly cited that article in the face of international criticism, attempting to justify actions like enriching uranium and building new reactors.

Uranium enrichment is an involved technical process that was made public through A.Q. Khan's clandestine network in a (successful) attempt to build a Pakistani bomb during the 1980s and 1990s. From his lab, this information found its way to Iran, Libya and North Korea-- among others. The AQ Khan network exposed sensitive secrets with extremely dangerous potential.

The whole arms control protocol of the IAEA was predicated on the notion that if one could prevent diversion of nuclear fuel from civilian power and research reactors, one could limit arms production. It was hardly a secret where these power plants were- especially those built with IAEA assistance in NPT compliant nations. Now the technology to enrich uranium without a reactor was proliferating and the plants in which one carried out these operations could in principle be hidden or located on military bases where they could not be inspected. This development caused irreversible damage to the IAEA and NPT-based arms control system and ended the secrecy surrounding one of the most technically challenging problems to be solved on the road to weaponizing nuclear technology.

The enrichment process involves extracting the less than 1% of highly radioactive uranium-235 isotope from the naturally occurring uranium-238. First, the mined U-238, or "yellowcake", uranium is converted into uranium hexafluoride, or UF_6. Then, the gaseous uranium is then fed into thousands of centrifuges and spun at high speeds to separate different weighted isotopes, resulting in usable amounts of U-235. To fuel a nuclear power reactor, the uranium only needs to be enriched to 5%, but for an atomic bomb, the uranium needs to be enriched to 90%. The scary thing about Iran's enrichment capabilities is that the difference between reactor-grade uranium and weapons-grade uranium is only the length of the spin cycle within the centrifuges.

Within the confines of the NPT, Iran is only allowed to enrich uranium up to certain levels that are applicable to power generation and research. Historically, there has been a great amount of secrecy surrounding Iran's nuclear program which provoked speculation around what direction they are actually headed in. Their failure to cooperate with the United Nations and the IAEA has resulted in seven U.N. Security Council Resolutions against them, all related to their nuclear program.

Transparency is key part of trying to build up a legitimate nuclear power program, yet Iran has frequently held back information from the IAEA and the rest of the international community. In 2002, information came out about secret enrichment facilities in Natanz and Arak that had previously been unknown to most of the world. These revelations led to accusations in 2003 by U.S. State Department spokesman, Richard Boucher, who said, "We believe Iran's true intent is to develop the capability to produce fissile material for nuclear weapons" (Gold, 34, 2009). Blatant disregard for U.N. resolutions have warranted international frustration with the radical country and justifiable fear about its intentions.

In June of 2009, the IAEA reported that Iran's stockpile of low-enriched uranium had grown to about 3,000 pounds (Daragahi, 2009). Iran's only running nuclear power facility in Bushehr, which has only been fully operational since September of 2011, has its fuel supplied by Russia and its waste sent back to Russia (eliminating the possibility of reprocessing the plutonium for another way to make a bomb) (Iran's First Nuclear Power Plant Operational, 2011). This leaves many countries' leaders fearing what all the other enriched uranium is being used for.

According to the Chairman of the Joint Chiefs of Staff, Admiral Mike Mullen, only 1500 pounds of low-enriched uranium could produce the 44 pounds minimum amount of weapons-

grade uranium needed for a nuclear bomb (Makovsky, 2008). The program has soared well past these amounts and Iranian leaders have surely not eased any doubts about the goals of the program. On the 31st anniversary of the Islamic Revolution in February of 2010, President Ahmadinejad announced that Iran was now a "nuclear state". In a speech at a government rally, he stated to the public, "We have the capability to enrich uranium to more than 20 percent or 80 percent, but we don't enrich because we don't need it" (Sanger, 2010).

Throughout the past decade, there have been a growing number of accusations against Iran and its nuclear program. While many of the numerous allegations have condemned enrichment related activities, taking any legal action against Iran would be hard without a smoking gun that points to actual weapons development rather than the capability to do so. A groundbreaking report published by the IAEA on November 8, 2011 seeks to do just that, revealing a number of allegations about Iran's drive for nuclear weapons that have never been publicly disclosed and endorsed by an the international watchdog before.

The report cites "serious concerns regarding a possible military dimension to Iran's nuclear programme" through efforts like computer modeling of a warhead and work on trigger devices (Implementation of the NPT Safeguards Agreement, 2011). Iran's state news agency, IRNA, vehemently dismissed the claims and accused IAEA chief Yukiya Amano of being "unbalanced, unprofessional and prepared with political motivation and political pressure by the United States" (Jahn, 2011). Hopefully the concerns of an influential international group like the IAEA will now lead to a tougher international campaign to stop Iran's nuclear weapon development program.

A Possible Arms Race

Keeping nuclear weapons out of Iran is not only important because of the threat of an attack against the West or the use of an "Islamic bomb" against the Jews. The Middle East has historically been one of the most volatile regions in the world, with the classic Sunni-Shi'ite battle leading the violence. A nuclear capable Iran would almost certainly ignite an arms race in an area that clearly does not need ways to increase the human cost of violent conflicts.

Tensions from the split between Sunni and Shi'ite Muslims have fueled violence and hatred in the Middle East for over 1,000 years. The endless debate over the true successor to Muhammad, and thus the true successor to Islam, has left a deep rift that is responsible for many deaths. Battles over land and adherents of different faiths, interpretations, and political ideologies are still very present in the minds of many Muslims, some of which teach that violence is the answer to opposition. Attacks that include tactics like car bombings and suicide bombings aim to kill as many "non-believers" and traitors to the faith as possible. Unfortunately, news reports about assaults targeting Sunni or Shi'ite communities have become daily occurrences. The thought of having whole nations join into this kind of sectarian strife is frightening. If the Shiites in Iran have the bomb, Sunnis in several other states will feel the need to be able to retaliate against a possible attack. Nuclear arms proliferation will occur throughout the region starting with the oil rich Sunni states and quickly continue through the region.

Radicals who intend on inflicting maximum damage are often limited by their resources and ability to acquire powerful weapons. Proliferating nuclear weapons technology to such a violent part of the world increases the chances that the radicals will gain access to it. This could potentially have devastating consequences that result in massive loss of life around the world. Considering that 88% of Iran's 98% Muslim population are Shi'ites, allowing them to possess

nuclear weapons would undoubtedly lead to an effort from Sunni nations to counter with their own bomb (CIA World Fact Book: Iran, 2012).

Among the non-nuclear nations leading a retaliatory drive against a Shi'ite bomb would most likely be Turkey and Saudi Arabia. According to the CIA World Fact Book, each of these countries has an overwhelming Sunni majority, with over 95% of Muslims being Sunni (CIA World Fact Book: Turkey, 2012) (CIA World Fact Book: Saudi Arabia, 2012). Iran's hostility and volatility coupled with Sunni fears in one wealthy and one technically advanced nation sets the stage for a nearly unavoidable nuclear arms race. An expensive weapons build up would surely come at the cost of many displeased taxpayers in Turkey, but in Saudi Arabia the government is not dependent on tax monies as it controls oil wealth. Either way, it would be diverting resources from domestic development programs and its own efforts to prepare for the post-oil era. More displeased citizens and weapons capable of wiping out massive amounts of people are two things that the Middle East does not need.

Considering the strong relations the United States has with both Turkey and Saudi Arabia, rapid progress in a nuclear program to counter enhanced influence of Iran in either of these countries is not inconceivable. Turkey has often been of great assistance to the U.S. and its allies in fighting terrorism, which keeps ties between the countries positive. In 2009, the U.S. Secretary of State published *Country Report on Terrorism* and, among other points, cited the key strategic importance of the İncirlik Air Base in Adana used by both US and NATO forces for operations in the region (US Says Anti-Terror Cooperation Key in Partnership with Turkey, 2009). American cooperation with Saudi Arabia is also generally positive and public, which points to the possibility of American help in starting a nuclear program if the regime feels that it is vulnerable without one.

In October of 2010, the United States made the biggest weapons sale in the history of the country to Saudi Arabia, selling planes, helicopters, and even bombs for a price of $60.5 billion (Teitelbaum, 2010). Any doubt that the United States would hesitate to arm its allies, especially those that share borders with Iran, seems to disappear when bearing in mind the advantages their geographical positions present.

No matter how necessary the program is deemed or how willing each country is, establishing a nuclear weapons program is illegal under the NPT (which the United States is a signatory of). While the possibility of publicly helping these countries set up civilian programs while covertly helping them develop weapons (A.K.A the Iranian approach) does exist, a more pragmatic solution would likely be the guaranteed protection of a nuclear umbrella extended by the United States. This protection is sometimes thought to be implied for almost all American allies, but offering it to Middle Eastern countries likely to conflict, and which Israel considers a threat, could mean that the U.S. would be getting into any potential battles much more often than necessary to secure its own national interests. In the case of Turkey, the U.S. also has an alleged stockpile of nuclear weapons left over from the Cold War days at the İncirlik Air Base. This continuing stockpile often causes controversy and leads some to believe that the United States' umbrella is already stretched wider than it is perceived to be extended (Turkey to Face Pressure over U.S. Nukes on its Soil, 2009).

Rapid arming of Sunni nations including access to more advanced technology would likely be countered with Iranian attempts to further strengthen the Shi'ite controlled stockpile. Historically, Russia has been willing to sell Iran civilian nuclear technology and would be tempted to cash in on an arms race in which the USA was helping selected Middle Eastern

nations. It is likely that this would be an open door policy involving a willingness to sell equally to both sides rather than show favoritism toward some nations.

As the arms race expanded, turbulent and problematic nations that might seek nuclear weapons include Hezbollah-laden Lebanon, war-torn Iraq, and a particularly volatile Syria, which is increasingly isolated due to the violent repression of its people, but which has the support of Iran. Syria has sought nuclear technology in the past and Israel has bombed its reactor before it was operational. Lebanon and Syria both share a border with Israel and Syria is currently facing a full scale popular uprising considered to be part of the Arab Spring democratic movement. It is likely that the popular revolt will result in a more Islamist party taking over, which may be to be more confrontational with Israel to support the Palestinian cause. Assad's regime has been cautious about provoking Israel and has restrained this impulse for fear that the loss of another war with the Jews would lead to its overthrow.

Continuing the domino effect, Iran's success in "becoming and nuclear power" would mean that more and more Sunni nations would feel the necessity of acquiring nuclear capability for self-protection and to avoid nuclear blackmail. This time around, states like Jordan and recently overthrown Egypt or Libya may begin to seek the capability, putting countries whose governments lack the resources and technical know-how to run a nuclear program in the market to purchase such devices legally or illegally. The era of the NPT would be over whether or not the United States decided to assist them to ally their legitimate fears.

The only way to ease the pressure towards a regional arms race is to prevent it from ever starting in the first place. It is very likely that the trigger event would be Iran's success, so preventing that would be a big step toward ensuring relative stability in a historically turbulent region and working toward more peaceful Sunni-Shi'a relations. While countries like Saudi

Arabia do have aspirations of acquiring nuclear technology for civilian purposes, they would surely not feel the need to seek weapons capabilities if Iran and other nations with Shi'a parties in power and their proxies were not nuclear armed. Saudi Arabia has openly stated that if Iran were to successfully test a nuclear device, they would seek to purchase nuclear arms the next day (Saudi Arabia to Buy Nukes if Iran Tests A-bomb, 2012). It is quite possible that the nuclear weapons issue could yield a make-or-break scenario in the long running tug of war for influence in international Islamic circles between the Sunnis and Shi'ites. At the moment, Iranian based Shi'ites are at the forefront of an Islamic movement to expand the faith by violent means and establish non-democratic states. Thus, they are the ones most likely to have links to terrorist organizations and be hard to restrain by concerns about mutually assured destruction and the legal restrictions of the NPT.

Iran: An Influential Nation

Despite the growing international criticism and political and economic cost of continuing the drive for nuclear weapons in the face of sanctions designed to punish the nation and to stop the process, the Iranian government still feels the need to move forward with its plans. Ayatollah Khamenei, President Ahmadinejad, and other Iranian leaders consider this a matter of principle. They have let their ambitions of exporting the revolution and returning to the Persian Era dominate their foreign and internal policy decisions. However, regardless of their passion, sense of fairness, and other motives, Iran's development of nuclear arms is still illegal as it directly violates the NPT. There is a powerful case for economic sanctions and maybe other interventions.

Iran is in a particularly interesting position which has allowed them to consistently defy the international community and domestic resistance to keep moving forward with their nuclear arms program. As the world's third largest oil exporter, many countries seek to keep good relations with Iran due to its desirability as a trading partner. This position in the oil economy makes it possible to brush off many of the sanctions that have been imposed on the Iranian economy and still fund their nuclear program, which is a costly operation.

Iranian representatives have openly stated that if necessary, they will use oil as a political tool to get leverage and buy what they need from nations that need their oil (Parvaz, 2011). Iranian officials have even boldly threatened to close off the Strait of Hormuz in an effort to disrupt the global oil economy. This is a 21-mile wide waterway off the southern coast of Iran that connects the Persian Gulf with the Gulf of Oman. Unarmed and slow moving ships passing through the narrows transport over one-fourth of the world's oil exports every day (World Oil Transit Chokepoints: Strait of Hormuz, 2011). Any action like this would severely disrupt the

global economy and send oil prices skyrocketing. This leaves many countries around the world leery of cooperating with the daunting task of countering Iranian defiance through economic sanctions and restrictions on Iran's oil trade. The goal is to cut the stream of revenues that are fueling the expansionary terrorist support activities of Iran and most certainly funding the nuclear program.

Over the years, an international campaign led by the United States has imposed numerous sanctions on Iran with the intention of slowing down their nuclear program. Restrictions that range from large markets such as crude oil and aircraft parts to smaller markets which include many consumer goods such as rugs and caviar, attempt to reduce as much Iranian business at possible. The goal is to slow the economy and bring about enough economic hardship to get the people to force change in their government's policy. Thus, any means to reduce Iranian business is considered legitimate, though there are many powerless innocent bystanders getting hurt.

Food and medicine and other humanitarian aid and trade tend to be spared, but unemployment and failed businesses spread the pain far and wide. Perhaps the hardest hitting sanctions include restrictions against Iran's central bank, with the most recent one being signed into law by President Obama at the beginning of 2012. The actions force any financial institutions that do business with Bank Markazi to choose between ending that business or being blocked from access to the U.S. economy. Following the passage of the law, the Iranian rial fell over 12% and this sudden inflation caused widespread economic panic throughout the country (Rubenfeld, 2012).

While drives led by the United States to impose tougher sanctions on Iran's economy are becoming increasingly more effective, they are often met with opposition from countries like China and Russia, who see Iran as an indispensable trading partner and an integral part of their

economy. In an article written by a researcher at China's Ministry of Commerce in late 2011 entitled, "There is No Way China Will Stop Buying Iranian Crude," it is argued that "participating in economic sanctions on Iran would seriously damage China's economic and strategic position." The author then goes on to state how trade between the two nations was already up 55% from $29 billion in 2010 to $41 billion in November of 2011 (Hook, 2012). While China also makes deals for other goods and services with Iran, oil represents 80% of all imports from Iran, also accounting for 11% of their total crude imports (Simpson, 2010).

Another significant Iranian ally with a large economic stake is Russia. Russian support has played a vital role in getting Iran's nuclear program to where it is today, with the most notable help being the construction and operational aid of Iran's first nuclear power plant in Bushehr. Russian officials often attempt to justify nuclear cooperation with Iran in order to protect their trade interests with the country, but they are in denial about Iran's nuclear agenda. They demand proof of illegal actions but it needs to be made clear to the world that the standard cannot be beyond a reasonable doubt, but rather the preponderance of evidence. If Iran really has nothing to hide it can open itself to international inspection. However, since it will not do so there is no excuse for supporting its ambitions by blocking the enforcement of the NPT.

When sanctions and diplomatic pressure are not providing the desired results in terms of halting the Iranian nuclear program, the world is forced to consider more extreme measures. In the minds of many national leaders, especially Barack Obama and Israeli Prime Minister Benjamin Netanyahu, preventing Iran from acquiring nuclear weapons is crucial to ensuring national security. Over the past few years, an anonymous group has taken on the necessary task of terrorizing Iran's nuclear program.

Several Iranian scientists have been killed in a string of movie-like murders, with the most recent attack including a magnetic bomb attached to the car of a top chemical engineer by two men on a motorcycle. The attack killed Mostafa Ahmadi Roshan, who was at least in charge of purchasing and supplying equipment for Iran's major enrichment facility, Natanz and maybe much more (Peralta, 2012). The murders were also complimented by a less lethal but equally effective computer virus named Stuxnet, which was discovered in June of 2010. The virus sabotaged some fuel enrichment facilities by taking over systems that control the inner workings of the plants and causing about one-fifth of Iran's centrifuges to spin too fast and destroy themselves (Iran's Nuclear Agency Trying to Stop Computer Worm, 2010). No country or group has publicly claimed responsibility for these attacks but the many reports say the virus is littered with hints of American and Israeli roots (Markoff, 2010). Of course, the Iranian government has blamed the "Zionist regime (Israel) and the United States" for all of the attacks (Jaseb, 2011).

While the United States and other Western governments keep hoping for the overwhelming international support necessary to bring the Iranian economy to its knees, the effects of the sanctions do have the unfortunate possibility of backfiring. Restricting Iranian oil exports could drive up their national supply and slow their own economy, lowering domestic demand. This would result in cheaper oil prices in Iran, driving down export prices of surplus oil which could attract other countries to do business with Iran.

With higher international oil prices due to the loss of Iranian exports on the open market, some nations struggling to meet their needs may be enticed into buying cheaper Iranian oil. If any major producing countries with a large influential economy like China and Russia breaks ranks and buys the Iranian oil the whole embargo could fail due to international competitive pressures. Cooperation virtually across the board is imperative to ensure that the international

competitive situation stays in balance as oil prices rise without anyone turning to Iranian oil no matter how cheap it gets.

There has been some recent success in the drive to reduce business ties with Iran in order to disrupt its economy. South Korea expanded its financial blacklist by adding 99 Iranian entities and Finnish-based Nokia Siemens agreed not to take on any more Iranian business in 2012 (Lee, 2011) (Stecklow, 2011). These companies have set examples of how to make a noticeable impact on Iran's economy that the government will find hard to ignore. In late 2011, Iran's deputy oil minister, Ahmad Qalebani, admitted that crude oil production was down this year "due to lack of investment in oil field development" (Gladstone, 2011). Efforts like harsher economic sanctions and oil embargos are the main and perhaps only nonviolent way to effectively hinder Iran's nuclear ambitions. It is crucial to understand that doing business with Iran is directly empowering their illicit nuclear program and fueling their aggressive behavior toward other nations

The desirability of Iran as a trading partner along with fears of soaring oil prices and diplomatic deception have allowed the Iranians to hold off international sanctions for a surprisingly long time and make unprecedented advancements in their nuclear program. Iran's advantages as a significant oil producer in a strategic location provide their leadership with unusual economic leverage that facilitates their illegal drive toward acquiring devastating capabilities. It is not too late for a united and strong global effort against Iran's economy to bring about a policy change. But until that happens, Iran's government will continue to use its oil revenues and diplomatic leverage to fund and protect the national initiative to acquire nuclear weapons and thereby change the international balance of power. In some senses, it is a race against time to see the threat and deal with it by peaceful international means.

Conclusion

It is unfortunate that the Iranian government has been able to continually deceive the world about its intentions and delay concerted and effective action against it. Iran has now made much advancement in its nuclear program that includes gaining technical ability and effectively hiding some nuclear facilities in underground bunkers. Nuclear weapons have the capability to cause massive amounts of permanent damage to the world and the people who inhabit it. The frequent and continuing violence by networks of proxy terrorist groups and the radical views held by the Iranian leadership leads many world leaders to believe that Iran will stop at nothing to export the Islamic revolution and become the dominant nation in the Middle East as well as an influential world power. Acknowledgement of the scale of destruction a nuclear bomb would impose on Israel in particular has many people around the world very concerned about the strides being made in the Iranian nuclear program.

Whether it's an Islamic bomb or a Shi'ite bomb, Iran's plans to use the technology for intimidation and to foster aggression are unacceptable. Those with the means to stop them must join forces and act soon. The theocratic regime's willingness to destabilize the Middle East region shows an utter disregard for world peace and a lack of long-term policy planning.

It is a frightening reality that many of the current peace relations in the region could hinge on the outcome of Iran's drive to acquire a nuclear weapon. Keeping nuclear arms out of that part of the world is important not only because of the regional strife and violence it could trigger, but because it could set back the fifty yearlong effort under the NPT to control the technology. There is much more hope for successful diplomacy in a non-nuclear Middle East than there would be if there were a nuclear arms race in the region.

As disturbing as some of the statements made by leaders of the current regime can be, Iran's position in the global economy as an oil exporter provides the leadership with significant political and economic resources. These have allowed them to advance in the nuclear field against the wishes of most of the world, but unrelenting pressure still can and must be brought to bear before they succeed. While there may still be a great deal of strife and turmoil within Iran stemming from the disputed and probably fraudulent 2009 presidential elections, any internal efforts to change the regime will probably not be strong enough to curb the government's nuclear ambitions.

Current attempts to control the proliferation of weapons of mass destruction in Iran are failing and international action will be required. The IAEA and NPT have existed for decades with good reason and have successfully kept the world a safer place by limiting the development and dissemination of nuclear technology in a world already leery of the safety and usefulness of its applications. Nuclear technology in the hands of an aggressor with regional and global ambitions like Iran is an undesirable and maybe unacceptable standard for the world. A globalized economic effort to deny them the value of their oil could still stop the illegal parts of their nuclear program, but time is running out. Stopping Iran would give the world a chance to work toward disarmament as opposed to living in a world of balanced terror defined by the crude limits of mutually assured destruction.

Nuclear Proliferation in India and Pakistan

A Report on Terrorism, Wars, and Conflicts

Mathew Skerritt

India and Pakistan: Background

India

India's first nuclear weapons test was on May 18, 1974, the bomb was called "Smiling Buddha". In 1962 war broke out between India and China. India lost, but Chinese troops unilaterally withdrew even though they still occupied Tibet, which was captured in 1959. The Dali Lama was granted asylum in India. In 1968, India did not sign the Nuclear Non-Proliferation Treaty (NPT), which was done, from their perspective, to keep them from their old threat of China and their new threat of Pakistan. Flash forward 25 years.

By the years 1999 and 2000, India reportedly had 310 kilograms of weapon grade plutonium, enough to develop 65 nuclear weapons. In 2005 India had built 40 to 50 nuclear warheads. During 2005, it was also estimated that 4200 kg of reactor grade plutonium was available and accessible to create about 1000 nuclear weapons (5 kg of plutonium is required for each weapon). Near the end of 2004 India also had 445 kilograms of weapon grade plutonium which could be developed into approximately 85 nuclear weapons. As of February 2011, the "Federation of American Scientists" approximated that there were 80-100 nuclear weapons in India.

After nuclear tests in 1998 India established a "No-First-Use-Policy" to stabilize the situation by claiming they will not be the first to fire nuclear weapons. This means that India is in a "retaliation only" state and has to have enough people to survive the first strike.[1] Regarding the

1 http://en.wikipedia.org/wiki/India_and_weapons_of_mass_destruction

war between India and Pakistan in 2001 and 2002, India still remains a “No-First-Use-Policy” country. On October 21, 2010, the Indian National Security Advisor Shri Shiv Shankar Menon signed a doctrine changing the “No-First-Use-Policy” to the "No first use against non-nuclear weapon states". This means that they are willing to consider a preemptive strike upon countries with nuclear weapons such as the neighboring countries of Pakistan and China, both of which have more nuclear devices than India.

On January 4, 2003, India’s Strategic Nuclear Command (SNC) was formed. The Strategic Nuclear Command is responsible for the management and administration of the country's tactical and strategic nuclear weapons stockpile.[2] They are also responsible for making sure that India’s nuclear policies are adhered to.

India is a member of the International Atomic Energy Agency (IAEA). The IAEA is an agency specializing in the peaceful use of nuclear energy, but it is also the inspection watchdog for illegal nuclear arms development program. Its goal is to prevent the development and use of nuclear weapons by all countries that do not currently possess them. However, its leverage over India is limited since India did not sign the Nuclear Non-Proliferation Treaty (NPT) or the Comprehensive Test Ban Treaty (CTBT). The IAEA is pledged to assist nations in the development of peaceful civilian nuclear technology in return for those nations not developing nuclear arms. However, it wants to draw India into its system of regulation to prevent it from supplying other nations with the technology. Hence it has to offer an incentive, given that India developed arms despite an international embargo. In October of 1963, India signed the Partial Test-Ban Treaty. The PTBN is a “treaty that bans nuclear weapons tests in the atmosphere, in

2 http://en.wikipedia.org/wiki/India_and_weapons_of_mass_destruction

outer space, and underwater."[3] In August of 2008, the IAEA approved India's request for safeguards, which meant that the agency will gradually gain access to India's civilian nuclear reactors and thus the ability to monitor "diversions" of nuclear fuel from the civilian to military sectors.[4] This is sensitive since India's arms program began with a civilian reactor of a Canadian design. One month later, in September of 2008, the Nuclear Suppliers Group gave India a waiver to gain access to civilian nuclear technology and fuel from other countries.[5] Due to this waiver, India is currently the only country which has nuclear weapons and did not sign the Nuclear Non-Proliferation Treaty that still has access to civilian assistance and trade. Since 2008, India has been granted the waiver by the Nuclear Suppliers Group, which was signed with five counties: the United States, France, Namibia, Mongolia, and Kazakhstan. India signed a co-operation deal with Canada in June 2010, and in the future, India's government is expected to successfully negotiate a deal with England. The USA has been encouraging India technological development as it is the only democracy populous enough to serve as an effective ally in the period when China is expected to re-emerge as a world power, and it is clearly not a democracy. The jury is still out on whether Russia will become a democracy.

Pakistan

In 1971, Pakistan lost a war with India. As a result, East Pakistan became Bangladesh and Pakistan lost about a third of its land area and half its population. In January 1972, Zulfiqar Ali Bhutto, the Prime Minister of Pakistan, began focusing on the development of nuclear weapons. Pakistan's sudden interest in nuclear weapons was also a response to India's nuclear expansion, in anticipation of the 1974 test. In December 1972, Abdus Salam, a Pakistani theoretical

3 http://www.britannica.com/EBchecked/topic/421810/Nuclear-Test-Ban-Treaty
4 http://en.wikipedia.org/wiki/India_and_weapons_of_mass_destruction
5 "Nuclear Suppliers Group Grants India Historic Waiver — MarketWatch".

physicist, was responsible for the establishment of Theoretical Physics Group (TPG), which represented the start of Pakistan's pursuit of nuclear capability.[6] Following India's nuclear weapons test in May 1974, Pakistan's motivation to develop a nuclear weapon was greatly increased.[7]

In the late 1970's, Pakistan got its hands on sensitive uranium enrichment technology and knowledge from a German plant operating in the Netherlands, where Pakistani A.Q. Khan was employed.[8] He volunteered his services after being upset by the loss of the 1971 war with India. Following Abdul Qadeer Khan's repatration from Europe, Pakistan's efforts were enhanced especially in the area of centrifuge technology for enriching nuclear fuel. With the help of A.Q. Khan's network and connections, Pakistan was able to obtain essential materials and technology for pursuing uranium enrichment capabilities.[9] The Pakistanis now knew what components they needed to build such systems-and who could make them. Many people fear that rogue states or terrorist organizations could obtain nuclear components and fuel material and blueprints from Pakistan, since they do still seem to be operating as part of a black market in nuclear components and designs.

On May 28, 1998, India conducted their second test of a nuclear weapon, code name "Operation Shakti". Pakistan in return detonated five bomb sized nuclear devices near Chagai Hills, Balochistan. The operation was known as "Chagai-I". Two days later, on May 28, 1998, Pakistani scientists fully developed fissile material, which can withstand a nuclear fission, to be

---

6 http://en.wikipedia.org/wiki/Pakistan_and_weapons_of_mass_destruction
7 (Ahmad, Mansoor; Usman Shabbir, Syed Ahmad H, Khan (2006). "Multan Conference January 1972: The Birth of Pakistan's Nuclear Weapons Program.". *Pakistan Military Consortium* (Islamabad, Pakistan: Pakistan Military Consortium)

8 http://www.globalsecurity.org/wmd/world/pakistan/nuke.htm
9 http://www.globalsecurity.org/wmd/world/pakistan/nuke.htm

tested in nuclear weapons. Therefore, Pakistan became the 7th country to have developed and tested nuclear weapons. The Clinton Administration placed new sanctions and embargos on both India and Pakistan after the May 1998 tests but later removed the sanctions since it needed the cooperation of Pakistan in other policy areas especially given developments in Afghanistan. Following these 1998 nuclear tests, A.Q. Khan flaunted his success by boasting that he made Pakistan's program more advanced and reliable than the Indian program.[10]

On December 13, 2007, President Musharrafof Pakistan finalized the structure of the "National Command Authority Ordinance."[11] The NCA is liable for policy formulation and the exercise of employment and development control over Pakistan's nuclear weapons and nuclear weapons program.[12]

Pakistani and Indian Relations

In the last 11 years, more than 30,000 people have died in Kashmir, a disputed region on the India/Pakistan border controlled by India, but home to mostly Muslims. This tension has been fairly continuous since 1947, and is believed to have the potential of starting the first war between two nuclear-armed countries.[13] In December 2001, the Indian Parliament building was attacked by Pakistanis radicalized by this struggle. Since the attack, the tension between these two countries has grown considerably. India has accused Pakistan of supporting terrorist groups, and then Pakistan pledged its support for Kashmiri freedom fighters. As the Nuclear Age Peace

10 Zahid Hussain, *Frontline Pakistan: The Struggle with Militant Islam* (New York: Columbia University Press, 2007), p. 161.
11 "President Promulgated National Command Authority Ordinance," Associated Press of Pakistan, December 13, 2007. [http://www.app.com.pk/en/index.php?option=com_content&task=view&id=23443&Itemid=2])
12 http://en.wikipedia.org/wiki/National_Command_Authority_%28Pakistan%29
13 http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/history/post-cold-war/india-pakistan/india-pakistan-conflict.htm

Foundation says, “One state's terrorist is another's freedom fighter.”[14] Many of the people who once lived in Kashmir have left the area, due to the clashes of these countries. There are frequent disagreements provoked by events in this region.

In 1975, during the Indo-Pakistan War, Zulfikar Ali Bhutto announced:

“If India builds the bomb, we will eat grass and leaves for a thousand years, even go hungry, but we will get one of our own. The Christians have the bomb, the Jews have the bomb and now the Hindus have the bomb. Why not the Muslims too have the bomb?”[15]

India has stated that they would not use nuclear weapons first, due to their “No-First-Use-Policy”, however, Pakistan is now severely outnumbered and has stated that it would respond to a conventional arms attack by all available and necessary means. The most dangerous incidents have been since Pakistan was a smaller nation after losing the 1971 Pakistan War over the Bengal area to India. Soon after the war with India, Pakistan had nuclear weapons. The fear by 1990 was that Pakistan would provoke India and count on nuclear arms to avoid conventional invasion in retaliation. This would probably involve the current border state of Kashmir, the source of most of the past wars. This scenario means that they would have to fire first. A “No-First-Use-Policy” is an important stepping stone in disarmament but it used often so countries can have a so called, “Second-Use-Policy”. In January 2002, Tony Blair, the British Prime Minister visited these countries, trying to convince them to stop the arms race/cold war, that had

14 .” http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/history/post-cold-war/india-pakistan/india-pakistan-conflict.htm
15 "War clouds hovering over South Asia". Weekly Blitz. 2009-01-16.

set in after the 1999 war in the Kargil district of Kashmir. The resulting 3rd war (1947, 1965, and 1999) in Kashmir was now between nuclear armed nations.[16]

In February 2002, Pakistani General Khalid Kidwai, chief of Pakistan's Strategic Plans Division, a division that controls Pakistan's nuclear weapons, said that "if India threatens to conquer a large portion of Pakistan (including Azad, Pakistan's portion of Kashmir), destroy the Pakistani army, strangle Pakistan economically, or politically destabilize Pakistan, Pakistan might use nuclear weapons."[17] By specifying the trigger conditions as major events this was taken as a step toward stabilizing relations, but some were too vague to be reassuring. However it is notable that the outcome of the struggle to liberate Kashmir was not a listed as a possible trigger. On April 18, 2003, Prime Minister Vajpayee of India gave a speech in Kashmir to also attempt to normalize relations. In November 2003, President Musharraf of Pakistan and Prime Minister Vajpayee of India both agreed to a ceasefire, which is still in effect along the Line-of-Control in Jammu and Kashmir.[18] In 2004, the two countries launched a formal peace process, known as a "composite dialogue process", designed to reduce the number of troops in Kashmir.

In February 2007 a train in-service between India and Pakistan was bombed near Panipat, north of New Delhi. The bombing killed 68 people and fueled further tensions in the current situation. In November 2008 armed Pakistani gunman killed more than 160 civilians in Mumbai. Following that event, India stopped talking about peace and arms reduction with Pakistan.

16 http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/history/post-cold-war/india-pakistan/india-pakistan-conflict.htm

17 http://www.cdi.org/nuclear/nuclearshadow.cfm

18 http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/history/post-cold-war/india-pakistan/india-pakistan-conflict.htm

As of February 2011 Pakistan has more than 100 nuclear weapons in its arsenal, and is probably maintaining an arsenal twice the size of India's at present, doubling what it had 5 years ago.[19] In 2000, following the Pakistan War in 2000, India had 60 to 100 nuclear weapons. Four years ago the Pakistani arsenal was estimated at 30 to 60 weapons. David Albright at the Institute for Science and International Security (ISIS) stated, "They have been expanding pretty rapidly".[20] Although Pakistan has produced more nuclear weapons for their arsenal, India is believed to have a longer and deeper experience with the technology and how to secure and maintain the existing stockpile. The 2008 US-India civil nuclear cooperation agreement seems to be the result of India's successful and responsible use of technology thus far. The US-India civil nuclear cooperation agreement was negotiated between Indian Prime Minister Manmohan Singh and U.S. President George W. Bush, under which India agreed to separate its civil and military nuclear facilities and to place all its civil nuclear facilities under International Atomic Energy Agency (IAEA) safeguards. In exchange, the United States agreed to work toward full civilian nuclear cooperation with India. There had been a recent policy shift in the United States to look for Democratic nations to ally with to balance the growing power of China. Russia is not expected to become fully Democratic. Hence, India and the USA are cooperating in the areas of nuclear and space technology. Pakistan is concerned and deepening its ties with China.

19 http://www.washingtonpost.com/wp-dyn/content/article/2011/01/30/AR2011013004136.html
20 http://tribune.com.pk/story/111829/pakistans-nuclear-arsenal-edges-ahead-of-india/

India and Pakistan Policy

The possibility of terrorists obtaining nuclear weapons is currently one of the greatest threats to American national and even global security. While the United States seeks to restrict terrorist access to nuclear weapons, it is essential that one focus of attention is considering how their policies toward Pakistan affect the stability of that nation and the nuclear black market. Lisa Curtis, an analyst for the Central Intelligence Agency has stated, "The results of investigations into Pakistani nuclear scientist Abdul Qadeer Khan's nuclear black market and proliferation network demonstrate in stark terms the devastating consequences of nuclear proliferation by individuals with access to state-controlled nuclear programs."[21]

The United States' goal of preventing nuclear weapons and technology from falling into the hands of terrorist groups without responsibility for a population that might face retaliation against them should be a top priority. The catastrophic impact of the A.Q. Khan nuclear black market scheme has changed things-probably forever. The way India diverted nuclear materials from a nuclear power plant was regrettable, but not a secret. You cannot hide such a plant. The IAEA can no longer keep track of nuclear fuel-so no new fuel is being made in secret. It could potentially prevent the U.S. from negotiating a civil nuclear cooperation agreement with Pakistan, similar to what has been pursued to bring India back under international control. The United States' policy toward Pakistan's nuclear program should instead focus on nuclear safety, security cooperation, and encouragement to improve the India-Pakistan relationship. Pakistan's

21 (Curtis, 2007)

regional security perceptions must improve if there is to be a nuclear free zone on the subcontinent.[22]

Since the 9/11 attack, the threat of terrorists obtaining nuclear weapons has been a constant issue. Since then, Pakistani Taliban terrorist attacks have repeatedly threatened and endangered nuclear weapon storage and protection sites located to the Sargodha Air Base and the Wah military complex in Pakistan. In all of the attacks that have occurred on "High Security & Heavily Fortified Complexes," the professional assessment that has taken place is that these attacks could not have been managed without the help of an insider from within Pakistan Army's security organizations.[23]

Pakistan chose the locations for its military and nuclear storage sites with reference to the constant threat from India. To keep its nuclear weapon sites far from Indian air strikes, all of the nuclear facilities are located in the Western section of Pakistan. Ironically over time, terrorist organizations have developed in very close proximity to these sites, near the Afghan Border. Since the Pakistan Army has invested heavily on the current explosive device locations, the production complexes and nuclear weapon storage sites cannot be moved further east to the heartland of the nation where the rule of law is more secure and the Taliban extremists are less active.

A major fear is that a state such as Pakistan might fall under extremist control. While Al-Qaeda militants in Afghanistan were Arabs and outsiders, the Taliban were local and popular in Pakistani areas mostly south of the country. Clearly, a Taliban takeover might as well result in a nuclear armed Al-Qaeda terrorist group as well as a Taliban nuclear state in Pakistan. Some

22 (Curtis, 2007)
23 (Krieger, 1997)

observers of nuclear proliferation and terrorism claimed five years ago that the threat of nuclear terrorism in Pakistan spawns from the idea of radical Islamists potentially gaining access to Pakistan's nuclear supply. Nevertheless, Pakistani President Pervez Musharraf and his senior army commanders opposed Islamic lifestyle, and other religious parties lacked popular support. Since then, the chances of radical Islamists taking over a nuclear site have substantially increased. Taliban units have chased away police, set up their own courts and even defeated military and army units. When preventing terrorists from obtaining nuclear weapons, troublesome Pakistani concerns are the connections between some retired military, ISI intelligence officials and nuclear scientists to Taliban leaders and even Al-Qaeda terrorist operatives. Therefore, the main goal of the U.S. policy should be to prevent the establishment of nuclear states with Taliban Governments leaders and Al-Qaeda sanctuaries. Afghanistan was such a state without nuclear weapons. Things would have been different had they had access to Pakistan's nuclear devices.

When fighting global terrorism, it is generally difficult to deter terrorist groups like Al-Qaeda from attacking, especially if they are willing to sacrifice their lives for religious ends such as spreading the faith by attacking the infidel. For these states to contain terrorism, the states that promote terrorist organizations must be consistently and strongly threatened if they give asylum to groups, such as Al-Qaeda. This is one of the reasons why the U.S. attacked the Taliban in Afghanistan, after 9/11.

For decades, the dissemination of Pakistan's nuclear technology plans, components, and expertise to other nations has occurred. Most of this proliferation was Abdul Qadeer Khan's nuclear black market and underground parts procurement. The countries that were on the other side of the deals include: Iran, North Korea and Libya. I am most concerned about

how a further destabilized government in Pakistan could potentially promote the spread of nuclear-weapons and sensitive technology out of the country or more importantly to Sunni militants tat hate Israel. In most of these cases, the chances of this nuclear technology getting in the hands of terrorists or militants are still very unlikely, but Al Queda is known to be trying to get nuclear devices. The specifically approached the A.Q. Khan network and who were involved in building Pakistan's atomic capability. It is highly possible that A.Q. Khan Scientists could have proliferated nuclear material to North Korea, Iran, and other countries. "In February 2009, Pakistan stated that A.Q. Khan would never again disseminate nuclear technology and expertise, and that Islamabad would continue to monitor his activities and regulate his international travel.[24] However, A.Q. Khan is now free and unapologetic.

Another issue from the American perspective is Pakistan miniaturizing nuclear weapons. For the last eight years, Iran has been working on miniaturizing a Pakistani warhead design to fit atop ballistic missiles. This suggests that Iran and Pakistan have been moving to combine their two most advanced weapons projects: nuclear technology and missile technology. The IAEA found evidence to support that Iran had been redesigning and miniaturizing a Pakistani nuclear-weapon design by using front companies and overseas experts. A warhead of this size would be able to reach as far as Israel, according to IAEA experts. A major issue with regards to miniaturizing nuclear weapons is the fact that they are harder to trace and easier to conceal. Miniaturizing nuclear technology is becoming so sophisticated that one would not know the difference in flight or design between a conventional warhead and a nuclear tipped missile. Thus affecting the ability to intersect incoming missiles.

24 (Young, February 9, 2009.)

Investigators have recently tracked the digitized blueprints from Khan's computer. In these files, they found blueprints on how to create a weapon that is relatively small and easy to hide, making it potentially attractive to terrorists.[25] Another concern is that the design is in electronic form, which makes it easier to copy, and experts do not know how many copies are still circulating, if any. This new design found was powerful but miniaturized. Specialists say that it uses about half the uranium fuel of Khan's older designs, yet it produces a much greater explosive force. This smaller warhead created from this new design is much more efficient and easier to hide. A major concern is that this "efficient and much easier to hide" nuclear bomb might become a terrorist weapon of choice in years to come.[26]

Many experts have feared that if India and Pakistan were to use nuclear weapons against one another over Kashmir that it would spiral out of control. For example, in the 1965 Indo-Pakistan conflict, when India opened a new front on the Punjab plains to attempt to settle the Kashmir issue by "challenging Pakistan with a mortal threat to its integrity to get a ceasefire."[27] As a result, Americans and other countries have the fear that Pakistan would be tempted to discharge a small nuclear weapon on its own territory to stop such an Indian movement in the future. Critics claim that a strategy such as this reflects Pakistan as a state acting as a suicide bomber, [28] however NATO considered nuclear strike on a massive conventional Soviet Army advancing through Germany (NATO territory) a reasonable response. Indeed, a special bomb that spared property and still killed people was developed for this mission. The fact that both countries have very small nuclear arsenals increases the pressure on both sides to use their

25 (Proliferation: Threat and Response, January 2001)
26 ("U.S. is Limited in Ways it Can Act To Subdue India-Pakistan Tension" , June 3, 2002)
27 (Proliferation: Threat and Response, January 2001)
28 (Rushdie, May 30, 2002.)

weapons against high-value targets and to use them early, before the ability to use them is lost.[29] It is still a common notion however, to believe that nuclear weapons between these countries could be used to either stop a war or to gain a military advantage.[30]

As of 2005, "The Defense Intelligence Agency reportedly has estimated that an India-Pakistan nuclear exchange could kill between 9 and 12 million persons on both sides, with 2 to 6 million more injured."[31] These estimates were based on the assumption of nuclear strikes taking place on major cities. For example, Defense Secretary Yogendra Narain suggested in 2002 that "India would retaliate against Pakistani aggression and that both sides should be prepared for mutual destruction."[32]

Pakistan and India have more than a 30 year history of ups and downs, incidents and then peace gestures, and confidence-building measures. Confidence-building measures between these countries include a 1990 joint India-Pakistan Military Commission, hotlines between army commanders and prime ministers, and agreements to provide prior notification of troop movements and ballistic missile tests. In 1990, a decision was made by both countries that they would never attack nuclear facilities in a first strike – or counterforce measure.[33] Enforcement and implementation of policy details has been spotty. In February 1999, the two countries finalized the Lahore Agreement. "That agreement envisioned a plan for future work, to include measures to reduce the risk of unauthorized or accidental use of nuclear weapons, reviews of confidence-building measures and communications links, prior notification of ballistic missile

29 ("U.S. is Limited in Ways it Can Act To Subdue India-Pakistan Tension" , June 3, 2002)
30 http://www.ndu.edu/library/docs/crs/crs_rs21237_17feb05.pdf
31 http://www.ndu.edu/library/docs/crs/crs_rs21237_17feb05.pdf
32 (Wilkinson P. , 2006)
33 (Hibbs, 1992)

tests, continuation of unilateral moratoria on nuclear testing, and dialogue on nuclear and security issues."[34]

From the beginning, Pakistan has been an implacable foe of India and a continuous threat on the Kashmir issue as the central core of the problems between the two countries.[35] However, the loss of Bengal changed the balance of power in India's favor. Given the conflicting differences between the two countries especially on the Kashmir issue, India cannot afford to rule out another war with Pakistan, which has already happened twice. Since Pakistan is no longer weaker than India in terms of nuclear power, Pakistan may feel under pressure to use the nuclear weapons in the next round of conventional war, to offset a conventional disadvantage. An example of such contingency was during the 1965 War in Lahore. Luckily Pakistan did not have nuclear capability then.

It is interesting to note that Pakistan has consistently refused to sign a No First Use agreement with India.[36] Pakistani writings on this topic make it evident that Pakistani Nuclear weapons are mainly Indo centric, which may deter Pakistan from contemplating nuclear attack on India. Mutual Assured Destruction might work in this case, but the UN would prefer a nuclear free zone on the subcontinent.

With regards to the no first use policy, one of India's challenges is to figure out how to absorb a first nuclear attack and retaliate in a manner unacceptable to Pakistan in order to intercept a nuclear bomb.[37] This concept would mean that India's priority would be to ensure the survivability of their nuclear weapons and command and control systems in the event of a nuclear attack. The delivery systems and their payloads must be protected in hardened silos from

34 Salman Rushdie, "The Most Dangerous Place in the World," *New York Times*, May 30, 2002.
35 (S.Gopal, 1998)
36 (S.Gopal, 1998)
37 (S.Gopal, 1998)

either a nuclear or conventional attack first strike by Pakistan.[38] The population of both countries needs to be protected in case of a nuclear attack in underground shelters which would give "post attack rehabilitation".[39] None of these concerns seem to have been planned, unless they are well guarded secrets "in the interest of national security" of these two countries. India, except for a various locations in Calcutta, does not have underground railways yet, much less underground radiation shelters. The U.S., the Soviet Union, and China have all planned for surviving a nuclear attack and have constructed secure positions for the command and control functions to continue after an attack. In case of a sudden attack in major cities, the city's population has a readily available shelter in underground rail stations of these nations. The possession of a few nuclear bombs does not guarantee deterrence without the infrastructure to mitigate the risks of nuclear war. The infrastructure enables the country to survive a first attack and to retaliate.[40]

Though the definition of what is unacceptable is predicated on Pakistan's perceptions, a reasonable interpretation would be that the retaliatory attack should destroy Pakistan's command and control systems and obliterate its war making capabilities – both conventional and nuclear.[41] Any nuclear war between these countries would be catastrophic for one another and greatly impact the rest of the world. The only possibility of avoiding this would be to ensure that a nuclear war cannot be initiated or started. By destroying the opponent's ability to surprise attack first would guarantee that no nuclear war is fought. Deterrence would also be an effective way of preventing war if the opponent is made aware of their capability to survive and retaliate to the threat.

38 (S.Gopal, 1998)
39 (S.Gopal, 1998)
40 (Wilkinson P. , 2006)
41 (Young, February 9, 2009.)

To conclude and summarize, the risk of terrorists grabbing Pakistani plutonium for a bomb or nuclear explosion in a major city lurks as one of the world's biggest threats.[42] In recent years, Pakistan has launched a nuclear surge. Its arsenal is already twice the size of China's and more than able to level India's cities. It is also the world's fastest growing nuclear force, expected to surpass France's within the next decade. We are aware that terrorists would like to get hold of bomb-grade material, either to use as a dirty bomb or to detonate in a Western capital.[43] They only need about 11 pounds of plutonium to make a bomb as powerful as the one that decimated Hiroshima. U.S. security officials remain concerned about the risk and are determined to further their investigations in Pakistan.

42 (Case, 2011)
43 (Case, 2011)

Nuclear Proliferation in North Korea

A Report on Possible Regime Change

Mathew Skerritt

North Korea: Background

Since the end of World War II in 1945, Korea has been a divided country, Russian occupation of the North split it from the South, which was occupied by the U.S.A. It is believed that tensions between the North and the South led to the Korean War and the intervention of both the USA/UN and China/USSR in that war. The North nearly won at the outset and the UN nearly won later, but intervention by China produced a stalemate near the original borders. Specifically foreign intervention to prevent the communist victory that was almost theirs produced a near rout and the North Korean capitol was captured. As U.S. forced neared the Yalu River, the border of China, the result was a Chinese counter invasion. Though a Chinese army drove back mostly the U.S. Army, this trauma led the North Koreans and to build up their military and later develop of nuclear weapons to ward off future invasions by allies of the South, especially the USA, which had an Army near the border and a Navy nearby.

The leaders of Pyongyang, the capital of North Korea first began to pursue nuclear technology as early as 1956.[44] Two of the most important factors that led to North Korea's desire for nuclear weapons were the October 1962 Cuban Missile Crisis and Peace between Korea and Japan. The former resulted in an agreement by the USA not to invade Cuba and attempt regime change in return for the removal of the Russian ICBM's. The latter resulted in old enemies such as the United States, Japan, and Republic of Korea forming an alliance after the 1965 restoration of diplomatic relations between the Republic of Korea(South Korea) and Japan.[45] This was a near miracle to people in the region since Japan had occupied Korea in a brutal fashion for a long

44 http://en.wikipedia.org/wiki/North_Korea_and_weapons_of_mass_destruction
45 http://en.wikipedia.org/wiki/North_Korea_and_weapons_of_mass_destruction

time before World War II. But, the American Occupation Army of Japan was able to leave Japan and delay the North Koreans, ultimately holding a beachhead in the south supplied from Japan. South Korea and the USA were beholden to the Japanese for cooperating with the anticommunist war effort.

In the early 1990's, following the collapse of the Soviet Union, North Korean leaders realized that they needed a new security relationship with a major power. Their economy was failing to feed the population and provide enough electricity. Soon they would be unable to maintain enough military strength to defend themselves (without aid) from the South-which was in an economic boom. China wanted North Korea to remain a buffer between them and the U.S. Army bases in South Korea and thus was protective of North Korea, to a point. However, the Chinese urged the North Korean leaders to avoid conflict with the South and thus the USA and its powerful navy. Thus, North Korea ended up seeking a relationship with its old adversary the USA.

They searched for a relationship with the United States in part because the U.S was the only superpower left that was strong enough to project its power by sea and air on a scale that would allow them to invade the Peninsula. Further, it already had troops on the border. During the Korean War, a hot spot in a larger Cold War, the USSR provided an Air force and China ground troops to hold off the US Army. Now Russia was unlikely to help and the USA and China were trade partners. North Korea decided that it needed an atomic bomb of its own to hold South Korea hostage and fend off the USA, and threaten its navy in particular. During the first nuclear crisis in the early 1990's, North Korea's efforts to build a bomb in violation of the NPT became known to the USA and South Korea. Pressure to halt the program resulted in establishing a Non-Aggression Pact with the United States. The Non-Aggression Pact is "an international

treaty between two or more states/countries agreeing to avoid war or armed conflict between them and resolve their disputes through peaceful negotiations."[46]

In 2003, the United States refused North Korea's request for bilateral talks regarding the Non-Aggression pact. The U.S. stated that only six-party talks are acceptable and they would not agree to bilateral talks in which the South Koreans were not present and China was not a party (since only China could force the North Koreans to live up to the bargain). These talks were a result of North Korea withdrawing from the Nuclear Non-Proliferation Treaty (NPT).[47] The six countries that did finally meet where those most affected by the rogue nuclear program and its threat to regional peace. These were the Democratic People's Republic of Korea (North Korea),the Republic of Korea (South Korea), the People's Republic of China, the United States of America, the Russian Federation and Japan. Japan was within range of existing North Korean missiles based on Chinese designs and very concerned by this development.

On October 9, 2006, North Korea announced that they had successfully performed their first nuclear weapons test. On November 19, 2006, North Korea's *Minju Joson* newspaper blamed South Korea of producing nuclear weapons in an attempt to attack North Korea. The South admitted to having had a nuclear weapons program in the past, but claimed to have disbanded it more than a decade ago. Following this accusation, Pyongyang also blamed South Korea for plotting with the U.S. to attack their capital. The United States denied this accusation, though there was contingency planning for attacks on known nuclear technology sites in North Korea.[48]

---

46 http://en.wikipedia.org/wiki/North_Korea_and_weapons_of_mass_destruction
47 http://en.wikipedia.org/wiki/North_Korea_and_weapons_of_mass_destruction
48 "msnbc", N. Korean Nuclear Threat Growing, Analysts Say, May 27, 2009

On May 25, 2009, North Korea conducted their second and final nuclear test. It was also confirmed that the magnitude of this bomb was equivalent to that of the atomic bombs dropped on Japan in August of 1945. During this same test, North Korea also tested two short range missiles. In July 2011, Abdul Qadeer Khan of Pakistan, reported that North Korea had gained access to Pakistani nuclear technology from the late 1990's, paying in excess of $3 million to senior Pakistani military officers.[49]

North Korea has two operating nuclear reactors, both located at the Yongbyon Nuclear Scientific Research Center. The older nuclear reactor is a 1967 Soviet IRT-2000 research reactor.[50] In 1975, Uranium was enriched in this reactor and used at North Korea's first plutonium separation experiments.[51] The main purpose of one of the reactors was not to produce plutonium, it was to produce enough fuel to power their nuclear operations. David Albright at the Institute for Science and International Security (ISIS), states, "The U.S. Department of Energy estimated that this reactor could have been used to produce up to 1–2 kg of plutonium, though the Joint Atomic Energy Intelligence Committee said that the amount was no more than a few hundred grams."[52]

However, the purpose of the main reactor is to produce plutonium for nuclear operations. The reactor is a 5MWe gas-graphite moderated Magnox type reactor.[53] The reactor's core consists of 8,000 fuel rods and can produce a maximum of 27–29 kg of plutonium if left until

---

49 Washington Post, "North 'bribed its way to nuclear statehood'", *Japan Times*, 8 July 2011, p. 4.

50 Joo, Seung-Hoo (2000). *Gorbachev's foreign policy toward the Korean peninsula, 1985–1991: power and reform.* E. Mellen Press. p. 205.

51 Albright, David; Berkhout, Frans; Walker, William (1997). *Plutonium and highly enriched uranium, 1996: world inventories, capabilities, and policies*. Stockholm International Peace Research Institute. p. 303

52 The North Korean Plutonium Stock, February 2007, By David Albright and Paul Brannan, Institute for Science and International Security (ISIS), February 20, 2007

53 http://en.wikipedia.org/wiki/North_Korea_and_weapons_of_mass_destruction

maximum burnup.[54] Frequently, North Korea has unloaded the nuclear reactor before maximum burnup. The core is known to have been unloaded three times at least in 1994, 2006, and 2007, of which only the 1994 refueling was done under IAEA supervision. At full capacity, the nuclear reactor can yield approximately 6 kg every year.

On March 12, 1993, North Korea withdrew from the Nuclear Non-Proliferation Treaty (NPT) and refused the IAEA inspectors permission to visit its nuclear reactor sites. In 1994, the United States reported that North Korea had enough reprocessed plutonium to produce ten nuclear bombs.[55] Later that year, North Korea faced diplomatic pressure from the UN Security Council Resolution 825, which asked North Korea to reconsider the nation's withdrawal from the NPT and to allow weapons inspectors from the International Atomic Energy Agency (IAEA) to inspect nuclear reactors and production.[56] North Korea also feared air strikes on the reactor, so they agreed to dismantle it. In return for the dismantling of the reactor, South Korea and the U.S. agreed to supply North Korea with food and fuel oil for electric power until newly promised light water reactors (that do not produce much plutonium) were operational-"Agreed Framework Act". Since the light water reactors require enriched uranium to be shipped in from outside of North Korea, their nuclear capabilities could be much easier to track, making it more difficult for North Korea to produce its own nuclear weapons.

The Korean Peninsula Energy Development Organization (KEDO) was founded on March 15, 1995 by the United States, South Korea, and Japan. The goal of this organization was to implement the 1994 U.S.-North Korea Agreed Framework, which would put a stop to North

54 Albright, David; Brannan, Paul (June 26, 2006). The North Korean Plutonium Stock Mid-2006. Institute for Science and International Security.
55 Bodansky, Yossef; Forrest, Vaughn S. (August 11, 1994). Pyongyang and the US nuclear gambit. Congressional Documents. GlobalSecurity.org.
56 "May 1993 - Controversy over nuclear issue". Keesing's Record of World Events. **39**, p. 39,463. May 1993.

Korea's arms oriented nuclear reactor program.[57] However, the United States changed its policy from engagement to deciding not to transfer nuclear technology to North Korea. The implicit policy was to let the North Korean economic problems build up and hope for regime change through domestic rebellion. Thus, the USA failed to build the promised light water reactors and ceased supplying North Korea with energy aid, North Korea went back to using its old reactors in 2002, and thus further built up its plutonium inventory.

In December 2002, during the Bush Administration, Agreed Framework ended after the United States convinced the KEDO Board to suspend fuel oil shipments to North Korea. In response to this, North Korea announced plans to reactivate nuclear plants and nuclear fuel processing programs that were North of Pyongyang. Following this decision, North Korea also withdrew from the Non-Proliferation Treaty and closed out the IAEA inspectors associated with the UN.

Since North Korea returned to using its old reactors in 2002, the United States claimed that North Korea had started up an enriched uranium program. Between 1990 to 1996, former Pakistani scientist and metallurgist, A.Q. Khan supplied North Korea with key data, stored in CDs, on uranium enrichment and nuclear information. In return he obtained missile technology.[58] In 2005, President Pervez Musharraf and Prime minister Shaukat Aziz stated that A.Q. Khan had aided North Korea by supplying enrichment centrifuges and bomb designs.[59]

A physical assault (preemptive attack) on a plutonium production reactor may completely prevent or delay further nuclear weapons production. However, such an attack can be seen as an unprovoked action of war and could be soon retaliated against, as it was when the Israelis

57 http://en.wikipedia.org/wiki/Korean_Peninsula_Energy_Development_Organization
58 http://en.wikipedia.org/wiki/North_Korea_and_weapons_of_mass_destruction#cite_note-16
59 http://news.bbc.co.uk/2/hi/south_asia/4180286.stm

attacked the Iraqi reactor complex at Osirak on June 7, 1981.[60] The reasoning behind why the Clinton and Bush administration did not attack any North Korean nuclear facilities is because of the real risk of retaliation on South Korea, Pyongyang had threatened to turn Seoul, the South Korean capital, into a "Sea of Fire". Seoul (the capital of millions of inhabitants) is within long range artillery range of the North Korean border. Such an attack would provoke another war and since a few U.S. troops patrol the Korean demilitarized zone, so the US could hardly avoid becoming involved in the resulting conventional war. As soon as some U.S. soldiers were killed, the U.S. Army and Marines would start massing in South Korea for the second time since World War II.

In 2008, tensions between North Korea and the United States increased due to arguments regarding the "six-party talk's" disarmament process.[61] Glenn Kessler of the Washington Post says, "The talks began to break down after the United States insisted on more intrusive verification measures than North Korea was prepared to accept".[62] As of October 8, 2008, IAEA inspectors have been unable to perform further investigations on North Korean property. On April 25, 2009, the North Korean government announced that the country's nuclear facilities have been reactivated.[63] The leadership also made an announcement that spent fuel reprocessing for arms-grade plutonium was now in effect.[64] In 2009, North Korea once again defied world opinion and pursued the test launching of a long-range rocket.[65] It could clearly have reached

60 "1981: Israel bombs Baghdad nuclear reactor". *BBC News* (British Broadcasting Corporation). June 7, 1981.
61 http://en.wikipedia.org/wiki/North_Korea_and_weapons_of_mass_destruction#cite_note-18
62 Glenn Kessler, Far-Reaching U.S. Plan Impaired N. Korea Deal: Demands Began to Undo Nuclear Accord, *Washington Post*, p. A20, September 26, 2008.

63 Associated Press (April 25, 2009). "N. Korea Says It Has Restarted Nuclear Facilities list". Fox News.
64 Russia Today (April 26, 2009). "North Korea: return of the nukes"
65 http://topics.nytimes.com/top/news/international/countriesandterritories/northkorea/nuclear_program/index.html

Japan and was a step toward threatening a US Navy fleet, even if it was far from the Korean coast.

The New York Times stated in August 2011, “In January 2011, former U.S. Defense Secretary Robert M. Gates warned that North Korea was within five years of being able to strike the continental United States with an intercontinental ballistic missile, and said that, combined with its expanding nuclear program, the country “is becoming a direct threat to the United States.” ” [66] In May 2011, Kim Jong-il met with representatives in Beijing and said that his government would try to restart the six-party talks aimed at ending its nuclear weapons program.[67] Recently in late August, Kim Jong-il visited Russia to meet President Dmitri A. Medvedev. At the meeting Kim Jong-il agreed to consider a “moratorium on nuclear weapons tests and production”, which would ensure a waiting period before further nuclear arms tests.[68] In some quarters, this was interpreted to mean that he is willing to trade the program for guarantees against regime change combined with economic aid. (i.e. what Cuba did)

In May 2010, *Rodong Sinmun* (*"Newspaper of the workers"*), a North Korean newspaper announced that North Korea had successfully accomplished a nuclear fusion reaction. In this article, it also mentions that North Korean scientists are developing a "safe and environment-friendly new energy" and they also have no plans to use this fusion technology in its nuclear weapons.[69] However, the same technology could support a hydrogen bomb program. It is claimed that North Korea would rather not be ignored and is making efforts to be viewed as a threat rather than attempting to use its own resources to support its people. Meanwhile, its people are increasingly trying to leave, showing up as refugees in China.

---

66 http://topics.nytimes.com/top/news/international/countriesandterritories/northkorea/nuclear_program/index.html
67 http://topics.nytimes.com/top/news/international/countriesandterritories/northkorea/nuclear_program/index.html
68 http://www.tampabay.com/news/article1187897.ece
69 May 12, 2010, AFP, North Korea claims nuclear fusion success, The Australian

North Korean Policy

North Korea is currently a failing state since it is having serious economic difficulties and is unable to install adequate electricity or even feed its population. Although North Korean propaganda has so far hidden the extent of the problems from the mass of the people and maintained the existence of the repressive regime, people are trying to leave the country in increasing numbers. Hence, the propaganda seems also to be failing. The death of Kim Jong Il has further stressed the legitimacy of the regime and its ability to suppress opposition. Kim Jong Il inherited his post from his father and tried to pass it on to his son, effectively establishing a dynasty. However, the army is key and not impressed by his son Kim Jong Un, a very young and not well recognized experienced or established leader. He is likely to end up as a figurehead if he survives in the post at all, and other nations might actually welcome a military takeover.

Although regime change is quite possible, it has not buckled, and possibly will not at least for the next decade. Political and military leaders know that if the regime were to collapse, it could bring a return to starvation and result in takeover by the more prosperous South Korea much the way Communist East Germany ceased to be when the people ran to the West. The collapse of the North Korean regime could be devastating for China and the Republic of Korea in the south if they had to deal with millions of refugees- but China in particular wants the Northern state to survive as a buffer between it and the US Army bases in South Korea.

Re-stabilization of the North would be an economic challenge for the Republic of Korea and North Korean revenge terrorism and resistance against the South as a result of a takeover could be expected due to 50 years of propaganda demonizing the capitalist South. If the regime collapses (or is over thrown from within) there is less chance of a war in which nuclear weapons

of mass destruction could be used against South Korea or Japan. A strike against China seems unlikely though North Korea is becoming so dependent on this neighbor that its developing into a virtual province of the People's Republic is a possibility. China did counter invade during the Korean War to keep the North from falling to the UN forces allied with the USA. It could preemptively invade again to stabilize a collapsing regime for fear that the South could walk into a chaotic situation and take over its client state.

Chaos during the collapse of the regime could also open nuclear proliferation to neighboring countries, but the current regime is already exporting arms technology, so the situation might not really be worse. If the North Korean regime collapses, these leaders of various "factions" may take control over the nuclear weapons. Most of these factions would not have many nuclear weapons. They also may decide to use these weapons against other factions that threaten them. The real fear is a faction that hates the ROK or Japan might get control of nuclear arms and use them while they can. They might also try to sell them to third parties, especially terrorists on the Syrian regime.

The North Korean threat of nuclear weapons could also encourage the ROK and Japan to develop their own nuclear weapon capabilities, to deter North Korea via M.A.D.. The ROK and Japan both are covered by the U.S. "nuclear umbrella" guarantee, in which the United States promises to use its nuclear weapons in response to extreme actions by North Korea.[70] However, some parties in the ROK and Japan lack confidence in the United States. It is possible that the U.S. could encourage Japan to develop national nuclear weapon capabilities in order to divert a North Korean attack and potentially help the regional military balance. If the U.S. follows through with this, such a policy would probably compromise the Non-proliferation Treaty, start a

70 http://www.rand.org/pubs/documented_briefings/2010/RAND_DB589.pdf

nuclear arms race, and raise questions about the reliability of its nuclear umbrella between these countries.

On December 17, 2011 Kim Jong Il, the North Korean leader died of a heart attack. Kim Jong Il's death sent shock waves through North Korea's Asian neighbors and reverberated around the world, reflecting the unpredictable outcome of an abrupt leadership change in one of the most opaque and repressive countries.[71] After 60 years, North Korea is still technically at war with South Korea and the United States, and has very few friends other than China and Mongolia.

Following Kim's death, South Korea was on high alert. The South Korean news agency, *Yonhap* reported that North Korea had tested a number of short-range missiles on Monday, December 19, 2011. The *Yonhap* also stated that these weapons tests were performed before the announcement of Kim Jong Il's death. The North Korean government had reportedly kept the death of Kim secret for two days, in fear that the leadership was struggling to find itself a position for this unfortunately hazardous transition. Following the announcement, the North Korean government announced that the new leader of North Korea was his youngest son, Kim Jong-Un.

North Korean media proclaimed Kim Jong-un, the "Great Successor" to power in an unpredictable nation that has obtained nuclear weapons. The death could potentially set back efforts by the United States to get Pyongyang to abandon its nuclear weapons, since the "untested" successor may seek to avoid any perceived weakness as he moves to consolidate control.[72] According to Bruce Klingner, an Asia analyst at The Heritage Foundation stated, "that Kim Jong Un may feel it necessary in the future to precipitate a crisis to prove his mettle to other

71 (SANGER, 2011)
72 (AU, December 20, 2011)

senior leaders."[73] Other analysts say that it will be a smooth transition, since Kim Jong Un has been in preparation for some time and his father's advisors still control the nation.

Little is known about Kim Jong Un. He has not even met or dealt with world leaders and the only picture the C.I.A. has of him is when he attended school briefly in Switzerland. According to some intelligence officials, he is thought to have been involved in the planning of the two attacks on South Korea in 2010, events that would have prepared him as a military leader. Kim Jong Il's son has had little experience in the art of running a dysfunctional country of roughly 23 million people.[74] North Korean officials have stated that Kim Jong Un needs another year to fully mature his position and to win confidence in regards to the North Korea's military commanders. By comparison, Kim Jong Il had two decades to get acclimated with running North Korea under his father Kim Il Sung's teaching and protection. Even when Kim Il Sung died in 1994, observers questioned Kim Jong Il about whether he was suited for the job or not. In comparison, Kim Jong Un has only had two years to prepare, following his briefrole as a senior party leader and four-star general. CNN recently stated, "So while gradual change over time may be possible, if on a limited scale, the imminent collapse of the regime is unlikely."

Following the death of Kim, South Korea's military has been on high alert, advancing its surveillance along the 155-mile border between the North and South, one of the world's most heavily armed frontiers, to detect and observe any unusual signs from the North Korean military.[75] Both the United States and South Koreans have expressed the fear that any power struggle could result in the North attempting to lash out at the South. An example of this was in 2010, when the North shelled a South Korean Island killing approximately fifty South Koreans.

---

73 (AU, December 20, 2011)
74 (SANGER, 2011)
75 (SANGER, 2011)

While Kim Jong Il was in power, he accomplished his most prized achievement, exploding two nuclear weapons (2006 and 2009). Although these tests provided North Korea a modest sense of protection from a United States military strike on invasion, which Kim Jong Il feared most, it also prolonged his isolation. The 2009 nuclear test prevented the Obama Administration from reaching out to the North Korean leadership, especially after Kim relinquished agreements with George W. Bush to denuclearize. Recently, former Defense Secretary Robert M. Gates spoke behalf on the Obama administration when he declared that the administration would not provide aid to the North Koreans unless they gave up nuclear weapons first.

The North Korea's Stalinist government has survived this far by closing itself off and defying the rest of the world. The question is, will this strategy continue to work in the years ahead for the third of the Kim dynasty to rule North Korea?[76] Vishakha Desai, Asia Society president said, "The news of the death of Kim Jong Il opens a new chapter in the life of this isolated and repressive regime as it negotiates food aid to stave off starvation for its people and attempts to revive economy amid international concerns over its nuclear ambitions."[77] Kim Jong Il's death could provide the North an opportunity for change, or worse it could trigger imbalance or even anarchy.

Kim Jong Un now inherits an isolated and unstable regime confronting political uncertainty, economic malaise and food shortages, and diplomatic isolation. For years North Korea has been overwhelmed by famine, involving severe food shortage caused by floods, drought and extreme economic mismanagement. United Nations agencies in Pyongyang have said that the North is in desperate need of outside aid just to feed its 24 million people.[78]

76 (Wilkinson J. A., 2011)
77 (Wilkinson J. A., 2011)
78 (Wilkinson J. A., 2011)

Approximately 3 million North Koreans died during a famine in the 1990s. Eventually Kim Jong-Il asked for help from the west, however it was too late. In 2002, Kim Jong-Il declared that food would stop being delivered to North Korea. The United Nations responded by saying that they warned that there was a risk of famine returning to North Korea after the devastating fall of the Soviet Union. Later in 2006 and 2009, North Korea once again caused distress by carrying out nuclear tests in the region. Since 1999 there have been several border skirmishes between the South and the North, but the results of the May 2010 investigation involving the sinking of the Navy corvette, *Cheonan, as a result of a North Korean torpedo attack brought simmering tensions to a boil. So reputations between the North and South have been tense.* Forty-six South Korean sailors died in the sinking.[79] Some believe that this attack was instigated by a new general, namely by Kim Jong-Il's son Kim Jong-Un as a "practice" for his upcoming elevation to ruler of the nation.

Seoul, South Korea is approximately 120 miles from Pyongyang, North Korea. Both are separated by bitter differences and a very long history of bloodshed.[80] Technically, the peninsula is currently at war because the horrid 1950 to 1953 Korean War "ended" with a peace-establishing ceasefire agreement. For the past 17 years, Kim Jong Il has been a threatening figure for South Koreans and now he is gone and actually missed due to the uncertainties.

Following Kim's death, South Korean's wait anxiously to see what the change in leadership in Pyongyang has in store for them. Regardless of whether it results in reconciliation or causes further instability and conflict. Many people in South Korea will be attacked by either or both situations. Another concern is that North Korea will not abandon their belligerent war threat. "North Korea has always been an uneasy presence for South Koreans", says Kim Jong-

79 (Rose, 2010)
80 (Bennett, 2010)

Sun, a South Korean citizen.[81] Although the South has moved from poverty and autocracy to an increasingly stable economy and democracy, the North has often seemed as a warning that another Cold War could be upon us, plagued by food shortages. "But these two enemies have a shared history, a shared culture, and even families split on two sides of the world's most heavily militarized border."[82]

Kim Jong Il's pursuit of nuclear weapons and his repeated threats to South Korea and the United States have evoked fears that a war might again break out on the peninsula or that North Korea could sell or give nuclear weapons to terrorist groups. Even though North Korea has signed the NPT and a successor has been designated, there is still fear among the North Koreans. The legacy of Kim's recent death is likely to cause power struggle and/or general nuclear program instability following Kim's death. Very few facts are available about North Korea, one of the most reclusive countries in the world, and not much more is known about the recently deceased Kim Jong Il, the "Dear Leader."

In response to a request by his father to indicate how North Korea should respond to a war that North Korea lost to the United States, Kim Jong-Il said, "Great Leader! I will be sure to destroy the Earth! What good is this Earth without North Korea?"[83] Kim Jong-Il thus implied that he would use nuclear weapons for revenge attacks.[84]

North Korea recently accused Seoul of scheming with Japan and the United States. North Korean spokesmen said that the alliance "is nothing but treachery escalating the tension between the North and the South and bringing the dark clouds of a nuclear war to hang over the Korean

81 (Press, 2011)
82 (Press, 2011)
83 (Berejikian, 2002)
84 (Bennett, 2010)

Peninsula," the Associated Press reported.[85] Reportedly, this is not the first time that the North has made such a belligerent threat. They promised a "retaliatory sacred war" over U.S.-South Korean naval exercises in July 2010. They also pledged to turn Japan into a "nuclear sea of fire" in 2004 and in 2006, declared it would "mercilessly wipe out" American forces in the event of war.[86] Experts in North Korea say that the alliance between Japan and the United States is "nothing but treachery" and could result in nuclear war.[87]

To summarize and conclude, North Korea is currently a failing state since it is having serious economic difficulties and is unable to install adequate electricity or even feed its population. Although North Korean propaganda has hidden the extent of the problems from the mass of the people and maintained the existence of the repressive regime, people are trying to leave the country in increasing numbers. Kim Jong Il's death has further stressed the legitimacy of the regime and its ability to suppress opposition. Kim Jong Il inherited his post from his father and tried to pass it on to his son, effectively establishing a dynasty. However, the army is not impressed by his son Kim Jong Un, a very young and not well recognized experienced or established leader. He is likely to end up as a figurehead if he survives in the post at all, and other nations might actually welcome a military takeover. Just like East and West Berlin in the ladder half of the 20th century, North and South Korea have also been separated for many years. A common fear is that the North and South will eventually start a nuclear war with one another. This is why it should be one of the United States priories to ensure peace between the two countries. Current North Korean regime change and conflicts regarding peace between North and

85 (Bates, 2011)
86 (Bates, 2011)
87 (Gastaldo, 2010)

South Korea will potentially open doors for the United States to enforce some new policy recommendations.

History of the United States', Russia's, and China's Nuclear Program

A Report on the United States, Russia's, and China's Nuclear Program from its start

Justin Torres

United States Background

The United States has played a major role in the history of nuclear power technology development and is still to this day trying to keep its position as the global leader in nuclear science and technology. One of the present day global issues is how to control what the USA created to avoid losing WWII and used to end that war without invading Japan. Nuclear proliferation or the spread of the knowledge and capability to create nuclear weapons, has become a problem for the USA as other nations seek this technology to counter the overwhelming conventional force strength of the USA and other more powerful neighbors.

World War II opened the door to mankind's greatest destructive force to that point, the fission atomic bomb. Frederick Soddy predicted that such a bomb could and would be built during World War I, at a time that the scientific community was skeptical. Interestingly, they were debating as much about what the social implications of such a powerful energy source would be as if it could be done. While everyone else was highly optimistic and talking in very utopian terms, Soddy predicted that the first (and easiest) application would be a bomb. Power plants would come later. The Cold War to follow World War II would result in the even more destructive hydrogen fusion bomb. German refugee physicists associated with Leo Szilard asked Albert Einstein to write to President Franklin D. Roosevelt warning the United States of the Nazis funding of Heisenberg and others research the possibility of an atomic bomb. Most Jewish scientists left Germany soon after 1933 when Hitler came to power, but one did not. Jewish Physicist Lise Meitner, then Professor of Physics at the University of Berlin, was Austrian, and protected from the Nazi's by her citizenship until the Anschluss when Austria became part of Germany.

In 1938 she fled to the Netherlands, and then went to Sweden to her new partner Niels Bohr. Together they established the concept of nuclear fission to explain odd results by German experimental chemists and physicists. Meitner warned ex colleague Leo Szilard then in the United States he recruited Einstein to warn President Roosevelt. From Stockholm Meitner was in communication with German physicists. Bohr was in Copenhagen, then under Nazi occupation. This pushed the United States and Britain to give research into the atomic bomb the highest priority. The Manhattan Project was the research and development group that created the first successful atomic bombs. The Manhattan Project was under the Manhattan Engineering District (MED) but after World War II in 1947, the MED was reorganized as the United States Atomic Energy Commission.

An executive order given by President Harry S. Truman gave the U.S. military the authority to drop the atomic bomb Little Boy on the city of Hiroshima, Japan on August 6th, 1945 and later the atomic bomb Fat Man on Nagasaki, Japan on August 9th, 1945. Each was considered 50% likely to work, but both did detonate. After seeing the destructive force of the atomic bomb, Japan on August 15th, announced its surrender to the Allied powers ending the Pacific portion of World War II. After World War II the United States Atomic Energy Commission was established to control the peace time development and research into atomic science and technology. President Harry S. Truman signed the McMahon Act on August 1, 1946 which transferred the control of atomic energy from military to civilian hands. The reason the United States Atomic Energy Commission was created was because Congress thought it be necessary for atomic energy not to be used only for military purposes but also for peaceful purposes.

Controlling the nuclear fission reaction to produce electrical energy on land and power plants for ships was a priority. The McMahon Act gave the United States Atomic Energy Commission the powers to regulate the entire subject area of nuclear technology and science. One of the powers was to try to prevent the transfer of atomic research to any other country. The United States Congress wanted to make improvements to the public welfare and strengthen the private industry of research and development. This meant allowing private companies to enter the field. However, this was also a secret with military implications. Although Congress wanted to promote world peace and prosperity through harnessing atomic power, the United States Atomic Energy Commission was also given the responsibilities of the Manhattan Project and building a nuclear arsenal and delivery systems for the United States. The Atomic Energy Commission had a development, a regulation, and an inspection branch but the development branch was more powerful and better funded than regulation. This would become a problem later.

Although the United States Atomic Energy Commission formulated and inspected to enforce regulation it did not have the overall authority to fund and create policy. The United States Atomic Energy Act of 1946 created the overseer of the United States Atomic Energy Commission in Congress. The Joint Committee of Atomic Energy was to be a congressional watchdog committee that had jurisdiction over all bills and matters related to the civilian and military practice in nuclear power. Its members knew things that not all Congressmen had a "need or right to know" so it operated in secret. The United States set up its institutions to contain rather than disseminate the knowledge of atomic power and keep itself as the world leader in the technology that had potent military implications. This costly knowledge was

considered a state secret. Hence, the government had to stay in the business of owning and operating nuclear laboratories and devices.

Critics of the AEC's civilian nuclear power program's safety record later made the case that there was an inherent conflict of the interest in being both a technology development and regulation agency. Thus the NRC (Nuclear Regulatory Commission) and ERDA (Energy Research and Development Agency) were created out of separate parts of the AEC. ERDA later became part of the Department of Energy, but the NRC exists today.

While the USA was developing internal agencies to develop and control nuclear power there were also developments internationally to do the same. After World War II the United Nations was created to replace the League of Nations and promote world peace by encouraging collective diplomacy and discouraging recourse to war. Its role was to be an international organization devoted to facilitating international law, international security, economic development, human rights, and social progress. Its main goal is to prevent war and solve things diplomatically via dialogue, not the application of lethal force, but it can and has fielded armies to enforce its will.

In the United Nations there is a Security Council which has a total of 15 members, 5 of which are permanent and have a veto. They are essentially the victors of WWII, the United States, Russia, China, France, and the United Kingdom. The Security Council is the governing body that is authorized to use military force to maintain peace and security amongst all the nations. However, it generally tries to use less extreme and more peaceful sanctions. As a permanent member, the United States had a lot of power in the Security Council. In 1953, under the Eisenhower Administration, a proposition was made dealing with the regulation and control of the fissile material that could be used in nuclear warfare and nuclear power. On December 8,

1953 President Eisenhower gave his Atoms for Peace address to the UN General Assembly to propose the creation of an autonomous international organization that had the authority over the regulation of the fissile material used for nuclear weapons and power. Another role it would have was the promotion of education of the public on the peaceful use of atomic power.

The International Atomic Energy Agency (or IAEA) was developed based on this proposal. Its highest priority was and always shall be to try to prevent nuclear weapons proliferation. After the horrors of the bombings of Hiroshima and Nagasaki it was obvious that nuclear weaponry had taken warfare to a new level of indiscriminate slaughter and this was something that the countries would not want to see used on them. It was also not a way to take over territory or population. It was pure destruction that contaminated the land for generations.

Still, it was the ultimate threat and last line of defense, so there had to be special rules governing its use since it was a threat to civilization and even human life on Earth. The United States proposal creating the International Atomic Energy Agency has made major contributions to peace and is still providing some control over nuclear proliferation. However, it is mainly a way to enforce the NPT in which signatories forego the right to develop nuclear arms to get IAEA assistance in developing civilian nuclear power programs, especially reactors to create electricity. In practice it keeps track of who can make nuclear reactor fuel, especially fuel that is enriched to weapons grade, and tries to track the existing inventory of such fuel to prevent diversion from civilian to military applications.

The situation after WWII was tense with Germany, Europe and Korea divided into Communist and Democratic zones referred to as East-West or North-South. Vietnam would later be divided as well after the North expelled France, the colonial nation controlling Indo-China

before it was taken over by Japan in World War II. Communist forces that had fought the Japanese turned on the returning French colonials and won a war of liberation against France.

The USA demobilized its Army rapidly after World War II but the Soviets did not and they had more and better tanks, though not as powerful an Air Force. The US Army defended itself from the more powerful Red Army by the threat of using nuclear devices if the USSR tried to conquer Western Europe. On the other hand, it seemed unlikely that the United States would resort to this extreme measure to preserve South Korea or West Berlin. Thus, it was here that the Soviets tested American resolve while desperately working to develop or steal the secrets to atomic weapons technology.

When, both sides were similarly armed and able to counter threaten, the Cold War emerged as a technology race. The race encompassed both nuclear devices and especially secure delivery systems. To counter the superior Air Force and Navy of the USA, the Soviets developed rocket technology captured from German technology centers and used it to create ICBM's or Intercontinental Ballistic Missiles. In 1957 they demonstrated their prowess by launching Sputnik. The United States got the message –and responded with a rocket development contest that was called the moon race, or space race.

After World War II a fight for supremacy in this field between two former allies had sprung into motion. The United States and USSR had started a new war of their own, the Cold War. The United States had developed the first atomic bomb, but the USSR was not far behind. Its program was fueled by the fear of a preemptive strike against its conventional forces if it could not retaliate. On August 29, 1949 the first Soviet nuclear bomb was created. The nuclear arms race, a fight for nuclear supremacy was on and the United States and the Soviets began to build up their nuclear arsenals by the thousands despite the fact that each device could destroy a

city and there were not that many cities. By the 1990's more than 70,000 nuclear warheads were developed, built, and deployed in the United States alone.

Not only were new varieties of nuclear warheads created but the delivery systems had changed as well. The ICBM and submarine launching capability had developed into the main delivery systems though the United States still favored the bombers of SAC, the Strategic Air Command, even after missiles were the main Soviet delivery system. These allowed for the long range attacks on other countries, even those on the other side of the world. The Cuban Missile Crisis, in which the Soviets provided missiles to Cuba, allowed for a rapid short range attack on Washington DC in 20 minutes and any point in the United States in an hour. The reason for this was partly that the US had missiles in Turkey but mostly to prevent the United States from invading Cuba as it had tried to do in the Bay of the Pigs incident. If there had been a full blown attack from Cuba the capacity for the United States to launch a retaliatory strike on the Soviets was in question. The move was destabilizing if mutually assured destruction was not assured. Khrushchev and Kennedy finally communicated directly and arranged for the Soviet missiles to leave Cuba in a face saving way. There would be no second invasion of Cuba to recover from the US defeat at the Bay of Pigs, and US missiles were removed from Turkey, not immediately but 6 months later, so it was not to be construed as a trade, but a unilateral redeployment.

Back on the home front, new regulations, organizations, and laws were put into place with regard to nuclear power. The Nuclear Regulatory Commission was established to replace the United States Atomic Energy Commission by the Energy Reorganization act of 1974. Its main job was to oversee the safety and security of the nuclear power programs. Such things included reactor safety and security, reactor licensing, reactor renewal, radioactive material

safety, and spent fuel management. The oversight of nuclear weapons portion was assigned to the National Nuclear Security Administration.

Towards the middle and end of the Cold War, the rationalization of nuclear capabilities became a part of worldwide debate. Legislation was voted on and many countries participated in the signing of documents pertaining to rules for nuclear development. Although they participated in the signing not many countries actually ratified the legislation.

First there was the Comprehensive Nuclear test Ban Treaty which forbids nuclear explosions in the atmosphere for military and civilian use. The United States signed the document but did not ratify it. Thus, it was endorsed in principle but it was not binding. Next in 1963 the Partial Nuclear Test Ban Treaty was formed where it was agreed that there will be no testing whatsoever in Earth's atmosphere, underwater, and in outer space. The United States Senate ratified this treaty along with the Soviet Union.

A treaty that even today is in force but violated regularly is the Nuclear Non Proliferation Treaty which has been signed by all five permanent members of the UN Security Council. Non Proliferation means that it forbids the spread of nuclear armaments, and calls upon most signatories to forgo developing nuclear arms and the nuclear armed nations to disarm over time. However, the nuclear nations have not disarmed. There is debate about whether the others are released from their obligations as well. The United States and Russia claim to be "disarming" but are not committed to total disarmament as called for by the treaty. It is not clear that total disarmament would even be wise as it would be destabilizing.

In the past few decades the United States has focused on enforcing the Non-Proliferation Treaty on others but has been running into many roadblocks partly due to its own uneven compliance. It has been a struggle since many nations are starting to develop the scientific

capability to have their own nuclear program and some actively want to do so. The IAEA is supposed to help them develop peaceful capability and applications. Unfortunately the states that want to have their own nuclear program are often at a conventional arms disadvantage with an adversary. Hence, they are likely to use them at least as a threat in war they were losing. The United States as well as other nations are trying to keep these hot spots from becoming nuclear disasters.

The effects of nuclear arms detonations on the world are hard to calculate but radiation from the Chernobyl meltdown in the Ukraine impacted places as far away as Italy and Sweden by leaving "hot spots" of radiation where it rained while the radioactive cloud was passing overhead. Hence, it is likely that a nuclear exchange anywhere affects everyone. One of the biggest security challenges facing the United States is preventing the spread and use of nuclear weapons for reasons that go beyond tensions between nations.

After years of terrorist threat from extremist groups in the Eastern Hemisphere, the United States has evidence that these groups seek nuclear devices to carry out a nuclear terrorist attacks on the west. The materials from which nuclear armaments are created can be found in many countries, some without proper security. Unfortunately nuclear technology is spreading through unstable regions. Iran is probably continuing nuclear research, in violation of the NPT and North Korea is destabilizing its region by openly defying the NPT, so illegal nuclear arms research is being done. North Korea has apparently participated in a black market of nuclear trading with other countries such as Syria which is an urgent proliferation concern.

There is evidence that North Korea traded missile technology to Pakistan in return for A.Q. Khan's nuclear centrifuge and bomb design technology. This is a major breach of the NPT that the United States has been trying to handle along with the International Atomic Energy

Agency and other concerned nations in the region, especially Russia, China, and Japan. The United States has tried a number of ways to prevent such proliferation. In June of 2005 President Bush gave Executive Order 13882 which had frozen the overseas assets of any known proliferators of nuclear armaments, financially crippling them. Numerous cooperative international agencies and organizations were created to try to limit and regulate the spread of nuclear materials. Some of these "offices" are the Office of Cooperative Threat Reduction, the Office of Export Control Cooperation, the Nonproliferation and Disarmament Fund, the Office of Weapons of Mass Destruction Terrorism, and the Office of Strategic Communications and Outreach.

President Bush's administration had a different view of the threat and how to deal with it than the current President Obama's administration. What former President Bush wanted to do was to maintain the status quo. This resulted in a decision to design a new generation of stable nuclear armaments rather than downsize the arsenal. There are two points to this plan. One is to reduce the cost of maintaining the current arsenal by replacing old and high maintenance technology with modern devices designed for long life and easy maintenance and storage. The second part is to design weapons to fit the current needs. No one seems to want to level cities anymore, but they do want to take out enemy missile silos, command structures, and penetrate underground bunkers using nuclear warheads. These new low radiation high blast weapons are called mini nukes. The plan was to convert the B61 and the B83 to do the job.

President Obama has taken a completely different approach to nuclear arms. President Obama wants to completely dismantle the U.S. nuclear arsenal and seek global nuclear disarmament. If the United States is to get other nations to forego building nuclear arms and depend on the NPT it has to fulfill its part of the bargain. To have a nuclear free world the United

States is expected to follow that choice and abide by the NPT as well. In fact the U.S. would be relatively more powerful currently in a nuclear free world due to its strong conventional forces which would no longer be threatened by a nuclear strike from a less powerful conventional opponent. Whether it could maintain that position in the future is not clear but for now the United States could make a case for nuclear disarmament. However, if it does it can no longer extend its nuclear protection to other nations like Japan or Israel.

The United States is using its other technological advances to keep an eye in the sky for nuclear threats and investing in surveillance of countries suspected of illicit nuclear programs. Through the UN Security Council the United States is trying to assure compliance with non-proliferation treaties by countries such as Iran, Pakistan, India, and Israel but it is a difficult process. In the case of India and Pakistan they will not sign the NPT but in the other two cases they are in violation of the NPT. Unfortunately not everyone agrees with the terms of the treaty and an example would be Iran. In the case of Iran, the nation signed the treaty while ruled by the Shah, an ally of the United States. When a revolution overthrew him and he went into exile the United States became a threat and was no longer protecting the country from its enemies such as Iraq, under Saddam Hussein.

Saddam attacked, used poison gas and was developing nuclear arms. The losses in an 8 year war were severe, and the more populous Iran was defeated but not occupied. It settled for a stalemate. Saddam then attacked Kuwait and threatened Saudi Arabia. The United States intervened in two wars. After the first war Saddam pretended to have a nuclear arms program as well as chemical gas to keep Iran from taking vengeance on Iraq while it was vulnerable and weakened. Now Iran has an Iraqi neighbor that is very different in that it is a United States ally again but that is not good news for Iran. Iran feels threatened and wants to be able to fend off

another invasion from that direction, this time from an even more powerful allied army. It also wants to be able to counter a perceived threat from the Israelis who have nuclear weapons. The Israeli's did in fact bomb Iraq's nuclear facilities when Saddam Hussein threatened them. Currently Iranian leaders suggest that their country is close to being able to produce its own fissile materials by centrifuge enrichment. There were other issues as well, in that they refused to allow the IAEA to inspect their facilities. Israel is doing the same thing but the United States has access to Israel but not Iran. So its concern is a clandestine program in Iran. The Middle East is a very unstable region which causes major concern around the world. The concern is that Iran could trigger a regional nuclear arms race by getting nuclear arms. Turkey, Egypt, Syria, Saudi Arabia, and others may follow suit.

Sovereign nations can rarely force another nation to do things not in their best interests. Trying to do so could create more problems than it solves. The peaceful use of nuclear power is not the issue, but changing the peaceful application of nuclear technology into an explosive used for mass destruction is not that hard once one has mastered the enrichment process or has an operating civilian reactor. Nuclear power is an increasingly attractive way to generate electricity, if it can be kept safe, given the rising cost of fossil fuels and global warming concerns.

The United States is trying to figure ways to reduce its nuclear arsenal as a means of improving international relations. Most of the United States' public actions to foster and enforce nonproliferation are through the UN Security Council and IAEA. However, it does not completely trust the IAEA and hence does not share all that its' espionage activities reveal. A.Q. Khan was being watched by the United States and Britain for a decade before the IAEA was made aware of his activities.

The United States of America has had a pivotal role in the history and birth of nuclear power for war and peace. The Obama administration is unusually receptive to the case for nuclear disarmament. It seems to be trying to be responsible and stop the spread of nuclear weapons of mass destruction, without giving up the advantages that led the nation to develop them. Looking back over the timeline of humanity, there are a few really important technologies that defined a new era or level of society. Most have to do with ways to get more agriculture growth or other usable energy sources out of the environment. By this measure a true stepping stone in technological advancement was the creation of the atomic power. However, it was born in violence and used to end a World War. The result was an arms race. Only later could the peaceful potential of the energy source of nuclear reactors be realized.

Nuclear technology is still a double edged sword. How to realize the peaceful electricity potential without unleashing its destructive side would be a challenge even if there had not been an arms race that produced so many bombs that need to be dismantled, stored, or kept on the ready for retaliation.

This is a pivotal moment for the United States as the cost of maintaining its aging arsenal is prohibitive and growing. The United States has to move to a new generation of nuclear arms or disarm. What it does will influence the readiness of other nations to forego nuclear weapons or give up those they have. The United States is increasingly turning to international partnership and organizations to maintain its own security but they are not yet up to the task of assuring collective security so it makes it that much harder to disarm.

Russia's Background *(By Stephen Kressaty)*

Chain reactions are an important concept to understand when dealing with nuclear weapons. In Russia's case, it was a chain reaction that started their nuclear program. From the 1940s up until today, Russia and the United States have been widely regarded as the worlds' two superpowers. Naturally, in a world with two superpowers, one always feels the need to keep up with and even surpass the other. So, in 1943, when the Soviet Union heard of the Manhattan Project and other research going on in the United States, it put pressure on them to get into the race as well. This led to Joseph Stalin's creation of a program aimed towards atomic weapons development run by Igor Vasilievich Kurchatov (Soviet Atomic Bomb Project, 2011).

While their desire for a nuclear bomb was strong, the Soviet Union got a late start and was significantly behind in the race. To catch up and even gain an edge, they turned to espionage. The Soviets went to great lengths to steal ideas and technology from the United States that ultimately played a huge role in their weapons program. Their spy network extended deep into America's nuclear program and its success sent the United States into hysteria that sparked a witch hunt, called the "Red Scare". There were a number of spies caught by the FBI, but the most notable suspects in the ring were Julius Rosenberg, Ethel Rosenberg, David Greenglass, and Klaus Fuchs. Throughout the mid-1940s, these four American citizens led a spy ring that enabled the Soviets to succeed in closing the gap (Soviet Atomic Bomb Project, 2011).

David Greenglass and Klaus Fuchs, among others, were American scientists working on the top-secret Manhattan Project. However, the U.S. government was unaware that they were communists who were actually supplying the Soviet KGB with documents and drawings from the program. The documents were passed along through a network of couriers, including Julius'

wife, Ethel, and eventually back to the Soviet Union. This allowed the Soviets to monitor American progress and steal many ideas from nuclear research facilities including Los Alamos, New Mexico, the fabrication center, and Oak Ridge, Tennessee, the enrichment center. Some of the technology acquired included blueprints of bombs, uranium enrichment methods, using plutonium for a bomb, and trigger devices (Soviet Atomic Bomb Project, 2011).

The FBI eventually discovered the ring and a massive internal investigation within the U.S. nuclear program was launched. It led to the prosecution of several spies in the early 1950s and, most notably, the execution of Julius and Ethel Rosenberg in 1953 for conspiracy to commit espionage (Julius and Ethel Rosenberg, 2011). The loss of these sources within the American program was undoubtedly a blow to the Soviets, but the knowledge already gained enabled them to make vast improvements in their nuclear weapons program. The program made rapid progress and by 1949, the Soviet Union tested their first atomic bomb. This was a plutonium bomb named First Lightning and it closely resembled American designs of the bomb (Soviet Atomic Bomb Project, 2011). Over the next few decades, the Cold War fueled an unprecedented arms race that resulted in massive stockpiles of nuclear weapons for each country, much of which still exists today.

Throughout the early 1950s, 1960s, and 1970s, the Soviet Union's primary objective was to always try and catch up or be one step ahead of the United States. At this time, America was focusing on creating a smaller, more precise nuclear weapon to limit collateral damage and civilian casualties. However, the Soviets were not as technologically advanced as the Americans and their bombs were not nearly as accurate. Because of this, they designed extremely large (dirty) bombs that targeted big cities as a scare tactic. These dirty bombs caused so much destruction that they only had to strike near a city to inflict a lot of damage. At the time, the

Soviets had a larger conventional army, so their goal was to use dirty bombs to hold the entire American population hostage and prevent a first strike from the technology leaders. Eventually, the technological gap was closed and the playing field was leveled, leaving both sides worried about widespread mutual destruction.

The arms race went back and forth between the two superpowers and was very costly. In 1952, America detonated its first hydrogen bomb and in 1953, the Soviets detonated their first hydrogen bomb. In 1957, Russia seemed to have a significant leg up in the race in terms of the delivery method for the bomb with missiles. At the time, the United States had a far superior aerial bomber force, but with the launch of Sputnik in 1957 the Soviets proved that they could strike anywhere in the world if necessary. This technology, dubbed as intercontinental ballistic missile delivery systems (ICBMs), was a game changer in the sense that now, countries did not need a plane with bases to drop the bomb; they could fire them from their home turf. The United States followed with a satellite of their own in 1959 and evened out the race with missile technology developed in collaboration with German technologists, such as Von Braun working in the United States, and some of his colleagues working in the USSR. With both sides now capable of delivering a strike though ICBMs, the term 'mutually assured destruction' (MAD) became an important to Soviet policy (Nuclear Arms Race, 2011).

By the 1960s, the Soviet Union and the United States each had about 30,000 nuclear warheads, which was enough to wipe out each country several times over. While this was excessive, the tensions between the two countries were extremely high and it seemed like the only way to feel protected as each side expected the other to target their missiles and airfields first. The idea was to be able to lose about 75% of your arsenal in a first strike similar to Pearl Harbor and still be able to obliterate the enemy with the remaining 25% of the arsenal. In 1962,

the Cuban Missile Crisis brought the Soviet Union and the United States closer to nuclear war than ever. This was the first time large-scale destruction and loss of life was used as a deterrent in war negotiations. Since then, the capability of nuclear weapons gained a new respect from powers around the world, and "mutually assured destruction" became a common policy to prevent nuclear war (Nuclear Arms Race, 2011).

By the early 1970s, the height of the Cold War had passed and the Soviet Union was faced with serious economic problems. The maintenance of excessive nuclear programs was counterproductive and the need to maintain conventional forces as well to provide an alternative political strategy to nuclear strikes was pressing the defense budget. With the United States also feeling financially pressured, the two countries negotiated arms treaties named the Strategic Arms Limitation Treaties (SALT I and SALT II). The main goal of these was to 'limit' size of the arsenals of each county by halting production and retiring older weapons. The treaties were not enough for the Soviets, who still faced economic hardships due to immense spending on civilian and military nuclear programs. This enabled the Reagan administration in the United States to restart nuclear research and development in an effort to pull ahead in the arms race with the implementation of the Strategic Defense Initiative (SDI), dubbed "Star Wars" in the U.S., which was a space-based anti-ballistic missile program. Despite Mikhail Gorbachev's unsuccessful attempts to negotiate a halt to this "destabilizing" program, the United States was unwilling give up the idea of a nuclear shield and hinder technological advances in the field. The next generation of technologists was trying to advance what their predecessors started – a peace born of mutual terror. This massive spending led to a larger deficit and in turn, more reductions in the force the Soviets could maintain while developing new systems (Nuclear Arms Race, 2011). However, many U.S. experts came to the conclusion that it was still cheaper to produce

more warheads rather than intercept them, especially since MIRVed missiles carried several independently targeted warheads on a single missile and as a result, the "Star Wars" program lost support.

Pessimism about the possibility of an ICBM shield led to a change in policy and the 1980s and 1990s saw heavy reduction treaties on both sides of the Soviet and American arms race. In 1991, the Soviet Union collapsed and Russia was left as the sole inheritor of the large stockpile left behind. Russia was interested in decreasing those stockpiles because of the great cost of the program and the security and maintenance responsibilities that came with possessing them. Its economy shrunk by nearly a third and new costs of domestic reform arose. This led to serious arms limitation talks and eventually the first Strategic Arms Reduction Treaty (START) between the United States and Russia. Signed in 1991, START I prohibited each state from deploying more than 6000 nuclear warheads on a total of 1600 delivery systems (A Brief History of Nuclear Weapons, 2009). START I was the largest and most complex nuclear arms reduction that had ever been put into effect. When the treaty came into full effect in 2001, it removed about 80 percent of the world's nuclear weapons from a "ready to launch" position and greatly reduced the number of nuclear submarines on patrol (START I, 2011).

With disarmament talks gaining momentum, the two superpowers proposed START II and START III, which attempted to further reduce the stockpiles of each nation. START II was aimed at banning the use of multiple independently targetable reentry vehicles (MIRVs) and ICBMs. This was widely viewed as "first strike technology" as well as an edge against Anti-Ballistic Missiles Systems. While the intentions of this deal were applauded, it seemed unrealistic that each of these countries would surrender their deterrent against a big first strike. The treaty was signed in 1993, but Russia withdrew in 2002 and it never came into full effect

(START II, 2011). Instead, the Strategic Offensive Reductions Treaty (SORT) was signed in 2002.

While START I was the primary arms reduction treaty through the 1990s, SORT took over the job from 2002 to 2011. The treaty was signed by Presidents George W. Bush and Vladimir Putin and limited both parties' nuclear arsenals to between 1,700 and 2,200 operationally deployed warheads. The Lawrence Livermore National Laboratory reported that, in accordance with the treaty, President George Bush ordered the military to cut their nuclear stockpile in half by 2012, and that it was done by 2007 (Strategic Offensive Reduction Treaty, 2011). With SORT set to expire in 2012, Presidents Obama and Medvedev worked out a new START treaty, effective in February of 2011. This legislation, still pending ratification by Congress, further reduces active warheads by half and brings the actively deployed warheads to 1,550. While the treaty does not include warhead stockpiles that are still in the high thousands, it still symbolizes Russia and the United States' determination to slowly, but mutually, work toward disarmament with a new treaty roughly every decade (New START, 2011).

Throughout the 2000s, Russia strived to repair its image in the field of peaceful nuclear use. Since the 1950s, they were perceived as a nuclear weapons giant, constantly producing more weapons. The harsher truth is that they have to deal with a number of countries besides the United States that are not as open to negotiations. Once Pakistan developed a bomb and North Korea entered the race, it was possible that several Middle Eastern neighbors could quickly gain nuclear capabilities. In an opportunity seen by the Russian government to enhance its international image and monitor a nearby radical country, Russia proposed a deal to Iran and the United Nations that is now in effect. Under the agreements of the deal, Russia enriches nuclear fuel for Iran to a certain point, supplies nuclear fuel to their power reactors for them, and takes

back the nuclear waste. This plan seemed to please many countries who did not want Iran running its own nuclear fuel enrichment program for proliferation and safety reasons.

Iran initially objected to the plan because it required them to give up their right to enrich uranium on their own. But, after Iran had some independent success in learning how to enrich uranium, negotiations resumed and an agreement was reached to allow Russia to complete the construction of a civilian reactor and provide the fuel for it. The deal was signed by both countries in 2006 and proved to be beneficial to Russia in many ways. Besides improved economic and political relations with Iran, Russia was now positioned to monitor and reduce the diversion of plutonium from spent fuel rods and monitor developments in Iran more carefully. While it is still unclear what Iran plans to do with enriched uranium from its own centrifuge cascades, they now have a fully operational nuclear power plant to study that is essentially protected from being bombed by the United States or Israel. Russia is now successfully keeping tabs on a nuclear-capable neighbor and gaining international recognition as a supporter of peaceful nuclear use at the same time (Beehner, 2006).

By the mid-2000's, relations between Russia and the United States seemed to be moving toward disarmament and living up to NPT obligations. Each side was constructively working towards strategic disarmament and seemingly keeping the world happy. However, when the United States heard of Russia's plan to help Iran become a nuclear-capable state, negotiations back-tracked and nearly broke down. The situation became more heated than it had been since the Cold War.

The United States felt that there was a growing threat of a missile attack on its European NATO allies from Iran and that South Korea and Japan were threatened by North Korea due to the progress their nuclear programs were making. As a result, the United States announced plans

in 2007 to station missiles and build an anti-ballistic missile defense system in Poland with a radar station in the Czech Republic. The Russians were angered by NATO activity in former Warsaw Pact nations and this technological attack on MAD. It put them at a great disadvantage, so they retaliated by promising to deploy missiles near the Russia-Poland border. When the United States claimed that Iran could not be deterred and that they needed to be contained, Russia saw this as an opportunity to work together and proposed a common monitoring and interception system with the major parts in Russia.

The United States decided against such close cooperation because of skepticism about Russia's position towards Iran, believing that they were more inclined to protect their relations with Iran rather than slow the development of their nuclear capabilities. President George W. Bush suggested that Russia stop enabling Iran's nuclear program if they wanted to "avoid World War III," and President Vladimir Putin made references to the Cuban Missile Crisis (Press Conference by the President, 2007) (Putin compares U.S. Shield to Cuba, 2007). While productive negotiations slowed during the presidencies of Bush and Putin, new Presidents Barack Obama and Dmitry Medvedev have refused to let the situation further deteriorate and Arms Limitations talks regress. In 2009, officials from the United States' and Russia's State Departments symbolically pressed a "reset" button to signal a new approach towards future negotiations (Cooper, 2009). Relations between the two countries have been promising since then, with the signing of the New Start treaty discussed before.

Recently, Russia has focused more on improving their civilian nuclear power programs rather than their arms programs. Haunted since 1986 by the Chernobyl disaster, Russia's nuclear power program is constantly searching for ways to improve and gain export income from their technology. Along with growing international efforts including cooperation with both Iran and

China, a number of new civilian reactors have been proposed with intentions to increase power generation to 25% of the national grid by 2030. Russia has also allocated over $5 billion to a program exploring next-generation research reactors, a field in which they consider themselves world leaders (Nuclear Power in Russia, 2011).

While some might question Russia's 'superpower' status today, they will always be a major player in the nuclear world. The lasting legacy of the arms race is leadership in the fields of rocket and nuclear technology. Their cooperation with the United States on arms limitation talks is crucial and has led to progress toward reasonable disarmament for both sides. They have made a lot of positive progress towards building up their international image as a provider of peaceful nuclear technology and it is important that they stay on that path.

Even though Russia publicly condemns Iran's nuclear weapons ambitions, the technology they are providing them with is more advanced than what is needed to build a bomb and could be used for other purposes in the future. The direction of current negotiations between Russia and the United States is promising, but it is imperative that neither nation loses sight of the most important goal of all: international safety. Deterring every nuclear terrorist in the world may not be possible, but saving the world from an all-out nuclear war should be.

China's Background

China has been a superpower before and grows more and more powerful decade by decade. It is very likely to be one again and soon, due to economic growth. China has developed farther and faster as a nuclear state than anyone expected because Chairman Mao made the military a priority after winning the Revolution in 1949 and while allied with the Soviet Union during the Korean War in the 1950's. However, China is ahead of itself in the field of nuclear power.

On October 16, 1964 China had successfully carried out its first nuclear test making it the fifth country to possess nuclear weapons of mass destruction. The test was conducted on China's Lop Nur site located at the Lop Lake and it was a Uranium 235 implosion fission device yielding about 22 kilotons. The site was used for forty five bomb tests until 1996. The project in which the nuclear tests were conducted and developed was called the 59-6 Project.

China had officially begun development of nuclear weapons in 1950's with the help of the Soviet Union. China and the USSR signed an agreement to develop technologies for national defenses. However, the Soviet Union was less willing to share nuclear explosive technology with China than rocket technology. A Sino-Soviet relationship began after Mao Zedong's mainland takeover of China in 1949 created the People's Republic of China, driving the nationalist Chinese government to Formosa- an island off the Chinese coast (called Taiwan by the mostly Japanese related population). At this time Khrushchev had taken power in the USSR. Khrushchev wanted the USSR to support its new communist comrade nations and have them create a Communist Bloc of nations. China was given back Port Arthur and Dalian and received aid from the USSR. Experts in Communist Theory and nuclear technology were sent to help

educate the scientists. Unfortunately the relationship between the two nations deteriorated fairly rapidly and Khrushchev backed away from his original view of China as an ally rather than a traditional rival for power in Asia. Thus the name of Project 59-6 represents the year and month in which the Kremlin decided to stop helping the Chinese with their nuclear program.

It took the Chinese another 5 years to reach their goal independently. In the field of rocketry they had a Russian rocket but the Soviets refused to supply its fuel. Again it took several years to figure out how to do that step independently. Tension began to intensify in 1959 between the USSR and China leading to the USSR dismantling and destroying a prototype and its data items that were supposed to be given to the Chinese for their nuclear program. The Chinese saw this as abrogating the agreement on sharing defense technology. China still sought a nuclear capability pushed through and finally had its first test.

China showed remarkable determination and skill in the development of nuclear weapons. The People's Republic launched its first nuclear missile on October 25, 1966 and detonated its first hydrogen bomb on June 14 1967. China was therefore a nuclear superpower long before it had conventional forces beyond those needed to defend its territory. This was also long before economic reform made the nation wealthy enough to leave the ranks of the world's poorest nations in terms of per capita income. The poorest nations average about $500/person/year. The wealthiest had about $16,000/person/year. The middle group has about $3000/person/year but China is still at the low end of that group at about $1500/person/year.

Since China's nuclear technological success, its arsenal and delivery system has evolved over the decades. Given the strong emphasis on secrecy in China, the exact size of China's nuclear arsenal is not public information. It is estimated that China may have up to 400 nuclear

warheads with about 120 strategically ready for immediate launch. China to this date has no official statement of proclaiming the number or policies covering its tactical nuclear weapons.

There is not a consensus on the exact size of the Chinese stockpile. The DIA or Defense Intelligence Agency made a rough estimate in 1984 regarding the Chinese nuclear stockpile. It stated that China's probably consisted of between 150 and 160 warheads at that time. Yet, In 1993 China's nuclear force relied on 60 to 70 nuclear armed ballistic missiles according to the United States National Security Council. In 2006 the DIA estimated that China may currently have as many as 100 nuclear warheads. More is known about China's device capability. China developed six different designs for their nuclear weapons, a 20-40 kiloton fission gravity bomb, a 20 kiloton missile warhead, a 3+ megaton thermonuclear missile warhead, a 4-5 megaton warhead for the DF-5 ICBM, a 3+ megaton thermonuclear gravity bomb, and a 200-300 kiloton warhead possibly for the for the DF-31 and DF-41 and JL-2 SLBM. China declares itself as having the world's smallest nuclear arsenal among the major nuclear weapon holding states.

China's successful development and testing of nuclear arms caught the world's attention. It was impressive but not excessive, an adequate deterrent. Hence, this success influenced international relations. United States surveillance took pictures of the launch site prep but thought that the Chinese were months and maybe years away from an actual successful test. Hence, the United States intelligence agencies were caught off guard by the news of a successful bomb test. The USSR had cut most of its ties with China after the Sino-Soviet split and indeed armies patrolled the border and there were clashes in Mongolia, a Soviet client state. Rumors had it that Russia considered a preemptive nuclear strike on China when the test was expected to be a few years away. President Nixon of the United States was sounded out but his response surprised the USSR. He visited China. His response to discourage a preemptive strike was in part since the

radiation would have blown east to Japan. It also benefited the USA to have the USSR distracted by a military threat to the south.

One reason for the success of China's push to have the Formosan National Chinese government removed as a permanent member in the United Nations Security Council and to have the People's Republic take its place was that it had in fact joined the nuclear weapons states(USA, USSR, Britain, France) sitting on that body to be the 5th nuclear power. In January 1984 China became an official member of the International Atomic Energy Agency. China has publically applied all of the IAEA safeguards towards its nuclear exports including signing agreements involving subjugating a few of the Chinese nuclear facilities to IAEA safeguards. Privately it may have helped Pakistan develop its nuclear weapons to counter India and then gotten Pakistan to help the North Koreans.

In July 1998, China presented an official statement in its white paper called China's National Defense. It provided confirmation of China's official cooperation with the IAEA and course of action towards the cooperation. In 2005 another white paper was released stating China would not be the first country to use nuclear weapons in any situation. China called it a "No First Use Policy" in that China would not use its nuclear capability to provoke or threaten any nation that is a non-nuclear weapon state or in a nuclear weapon free zone. In 1992 China along with France signed the Nuclear Test Ban Treaty agreeing to stop the proliferation and testing of nuclear weapons although both sell nuclear power technology. They were the last of the five superpowers to do so.

Today China is fully and openly against the proliferation of nuclear arms. It has them and does not benefit from others getting them now that North Korea and Pakistan are friendly and able to defend themselves without Chinese troops intervening. With China's involvement and

commitment with the IAEA, the threat of nuclear arms proliferation has been reduced. After China's admittance into the IAEA it voluntarily placed its civilian nuclear facilities under IAEA safeguards. The IAEA Director General Yukiya Amano and CAEA Chairman Chen Qiufa signed an arrangement in Beijing that called for an increase in cooperation between the IAEA and China to enhance nuclear security. China and the IAEA have worked together since its official membership in the IAEA to improve security in the East Asia region. China fully supports international non-proliferation efforts as specified by the NPT but will not reduce its own stockpile until the Russian and American stockpiles are as small as its own. It seeks non-proliferation and nuclear disarmament through diplomatic means. In its efforts to establish nuclear free zones, China has signed and ratified protocols in the African Nuclear Weapon Free Zone Treaty, Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean, and the South Pacific Nuclear-Free Zone Treaty.

China also wants to establish a Central Asian nuclear weapon free zone and showed its commitment to the goal by signing the protocol to the Southeast Asia Nuclear Weapon Free Zone Treaty. China used to host the six party talks about North Korea in Beijing as evidence of its interest in reducing tensions. Since 2003 North and South Korea, China, the United States, Japan, and Russia have met together a few times to try to negotiate the end of the North Korean Nuclear Program, which is in violation of the NPT. North Korea publically declared its nuclear capability and withdrew from the talks in the February of 2005. China recently made an announcement to try to restart the talks with North Korea. Kim Jong-Il, the North Korean leader at the time, visited Russia in August of 2011 saying that he might consider suspending nuclear arms tests and production if six-party talks did resume. Now his son rules North Korea and the policy might have changed.

China has been acknowledged in international forums for its constructive role in protecting regional peace and stability. China is a major player when it comes to advocating the NPT and encouraging regions to be nuclear free, but of course its massive population and powerful conventional forces would make it the undisputed regional power if no one had nuclear weapons, so there is self-interest involved in this policy stance.

China's becoming a nuclear superpower early upset the USA, USSR, and Japan but the results have ended up positive since China has not been aggressive or threatening and the nuclear deterrent kept adversaries from taking actions against it as well. Its' reason for development of nuclear weapons seems to have been purely defensive. Now China seems determined to lead East Asia towards a nuclear free zone. China's nuclear program started with its close relations with the USSR in the 1950's and then Project 59-6. Once it had a deterrent its nuclear involvement in the world pushed in a new direction toward encouraging disarmament in general and helping a few friends threatened by more powerful nations. It would be better off in a world without nuclear arms and if the USA and the USSR disarmed. Its membership in the IAEA allows for supervision and protection of the proliferation of the weapons. China has a strong belief in the value of a nuclear free zone in Central Asia and is still trying to accomplish that goal, but it would be probably not disarm unless neighboring Russia and India do it at the same time. Russia of course will not do it unless the USA does at the same time. India won't unless Pakistan does as well. Hence, the issue is complicated.

Although China has been publically seen as a being positive influence in this field it may have different intentions than purely for the sake of World Peace. North Korea is considered to be an embarrassment to China but during the Korean War China defended North Korea against the United States and the United Nations. As noted earlier, China likes the buffer zone between

itself and the American Army bases set up in South Korea and doesn't want to see North Korea collapse. They are keeping themselves involved in Korea but at an arm's length from direct conflict with the United States. After all, the United States helped the Nationalist Chinese protect some of their military forces after their defeat on the mainland by covering their withdrawal to Formosa. The current Taiwanese government used to be the Nationalist Chinese government so that matter remains unresolved due to United States interference. China claims to be opposed to involving itself in the internal affairs of other nations, but it does gain power and prestige when other nations that feel threatened turn to it for technical and economic help. However, its public and private policies may not quite match.

It is possible that since China helped both the North Korea with missile technology and Pakistan with nuclear technology it brokered the exchange of that technology so both had a deterrent from attack by China's traditional rivals, India and its new rival the United States, based in nearby South Korea and nearby Japan.

North Korea has also had dealings with Iran, which also got nuclear help from the A.Q. Khan network based in Pakistan. China did it in a way that didn't directly involve them. North Korean shipments of ballistic missiles parts to Iran passed unimpeded through Beijing. A North Korean cargo of missiles for the Shahid Bagheri Industrial Group, which runs Iran's solid-fuel ballistic missile program, was going to be shipped to Iran from Beijing aboard a scheduled Iran Air flight. They would have North Korea send the parts rather than get them from China directly. So, China had helped Pakistan, North Korea and Iran developed nuclear arms, though the Iranian case may not have been official or even unofficial Chinese policy. Although there seems to be dealing under the table, China has been seen publicly as a positive influence in advocating for an East Asian nuclear free zone.

United States, Russia, and China's Policy

The idea of stopping nuclear proliferation has been a continuous long term goal but the best means of doing so has been sharply debated for the past few decades. The United States seems to have reversed policy direction several times to some extent reflecting Democratic and Republican administrations. One area of stop and start progress has been the continuing effort to reduce the number of nuclear weapons that the major powers have in their stockpiles. The United States and Russia have negotiated a number of treaties to try to accomplish this end after struggling with the high cost of creating and maintaining nuclear weapons in large numbers. They set up treaties such as the SALT and START agreements to reduce this overhead cost. This started during the Cold War 1950- 1980 and to this day reductions continue formulae to be worked out but as the number of launchers has dwindled the number of warheads on each one has increased. The disarming or replacement of the nuclear weapons in the aging stockpile has therefore been up for debate in the United States and the different administrations that are elected have not maintained a consistent course. This not only affects the United States and Russia but has a global impact on the decisions of the other nuclear powers and nuclear weapons capable countries. The United States has an umbrella over countries in Europe that is supposed to symbolize the protection of allies on the Eurasian continent from nuclear attack.

The United States has designed a defensive system that supposedly intercepts ICBM's and plans to use it to protect its allies and itself, but Russia is in major disagreement with its

deployment viewing that as a destabilizing technology that puts mutually assured destruction in question. It requires more nuclear arms to overwhelm a defensive system, so it works against progress toward real nuclear disarmament to deploy this nuclear shield. China has agreed to completely disarm only if the other major powers decide to do so as well. In order for there to cooperation between the major players there has to be trust, verification, and a plan set out that benefits each country but has each country contribute towards the goal. Each country has a major contribution to that overall calculus that affects the world's total burden of nuclear weapons of mass destruction.

The start of reducing the number of stockpiled nuclear weapons (especially in the United States and former Soviet Union) began with bilateral negotiations between the United States and the Soviet Union producing a few arms reduction treaties. The most important was the Anti-Ballistic Missile or ABM Treaty of 1972 along with a numerous of agreements reached in the Strategic Arms Limitation Talks (SALT). What the talks did was put a cap on number the of strategic ballistic missile launchers at their current levels which was about 5,000 or so. It was continued with SALT II in 1979 which the United States withdrew from in 1986 after the Soviet Union's invasion of Afghanistan.

A new treaty was put into effect called START I also known as the Strategic Arms Reduction Treaty. The treaty was signed on July 31, 1991 and went into full effect on December 5, 1994. The treaty restricted the United States and Russia from deploying more than 6,000 nuclear warheads on top of the total of 5,000 ICBMs, SLBM's, and aerial bombers. Ronald Reagan initially proposed this in Geneva in 1982 but his Strategic Defense Initiative

Program in 1983 offended the Russians and the Soviets refused to continue the negotiations. This led to a second nuclear arms race in the 1980's. The Soviets had to match the technology or build more nuclear weapons to overwhelm the defense system to maintain mutually assured destruction. Due to the high economic cost of developing and maintaining nuclear weapons the USSR's economic hardships allowed the United States to push ahead and get a modest lead in the arms race.

Belarus, Kazakhstan, Russia, and Ukraine became the official successors of the USSR as well as signatories of the START treaty. Not only did they inherit the land from the USSR but they also obtained nuclear weapons left on their territories after the collapse. By 2001 Belarus, Kazakhstan, and Ukraine had dismantled their nuclear weapons or transferred them to Russia. They also signed and ratified the NPT. The United States and Russia began to store and dismantle their intercontinental ballistic missiles, submarine-launched ballistic missiles, and heavy bombers before START's actual action date. During this time the U.S. and Russia have reduced their stockpile of delivery vehicles to 1,600 each, with no more than 6,000 warheads. Clearly the MIRV technology was driving ahead so that the number of warheads was not declining even though the number of launchers was greatly reduced. The problem with depending on a few launchers was that it made a preemptive first strike more allocated.

As START II and III were proposed and written out to further enforce the START I agreement problems arose when the Congress would not ratify what the U.S. State Department had negotiated. START II, signed by Russian President Boris Yeltsin and the United States President George H. W. Bush on January 3, 1993 became a short lived negotiation. What

START II stated was the restriction of using of MIRV's on ICBM's. Russia had stalled the ratification of START II because of the American actions taking place in Kosovo as well as the NATO expansion eastward. Hence, the START II treaty was a matter of agreement but not actually in effect and thus unenforceable. Russia decided to back out of the treaty in 2002 due to the United States withdrawal from the Anti-Ballistic Missile treaty.

START III was never signed. Negotiations between Russia and the United States had broken down. In the negotiations Russia was proposing to bring the number of nuclear weapons deployed down to 1,500 in each country. The U.S. Joint Chief of Staff strongly disagreed with this offer. With NATO expanding eastward and the United States talking about a limited missile defense system, Russia and the United States negotiations fell into a stalemate. After President George W. Bush came into office and withdrew from the ABM, the Clinton era, START III initiative was also killed.

Fortunately, a new treaty called Strategic Offensive Reductions (SORT) or the Moscow Treaty was developed in 2003. It was in effect until February of 2011. It was signed by President George W. Bush and President Vladimir Putin and ratified by both nations. SORT basically replaced or bypassed START III, but did almost the same exact things. There was no true verification to the disarming of operational nukes, there was no exact requirement for the arsenal warhead count to be, and you could withdraw from the treaty with only three months of notice. SORT also was a plan to drop the nuclear arsenals between the two countries from 6,000 to between 1,700 and 2,200 operational deployed weapons by 2012. It would have made it to 2012 but it was superseded by the New START treaty before that deadline.

The New START was signed in Prague by Barack Obama on April 8, 2010 and ratified February 5, 2011. It is expected to be in place until 2021, but a lot can happen in ten years. New

START is a continuation of START I. The terms of the New START treaty are that the number of strategic nuclear missiles and launchers to be reduced to 700 and operational nuclear warheads to 1,550. Unlike SORT there would be a regime that would allow nations to inspect and verify that the other country was following the guidelines of the treaty. Although it limits the operational status of nuclear weapons it does not address the issue of the number of nuclear missiles inactive in the stockpiles of which there are large numbers. It is an effort to step back from a hair trigger situation and yet leave the capacity to retaliate later in place.

Although the overall goal is to rid the world of the need for and outlaw the use of nuclear weapons, is it something that the United States wants to do now or wait till much later down the road? It seems as if when a new President is sworn in the nuclear weapons policy changes. New administrations, especially from the opposite party, mean different ideas that clash with the previous administrations methods if not its goals. One example is President Bush's administration handing over responsibility to our current President Barack H. Obama. The result was a sharp new turn in the question of whether to disarm or replace. A plan to replace was stalled and an effort to negotiate disarmament took its place. A current issue with a nuclear arsenal is the maintenance. The United States spends approximately $55 billion a year on maintaining, research, development, upgrading, and testing nuclear arms.

There are different possible solutions presented to the financial issue. One that former President George W. Bush advocated was a plan to upgrade our current arsenal to a new generation of warheads, bombers, sophisticated missiles, and re-entry vehicles to deliver them while disarming the current aging arsenal so the numbers of weapons balances out. The reason for this would be to cut spending on the high costs of maintaining our current arsenal. The new generation of "bunker busters" would be more advanced and easier to maintain so annual costs

would drop dramatically. The catch is that you would spend a considerable total at first in order to save money in the long run over the next 50 years. Current "bunker busters" only penetrate approximately 20-50 feet into the ground still creating considerable fallout in the surface area. Much more research would be needed to develop the capabilities to go deeper and be safer for the environment and nearby communities.

This low yield bomb blurs the line between nuclear weapons and conventional weapons and thus the barrier to use. This could risk leading other nations to see this as legitimacy to develop weapons of their own for regional conflicts- thus sparking a new arms race. This could be very destabilizing for the entire world, not to mention all the work that has been put to get over the events in the Cold War arms race. This doesn't only destabilize relations between nations but this could destroy the Nuclear Non Proliferation Treaty. By developing a new generation of nuclear arms, it goes against the NPT and justifies other nations to do so as well.

The change from an old generation to a new generation of technology does not happen overnight unfortunately. It takes time and money for the research and development of new weapons. Over the long period of disarming it will still take time to dismantle the weapons while negotiating the changes in policy, so you're going to spend an astronomical amount of money in maintenance over the next decade or so slowly reducing arms. This does not account for events that take place that might change political context. Several times the United States or Russia broke off nuclear arms reductions due to unrelated grievances. Actions of other nations might also cause a prolonged need for nuclear weapons or Anti-ballistic systems. It could take decades before terms are met to the point that each nation is on the peak of complete nuclear disarmament. In the end the United States is left with a huge bill for the maintenance costs that took place over the time it took to get to that point.

The creation of the next generation of nuclear weapons has draw backs and a ripple effect. An even worse effect of this would be a start to a new nuclear arms race between the other nuclear capable superpowers that see the United States upgrading and settling in for two more generations rather than disarming. Other countries such as Russia might not approve of this and it could spark a race or worse the demise of the NPT so that they can sell arms to threatened nations. Saudi Arabia has made its intentions to buy nuclear arms the day after Iran completes a successful nuclear test quite clear. The chance for future reductions is a remote possibility, not the inevitable end of a long difficult process. A way for them to settle this matter would be for both the United States and Russia to build equal amounts of new generation weapons at about the level of the French and Chinese arsenals, and dismantle the whole current arsenal. It might even work if United States or the United Nations purchases Russian nukes to dismantle so that the cost of upgrading is not prohibitive for the less wealthy nation.

The situation one seeks is a few hundred nearly identical long term storable systems in the hands of the United States and Russia. Then this arsenal is distributed over the other nuclear nations as they disarm. They are literally given the latest technology. Finally these are the only systems on Earth and there are about 400 total.

All of these are then turned over to an international force with commanders from the nuclear nations. This force is given orders to retaliate any rouge nation that produces in secret and has the resulting weapons. However, their main responsibility is planetary defense that include defense against asteroids as well. When the long term storable devices finally deteriorate, a decision can be made to build more, or not, how many, and of what kind.

President Obama seeks a world with absolutely no nuclear weapons, but knows it can't be done immediately. Unfortunately with today's current issues if it is not possible in the short

run the policy climate will reverse course again and another chance may be far away. This goal entails long term collaboration with the other nuclear nations to reduce nuclear arms. Yet the United States can't seem to hold its own course, to do so. An outside agency will need to be in a position to enforce adherence to a long term strategic plan separate from other diplomatic issues.

Obama's plan isn't some mirage or something that is just what he says to have an answer to the question. He provides a case which backs up his idea. In a world without nuclear weapons there are some gains to consider for the nations that currently have nuclear weapons. Nuclear disarmament actually increases most nuclear capable nation's military prowess in the world. This is especially true for the United States and China. Their conventional forces are large enough that even without nuclear weapons they are still powerful. India is a special case since it faces both Pakistan and China, but if it had United States support against China it too would benefit from nuclear disarmament. The United States Armed Forces are composed a military force of about 1.5 million troops of advanced technology. The Armed Forces of the Russian federation contains about 1.1 million troops as well as the People's Republic of China who have about 2.3 million active duty forces. India has approximately 1.4 million active duties in its armed forces. If complete nuclear disarmament were to occur right now nuclear capable nations still have the same military prowess in their region that they do with nuclear weapons. Their conventional forces are still massive and would still remain as a strong power in their respective regions. The question is whether they could project power around the world, especially by air and sea? The United States can do that, but currently the other nations cannot- at least by sea.

An issue that is still in discussion and tribunals is the United States plan for missile defense systems. Since the United States withdrawal from the ABM treaty, it has designed a plan to protect itself as well as fellow nations under its protective umbrella. The United States has

clearly stated that the Europe-based system would defend against a potential missile attack by Iran. Currently Iran is trying to enrich its Uranium to weapons grade material. This threatens many countries which include the United States and NATO countries that have been intervening in the Middle East, where Iran hopes to be the local power broker from nuclear attack. Through negotiations and agreements, the United States of America has been given permission to build a sophisticated radar system in Turkey as well as siting 24 interceptor missiles in Romania. These designs were planned in a different way when George W. Bush was in office, but he endorsed the concept and initiated planning. Bush had planned to place the radar system in the Czech Republic and the interceptor missiles in Poland. A major re-design of the interceptor missile defense plan was undertaken by order of President Obama to move the system closer to Iran and to build it faster.

Unfortunately Russia is still opposes this whole idea of a missile defense system as destabilizing. They just do not want this technology developed. The Russian military has been given orders, by Russian President Dmitry Medvedev, to develop the capability of destroying the control stations of the soon to be missile-defense system in Europe. The Russian government has warned the United States of the consequences of building this system. It may provoke a new arms race and upset the strategic balance in the nuclear area, by threatening Russia's nuclear deterrence capabilities based on mutually assured destruction. It could even threaten the US-Russian relationship and possibly end the new Strategic Arms Reduction Treaty. President Medvedev set a darkened tone when he stated Russia's right to withdraw from the Strategic Arms Reduction Treaty. This would spark major events that could lead to a cold or hot war as a worst case scenario.

The United States has also refused Russia's request for legally binding statements that document the statements they are receiving that the proposed missile shield is not aimed at Russia and never will be. On a positive note, the U.S. State Department has been open and transparent on the issue and is trying to negotiate something that will make continued cooperation possible even while a modest defensive capability capable of stopping Iran, North Korea, or a terrorist group with one or a few missiles from launching an attack on Europe or North America is developed. The U.S. State Department is not trying to blindside Russia, only protect itself and fellow allies from Iran even as Russia sells nuclear power technology to Iran. Luckily the Russians are willing to negotiate as long as their point of view is being heard and they are allowed to set a few boundaries on the proposed system. However, the long term consequences concern them. A good idea for the program would be Russian involvement in the program to show a little faith that the program is on watch for Iran and terrorists in the Middle East. The Russians don't have to have direct involvement in a joint program but maybe an observer division with certain limitations, so that they know what they are up against if things turn hostile in the future and they have to defend themselves from an extremist western government, perhaps a Fascist government such as the one that was in Germany a century ago.

Another issue that remains is the growing concern about the uneven security measures in Russia for its nuclear material facilities. The security of nuclear arms has been considered lax rather than strict in Russia since the fall of the Soviet Union. So, this is not a new issue but one that has been around since the collapse of the Soviet Union. Now that several separate nations contain facilities of the USSR's previous nuclear arms program, their ability to secure it varies considerably. Belarus, Ukraine, and Kazakhstan are examples of the nations that obtained nuclear materials due to the collapse of the USSR. Luckily that issue was resolved by Russia

repatriating materials from countries that wanted to be non-nuclear, but there are still major flaws in Russia's own security system. There are missing materials due to unsatisfactory security measures being taken even in the wealthiest and most stable parts of their confederation. The security system which was designed to protect weapons against threats outside the Soviet Union may not be adequate to handle the challenges faced today such as insider sabotage, pilferage, and collaboration with terrorist groups. Chechnian rebels are one such example of insiders who are Russians with ties to militant terrorists in other Islamic lands.

The decline in military funding in Russia has impacted and stressed the nuclear security system. There was an unconfirmed allegation in 2002 by the head of the Russian Ministry of Atomic Energy's Nuclear Materials Accounting and Control Department, Viktor Yerastov, stating that an amount nuclear material capable of being developed into a bomb was stolen at a facility in the Chelyabinsk nuclear complex in 1998. The National Intelligence Council stated in 2002 that over the prior decade smuggling of nuclear materials from Russia had occurred but the amount on how much exactly is unconfirmed. Reports indicate that most facilities do not have proper equipment to maintain continuous care for their materials. Lack of funding and untrained security personnel are two common problems.

There are many threats due to the lax security in Russian nuclear facilities. The number one concern is that terrorist groups might obtain materials from one of these facilities by trickery or bribery of insider or an employee, especially one that is not paid regularly. A terrorist group with a nuclear bomb can threaten numerous countries and could possibly trigger a war. Understanding this threat should push Russia to spend the money needed to protect such weapons. They are not just toys that can be played with they are seriously dangerous weapons of mass destruction. Russia doesn't have to bear the responsibility alone because this situation

threatens the security of other nations. They could ask the United States for assistance in securing and protecting these facilities through training or resources needed. In the past the United States has paid nuclear technologists to dismantle systems negotiated out of the stockpile. One could build on that start. Some sort of negotiated deal could be worked out, possibly via UN. It is primarily a matter of willingness to proceed.

China has a unique perspective on its policy with foreign affairs. One of which is the No First Use Policy in which they promised to not be the first country to launch a nuclear attack on another nation. Its number one policy seems to be to avoid getting involved in foreign affairs that are not their concern and that has meant helping clients and allies like Pakistan and North Korea defend themselves. China's leadership constantly states that it does not want to get involved with the foreign affairs of other countries but seems to do so, partly to maintain good trade relations with repressive regimes that have raw material resources that it needs. Countries where they have involved themselves with nuclear implications are Pakistan, North Korea, and India. However, it is also impacting heavily in Africa. China can be considered like an octopus, stretching its tentacles slowly and quietly into the "waters" or affairs of other nations. The traditional foreign policy is to be awe inspiring and then ask for peaceful trade and reward it with offers of protection. It has not attempted overseas colonization as Europe did.

China and India have had conflicts in the past and things are still a little tense. The Tibetan uprisings of 1959 and the Sino-Indian War of 1962 were fought between the countries. The pretext to this clash was a border dispute in the Himalayas. There was an area where the Indians saw that the land Aksai Chin was part of Kashmir while the Chinese considered it to be a part of Xinjiang. This region contained a road that linked Chinese Tibet and Xinjiang together and China saw this as an important strategic area. The Sino-Indian War of 1962 was not the only

case that brought the two into conflict. There are troops stationed to this day at the Kashmir Line of Control. India is wary of China due to its supposed dealings under the table with one of India's adversaries, Pakistan. China almost certainly helped Pakistan achieve its nuclear capability not by supplying parts but by sharing knowledge and indirectly supplied missile technology. Pakistan and India have been at odds essentially since they both achieved independence from Britain. China has been increasing its dealings and alliance with Pakistan. This puts India in a bad spot with China to the north, north east, and a now nuclear capable Pakistan to the west. China is encircling India in every corner and unfortunately India is not in a good spot strategically in the case of a coordinated attack. Its borders with Bangladesh on the sea may or may not provide relief. Bangladesh can't defend itself and in the past China has controlled the Indian Ocean. This was especially the case in the Mongol era which the Mongols controlled the Middle East as well as China.

China's involvement with Pakistan may have allowed proliferation to occur not only in Pakistan but in North Korea. China may have pushed Pakistan's nuclear program in order to help a weakened Pakistan to counter India. Apparently China had been a broker in a deal between Pakistan and North Korea which allowed for the exchange of missile technology and nuclear technology as a deterrent against India and the United States. Currently with the United States backing away from Pakistan, China has been working with Pakistan to form a possible alliance. Although China is a little reluctant and might not want the huge role in foreign and military assistance that the Pakistan government is hoping for as it loses United States support. This would conflict with the other goal of improving relations with the United States. China's involvement in Pakistan would be more worrying if its relationship with India deteriorated at the

same time. The region could become very unstable, and nuclear war between nuclear nations would have more than regional consequences.

China's relationship with North Korea is most likely one based on strategic self-interest. In the Korean War, China supported North Korea in its invasion of South Korea and the United States acting for the United Nation, landed two armies and turned the tide of the counter invasion. China provided troops and tanks to help push back the United Nations once it threatened North Korea's continued existence. This is mainly because China wants an arm's length distance from the democratic portion of Korea as a whole and the United States Army would have been too close to China's borders. As stated before, China may have helped broker the exchange for North Korea to complete its nuclear program in secret using centrifuges rather than its Soviet era reactor which was vulnerable to an air raid. Their development created concern throughout the world since the country was run by the inhumane dictator Kim Jong Il. Although this move was for its own benefit, China directly violated what they profess to believe in for the region when it comes to the involvement in other countries affairs.

At one time or another, a nation has made an impact on the world around it, but it is about time that a single nation turns to every nation impacting the world and making it a better and safer place. The United Nations is mankind's attempt to unite the world and involve every nation to keep peace on all fronts. There are conflicts that have occurred during the time of its creation but it doesn't change the fact that countries such as, but not limited to, the United States trying to make things work. Unfortunately it is not only one nation's job to ensure the safety of the world. It is in the United Nations itself that can make improvements in order for the means obtain higher authority to disarm and stop the proliferation of nuclear weapons.

The reality of the situation is that nuclear weapons will always be around one way or another, but they can be used for more than just for warfare. They could be put to a greater use and even for a means to peace. This cannot be attained if each individual nation has nuclear weapons. What would need to be set up is a branch in the U.N., such as the IAEA, that handles certain situations. The function of this branch would be to handle confrontations between nations and even for the protection of Earth itself. This branch in the U.N. would have to have their own facility to hold and contain a number of nuclear weapons under around fifty or so. This branch would be the only governed body that can legally have a nuclear arsenal and it would be for collective security. This branch could be named the PKNW or the Peace Keepers of the World Nations.

In situations such as a nation attacking another nation without warning, a nation that is not keeping the balance of power or peace in a region or the world, or a nation developing its own nuclear arsenal would be contacted by this branch in the U.N. This branch could have a counseled meeting with the involved nations, and the participating nations in the branch, to come to an agreement. If the aggressive nation decides to disregard world advice or act out against another nation by nuclear means, the branch could vote or just have the authority to prepare a launch of a nuclear weapon to warn such opposing nation that if they do not comply they face assured destruction and will have to suffer the consequences of their actions. This would be the functional equivalent of mutually assured destruction. Of course only military targets will be authorized for attack and never a civilian target or city unless the nuclear devices to be targeted were located in or under a population center. This idea saves the nuclear nations a great deal of money in development and maintenance of nuclear weapons. It also would result in the reduction of some of the tensions of nuclear warfare in the era of mutually assured destruction and nations,

who should not be developing nuclear weapons technology, can be prevented from doing so. If so the Security Council can authorize a conventional force take over and anti-ballistic missile capability set up to take down a missile while it is over the offending nation's territory, if it is used.

The Earth's safety is never guaranteed. The universe is a harsh and cruel environment. It is no surprise that there are asteroids in the solar system. If you look at the Moon, Mercury, and Mars there are impact craters everywhere. There is even a crater in the Yucatan Peninsula called the Chicxulub crater, the largest known crater on Earth that is believed to have caused the extinction of the dinosaurs. Today, there are reports of flybys every now and then, but what if one was on a trajectory that headed straight for Earth? Agencies such as NASA and other privately funded are looking to the stars watching out for the rock that could end civilization on Earth. In this case nuclear weapons could come in very handy. The idea of blowing up an asteroid is obviously a bad idea because it would just make smaller large fragments and create a more expansive impact area increasing the damage. A shotgun is as deadly as a rifle. A better idea would be to launch nuclear weapons that don't explode on the surface of an asteroid but in the space close to one side. The Force of the explosion would cause the asteroid not to explode but to melt on one side and eject mass. This would change its trajectory slightly with enough energy supplied. This treatment repeated a few times, far enough from Earth, would cause the asteroid to change its direction and lead it to miss Earth or bounce off its atmosphere. The deflection of an asteroid could be a great use for nuclear explosive devices rather than for destruction of other nations.

The United States nuclear policy has come a long way since the creation of the nuclear technology. Negotiations that started in the Cold War with the Soviet Union have continued after

its collapse and rebirth into the Russian Federation. Issues on the topic of limiting strategic arms are still being addressed and it seems the numbers of nuclear weapons are diminishing in the world. Reduction in the number of launchers has been substantial, though concerns about mutually assured destruction have resulted in less progress on dismantling warheads. The United States and the Russian government still have a few leftovers from the Cold War to deal with but they are trying to overcome the situations that arise. With the New START treaty in place, the missile defense system in Europe and security of Russian nuclear materials, there are at least a few mountains left to climb. Relations between Russia and the United States aren't the only things that have had an effect on foreign relations and nuclear policy. China has also played a role and is still to this day handling situations such as North Korea, in India, and in Pakistan. However, the big question mark is Iran. A successful nuclear bomb program would send the efforts to reduce nuclear arms into reverse and cause a new arms race in the Middle East. With the next Presidential election coming soon and constant interaction overseas there are many possibilities to as to how the outcome of progress between these nations will turn out to be. However, there is reason for hope since national self interest of the United States, China, and probably Russia and India as well, is that these powers would be better off if nuclear disarmament did take place.

Policy Recommendation

Iran

In the case of Iran, where many different approaches have been tried throughout the past thirty to forty years to induce the government to halt its nuclear program, it is important to weigh the measures that have worked most effectively and build on them. Diplomatic deception and deceit toward the West have been rampant since the start of the program and throughout its existence, so one can expect additional ploys that merely buy the Iranian leadership more time. Hence, further delays in firmly applying sanctions must be carefully avoided. Iranian leaders have attempted to brush off the numerous economic sanctions that have been imposed on their banks and business sectors, but the truth is that they are actually causing a lot of disruption within the Iranian economy. Therefore, the anger of the bulk of the Iranian people, who are ultimately suffering, is growing. Slowing and finally halting a nuclear program in a country with Iran's resources and regional influence requires a complicated process, but it is by no means impossible.

A nuclear program, whether peaceful or not, is expensive to run, so cutting off its funds will surely impede its progress. There are a number of different ways to sanction Iran by undermining its economy and cutting it off from trade with the rest of the world. However, full cooperation from the rest of the world is necessary to cut deeply and quickly into the lifeblood of the nation. Due to boycotts, many financial institutions around the world have been left with the decision of doing business with Iranian banks or doing business with Western banks. Given the amount of business that the banks get from the West as opposed to just Iran, many chose to blacklist Iran, causing a great reduction in Iranian business output. Embargoing Iranian oil is also very powerful method, but without 100% participation from the international community it

can backfire. As discussed earlier in the report, if countries with large economic influence like China, Russia, or India are enticed by lower oil prices and cross the picket line, Iran still gets its oil money and is left poorer but not thwarted.

Often, the fear within these countries is that if Iranian oil imports are stopped, a domestic shortage will cause a national oil crisis. Further, with demand up and supply down, the price of international oil will skyrocket. However, word from the Saudi Arabian Oil Minister assures the world that if needed, Saudi Arabia (the world's largest oil exporter) could meet any world oil demands despite losing Iranian exports (Saudi Arabia Says it Can Cover any Oil Shortages, 2012). With this guarantee, the world oil market would remain relatively stable and therefore not scare off major economic countries from embargoing Iranian oil. Getting countries like China, Russia, and India to massively reduce or completely stop importing from Iran would cause a crisis that would make Iranians question if having nuclear arms were worth the cost. If basic necessities become scarce it would be hard to justify lavish funding of Iran's nuclear program and in turn significantly hinder its support and progress. China's newly elected vice-president, Xi Jinping, recently toured the United States in an effort to improve strained relations between the two countries (Wong, 2012). American leaders should take this opportunity to encourage China to decrease business, and especially oil trade, with Iran.

Another way to seriously hinder Iranian business exchanges with the rest of the world is to cut off its means of transferring funds around the globe. The Society for Worldwide Interbank Financial Telecommunication, or SWIFT, is used by virtually every major bank around the world electronically to transfer funds. Cutting off Iranian banks from using the system would make it very difficult to do international business and cause a lot of discontent among the Iranian people (Blenkinsop, 2012).

Taking advantage of frustration within the Iranian population and using it to bring about a democratic regime change is a very plausible approach that the United States and other Western states should consider. The goal is not to take over Iran or make it fully democratic, but just to remove the radical regime and replace it with leadership that cares about the fate of the Iranian people and can be deterred from the use of WMD. Since the 2009 presidential elections, the Iranian people have felt betrayed by their government and have sensed that their voices and votes have no meaning anymore. This is a particularly sensitive subject to them considering that less than thirty-five years ago, the Iranian people successfully revolted against the repressive regime of the Shah for very similar reasons. With the Arab Spring also in full force throughout the Middle East protesting repressive, unrepresentative governments, fostering the dissatisfaction of the population with an extremist government dominated by a minority sect could prove to be a very effective method of stopping the arms program via regime change.

The Arab Spring, while not currently aimed at threatening the Iranian leadership, could play an increasingly large role in policy decisions made throughout the region. Today, the most violent and passionate uprising is occurring in Syria, where Bashar al-Assad's oppressive regime is facing a legitimate and growing rebellion from the Sunni majority. As discussed earlier in the paper, Ahmadinejad's administration maintains positive relations with Assad's administration for many reasons including trade and keeping open ground routes to Hezbollah in Lebanon. These relations are facilitated by the fact that Assad's regime is mostly filled with Alawite Muslims who follow the Alawi branch of Shi'a Islam. Empowering the Sunni majority in the Syrian region would be a blow to the "Shi'a crescent" that Iran works hard at asserting its dominance throughout.

Iran often exploits the presence of Shi'a Muslims in the Middle East and around the world to gain influence and become a stronger world force. Cutting Syria out of the Iranian sphere of influence would be a huge geopolitical blow to the Iranian leaders' goal of spreading the Islamic Revolution and would surely destabilize Iran's terror network. Iran's supremacy throughout the Shi'a Middle East unquestionably enables its leaders to act more aggressively on an international stage. Hence, reducing this "soft power" would diminish the assertiveness of the Iranian leadership. However, in Syria's case the opposition is laden with violent Sunni extremists who are likely to have links to groups like al-Qaeda and Hamas.

Providing them with American arms could end up being a costly mistake in the future and is likely not to be endorsed by any presidential administration. While Syrian government figures have repeatedly stated that the uprising can be dealt with internally, the situation does not seem to be improving or getting any less violent. This urgent situation must be acted upon by an international peacekeeping effort similar to the one launched for the Libyan rebels by NATO and endorsed by the United Nations Security Council to bring down Gadhafi's regime. More importantly, supporting the rebels will bring an end to the violent Assad regime and sever Syrian ties with Iran.

The Iranian government often seems indifferent to the fact that economic sanctions may be hurting the Iranian people more than the government programs. Unfortunately, Iran may be headed down a similar path to that of North Korea, where the citizens starve while military programs thrive. Fortunately, the people of Iran are not as oppressed as the Koreans in a Communist state and have a vote (supposedly) which they can use to voice their opinion. Bringing about economic hardship and possibly forcing Iran into a recession all to support its leaders' undying nuclear ambitions would surely cause a great amount of distress among the

Iranian people. Adding fuel to the fire would be displeased business owners and middle class workers who have seen their hard-earned wealth significantly reduced by economic sanctions. Along with numerous other reasons for discontent, a general dissatisfaction among the Iranian people may be enough to democratically change the direction of Iranian policy before it reaches the point of being backed by nuclear arms.

The next Iranian presidential elections will not take place until June of 2013, giving the current government over a year to work towards acquiring and testing a nuclear device. Administration change is imminent considering Ahmadinejad is not eligible to run for president for a third consecutive term. However, with Ayatollah Khamenei in power as Supreme Leader of Iran until death, presidential change does not necessarily mean regime change. Also, some officials around the world, notably Israeli officials, contend that the time measured until Iran reaches a nuclear threshold should be measured in months, not years. This nuclear threshold signifies a point of no return in the program where all the necessary knowledge required will be known, many of the enrichment facilities will be buried deep underground where they are virtually immune to military attacks, and Iran's nuclear operations will be fully functional and independent, from mining to processing to production.

Since stopping a nuclear program after it has reached its point of no return would be useless, a deadline of six months should be set for complete transparency by the United Nations and endorsed by the United States, Israel, the European Union, and other Western powers. IAEA inspectors should have full and unrestricted access to every Iranian nuclear facility by this deadline to ensure that they are not working towards acquiring a bomb and are abiding by the NPT.

Understandably, any and every nonviolent approach should be exhausted before using force, but if the deadline is not met by Iranian leaders, military action will be necessary. Subversively causing problems or eliminating scientists is only delaying the program by a couple of months at a time, but by this point it would need to be halted. The United Nations Security Council should pass a resolution that would allow precise military strikes on Iranian military run nuclear sites such as Fordow, Parchin, and Qom. Israel would likely be the nation to carry out the attacks considering their geographical position, the severity of the threat an Iranian nuclear device poses to their national security, and the capability of the Israeli Air Force. This operation could be portrayed to the world as a peacekeeping operation, focusing on the large scale destruction that could result from a regional nuclear arms race.

The facilities that are buried deep underground should be the first targets of the attacks considering that most of the plant's workers would presumably be underground, minimalizing casualties. With entrances to the facilities destroyed, hopefully Iranian leaders will seek to reduce further damage to other sites and be forced to the negotiating table. If not, the attacks would continue until Iranian leaders are willing to bring about transparency in their nuclear program. For the most part, the United States would be a spectator in this operation. The only two reasons for American involvement would be if Israel ends up taking heavy casualties from any retaliating Iranian forces or if Iran attempts to disrupt oil traffic through the Strait of Hormuz. As it has been in the past, Israel would most likely receive substantial arms support from the United States, but keeping American strike forces out of the region would be the wisest decision. Unfortunately, the United States' soft power in the region was significantly squandered due to the invasion of Iraq by the George W. Bush Administration. The legacy of

lengthy and violent occupations that has battered the American image in the region and left Muslims suspicious of American intention is still fresh in the minds of many Middle Easterners.

It would be a promising step toward peaceful international relations if the situation in Iran could be resolved without having to resort to military action. However, because of its threat to regional and global security, Iran's nuclear program must be stopped by any means necessary. Iranian leaders' past behavior has tainted their reliability as leaders that will keep their word and damaged their ability to bring trust to any negotiations. Nevertheless, every world leader should be committed to resolving international disputes nonviolently, so it is important to give sanctions and diplomatic pressure one last chance.

It is unfortunate that the Iranian leadership has subjected its people to economic and social isolation from most of the world to carry out country's illicit nuclear program. Hopefully the brewing frustration within Iranian population will bring about a popular resistance movement capable of convincing the government that nuclear arms are not worth their cost in political and economic troubles. Using the momentum of the Arab Spring to bring about regime change and hopefully more rational policies is the most promising opportunity to resolve the crisis and one that should not be missed. Effectively dealing with Iran at this time is especially important because it will set the precedent for any other nations with similar nuclear ambitions in the future. All of the pieces for a ground breaking standard of international cooperation to prevent nuclear war by sanctioning nuclear proliferation are presenting themselves and it would be foolish not to take advantage of them.

North Korea

First, the United States must create a policy of "engagement and containment" to end the current North Korean nuclear standoff. For this policy to work, the United States has to improve its relations with the ROK (South Korea) as well as with China and North Korea. United States and South Korean relations would benefit this case by agreeing to seek a nuclear free zone in Korea and ending the nuclear shield the USA offers to ROK and Japan in the face of the threats from North Korea and a considerably lesser extent China. The true goal is a process leading to long term peace in Korea overall and this probably will require regime change in North Korea at some point, but that need not be sudden or threatening to China. A U.S.-South Korean alliance would also help protect United States national interests even after long term peace is achieved.

Starting from where we are at now, this agreement would state that the U.S. has the right to retaliate against North Korea in the event of an attack before it is a certified nuclear free nation. After that the US would foreswear the right to attack the North using nuclear or conventional arms, except to prevent genocide against the North or South Korean people. The USA would have to agree not to intervene in support of a rebellion against the government, but South Korea would not have to be a party to that agreement. North Korea would not have to maintain a military larger than that of South Korea if it knew the USA would not join into a conventional attack. This would also promote peace and balance in Northeast Asia and result in a stronger U.S.-South Korea alliance.[88]

The U.S. must also pursue the six-party talks with North Korea, which are critical to the resolution of the current nuclear standoff with North Korea. Only three countries would really need to participate in the next round of the multi-party talks, namely, the U.S., South Korea, and

88 http://www.ndu.edu/inss/docuploaded/strategicperspectives_saeed.pdf

North Korea. However, the resulting accord would need to be ratified by Japan, Russia and China as well to be sure that the terms were enforceable on North Korea. These countries in the six-party talks also need to pursue a nuclear pause based on denuclearization of North Korea. The six-part talks process is not dead yet, and will continue but the hard work needs to be done by three of the parties.[89]

The United States must also address with China, South Korea and possibly Japan questions about North Korean regime change. These questions include: how to identify North Korean collapse, and what some of the potential responses could be. This dialogue will be tough because of the lasting mistrust between these countries, but it is an important place for these countries to start. The U.S. should reevaluate proposing potential energy and economic motives in exchange for North Korea to dismantle and/or halt the existing nuclear program.

Pakistan and India

The United States must also push for a policy that would ensure that India and Pakistan can prevent terrorists from gaining access to nuclear plans and facilities. This policy must result in securing both India and Pakistan's nuclear facilities with modern security practices and technologies to prevent a break-in. It would not only prevent terrorists from gaining access to the facilities, but it would also prevent nuclear information from falling into the hands of terrorists or other third parties. It should be made clear that the loss of control over a civilian nuclear plant or a nuclear weapons creation or storage facility will result in the sites being seized by the IAEA calling on UN Security Council members for the forces necessary to carry out the policy of destroying or recapturing the site.

The United States must encourage India and Pakistan to accept a permanent ceasefire

89 http://www.ndu.edu/inss/docuploaded/strategicperspectives_saeed.pdf

in the border between India and Pakistan in Kashmir. This action would greatly reduce the chance of further tensions between India and Pakistan. The United States needs to offer a UN resolution to create a force to enforce a demilitarized zone in Kashmir between the nations. The U.S. should also not provide military weaponry that is able to carry or deploy nuclear technology, such as military aircraft, ballistic missiles, etc. to one party and not the other. It should always try to help maintain the nuclear balance between the countries, by offering to balance arms that one side creates or purchases elsewhere. Once India and Pakistan know they cannot get an advantage over the other by an arms buildup one can try to strengthen their relationship and move toward a demilitarized border. An important element of such a plan is to encourage them to formally agree to use their nuclear weapons defensively, instead of offensively. The policy of balancing the forces of the nations will become null and void once Pakistan has agreed not to respond to a conventional attack with nuclear arms. It must be clear that losing a conventional war is preferable to having a nuclear exchange.

United States

After extensive research into the subject, there are a few policy recommendations the United States could consider about the nuclear proliferation issue. The United States should take an important role in stopping nuclear proliferation. In order to do so one has to have a clear plan and strong sanctions to clear the road to this goal. The main objective of the United States should be to get a consensus among nuclear nations that the ultimate goal is complete nuclear disarmament in 30 years. All current nuclear arms are to be dismantled in the next 10 years and replaced with next generation devices of a common design. Those to be distributed among nuclear among nuclear nations proportional to the threat those nations face from other nuclear nations. One needs an empowering agreement that can work for each nation, but be part of a larger U.N. enforced policy.

The United States has struggled between two different administrations that have conflicting ideas towards what should be done about the aging stockpile of nuclear weapons. Russia too has foreseen this problem with the material slowly decaying after decades of storage. What was proposed by the Bush administration was to build a new generation of nuclear weapons. This is what should be done to handle the decaying material as well as save money spent on maintenance and storage. Nuclear weapons are not going to disappear from the world in less than one generation so the United States might as well make sound plans for the long run, of 30-50 years.

Obviously this new arms development progress will cause a break down in relations with other nations that have nuclear weapons and are disarming. It would be possible that a new arms race could occur to that could spark the world into conflict, especially with our Russian rivals, that the United States has had a long history of arms race during the Cold War. This is why the

process of researching and designing a new generation of nuclear weapons would be not only for the United States but for the every nuclear capable country in the world. The plan would be that Russia and the United States would share a joint project on the development and design of the next generation of long term storable and secure devices. Then after the next generation is completed give about 500 of the new nuclear weapons to each nuclear capable nation with an arsenal of 500 or more and swap one for one with those that have fewer than that as of January 1, 2013. The idea behind this is that everyone would have the same technological weaponry and the same number of them to assure mutually assured destruction.

In order for them to receive this new generation of weapons the nation would have to dismantle or trade its current arsenal to the United States or Russia before receiving the new version from that source. The disarmament of the old generation would have to occur under the presence of the IAEA or a new international body as well as the one to handle the "device" trade. No one nation should handle the matter due to the fact that it might cause uneasiness and unwillingness to participate among rival nations.

In order for the Russians to be on board, they would have to be convinced that they would end up as world leaders with this technology and be able to make some money. Hence, the answer to this is cost effectiveness in the form of savings and a payroll. Due to Russia's economic issues the best solution would to make the next generation cheaper, as in cheaper to maintain, store, and cheaper to dismantle which would be a future goal to attain. Also Russian nuclear scientists have a much lower pay rate than a United States nuclear scientist. It costs about a third as much to get Russian experts in this field. So they would benefit from it as well. The United States could offer to pay the salaries of Russian scientists to outsource so it is a joint effort. The outsourcing will not be the overall design of the device since the Bush administration only did a concept design.

However, the production engineering might be the same. This shows that the United States is not trying to be an aggressor and start a new arms race but involve Russia in order to help the entire world and this menace of nuclear catastrophe.

This transaction so to speak would not take place in the United States or Russia. An international body is what would need to be in charge and provide constant oversight. The IAEA could oversee the project or a new international agency with greater power than the IAEA has. For a new international agency to be assembled, it needs a location. I propose Japan as the location where such an agency exists due to the fact that it is the only country that a nuclear device has been used for war purposes and where a civilian nuclear accident has occurred. It would only be right that they housed the new agency that oversaw the development of the new nuclear devices designed to be the last ones on Earth, as a disarmament program. This new body also ensures the safety of this policy. They would ensure that if a nation using nuclear weapons threatens an unprotected nation, then the agency could be the umbrella or watchdog to protect them by being required to retaliate against an attacker.

After the next generation has been developed, disarmament talks could be concluded on the rate of retirement of that last generation of nuclear weapons. At some point every nuclear nation would have about 100 nuclear weapons and be at the same technological level as the other nations so there should be no confliction and disarmaments should go smoothly. Unfortunately there is a possibility that not every nation will want to get rid of all of the weapons and keep a few. As stated in the previous paper an international body could be created (the PKNW), could even be the same as the one just discussed which holds the remainder of the nuclear weapons and becomes a new international watchdog. The location of this agency would have to be in two or three different locations that are spread at different points of Earth. The reason being is that if a

rogue group or hostile nation captures a facility then there are two others to counter balance the other. The locations would have to be somewhere safe, such as an island or desert, or a mountain. Although, there are natural forces that need to be considered before placement that can obstruct a facility located on an island or any geographical location.

Sacrifices need to be made in order to achieve such an open monumental goal, but it can be achieved. With effort and patience there is always a chance that in 50 years nuclear disarmament will have occurred, if it happens when it is in the interest of the most powerful nation to do so. Although there is the possibility that a few nuclear weapons will always be around, they will not threaten humanity as a whole and could one day be used to ward off a major threat to humanity. Hence, getting to the point that there are only a few weapons in the entire world is a goal worth striving for, though the plan should be to seek complete nuclear disarmament.

Bibliography

Chapter 1

(None)

Chapter 2

Bibliography

"Ahmadinejad Deifant on 'free' Iran Poll." 14 June 2009. BBC News. 9 January 2012 <http://news.bbc.co.uk/2/hi/middle_east/8099115.stm>.

Beaumont, Peter. "Iranian University at the Centre of Power Struggle." 1 July 2010. The Guardian. 16 December 2011 <http://www.guardian.co.uk/world/2010/jul/01/tehran-university-power-struggle?INTCMP=ILCNETTXT3487>.

Bush, George W. "Excerpted Remarks by the President from Speech to Military Personel." We will prevail: President George W. Bush on war, terrorism, and freedom. Continuum International Publishing Group, 2003. 75.

Chiamonte, Perry. "Fox News." 28 December 2011. Iran Fails to Silence Critics by Changing Woman's Death Sentence From Stoning to Hanging. 28 December 2011 <http://www.foxnews.com/world/2011/12/28/iran-judiciary-ruling-in-execution-woman-causes-international-outcry/>.

"CIA - The World Factbook: Iran." October 2011. Central Intelligence Agency. 4 October 2011 <https://www.cia.gov/library/publications/the-world-factbook/geos/ir.html>.

CIA - The World Factbook: Saudi Arabia. 2012. 12 January 2012 <https://www.cia.gov/library/publications/the-world-factbook/geos/sa.html>.

CIA - The World Factbook: Turkey. 2012. 12 January 2012 <https://www.cia.gov/library/publications/the-world-factbook/geos/tu.html>.

Daragahi, Borzou. "Iran Nuclear Program Advancing, U.N. Agency Says." Los Angeles Times 6 June 2009.

Dehghan, Saeed. "Iranian judiciary officials try to arrest top aide to Mahmoud Ahmadinejad." 21 November 2011. The Guardian. 8 January 2012 <http://www.guardian.co.uk/world/2011/nov/21/iran-arrest-attempt-adhmadinejad-ally?newsfeed=true>.

Fathi, Nazila. "Iran's Top Leader Dashes Hope for a Compromise." 19 June 2009. New York Times. 30 December 2011.

"Final Results of the Tenth Presidential Election." 2009. Ministry of Interior of Iran. 30 December 2011 <http://translate.google.com/translate?hl=en&sl=fa&u=http://www.moi.ir/portal/Home/ShowPage.aspx%3FObject%3DNews%26CategoryID%3D832a711b-95fe-4505-8aa3-38f5e17309c9%26LayoutID%3Ddd8faff4-f71b-4c65-9aef-a1b6d0160be3%26ID%3D5e30ab89-e376-434b-813f-8c22255158>.

Freeh, Louis J. My FBI: Bringing Down the Mafia, Investigating Bill Clinton, and Fighting the War on Terror. New York: St. Martin's Griffin, 2005.

Gillison, Douglas. "Aide to Ahmadinejad sentenced to a year in jail for insulting Khamenei ." 15 January 2012. Global Post. 15 January 2012 <http://www.globalpost.com/dispatch/news/regions/middle-east/120115/aide-ahmadinejad-sentenced-year-jail-insulting-khamenei>.

Gladstone, Rick. "Iran Admits Western Sanctions Are Inflicting Damage." 20 December 2011. New York Times. 15 January 2012

<http://www.nytimes.com/2011/12/20/world/middleeast/iran-admits-western-sanctions-are-inflicting-damage.html?_r=1>.

Gordon, Michael. "Deadliest Bomb in Iraq is Made by Iran, U.S. Says." The New York Times 10 February 2007.

Greenslade, Roy. "Three Iran Newspapers Closed." 7 October 2009. The Guardian. 9 January 2012 <http://www.guardian.co.uk/media/greenslade/2009/oct/07/press-freedom-iran?INTCMP=ILCNETTXT3487>.

Harel, Amos. "Iranian official admits Tehran supplied missiles to Hezbollah." 6 April 2006. Haaretz. 10 January 2012 <http://www.haaretz.com/news/iranian-official-admits-tehran-supplied-missiles-to-hezbollah-1.194408>.

"Hezbollah." 2011. Wikipedia. 2012 <http://en.wikipedia.org/wiki/Hezbollah#Suicide_attacks_and_kidnappings>.

"Hezbollah a force to be reckoned with." 18 July 2006. International Institute for Strategic Studies. 10 January 2012 <http://www.iiss.org/whats-new/iiss-in-the-press/press-coverage-2006/july-2006/hezbollah-a-force-to-be-reckoned-with/>.

Hook, Leslie. "US, China, Iran Oil: Not Quite Eye to Eye." 13 January 2012. Financial Times. 13 January 20120 <http://blogs.ft.com/beyond-brics/2012/01/13/us-china-iran-oil-not-quite-eye-to-eye/#axzz1jMgHDosd>.

"IAEA: Ahmadinejad Election Rival Launched Iran Nuclear Program." 12 June 2009. Haaretz. 30 December 2011.

"Implementation of the NPT Safeguards Agreement and Relevant Provisions of Security Council Resolutions in the Islamic Republic of Iran." 2011.

"Iran Official say 36 Killed in post-vote Unrest." 9 September 2009. AFP. 9 January 2012 <http://www.google.com/hostednews/afp/article/ALeqM5j8GPoWmrf2qerPWQNHb8Z9eGjT3Q>.

"Iran's First Nuclear Power Plant Starts Operation." 4 September 2011. New York Times. 4 October 2011 <http://www.nytimes.com/2011/09/05/world/middleeast/05iran.html?_r=2&ref=nuclearprogram>.

"Iran's Nuclear Agency Trying to Stop Computer Worm." 25 September 2010. New York Times. 4 October 2011 <http://www.webcitation.org/mainframe.php>.

"Iran's Support for Assad." 23 November 2011. Voice of America. 28 December 2011 <http://www.voanews.com/policy/editorials/Irans-Support-For-Assad--134365798.html>.

Jahn, George. "UN reports Iran work 'specific' to nuke arms." 9 November 2011. Chron.com. 11 January 2012 <http://www.chron.com/news/article/Iran-says-UN-nuclear-chief-is-American-pawn-2257718.php>.

Joscelyn, Thomas. "DC court: Iran showed al Qaeda how to bomb embassies." 5 December 2011. The Long War Journal. 10 January 2012 <http://www.longwarjournal.org/archives/2011/12/dc_court_iran_showed.php>.

Kalaji, Mehdi. "Apocalyptic Visions and Iran's Security Policy." Washington: The Washington Institute for Near East Policy 2007: 32.

Khalaji, Mehdi. "Apocalyptic Politics: On the Rationality of Iranian Policy." Washington: Washington Institute for Near East Policy 2008: 26.

Kuntzel, Mathias. "Ahmadinejad's Demons." The New Republic 24 April 2006.

Lee, Se Young. "Korea Expands Iran Blacklist." 16 December 2012. The Wall Street Journal. 15 January 2012 <http://online.wsj.com/article/SB10001424052970204553904577101732209011936.html?mod=googlenews_wsj>.

Makovsky, Michael. "Meeting the Challenge: U.S. Policy Toward Iranian Nuclear Development." Washington: The Bipartisan Policy Center 2008: 40.

Markoff, Jahn. "A Code for Chaos." 2 October 2010. New York Times. 2011 October 2011 <http://www.nytimes.com/2010/10/03/weekinreview/03markoff.html>.

McEvers, Kelly. "How Much Influence Will Iran Have in Iraq?" 14 December 2011. NPR News. 16 December 2011 <http://www.npr.org/2011/12/14/143711939/how-much-influence-will-iran-have-in-iraq>.

Miller, John. "Who is Bin Laden?" 1999. PBS News. 9 January 2012 <http://www.pbs.org/wgbh/pages/frontline/shows/binladen/who/miller.html>.

"Nuclear Facilities in Iran." 10 December 2011. Wikipedia. 11 January 2010 <http://en.wikipedia.org/wiki/Nuclear_facilities_in_Iran>.

Parvaz, D. "Iran: Willing to use oil as a political too." 23 November 2011. Al Jazeera. 13 January 2012 <http://www.aljazeera.com/indepth/features/2011/11/20111117102116501736.html>.

Peralta, Eyder. "Iran Says A Car Bomb Killed One Of Its Nuclear Scientists." 11 January 2012. NPR News. 15 January 2012 <http://www.npr.org/blogs/thetwo-way/2012/01/11/145024412/iran-says-a-car-bomb-killed-one-of-its-nuclear-scientists>.

"Politics of Iran." 2011. Wikipedia. 12 December 2011 <http://en.wikipedia.org/wiki/Politics_of_Iran#Supreme_Leader>.

"Poll Results Prompt Iran Protests." 14 June 2009. Al Jazeera. 30 December 2011 <http://www.aljazeera.com/news/middleeast/2009/06/200961317213030395.html.>.

Pollack, Kenneth M. The Persian Puzzle, 281. 2004.

"Protester Killed After Oppostion Rally in Iran." 15 June 2009. NPR News. 9 January 2012.

"Q&A: Iran Election Aftermath." 22 June 2009. BBC. 30 Dec 2011 <http://news.bbc.co.uk/2/hi/middle_east/8101621.stm>.

Rabinovich, Itamar. Israel in the Middle East: documents and readings on society, politics, and foreign relations, pre-1948 to the present. UPINE, 2008.

Rubenfeld, Samuel. "Obama Signs Iran Central Bank Sanctions Into Law." 3 January 2012. The Wall Street Journal. 13 January 2012 <http://blogs.wsj.com/corruption-currents/2012/01/03/obama-signs-iran-central-bank-sanctions-into-law/>.

Rubin, Michael. "Can Iran be Trusted?" Middle Eastern Outlook September 2006.

Salman, Raheem. "Iraqi Bombings Kill 60, Revive Old Fears." 22 December 2011. Los Angeles Times. 12 Januar 2012 <http://articles.latimes.com/2011/dec/22/world/la-fg-iraq-sectarian-divisions-20111223>.

Sanger, David. "Inspectors Say Iran Worked on Warhead." 18 February 2010. New York Times. 4 October 2011 <http://www.nytimes.com/2010/02/19/world/middleeast/19iran.html?scp=4&sq=iran%20nuclear&st=cse>.

Schindler, John. Unholy Terror: Bosnia, Al-Qa'ida, and the Rise of Global Jihad. St. Paul: Zenith Press, 2006.

Shanker, Thom. "In Baghdad, Panetta Leads Uneasy Moment of Closure." 15 December 2011. New York Times. 16 December 2011

<http://www.nytimes.com/2011/12/16/world/middleeast/panetta-in-baghdad-for-iraq-military-handover-ceremony.html>.

"Shi'a-Sunni Relations." 2011. Wikipedia. 12 December 2011 <http://en.wikipedia.org/wiki/Shi%27a%E2%80%93Sunni_relations>.

Simpson, George. "Russian and Chinese Support for Tehran." Middle East Quarterly 2010.

"State Sponsors of Terrorism." 2011. Wikipedia. 12 December 2011 <http://en.wikipedia.org/wiki/State_Sponsors_of_Terrorism>.

Stecklow, Steve. "Nokia Siemens Venture to Reduce Its Business in Iran." 14 December 2011. The Wall Street Journal. 15 January 2012 <http://online.wsj.com/article/SB10001424052970203430404577096503401073904.html?mod=googlenews_wsj>.

Teitelbaum, Joshua. "Arms for the King and His Family: The U.S. Arms Sale to Saudi Arabia." 4 November 2010. Jerusalem Center fo Public Affairs. 12 January 2012 <http://www.jcpa.org/JCPA/Templates/ShowPage.asp?DRIT=1&DBID=1&LNGID=1&TMID=111&FID=376&PID=0&IID=5177&TTL=Arms_for_the_King_and_His_Family:_The_U.S._Arms_Sale_to_Saudi_Arabia>.

"The Treaty on the Non-Proliferation of Nuclear Weapons (NPT)." 27 May 2005. United Nations. 11 January 2012 <http://www.un.org/en/conf/npt/2005/npttreaty.html>.

"Top Clerical Council in Iran Rejects Plea to Annul Vote." 24 June 2009. New York Times. 30 December 2011.

"UN condemnation of Iran reflects growing intolerance for human rights violations." 19 December 2011. Iran Press Watch. 28 December 2011 <http://www.iranpresswatch.org/post/8667>.

"UN General Assembly approves resolution denouncing serious human rights violations in Iran." 19 December 2011. Washington Post. 28 December 2011 <http://www.washingtonpost.com/world/middle-east/un-general-assembly-approves-resolution-denouncing-serious-human-rights-violations-in-iran/2011/12/19/gIQAqGlC5O_story.html>.

"US says anti-terror cooperation key in partnership with Turkey." Today's Zaman 2 May 2009.

Wilson, Scott. "Lebanese Wary of a Rising Hezbollah." 20 December 2004. The Washington Post. 10 January 2012 <http://www.washingtonpost.com/ac2/wp-dyn/A12336-2004Dec19?language=printer>.

"World Oil Transit Chokepoints: Strait of Hormuz." 30 December 2011. U.S. Energy Information Administration. 15 January 2012 <http://www.eia.gov/countries/regions-topics.cfm?fips=WOTC#hormuz>.

Yossi, Melman. "IAEA: Ahmadinejad Election Rival Launched Iran Nuclear Program." Haaretz 12 June 2009.

Chapter 3

Bibliography

"Nuclear Suppliers Group Grants India Historic Waiver". 2010. 5 10 2011 <http://www.marketwatch.com/proxy?area=story&controller=story&action=seoindex&seoheadline=&dist=hppr>.

"Nuclear Test-Ban Treaty". 2011. 6 10 2011 <http://www.britannica.com/EBchecked/topic/421810/Nuclear-Test-Ban-Treaty>.

Ahmad, Mansoor and Syed Ahmad H, Khan Usman Shabbir. ""Multan Conference January 1972: The Birth of Pakistan's Nuclear Weapons Program."." Pakistan Military Consortium (Islamabad, Pakistan: Pakistan Military Consortium) (2006): 1,2.

DeYoung, Karen. "Washington Post." New estimates put Pakistan's nuclear arsenal at more than 100 (2011): 1.

Friedman, Benjamin. India and Pakistan: War in the Nuclear Shadow? 18 6 2002. 2 10 2011 < http://www.cdi.org/nuclear/nuclearshadow.cfm>.

Hussain, Zahid. "Frontline Pakistan: The Struggle with Militant Islam ." New York: Columbia University Press (2007): 161.

India and Pakistan - Nuclear States in Conflict . 2011. 2 10 2011 <http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/history/post-cold-war/india-pakistan/india-pakistan-conflict.htm>.

India and weapons of mass destruction. 2011. 5 10 2011 <http://en.wikipedia.org/wiki/India_and_weapons_of_mass_destruction>.

Joint Statement Between President George W. Bush and Prime Minister Manmohan Singh . 7 2005. 1 10 2011 <http://georgewbush-whitehouse.archives.gov/news/releases/2005/07/20050718-6.html>.

National Command Authority (Pakistan). 2011. 3 10 2011 < http://en.wikipedia.org/wiki/National_Command_Authority_%28Pakistan%29>.

Nikitin, Paul Kerr and Mary Beth. "Pakistan’s Nuclear Weapons:Proliferation and Security Issues." (2008): 2,4.

Pakistan and weapons of mass destruction. 2011. 4 10 2011 < http://en.wikipedia.org/wiki/Pakistan_and_weapons_of_mass_destruction >.

Pakistan Nuclear Weapons. 2 8 2011. 2 10 2011 < http://www.globalsecurity.org/wmd/world/pakistan/nuke.htm >.

Pakistan, Associated Press of. “President Promulgated National Command Authority Ordinance". 13 12 2007. 1 10 2011 <http://www.fas.org/sgp/crs/nuke/RL34248.pdf>.

"The Express Tribune." Pakistan's nuclear arsenal edges past India: Report (2011): 1.

Yasin, Rahil. ""War clouds hovering over South Asia"." Weekly Blitz (2009): 1.

"“U.S. is Limited in Ways it Can Act To Subdue India-Pakistan Tension” ." Wall Street Journal (June 3, 2002): 1-2.

AU. "Nuclear alert: World leaders fear Kim Jong un's 'ruthless' traits ." (December 20, 2011).

Bates, Theunis. North Korea Warns of Nuclear War. 20 12 2011. 15 12 2011 <http://www.aolnews.com/2010/12/13/north-korea-warns-of-nuclear-war/>.

Bennett, Bruce W. Uncertainties in the North Korean Nuclear Threat. Santa Monica, CA: RAND, 2010.

Berejikian, Jeffrey D. "“A Cognitive Theory of Deterrence,” Journal of Peace Research." Vol. 39 No. 2. 2002. 165-183.

Case, David. Is Pakistan’s nuclear arsenal vulnerable to terrorists? 11 June 2011. 07 02 2012 <http://www.globalpost.com/dispatch/news/regions/asia-pacific/pakistan/110612/pakistan-nuclear-arsenal-terrorists-plutonium>.

Curtis, Lisa. Keeping Pakistan's Nuclear Weapons Out of the Hands of Terrorists. 18 September 2007. 3 12 2011 <http://www.heritage.org/research/lecture/keeping-pakistans-nuclear-weapons-out-of-the-hands-of-terrorists>.

Gastaldo, Evann. "North Korea Threatens Nuclear War." Newser 12 December 2010: 3.

Hibbs, Mark. "“India and Pakistan Fail to Include New SWU Plants on Exchanged Lists”-Nuclear Fuel." (1992): 6.

Krieger, David. Dangers of Nuclear Proliferation and Terrorism. July 1997. 1 12 2011 <http://www.wagingpeace.org/articles/1997/07/00_krieger_dangers.htm>.

Press, Associated. "After Kim’s death, South Koreans fearful of North Korean provocation but longing for peace." Washington Post 20 December 2011: 1,2.

"Proliferation: Threat and Response." (January 2001): 27.

Rose, Kate. Tensions between North and South Korea born in the Cold War . 24 November 2010. 10 12 2011 <http://www.heraldsun.com.au/news/world/tensions-between-north-and-south-korea-born-in-the-cold-war/story-e6frf7lf-1225960044291>.

Rushdie, Salman. " “The Most Dangerous Place in the World” ." New York Times (May 30, 2002.): 1.

S.Gopal. "Limited Deterrence ." South Asia Analysis Group (1998): 2,3.

SANGER, CHOE SANG-HUN and DAVID E. Kim Jong-il, North Korean Dictator, Dies. 19 December 2011. 20 December 2011 <http://www.nytimes.com/2011/12/19/world/asia/kim-jong-il-is-dead.html?_r=1&pagewanted=all>.

Wilkinson, Jaime A. FlorCruz and Peter. "Should We Fear Change?" CNN (2011): 1.

Wilkinson, Peter. "Musharraf." CNN (2006): http://archives.cnn.com/2002/WORLD/asiapcf/south/06/01/musharraf.transcript/index.html%5D.

Young, Karen De. ""U.S. Skeptical About Pakistan's Restrictions on Nuclear Scientist" ." The Washington Post (February 9, 2009.): 1-3.

Chapter 4:

Bibliography

Albright, David and Paul Brannan. The North Korean Plutonium Stock Mid-2006. Institute for Science and International Security, 2006.

Albright, David, Frans Berkhout and William Walker. (1997). Plutonium and highly enriched uranium, 1996: world inventories, capabilities, and policies. Stockholm International Peace Research Institute, 1997.

Associated Press, Fox News. "N. Korea Says It Has Restarted Nuclear Facilities." North Korea (2009): 1.

Bodansky, Yossef and Vaughn S. Forrest. " Pyongyang and the US nuclear gambit. Congressional Documents. GlobalSecurity.org." 11 August 1994. GlobalSecurity.org. 09 10 2011 <http://www.globalsecurity.org/wmd/library/congress/1994_r/bod3.htm>.

Brannan, David Albright and Paul. The North Korean Plutonium Stock. Institute for Science and International Security (ISIS), 2007.

Corporation), BBC News (British Broadcasting. ""1981: Israel bombs Baghdad nuclear reactor"." BBC (1981).

Events, Keesing's Record of World. ""May 1993 - Controversy over nuclear issue"." 1993. 39, 463.

Joo, Seung-Hoo. Gorbachev's foreign policy toward the Korean peninsula, 1985–1991: power and reform. E. Mellen Press, 2010.

Kessler, Glenn. "Far-Reaching U.S. Plan Impaired N. Korea Deal: Demands Began to Undo Nuclear Accord." Washington Post (2008): 20.

"Khan 'gave N Korea centrifuges'." 24 08 2005. BBC. 09 10 2011 <http://news.bbc.co.uk/2/hi/south_asia/4180286.stm>.

Korean Peninsula Energy Development Organization. 2011. 09 10 2011 <http://en.wikipedia.org/wiki/Korean_Peninsula_Energy_Development_Organization >.

MSNBC. " N. Korean Nuclear Threat Growing, Analysts Say." (2009): 1.

North Korea and weapons of mass destruction. 2011. 09 10 2011 <http://en.wikipedia.org/wiki/North_Korea_and_weapons_of_mass_destruction >.

North Korea claims nuclear fusion success. 12 May 2010. 09 10 2011 <http://www.theaustralian.com.au/news/world/north-korea-claims-nuclear-fusion-success/story-e6frg6so-1225865505827>.

North Korea said to agree to nuclear arms test moratorium. 25 08 2011. 09 10 2011 <http://www.tampabay.com/news/article1187897.ece>.

North Korea said to agree to nuclear arms test moratorium. 25 08 2011. 09 10 2011 < http://www.tampabay.com/news/article1187897.ece >.

North Korea's Nuclear Program. 24 August 2011. 9 October 2011 <http://topics.nytimes.com/top/news/international/countriesandterritories/northkorea/nuclear_program/index.html>.

Post, Washington. ""North 'bribed its way to nuclear statehood'"." Japan Times (2011): 4.

Today, Russia. "North Korea: return of the nukes." (2009): 2.

"“U.S. is Limited in Ways it Can Act To Subdue India-Pakistan Tension” ." Wall Street Journal (June 3, 2002): 1-2.

AU. "Nuclear alert: World leaders fear Kim Jong un's 'ruthless' traits ." (December 20, 2011).

Bates, Theunis. North Korea Warns of Nuclear War. 20 12 2011. 15 12 2011 <http://www.aolnews.com/2010/12/13/north-korea-warns-of-nuclear-war/>.

Bennett, Bruce W. Uncertainties in the North Korean Nuclear Threat. Santa Monica, CA: RAND, 2010.

Berejikian, Jeffrey D. "“A Cognitive Theory of Deterrence,” Journal of Peace Research." Vol. 39 No. 2. 2002. 165-183.

Case, David. Is Pakistan’s nuclear arsenal vulnerable to terrorists? 11 June 2011. 07 02 2012 <http://www.globalpost.com/dispatch/news/regions/asia-pacific/pakistan/110612/pakistan-nuclear-arsenal-terrorists-plutonium>.

Curtis, Lisa. Keeping Pakistan's Nuclear Weapons Out of the Hands of Terrorists. 18 September 2007. 3 12 2011 <http://www.heritage.org/research/lecture/keeping-pakistans-nuclear-weapons-out-of-the-hands-of-terrorists>.

Gastaldo, Evann. "North Korea Threatens Nuclear War." Newser 12 December 2010: 3.

Hibbs, Mark. "“India and Pakistan Fail to Include New SWU Plants on Exchanged Lists”- Nuclear Fuel." (1992): 6.

Krieger, David. Dangers of Nuclear Proliferation and Terrorism. July 1997. 1 12 2011 <http://www.wagingpeace.org/articles/1997/07/00_krieger_dangers.htm>.

Press, Associated. "After Kim's death, South Koreans fearful of North Korean provocation but longing for peace." Washington Post 20 December 2011: 1,2.

"Proliferation: Threat and Response." (January 2001): 27.

Rose, Kate. Tensions between North and South Korea born in the Cold War . 24 November 2010. 10 12 2011 <http://www.heraldsun.com.au/news/world/tensions-between-north-and-south-korea-born-in-the-cold-war/story-e6frf7lf-1225960044291>.

Rushdie, Salman. " "The Most Dangerous Place in the World" ." New York Times (May 30, 2002.): 1.

S.Gopal. "Limited Deterrence ." South Asia Analysis Group (1998): 2,3.

SANGER, CHOE SANG-HUN and DAVID E. Kim Jong-il, North Korean Dictator, Dies. 19 December 2011. 20 December 2011 <http://www.nytimes.com/2011/12/19/world/asia/kim-jong-il-is-dead.html?_r=1&pagewanted=all>.

Wilkinson, Jaime A. FlorCruz and Peter. "Should We Fear Change?" CNN (2011): 1.

Wilkinson, Peter. "Musharraf." CNN (2006): http://archives.cnn.com/2002/WORLD/asiapcf/south/06/01/musharraf.transcript/index.html%5D.

Young, Karen De. ""U.S. Skeptical About Pakistan's Restrictions on Nuclear Scientist" ." The Washington Post (February 9, 2009.): 1-3.

Chapter 5

American Museum of Natural History Einstein Exhibit (2002) <http://www.amnh.org/exhibitions/einstein/peace/manhattan.php>.

American Nuclear Society (2009) Nonproliferation Position Statement
<http://www.ans.org/pi/ps/docs/ps55.pdf>.

Atomic Bombings of Hiroshima and Nagasaki (2007) from Wikipedia
<http://en.wikipedia.org/wiki/Atomic_bombings_of_Hiroshima_and_Nagasaki>.

Comprehensive Nuclear Test Ban Treaty (2011) from Wikipedia
<http://en.wikipedia.org/wiki/Comprehensive_Test_Ban_Treaty>.

Containing the Atom: Nuclear Regulation in a Changing Environment, 1963-1971 (1992)
<http://www.nrc.gov/about-nrc/history.html>.

F. G. Gosling, The Manhattan Project: Making the Atomic Bomb (1999)
<http://www.atomicarchive.com/History/mp/index.shtml>.

Fredrik Dahl (2011) West fears possible Iran-North Korea nuclear links
<http://in.reuters.com/article/2011/09/18/idINIndia-59404120110918>.

Inter Continental Ballistic Missile (2011) from Wikipedia
<http://en.wikipedia.org/wiki/Intercontinental_ballistic_missile#Cold_War>.

Joint Committee on Atomic Energy (2011) from Wikipedia
<http://en.wikipedia.org/wiki/Joint_Committee_on_Atomic_Energy>.

Mr. Dwight D. Eisenhower, President of the United States of America (1953)
<http://www.iaea.org/About/history_speech.html>.

Nonproliferation & Disarmament (2009)
<http://www.usunnewyork.usmission.gov/issues/c31168.htm>.

Nuclear Weapons and the United States (2011) from Wikipedia
<http://en.wikipedia.org/wiki/Nuclear_weapons_and_the_United_States#Manhattan_Project>.

Partial Nuclear Test Ban Treaty (2011) from Wikipedia
<http://en.wikipedia.org/wiki/Partial_Test_Ban_Treaty>.

Paul Harris (2003) The Observer, Bush Plans New Nuclear Weapons

<http://www.guardian.co.uk/world/2003/nov/30/usa.georgebush>.

Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (2010) "Status of Signature and Ratification" from Wikipedia

<http://en.wikipedia.org/wiki/Nuclear_weapon#Governance.2C_control.2C_and_law>.

Soviet Atomic Bomb Project (2011) from Wikipedia

<http://en.wikipedia.org/wiki/Soviet_atomic_bomb_project>.

U.S. States Department (2009)

<http://www.state.gov/t/isn/c22080.htm>.

"A Brief History of Nuclear Weapons." 2009. International Campaign to Abolish Nuclear Weapons. 11 October 2011 <http://www.icanw.org/history>.

Beehner, Lionel. "Russia's Nuclear Deal with Iran." 28 February 2006. Council on Foreign Relations. 11 October 2011 <http://www.cfr.org/iran/russias-nuclear-deal-iran/p9985>.

Bunn, George. "The Nuclear Nonproliferation Treaty: History and Current Problems." December 2003. Arms Control Association. 11 October 2011 <http://www.armscontrol.org/act/2003_12/Bunn>.

Cooper, Helene. "Promises of 'Fresh Start' for U.S.-Russia Relations." 1 April 2009. New York TImes. 11 October 2011 <http://www.nytimes.com/2009/04/02/world/europe/02arms.html?_r=1&hp>.

"Julius and Ethel Rosenberg." 8 October 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/Julius_and_Ethel_Rosenberg>.

"Klaus Fuchs." 7 October 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/Klaus_Fuchs>.

"New START." 7 October 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/New_START>.

"Nuclear Arms Race." 7 October 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/Nuclear_arms_race>.

"Nuclear Power in Russia." 5 October 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/Nuclear_power_in_Russia>.

"Press Conference by the President." 17 October 2007. The White House. 11 October 2011 <http://georgewbush-whitehouse.archives.gov/news/releases/2007/10/20071017.html>.

"Putin compares US shield to Cuba." 26 October 2007. BBC News. 11 October 2011 <http://news.bbc.co.uk/2/hi/7064428.stm>.

"Russia - United States Relations." 9 October 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/Russia_%E2%80%93_United_States_relations>.

"Russia and Weapons of Mass Destruction." 4 October 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/Russia_and_weapons_of_mass_destruction>.

"Soviet Atomic Bomb Project." 20 September 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/Soviet_atomic_bomb_project>.

"START I." 13 September 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/START_I>.

"START II." 31 August 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/START_II>.

"Strategic Offensive Reductions Treaty." 5 June 2011. Wikipedia. 11 October 2011 <http://en.wikipedia.org/wiki/SORT>.

"The Soviet Nuclear Weapons Program." 12 December 1997. Nuclear Weapon Archive. 11 October 2011 <http://nuclearweaponarchive.org/Russia/Sovwpnprog.html>.

Buckley, Chris ”China makes new push for North Korea nuclear talks” 19 September 2011

<http://www.reuters.com/article/2011/09/19/us-china-korea-nuclear-idUSTRE78I0LH20110919>

“China and the United Nations” 18 October 2011 Wikipedia

<http://en.wikipedia.org/wiki/China_and_the_United_Nations>

“China's Nuclear Stockpile and Deployments” Nuclear Threat Initiative

<http://www.nti.org/db/china/wdepdat.htm>

“China's Nuclear Testing” Nuclear Threat Initiative

<http://www.nti.org/db/china/testpos.htm>

“China's Nuclear Weapon Development, Modernization, and Testing” 26 September 2003 Nuclear Threat Initiative

<http://www.nti.org/db/china/wnwmdat.htm>

“China’s Nuclear Weapons Present Capabilities” 1 May 2001 Nuclear Weapons Archive

<http://nuclearweaponarchive.org/China/ChinaArsenal.html>

Hans M. Kristensen “Nuclear Weapons” 29 November 2006

<http://www.fas.org/nuke/guide/china/nuke/index.html>

“International Atomic Energy Agency (IAEA)” Nuclear Threat Initiative

<http://www.nti.org/db/china/iaeaorg.htm>

“Nikita Khrushchev” 16 October 2011 Wikipedia

<http://en.wikipedia.org/wiki/Nikita_Khrushchev#China>

“People’s Republic of China and weapons of mass destruction” 18 October 2011 Wikipedia

<http://en.wikipedia.org/wiki/People's_Republic_of_China_and_weapons_of_mass_destruction>

“Project 596” 20 October 2011 Wikipedia

<http://en.wikipedia.org/wiki/596_(nuclear_test)>

"The Chinese Nuclear Weapons Program: Problems of Intelligence Collection and Analysis, 1964-1972" 31 March 2000 National Security Archive

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB26/index.html>

Department of Defense, "ACTIVE DUTY MILITARY PERSONNEL STRENGTHS BY REGIONAL AREA AND BY COUNTRY" 30 September 2010

<http://siadapp.dmdc.osd.mil/personnel/MILITARY/history/hst1009.pdf>

Hackett, James, International Institute for Strategic Studies; 3 February 2010, *The Military Balance 2010*. P.222, 358, 398-404

Julian Borger, "US Plan for New Nuclear Arsenal" 18 February 2003
<http://www.guardian.co.uk/world/2003/feb/19/usa.julianborger>

Robert W. Nelson, "FAS Public Interest Report - Low-Yield Earth-Penetrating Nuclear Weapons"

<http://www.fas.org/programs/ssp/nukes/new_nuclear_weapons/loyieldearthpenwpnrpt.html>

"Sino-Indian War" 15 January 2012 Wikipedia

<http://en.wikipedia.org/wiki/Sino-Indian_War>

Stewart Watters "China Encircles India" 21 July 2011

<http://the-diplomat.com/china-power/2011/07/21/china-encircles-india/>

The South Asian Idea, "China Pakistan Relations and India" 5 December 2011

<http://southasianidea.com/foreign-policy/china-pakistan-relations-and-india/>

Tom Squitieri, "Bush Pushes for Next Generation of Nukes",USA TODAY, 7 July 2003

<http://www.usatoday.com/news/washington/2003-07-06-nuclear-usat_x.htm>

Chapter 6

(None)