

*"...the post-cold war world had ushered in less order and more chaos than previously imagined."*¹

Why do states pursue nuclear weapons? The choice to mobilize tremendous political, economic, technological, and human resources is no small one that is rarely entered into lightly. It is a choice of tremendous risk of high costs for only potential benefits and the possibility of more costs incurred. In 1984, Stephen Meyer set out to sort through the various incentives and disincentives identified in the vast literature on nuclear proliferation. We feel that while mostly complete, Meyer's framework does not capture all motives for establishing and pursuing nuclear weapon programs. Using case studies of North Korea, Iran, Pakistan, Libya, and Ukraine, we will examine the proliferation motivations and determine what, if any, gaps exist or motivations are no longer applicable. The implications of these findings will impact assessments of future potential and proliferating states and non-state entities, as well as policies promoting proliferation resistance.

INTRODUCTION

The twentieth century saw revolutionary breakthroughs in many fields of science and technology. Arguably, no technology has impacted the international system and international politics as much as the nuclear revolution and nuclear weapons. Similarly, a state's decision to "go nuclear" is also likely to disturb the system more than any other, inviting huge and unpredictable consequences at home and abroad. The unprecedented power of nuclear technology and weapons has been sought by many countries and today eight countries possess nuclear weapons, the United States, Russia, the United Kingdom, France, China, Israel, India, and Pakistan. In the early 1960s after China became the fifth nuclear power, many military experts and political leaders feared that the proliferation of nuclear weapons was bound to continue, and that within a decade or two a dozen additional countries were likely to cross the nuclear threshold.

To explore these issues, we propose examining states which made proliferation decisions to establish nuclear weapon programs following the fall of the Berlin Wall, which is considered one of the first indicators of a new international system. Using case studies of North Korea, Pakistan, Iran, Libya, and Ukraine, we will describe the proliferation motivations in the post-Cold War world, analyze these motivations using Meyer's framework, and determine what, if any, gaps exist or motivations are no longer applicable. The implications of these findings will impact assessments of future potential and proliferating states and non-state entities, as well as policies promoting proliferation resistance.

The text of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) enshrines "the benefits of peaceful application of nuclear technology... [which] should be available for peaceful purposes to all Parties of the Treaty." The NPT acts as a political contract whereby nuclear-weapons states aid and supervise the development of civilian nuclear infrastructures in non-weapons states in exchange for non-weapons states refraining from developing nuclear weapons. Today, more than at any other time in the nuclear era, nuclear capacity and potential (knowledge,

¹ Mitchell B. Reiss, "The Nuclear Tipping Point: Prospects for a World of Many Nuclear Weapons States" in *Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices*, Eds. Kurt M. Campbell, Robert J. Einhorn and Mitchell B. Reiss (Washington, DC: Brookings Institution Press, 2004): 8.

technology, and materials) has resulted in a high degree of nuclear latency that challenges traditional thinking about nuclear threats. Many of the building blocks for a nuclear arsenal – the scientific and engineering expertise, precision machine tools, computer software, and nuclear design information—are more readily available than ever. Whereas 30 or 40 years ago, only a handful of countries were assumed to know how to acquire nuclear weapons, as many as 35 or 40 nations currently are believed to be in the know, and many more could become so based on their participation in civilian nuclear energy programs.

Yet, the number of states capable, from a purely technical point of view, of making nuclear weapons is far larger than the number actually doing so. Nearly 70 states operate nuclear power or research reactors and only eight possess weapons. The various technical, political, and military effects of the forward creep of latent capacities are significant only because there is reason to believe some nations will *decide* to transform their latent capacities into operational capabilities. This essentially results in nuclear capabilities which have become decoupled from prior interest or motivation in building nuclear weapons. Assuming that the pivotal point in the nuclear weapons proliferation process is the decision to pursue a nuclear weapons program, the question of motivating factors is especially important

LITERATURE REVIEW

Stephen Meyer's 1984 book, *The Dynamics of Proliferation*, sifted through 20 years of thought on nuclear proliferation to distill implied incentives and disincentives and then to determine any statistical significance to history. To discover the incentives and disincentives, Meyer reviewed 11 major works by Beaton and Maddox (1962), Rosecrance (1964), Beaton (1966), Quester (1973), Willrich and Taylor (1974), Dunn and Kahn (1976), Epstein (1977), Greenwood (1977), OTA (1977), Jensen (1974), and Potter (1982) and translated and coded motivating conditions. Meyer identified 11 motivating conditions and six detracting conditions. These conditions could be categorized as "International Power/Prestige Incentives," "Military Power Incentives," "Domestic Political Incentives," and "Disincentives."

In the literature, Meyer found four "International Power/Prestige Incentives": Regional Power/Pretensions, Global Power/Pretensions, Pariah Status, and the Goal to improve status within a military alliance. The argument for regional power or pretensions of it is the idea that the possession of nuclear weaponry is *consistent* with regional power status. Meyer measures this by requiring cases to satisfy two criteria: ranking among the top three regional countries on any one of the three attributes for at least ten consecutive years and ranking among the top three regional countries. Meyer identified a separate argument for those countries with global power pretensions. This was a class of nations whose ability to systematically influence events outside their own regions implies a greater than regional status (nuclear status of the permanent members of the United Nations Security Council).

The best indicator Meyer discovered was in the country's rhetoric of self-image or through increased active diplomatic involvement. Pariah states, those shunned by their regional neighbors, often have different reasons for desiring a nuclear weapon. Pariah states often need to demonstrate national viability. Meyer identifies these states if by five years after achieving independence it did not have diplomatic relations with at least ten percent of its regional neighbors and belong to at least one regional alliance/ organization. Finally, some writing suggested that a state would pursue nuclear weapons in order to improve status within a military alliance. In order to capture this condition, Meyer defined the indicator as countries with a formal defense pact with a nuclear weapons power coded as having a "nuclear ally."

This last condition also fell into the category of “Military Power Incentives.” Meyer was able to give the most concrete definitions for this section. Meyer laid out algorithms to capture a security threat from a nuclear adversary, an adversary with latent capability, and an overwhelming conventional military threat. The logic for pursuing a nuclear weapons program when faced with a security threat from a nuclear adversary is classic deterrence theory. Countries without nuclear weapons are vulnerable to “nuclear blackmail.”

The first true security incentive is a security threat from a nuclear-armed adversary. In essence the potential proliferant believes that it could become involved in a security dispute, either conventional or nuclear, with an existing nuclear weapons country. The specifications of this motive are based on two criteria: the potential the country perceives a future dispute and whether the country is known to possess nuclear weapons. The second security incentive is the incentive to hedge against an adversary nation, if the nation is capable of manufacturing nuclear weapons. Meyer developed two criteria similar to the first, but the second criterion was merely latency, not possession of nuclear weapons. The last security incentive is an overwhelming conventional military threat. Meyer creates a “simple” model which treats military expenditures and armed force sizes as independent components that together produce “conventional military power.”

The third category of incentives is “Domestic Political Incentives.” There are four conditions in the literature that leadership could potentially respond to by establishing a nuclear weapons program: domestic turmoil, national self image, regional nuclear proliferation, and an intolerable economic defense burden. Authors have suggested that governments use nuclear weapons to create a “rally around the flag” effect to unify the country during a time of unrest. Meyer suggests measuring this condition through counting general strikes, riots, antigovernment demonstrations. He suggests that if the total equaled or exceeded twelve events and if the total was at least double the previous year, then domestic turmoil exists and the leadership could potentially be using nuclear weapons to provide a point to rally around. Other authors suggest that similarly, leadership can attempt to resuscitate a nation’s military self image after a major military defeat through establishing a nuclear weapons program.

Meyer codes these countries by recent unsuccessful war experiences. Another domestic politics argument is regional nuclear proliferation or “keeping up with the Jones’.” Although Meyer’s considers this a weak argument, he considers it indicated if any member provided unambiguous evidence of possessing a weapon in a given year it was coded, and the two subsequent years were coded as well. Finally, some countries have argued for the weapon because it provides “more bang for the buck” and makes good economic sense. In other words, the country at the time is under an intolerable economic defense burden. Meyer suggests that this would be indicated if ten percent of a country’s gross national product (GNP) devoted to defense budget.

The final category of conditions Meyer groups is those conditions that he considers to be “Disincentives.” He points out five simple conditions that seem to reduce the motivation to seek nuclear weapons. First, an alliance with a nuclear power or being under the extended deterrence of a super power seems to reduce the need for nuclear weapons. Meyer suggests that this is easily indicated as a matter of public international record, but would be at odds with the argument that a country would be motivated to use nuclear weapons to increase standing in such an alliance.

Second, the international norm of nonproliferation because of international legal commitments has been argued to prevent nuclear proliferation. This too is easily indicated by

the year acceded into the NPT. Another international norm suggested is that some countries actively pursue a “peaceful reputation,” sometimes at great costs. This attribute is only given to Sweden, Switzerland, and India. Fourth, a rival with latent capacity, although at odds with the category above, could also serve to discourage countries from pursuing weapons. Another disincentive that maybe at not odds with, but previously captured by, an incentive conditions is the threat of preemptive intervention by a major power, whether nuclear or conventional. Meyer considered this adequately captured by the same measure of as a security threat or a conventional military threat.

Finally, there is the risk of internal seizure. Some authors have suggested that a regime may be reluctant to pursue weapons if there is enough internal instability that the current regime may lose control of such a powerful weapon. Meyer captures this argument by coding it as if there have been three coups or revolutions in the preceding ten years, with more recent in the past three years then there is a risk of seizure that the regime would see as adverse to a program.

In order to provide the data to run statistical analyses on these variables Meyer coded thirteen historical decisions to initiate nuclear weapons programs where latent capacities already existed: the wartime programs in Germany, Japan, United States, United Kingdom, and the Soviet Union; the “Cold War vintage” programs of Britain, France, and China; and the non-European, third world nuclear weapons efforts of India, Israel, South Africa, and the Republic of Korea. After running his tests Meyer concluded three principal findings. First, a nuclear ally cannot be a motivating condition for pursuing a nuclear weapons program. Rather, it is a dissuasive condition. Moreover, it is the strongest dissuasive condition. Second, he retained all dissuasive factors identified in the texts (nuclear ally, treaty, seizure, preemptive strike, reputation). Finally, although domestic turmoil does not seem to have a significant influence, this dissuasive condition is kept because of its potential impact on third world countries, where the majority of proliferation will most likely occur in the next fifty years.

CASE STUDIES

Meyer's work was authored in 1984, but many world events have transpired since his framework was first published. The Cold War has ended, replacing a bipolar world with a new, unipolar state structure with the United States at its center. International organizations have become ever more important in an era of terrorism, humanitarian crises, and climate change. The information revolution has revolutionized the way knowledge, information, and expertise is taught and transmitted, to say nothing of the how people, businesses, and governments now operate and interact with one another. Yet despite promises of peace and prosperity paralleling these recent advances in international cooperation and technology, states have continued to pursue nuclear weapons capabilities. Indeed, as Reiss points out, “the good news in superpower relations did not translate into enhanced regional stability.”²

Have the events of the past two decades changed the nature of the dynamics of nuclear proliferation? Certainly not. Meyer's framework remains valid, but as more states have pursued and acquired nuclear weapons since his work was published, one must wonder whether Meyer successfully captured all of the motivations that compel states to “go nuclear,” or if other motivating factors exist. To explore this possibility, we will look at the nuclear weapon programs of select states that have pursued or acquired nuclear weapons since 1984 in an attempt to identify other motivating factors. Among these are the Democratic People's Republic of

² Reiss, 7.

Korea (DPRK), the Islamic Republic of Iran, the Islamic Republic of Pakistan, The Great Socialist People's Libyan Arab Jamahiriya (Libya), and the Former Soviet Union state of Ukraine.

The Democratic People's Republic of Korea

The Democratic People's Republic of Korea (DPRK, or North Korea) has had nuclear ambitions since the Korean War. According to Scobell and Chambers, "Pyongyang began a "peaceful" nuclear program in the 1950s with Soviet and Chinese assistance and apparently made the decision to pursue weaponization in the late 1970s."³ But with Pyongyang safely under the cover of the Soviet and Chinese nuclear umbrellas, why would a state like North Korea, whose socioeconomic system remains in disarray to this day, pursue an expensive nuclear weapons program?

Pyongyang's road to a nuclear program was not easy. A nuclear weapon program did not fully develop until the mid-1980s, but international norms and safeguard initiatives inhibited Pyongyang's pursuits. Bowing to international pressure, Pyongyang had signed onto the NPT in April 1985 but did not ratify the treaty until April 1992.⁴ The DPRK's approval of NPT safeguards were directly related to America's nuclear presence in South Korea, a move that was indicative of Pyongyang's attempt to manipulate relations between it and Washington. The manipulation, however, did not end with its ratification of NPT. Instead, it only increased.

Throughout 1992, three IAEA inspection teams revealed curious readings at sites around the state, indicating that the DPRK was not completely forthcoming in reporting its nuclear activities. As a result, IAEA Director Hans Blix requested a special inspection in February 1993 to analyze two suspected waste sites. The DPRK responded the following month, announcing its planned withdrawal from NPT less than a year after ratifying the treaty. Its withdrawal was suspended in June, only after the United States entered into negotiations with Pyongyang. Inspections continued throughout the year, but with considerable delays and access restrictions applied to IAEA inspection teams. In December 1993, Blix declared that that IAEA safeguards could not guarantee "any meaningful assurances" that nuclear materials were not being used for weapons.

At roughly the same time, the DPRK's relations with Pakistan began to warm. Pakistani engineers began taking trips to Pyongyang in 1992 "to witness test flights of a promising medium range missile called the Nodong."⁵ The two states later agreed to a deal that involved the trade of North Korean missile technology for Pakistani centrifuge prototypes and uranium enrichment and procurement devices.⁶

By 1994, the United States had become heavily involved in negotiations with the DPRK in an attempt to force their adherence to IAEA safeguard inspections. Negotiations culminated in the signing of the 1994 Agreed Framework between the states, in the DPRK pledged to halt and dismantle its nuclear weapons program under the supervision of the IAEA. In compensation, the United States pledged support of the construction of two light water reactors

³ Andrew Scobell and Michael R. Chambers, "The Fallout of a Nuclear North Korea," *Current History* 104.683 (September 2005): 290.

⁴ It did so only after United States had announced it would withdraw tactical nuclear weapons from South Korea.

⁵ William Langewiesch, *The Atomic Bazaar: The Rise of the Nuclear Poor* (New York, NY: Farrar, Straus and Giroux, 2007): 163.

⁶ Langewiesch, 164. In the end, the Pakistani enrichment devices served as merely a fallback: Pyongyang detonated an implosion-style plutonium bomb in October 2006. See Langewiesch, 165-166.

for energy purposes. Moreover, the United States offered the regime security guarantees in exchange for its continued compliance with the Framework.

As illustrated by its failures throughout 1993, negotiations with the United did not result in the DPRK's adherence to IAEA safeguards. The DPRK failed to comply with the requirements specified by the 1994 Agreed Framework, and throughout the rest of the decade continued to develop a nuclear weapons program, supported by Pakistani enrichment technology and a domestic missile capability.

In October 2002, months after President George W. Bush included the DPRK as a member of an "axis of evil," the DPRK acknowledged its pursuit of a uranium enrichment program.⁷ This announcement was followed by its January 2003 withdrawal from the NPT and years of outward signs of aggression toward its regional neighbors. In July 2006, the DPRK test fired at least six ballistic missiles over the Sea of Japan in a barrage that included the long-range Taepodong II, capable of hitting North America. Months later, despite the passing of UNSC resolutions, Pyongyang detonated its first nuclear device on the morning of October 9. The device registered at less than a kiloton and may well have been a dud, but its very existence—proof of the DPRK's nuclear weapon capacity—sent shock waves throughout the international community.

But were security concerns enough to push the DPRK to pursue nuclear weapons? Chris Hughes identifies four motivations behind the DPRK's pursuit of a nuclear weapon capability: (1) national security, (2) prestige, (3) economics, and (4) technological capability.⁸ Yet these are no different than Meyer.

Other literature looks elsewhere for the DPRK's nuclear motivations. Scobell and Chambers conclude that the decision to pursue nuclear weapons was not necessarily rooted not in security threats (though minimizing vulnerabilities vis-à-vis the United States, Soviet Union, and China are certainly among its top priorities). Rather, ideology played a large part in the DPRK's pursuit of a nuclear weapons capability. While fighting against the Japanese in Manchuria in the late 1930s, Kim Il-Sung, former North Korean leader and father of current dictator Kim Jong-Il, learned the importance of self-sustainability. According to Scobell and Chambers,

While they accepted Soviet assistance, the fighters espoused an ideology of extreme self-reliance on the assumption that no one outside the band could be fully trusted... [T]he only reliable form of security was the acquisition of sufficient military capabilities to make their own destiny.⁹

This ideology was applied to the DPRK's weapon program during the Korean War and throughout the Cold War: though the Soviets and Chinese were capable of helping Pyongyang in the event of American aggression, the DPRK needed to be in a position to protect itself independent of the capabilities of regional allies. This ideology is what motivated Kim Il-Song to develop a strong conventional military, and what motivates Kim Jong-Il to continue the nuclear weapons program started by his father.

⁷ "President Delivers State of the Union Address," *The White House*, 2002, Accessible at <http://www.whitehouse.gov/news/releases/2002/01/20020129-11.html>.

⁸ Christopher W. Hughes, "North Korea's Nuclear Weapons: Implications for the Nuclear Ambitions of Japan, South Korea, and Taiwan," *Asia Policy* 3 (January 2007): 101-102.

⁹ Scobell and Chambers, 290.

As a result, North Korea is the most heavily armed regime on earth. Unlike other communist states, the DPRK should be considered a party-military-state because of the heavy involvement in the military to protect its leader and form of government.¹⁰ The regime, while strong at present, is on the brink of collapse due to a lack of development in state resources and growing the ability of non-elites to usurp some power from the government—apparently without the state's knowledge. While prestige or security may be secondary motivations behind North Korea's nuclear program, the leadership of the party-military-state's dictator is otherwise running the country into the ground.¹¹

If this is the case, why does the nuclear weapons program continue? Why does it continue to manipulate relations with the United States and threaten international norms? The reason, though simple, can be summed up in two words: "Dear Leader."

Kim's leadership is of terrible importance to him. In recent years, he has been known to hold social parties to make his lieutenants feel closer to him. Loyalty, he finds, is key to maintaining control over a regime that might otherwise be falling apart. This manipulation of others is evident. To date, no coup has been attempted against his regime. Similarly, Kim's ability to manipulate relations with the United States and international community—even over a span of over a decade—is an acknowledgement of his strong leadership and curious personality. Despite concerns over his sanity, "[h]e is quite rational, although his calculus of rationality is probably 'bounded' by the specific context of his North Korea environment and his (mis)perceptions of the conditions inside and outside his county."¹²

Kim has used these traits to his advantage. Not only has he commanded the respect and admiration of his people, but he has successfully pushed for a nuclear weapons program amidst economic sanctions and other financial insufficiencies. In this regard, Kim is using his personality to motivate the DPRK's nuclear weapons program. Likewise, Kim himself is motivated to pursue a weapons program for the purpose of maintaining the integrity of his father's regime.

[North Korea's] leader, Kim Jong-Il, appears to be concerned primarily with the continued survival of his rule and the regime originally established by his father, Kim Il-Sung. This assessment would explain North Korea's pursuit of both nuclear weapons and missiles, since both activities could, from its perspective, increase its ability to deter an attack from outside powers."¹³

With dual motivations pushing a nuclear program toward acquiring a weapons capability, it is no surprise that, to this day, security guarantees by the international community have been unsuccessful. However, should Kim ultimately feel confident in the security of his regime, he may use his weapons as bargaining chips to improve the socioeconomic condition of his state.

The Islamic Republic of Iran

¹⁰ Scobell, 4.

¹¹ Scobell, XX.

¹² Andrew Scobell, *Kim Jong Il and North Korea: Leader of the System*, (Carlisle, PA: U.S. Army War College, March 2006): 11.

¹³ Joseph Cirincione, John B. Woldsthal and Miriam Rajkumar, *Deadly Arsenals: Tracking Weapons of Mass Destruction* (Washington, DC: Carnegie Endowment for International Peace, 2005): 242.

Iran has been building a nuclear infrastructure of a scientific and technical base since the 1950s. With the establishment of the Atomic Energy Organization of Iran in 1974, there also “appears to have been a three-pronged undeclared nuclear weapons research effort” established at the Tehran Nuclear Research Center as well.¹⁴ By 1979, two West German units were more than half completed at Bushehr and thousands of Iranian nuclear specialists were being trained in these countries and in the United States, United Kingdom, and India. In addition, Iran had negotiated an elaborate set of fuel import arrangements, which would have been subject to IAEA inspection.

With the 1979 Revolution, “the most ambitious [nuclear program] in the Middle East,” was put indefinitely on hold, but not dismantled. However despite explicitly targeting and criticizing the Shah’s program, some elements of the revolutionary government indicated an interest in acquiring nuclear arms. Some indicated to the technicians who remained that it was their “duty to build the atomic bomb for the Islamic Republican Party. ... Our civilization is in danger and we have to have it.”¹⁵ Although this particular leader was assassinated, in March 1980, a Defense Intelligence Agency assessment reported that a “Source speculated that Iran’s interest in new smaller reactors triggers him to believe that Iran is interested in developing their own weapons.”¹⁶

The strategic situation in 1979 and 1980 was tenuous. Several motivating conditions encouraged Iran to sustain the nuclear program, especially the nuclear weapons program. First, at the time of the Revolution, Afghanistan had just been invaded by the Soviet Union. Up until the Revolution, Iran had been a proxy of the United States in containing the Soviet Union. The threat of the Red Army crossing the border into Iran to take advantage of the strategic opportunity was high. Second, this fear was further heightened by the political purge of trained traditional armed military because of ties to former regime, which left Iran at a tremendous conventional military disadvantage. Third, this purge and instability in fact did encourage opportunistic war, as was demonstrated by the invasion of Iran’s regional rival, Iraq, in September 1980. Fourth, ideological motivations were strong as well. The regime was motivated to protect the Revolution at all costs and to demonstrate the viability, not only of the new nation, but of the ideology. Finally, the technicians and specialists who remained in Iran were those who worked at the Tehran Nuclear Research Center, where the weaponization project was housed.

Because of these motivators, the Islamic Republic of Iran sustained its nuclear research program throughout the Iran-Iraq war,¹⁷ and subsequently rediscovered an interest weapons in the midst of the war. Although Iran initially repelled Iraq’s attack and had pushed into Iraqi territory, in 1987 and 1988, the tide appeared to be turning again. Both countries had used chemical weapons against the other and were engaging in an arms race on surface-to-surface

¹⁴ Leonard S. Spector and Jacqueline Smith, *Nuclear Ambitions: The Spread of Nuclear Weapons, 1989-1990* (Boulder, CO: Westview Press, 1990): 204.

¹⁵ Spector and Smith, 208.

¹⁶ Spector and Smith, 208.

¹⁷ Spector and Smith outline Iran’s sustenance of the research program in *Nuclear Ambitions* (1990). In 1984, Iran sought to restart work on the Bushehr plants, but Germany refused until war was over. That year, the Isfahan research center opened, the ground broken for this program under the Shah. In 1987, Iranian nuclear officials pursued contract negotiations with a consortium of W. German, Spanish, and Argentinean companies and signed a \$5.5 million contract with Argentina for fuel fabrication plant, training, and enrichment technology. Additionally, Koch and Wolf point out that in 1985, the Atomic Energy Organization of Iran specialists located over 5,000 m tones of uranium in the Saghand region of eastern Yazd province (see Koch and Wolf, 123).

missiles. At this point, the rhetoric toward the nuclear process began to match the activities in intensity and interest. In 1987, Ali Khamenei, then president and now Supreme Ayatollah,¹⁸ reportedly declared:

“Regarding atomic energy, we need it now. ... Therefore, we need a tireless effort from all of you brothers in this field. Our nation has always been threatened from the outside. The least we can do to face this danger is to let our enemies know that we can defend ourselves. Therefore, every step you take here is in defense of your country and your revolution. With this in mind, you should work hard and at great speed.”¹⁹

March 1988, a report in the British press stated that Iran was attempting to rebuild the plutonium extraction laboratory at the Tehran Research Center.²⁰ Backed by money and technology from the United States, in 1988 Iraq introduced a missile “which enabled it to strike Tehran for the first time with devastating effect on Iranian morale.”²¹ After the United Nations ceasefire was accepted in August 1988, Akbar Hashemi-Rafsanjani,²² then the speaker of the Iranian parliament and commander-in-chief of Iran’s armed forces, openly called for the development of nuclear and other unconventional weapons:

“With regard to chemical, bacteriological, and radiological weapons training, it was made very clear during the war that these weapons are very decisive. It was also made clear that the moral teachings of the world are not very effective when war reaches a serious stage and the world does not respect its own resolutions and closes its eyes to the violations and all the aggressions which are committed in the battlefield.

*We should fully equip ourselves both in the offensive and defensive use of chemical, bacteriological, and radiological weapons. From now on you should make use of the opportunity and perform this task.”*²³

Learning Curve: 1990s

After the stalemate, Iran launched a major rearmament program, which the United States and Western intelligence assessed to include a nuclear weapons program. During this time, Iran’s view of nuclear weapons programs costs and benefits considerably evolved.

Benefits

First, Iran was heavily influenced by the lessons of its war with Iraq, especially with regard to self-reliance. Iran strategists determined that it was a necessity to hedge against Iraq, who had demonstrated that it was willing to develop and use unconventional weapons²⁴.

¹⁸ Ultimate power in Iran rests with the unelected Supreme Leader and to a lesser extent the clerical bodies.

¹⁹ Spector and Smith, 208.

²⁰ Spector and Smith, 208

²¹ Spector and Smith, 210.

²² Akbar Hashemi-Rafsanjani became the fourth president of the Islamic Republic of Iran in Aug 1989.

²³ Spector and Smith, 210.

²⁴ Iraq demonstrated this willingness again by using chemical weapons against its Kurdish population in 1991.

Although as the 1990s progressed, Iraq was tightly contained by the United States, Iran was still concerned that Iraq was developing nuclear weapons²⁵. The second motivation, related to the first, was the rapid US victory in 1991 contrasted starkly with the stalemate. This rapid and irresistible American victory underscored the tremendous conventional military superiority of the United States. Nuclear deterrence is often sought to erase these disparities.

Although the people may be more nationalistically than ideologically motivated, the same cannot be said for the leadership. Leadership historically interested in “nuclear option” for protecting the revolution Khamenei and Rafsanjani, “still believe that Iran constitutes a role model for others in creating an Islamic revolution and siding with the oppressed against global arrogance and an unjust international order.”²⁶ This is not to say that the nationalism that the nuclear program has come to represent has not become a motivating factor in and of itself. Opposition to the fuel cycle has come to be seen as a pretext to keep Iran backwards.

Costs

Iran appears to have drawn a few key lessons from Iraq's and North Korea's weapons programs and strategies. From Iraq, Iran learned just how advanced a clandestine nuclear program could become without detection by the IAEA or Western Intelligence. Anecdotaly, it has been said that United States forces discovered a nearly complete nuclear weapon sitting on a table. Without the strategic misstep of invading Kuwait, the Iraqi nuclear weapons program may or may not have been discovered.

From North Korea, Iran learned that nothing in the Security Council response suggested inordinate risks or costs associated with developing nuclear weapons. Iran also discovered that it is not inevitable that it will be met by a united front. China and Russia did not and do not view the threat in the same way that United States and Europe do. Despite its rocky relations with the West, Iran aspires to be a regional power, not a pariah, and sees value in these relationships. In fact, North Korea may have taught Iran that an uncertainty about the program may serve as a bargaining chip instead of an incentive to attack.

How

The key issue concerning Iran's nuclear ambitions is Tehran's quest for the full fuel cycle and nuclear latency, which would put it within months of a weapons capability. Indeed, in 1991 Iran appears to have been “[f]ollowing a strategy similar to Iraq's and Pakistan's nuclear development programs.”²⁷ Working patiently, Iran has attempted to cobble together a uranium enrichment capability by purchasing centrifuge components piecemeal. In 1993, 1994, 1995 James Woolsey, Director of the Central Intelligence Agency (CIA), testified that Iran's nuclear program appeared to be accelerating.²⁸ In his most specific statement regarding Iran's nuclear programs, Woolsey offered that the CIA

²⁵ Iran wasn't the only country concerned about Iraq's WMD programs. At least rhetorically, this reason was a main motivation for Operation Iraqi Freedom.

²⁶ Shahram Chubin, *Iran's Nuclear Ambitions* (Washington, DC: Carnegie Endowment for International Peace, 2006): 19.

²⁷ Andrew Koch and Jeanette Wolf, “Iran's Nuclear Procurement Program: How Close to the Bomb?” *The Nonproliferation Review* (Fall 1997): 124.

²⁸ See “Testimony by Director of Central Intelligence R. James Woolsey,” testimony before the House Foreign Affairs Committee, Subcommittee on International Security, International Organizations, and Human Rights, 28 July 1993; “Challenges to the Peace in the Middle East,” address by R. James Woolsey, Director Central Intelligence Agency, before the Washington Institute for Near East Policy, Wye Plantation, MD, 23 September

pay(s) particular attention to Iran's efforts to acquire nuclear and missile technology from the West in order to enable it to build its own nuclear weapons. ... Iran has been particularly active in trying to purchase nuclear materials or technology clandestinely from Russian sources. Iran is also looking to purchase fully-fabricated nuclear weapons in order to accelerate sharply its timetable.²⁹

As Iran pursued its piecemeal strategy without detection or repercussions, it was emboldened to intensify its efforts in the late 1990s.

Patience is a Virtue

This undeclared drive for enrichment capability was upset by the public revelations in 2002 and 2003 by an Iranian opposition group and the publication of satellite imagery by the United States-based Institute for Science and International Security³⁰. Because of this Iran was forced to reveal some of its operations, constrain the enrichment activities, and raze some of its undeclared sites³¹. This is in agreement with the December 2007 National Intelligence Estimate (NIE), which "judge[d] with high confidence that in fall 2003, Tehran halted its nuclear weapons program."³²

As the United States assumed a forward leaning on war both in Afghanistan and in its preparations to go to war to remove the Iraqi regime that had sought weapons of mass destruction and terrorist ties, Iran found it in its national interest to negotiate and constrain its research activities, albeit temporarily. This can be seen simply as a tactical move, not as a change in strategy for pursuing a complete nuclear fuel cycle and a capacity for developing nuclear weapons. In fact, Iranian leadership took care to preserve earlier motivations: such as ideology and self-sufficiency. For example, the Secretary of the Supreme National Security Council Hasan Rowhani justified negotiations with the EU-3, observing that "being a

1994; "World Threat Assessment Brief: Testimony by R. James Woolsey, Director of Central Intelligence," before the Senate Select Committee on Intelligence, 10 January 1995.

²⁹ "Challenges to the Peace in the Middle East," address by R. James Woolsey, Director Central Intelligence Agency, before the Washington Institute for Near East Policy, Wye Plantation, MD, 23 September 1994.

³⁰ Summer 2002: The Natanz site was unknown to the IAEA until the summer of 2002 when an Iranian opposition group revealed its existence. It also revealed the existence of another site at Arak that contains a heavy water plant that is nearing completion. December 2002: The existence of a heavy water facility near the town of Arak first emerged with the publication of satellite images by the US-based Institute for Science and International Security. (Heavy water is used to moderate the nuclear fission chain reaction either in a certain type of reactor, but not the type that Iran is currently building, or produce plutonium for use in a nuclear bomb.) May 2003: The Iranian opposition group, National Council for Resistance of Iran, announced that the site, called the Lavizan-Shian Technical Research Center, was associated with biological weapons research. Later, a radiation detection device, called a whole body counter, was discovered to have been delivered to the site from overseas. The equipment itself is not direct evidence of a nuclear weapons program, but appeared out of place at a site that was not declared by Iran to have any nuclear activity.

³¹ March 2004: While investigations by the IAEA and the United States were ongoing, the buildings at the site in Lavizan-Shian, a potential undeclared nuclear or nuclear-related site, were dismantled, rubble carted away, and the ground was scraped between approximately the first of the year and March 2004. See Albright, accessible at <http://www.isis-online.org/publications/iran/lavizanshian.html>.

³² United States, Central Intelligence Agency, *National Intelligence Estimate: Iran: Nuclear Intentions and Capabilities* (Washington, DC: Office of the Director of National Intelligence, November 2007): 6.

revolutionary does not mean that we must discard everything and put ourselves on the road to confrontation with the rest of the world.”³³

Current Situation

In 2005, Iran found itself in again in a situation which permitted resumption of its pursuit of enrichment and the full fuel cycle. Operation Iraqi Freedom (OIF) created a strategically permissive environment. First, it destroyed the major military threat and Iran's historic rival. Second, this effectively created a new regional order. Although, the United States is struggling to recreate the regional power order in its favor, it has ultimately been a windfall for Iran who sees itself on the ascension. Lastly, OIF has damaged American credibility and has embroiled its military forces. As this environment became apparent, Iran served notice that it would resume conversion activities, rejected the EU incentive package, with the new Ahmadinejad administration taking a more belligerent tone and resuming enrichment research in early 2006.

Iran often defends its “natural right” to the full fuel cycle, despite international concerns about the emphasis on enrichment and a heavy water plant at this early phase when no reactors are yet functioning. Former President Rafsanjani defended the program seeking the full fuel cycle stating that “We want to have enrichment and all other parts of nuclear technology to use this valuable science for the good of our people and the country. And we will do this at any cost.”³⁴ Two interrelated rationale have been expressed for continuing pursuit of the full fuel cycle: ideology/nationalism, and regional aspirations.

Iran is intensely ideological and nationalistic. This has been identified very closely with its nuclear program, giving up on the program will also be giving up on the revolution. The former envoy to the IAEA made this link explicitly clear: “Iran has made a revolution in order not to be the obedient servant of any country and to act on the basis of its own national interests.”³⁵ Iran identifies staying abreast of nuclear technology as modern and synonymous with being an advanced scientific state. This demonstrates the legitimacy of the state, and also the regime. In 2005, Supreme Leader Grand Ayatollah Khamenei stated that “enrichment is a way forward to scientific advancement and if a country is able to succeed in doing so, the efforts of the world of arrogance will lose their effect.”³⁶ Echoing this sentiment, Ali Larijani, Iran's former nuclear negotiator, an interview with Al Arabiya, said, “The problem is that they look at the Islamic nations as being inferior, that we should not have modern technology, and it is enough for us to produce tomato paste and mineral water.”³⁷

Iran envisions itself as the regional leader. As Chubin has noted, “Iranians support the quest for status, respect, and a broader regional role.”³⁸ Indeed, currently Iran is the main independent player in the Middle East. In an interview with *TIME Magazine*, Ali Larijani explained, “We are a regional power. But we are a noble regional force.”³⁹ Iran also believes

³³ United States, 6.

³⁴ “Ex-President Says Iran Not Seeking War, Ready to Negotiate,” *BBC Monitoring* 30 April 30 2005.

³⁵ “Ex-envoy Says Iran to Make Own Decision on Possible Nuclear Deal,” *BBC Monitoring* 3 September 2004.

³⁶ “Leader Says US, Europe Aim to Hinder Iran's Scientific Development,” *BBC Monitoring* 4 March 2005.

³⁷ Francis X. Cliness, “Soviet Army on Defense, in the Ukraine,” *New York Times* 12 November 1991: A1.

³⁸ Chubin, XX.

³⁹ Scott MacLeod, “Exclusive Interview: Iran's Foreign Policy Chief Talks with Time,” *TIME Magazine*, 27 February 2006, Accessible at <http://www.time.com/time/nation/article/0,8599,1167908,00.html>.

that its pursuit of nuclear technology has only served to enhance Iran's power, "guarantee[ing] the Islamic republic's presence in the international scene."⁴⁰

Although it is unclear whether the weaponization program is active, Iran is certainly pursuing capacity. In February 2008, documents presented to the IAEA suggest the work continued, contradictory to the December 2007 NIE. Simon Smith, Britain's ambassador to the IAEA, said material presented to the IAEA in Vienna came from multiple sources and included designs for a nuclear warhead, plus information on how it would perform and how it would fit onto a missile. "Certainly some of the dates that we were talking about... went beyond 2003," he said.

The Islamic Republic of Pakistan

Pakistan's pursuit of a nuclear weapons capability illustrates how a state with a security vulnerability, as was the case with Pakistan vis-à-vis India in the mid- to late-twentieth century, can overcome obstacles and shortcomings to achieve its end goal. Once a state makes the decision to become a nuclear-weapons power, "it will become one regardless of international sanctions or incentives. You needn't be rich. You needn't be technically developed."⁴¹ You need only a person that can start a program, acquire the necessary materials, and provide the technical know-how to develop a capability. Pakistan happened to have two: Zulfiqar Ali Bhutto, and A.Q. Khan.

Following Pakistan's defeat in its 1971 war against India, Islamabad concluded that its conventional forces were not adequate to face the security threat to its east. "Pakistan has viewed its nuclear program as sine qua non to its national survival and the nonproliferation regime a challenge to its national security."⁴² Thus, in 1972, Pakistan secretly initiated its nuclear weapons program.

The first phase of the Pakistani decision began immediately with the emergence of new civilian leadership under Zulfiqar Ali Bhutto, who gave the "green light" in January 1972, after a meeting of the nuclear technology establishment (The Pakistan Atomic Energy Commission, or PAEC) in Multan."⁴³

Two years later, in May 1974, an underground detonation proved India's nuclear weapon capacity. Islamabad, having a weaker conventional military and a nascent nuclear weapon program, had no means by which to respond. Its only option was to press ahead toward developing a comparable nuclear weapons capability.

Bhutto described the significance of India's test as "a fateful event" in the history of Pakistan. This was the tipping point that transformed the "capability decision" into a "proliferation decision." Bhutto presided over a formal Defense Committee

⁴⁰ "Former Iranian Foreign Minister Says Europe Not to be Trusted, Blair 'Bankrupt,'" *BBC Monitoring* 8 November 2003.

⁴¹ Langewiesch, 16.

⁴² Feroz Hassan Khan, "Nuclear Proliferation Motivations: Lessons from Pakistan," *Nonproliferation Review* 13.3 (November 2006): 501.

⁴³ Khan, 503.

of the Cabinet and made the decision to formally begin a nuclear weapons program on June 15, 1974.⁴⁴

Enter A.Q. Khan

Born in India in 1936, A.Q. Khan and his family slipped across the border into Pakistan upon the division of the subcontinent. His hatred for India resonated with Khan throughout his adult life, a feeling that had a profound impact on his profession and eventual interaction with the Pakistani government. Khan was educated in metallurgy at the Catholic University of Leuven in Belgium, and began work at a research laboratory attached to the university. His courses of study and research interests eventually granted to access to Ultra-Centrifuge Nederland (UCN), a Dutch enrichment facility where he learned about centrifuge technology. It was here, in May 1974, that he first learned of India's nuclear accomplishment.

A press release issued by the New Delhi government referred to it as a "peaceful nuclear explosion." It is not all that surprising, therefore, that four months later, Khan wrote a personal note to Pakistan's prime minister, Zulfikar Ali Bhutto, delivered to the office of the president by a personal friend. The thrust of the message: He had unusual scientific services and expertise to offer his country...

A.Q. Khan's timely letter to his prime minister had obviously had the required effect, and to the consternation of his Dutch bosses, Khan started taking an inordinate amount of interest in nuclear-related projects that were not part of his domain.⁴⁵

After 18 months of additional research at UCN, Khan and his family left Holland in suddenly December 1975, returning to Pakistan with technical blueprints and nuclear know-how. Khan was immediately appointed to Pakistan's nuclear weapons program, and was tasked to work on centrifuge-related projects for the PAEC.

Khan was heavily invested in Pakistan's nuclear weapons program throughout the late 1970s and 1980s. In July 1976, he was authorized to start a new research center independent of PAEC to develop a domestic uranium-enrichment program. He succeeded. Khan's first milestone, the Pak-1 centrifuge, was the derivative of a Urenco design he stole UCN.⁴⁶ Over the next several years, his responsibilities involved the stockpiling of fissile material, development of weapon designs, and other tests.⁴⁷

Meanwhile, other Pakistani testing programs involved missile systems developed from other Asian states. Together, these actions constitute a "norm of norm-defiance" that resonates inside Pakistan, which provided significant and ongoing support for the program's development.⁴⁸ Moreover, despite these advancements violating international norms, Pakistan was able to maintain positive relations with the United States for the majority of the program's duration.

⁴⁴ Khan, 503.

⁴⁵ Venter, 55.

⁴⁶ Venter, 56.

⁴⁷ Khan, 503.

⁴⁸ Khan, 505.

Since 1979 Pakistan's nuclear weapons program has repeatedly brought the country under U.S. sanctions, which have been intermittently waived as a result of developments in Afghanistan... in 1981, in the wake of the Soviet occupation of Afghanistan, the United States suspended the application of the uranium enrichment sanctions for six years. Instead, Washington provided greatly increased military and economic assistance to Pakistan to create a bulwark against further Soviet expansion and to establish Pakistan as a strategic partner supporting anti-Soviet forces in Afghanistan. Reagan administration officials also argued that the restoration of aid would advance U.S. non-proliferation objectives by enhancing Pakistan's security generally, thereby reducing Islamabad's motivation to acquire nuclear arms."⁴⁹

By the mid-1980s, the momentum behind Pakistan's weapons program was building. Khan developed the Pak-2, a modified German centrifuge that could spin twice as fast as the Pak-1,⁵⁰ and in 1985, despite numerous promises to the United States that it would not produce weapons-grade uranium, Pakistan crossed that threshold. A year after this accomplishment, Pakistan had apparently produced enough material to make its first nuclear device. According to reports, Islamabad acquired a nuclear explosive capability in 1987.

After years of deception and ignorance, Islamabad's actions finally proved detrimental on US-Pakistani relations. Or, at least for a while. The Pressler Amendment, passed by the United States Congress in October 1985, required the President at the beginning of every fiscal year to prove, before sending American aid and arms to Islamabad, that Pakistan did not have any nuclear explosive devices. Presidents Reagan and Bush were able to do so throughout most of the decade, but with its nuclear weapons program becoming less and less tacit, President Bush, in 1989, was unable to fulfill the amendment's requirements. Prime Minister Benazir Bhutto, daughter of the weapon program's founder, was forced to suspend the program that year.

Upping the Ante: 1990s

Still, the 1990s saw Pakistan move far beyond a research program and develop the capability to build and test nuclear weapons. Throughout the decade, as Islamabad traded with other states to finalize its weapon and missile designs, nonproliferation efforts (headed namely by the United States) tried in vain to prevent Islamabad from achieving a nuclear weapons capability.

In June 1989, President George Bush and then-Pakistani Prime Minister Benazir Bhutto met at the White House to discuss the two countries' respective efforts maintain regional security in Southeast Asia. A common commitment to nuclear nonproliferation lay at the heart of these discussions. According to Bhutto, "I have assured [President Bush] of our continuing efforts towards maintaining peace in the south Asian region and of our determination to strengthen the process of nuclear nonproliferation by seeking accords, both bilateral and international, within the regional context."⁵¹

⁴⁹ Cirincione, Woldsthal and Rajkumar: 210-211.

⁵⁰ Venter, 57.

⁵¹ "Remarks following Discussions with Prime Minister Benazir Bhutto of Pakistan: June 6, 1989." *Public Papers of the George Bush Presidential Library and Museum*. 2008. Accessible at <http://bushlibrary.tamu.edu/research/public_papers.php?id=506&year=&month=>>.

History, however, tells a different story. At the time, Bhutto was already involved in talks with the DPRK over the transfer of missile technologies intended to support Pakistan's nuclear weapons program. Bhutto's doublespeak veiled Pakistan's intent in this context: perhaps strengthening the "process of nuclear nonproliferation" can be acquired through the means of covertly acquiring weapons to deter other states from obtaining their own.⁵²

Likewise, Bhutto's actions in early 1990 contradicted her assurances to President Bush. Bhutto, after the Soviets had retrenched from their positions in Afghanistan and changed the regional security situation, ended the freeze on uranium enrichment in anticipation of a renewed conflict with India. In response, the United States again cut off economic aid to Islamabad, and failed to deliver a number of F-16s that Islamabad had previously purchased. Reeling from these sanctions, newly-elected Prime Minister Nawaz Sharif⁵³ reinstated the freeze uranium enrichment in late 1991, which continued until the spring of 1998.⁵⁴

Over the next several years, Pakistan's relationship with other nuclear-capable states became of concern to the world community—especially the United States. "Pakistan reportedly forged nuclear (and missile) contacts with North Korea between 1985 and 1988," and China may have facilitated the exchange of technology and personnel between the two states throughout the 1990s.⁵⁵ In December 1993, Bhutto traveled to the DPRK and met with then-leader Kim Il-Sung to celebrate a relationship that had begun with Bhutto's father 17 years earlier. In exchange for large sums of cash, Bhutto left the meeting with either the disassembled components of a Nodong missile, or the blueprints of the weapon system held on computer disks. Both states were in pursuit of a nuclear weapon at the time, for "programs to develop and procure nuclear weapons almost always go hand in hand with efforts to acquire ballistic missile capabilities."⁵⁶ Though this first transaction was claimed to be missiles-for-cash, later barter between the states apparently involved missile technologies (furnished by the DPRK) and enrichment technology (furnished by Pakistan).⁵⁷

The Chinese, aside from facilitating nuclear transactions between the Islamabad and Pyongyang, also supported Pakistan's enrichment capabilities. A Chinese-designed 40-MWt research reactor was installed at Khushab, while the domestic enrichment capabilities were enlarged through the construction of an enrichment facility at Golra. In December 1994, Pakistan purchased 5,000 ring magnets for high-speed uranium centrifuges at the facility. In addition to uranium, Pakistan also explored a plutonium production capability; the Khushab reactor went online in spring 1998, just as Sharif's freeze on uranium enrichment ended and only months before Pakistan's first nuclear test was conducted.

Becoming Number Eight

According to author Neil Joeck, "On the basis of their own pronouncements, India and Pakistan took the step to test nuclear weapons in order to enhance security in what they consider to be an insecure region. In April 1998, India's defense minister, George Fernandes, spoke

⁵² "Remarks following Discussions with Prime Minister Benazir Bhutto of Pakistan: June 6, 1989." *Public Papers of the George Bush Presidential Library and Museum*. 2008. Accessible at http://bushlibrary.tamu.edu/research/public_papers.php?id=506&year=&month=>.

⁵³ Sharif assumed office in November 1990, indirectly succeeding Bhutto as prime minister after she left office in August of that year.

⁵⁴ Cirincione, Woldsthal and Rajkumar, 211

⁵⁵ Al J. Venter, *Allah's Bomb: The Islamic Quest for Nuclear Weapons* (Guilford, CT: The Lyons Press, 2007): XX.

⁵⁶ Corer, 87

⁵⁷ Corer, 92.

darkly about the menace from China; Pakistan's foreign minister, Gohar Ayub Khan, was equally apprehensive in his assessment of India, even before the Bharatiya Janata Party (BJP) began the nuclear test series on May 11."⁵⁸ On that day, India began a series of subterranean tests amidst rising tensions with their western neighbor. Unlike their 1974 test, Pakistan now had the means to respond in kind.

Over a period of three days, six Pakistani nuclear weapons were tested in underground facilities. On May 28, five tests were conducted with a total yield of 6-13 kt. A single test on May 30 yielded 2-8 kt. These tests served as the culmination of twenty-five years of research, development, and illicit transactions that spanned no fewer than two continents and involved multiple countries.

Over these years, Pakistan fulfilled five conditions that Feroz Khan concludes are required for a state to develop nuclear weapons:

- Highly motivated with clear national security considerations (vis-à-vis India);
- Possessed basic technical capacity to pursue a five- to ten-year program (thanks to Khan);
- Diplomatically clever to navigate through the nonproliferation regime (Bhutto and Bhutto);
- Willing to bend certain rules and give its nuclear establishment autonomy (Khan); and
- Maintained an active alliance with the United States and strategic partnerships with other world powers (existed, with few exceptions).⁵⁹

The last two points are important ones. Though the first three conditions are relatively easy to fulfill, a state's ability to circumvent international norms while maintaining an active relationship with the United States is difficult. Like the DPRK, Pakistan experienced years of economic sanctions as a result of their nuclear ambitions. To overcome this financial obstacle, Khan resourcefully made good with his counterparts in other countries, traded technologies, stole prototypes, and bend (and broke) many rules to give his nuclear establishment some autonomy. His research center, which he later renamed after himself, was pivotal in the development of the Pakistani bomb. His hatred for India may have been a principal, motivating factor for his actions, but his personality, in turn, served to motivate his comrades to develop a nuclear weapons capability. As a result of his actions,

This is the man, some of his countrymen maintain—taking a distinctly unsubtle swipe at what is regarded by many of his fellow countrymen as unwarranted Western opprobrium—that can do no wrong.⁶⁰

The final point—maintaining an active alliance with the United States while developing a nuclear weapons capability—is also difficult. Zulifqar Bhutto, however, accomplished this by establishing strong ties with the United States decades before it developed its first nuclear

⁵⁸ Neil Joeck, "Nuclear Relations in South Asia" in *Repairing the Regime: Preventing the Spread of Weapons of Mass Destruction*, Ed. Joseph Cirincione (New York, NY: Routledge, 2000): 134.

⁵⁹ Khan, 510.

⁶⁰ Khan, 58.

weapon. During the Soviet invasion of Afghanistan, Pakistan played a pivotal role in the funneling of arms and supplies to the mujahedeen, and resulted in the eventual Pakistani purchase of American F-16s. The senior Bhutto's leadership at the beginning of the program set the tone for the following three decades of its development, and his ability to imbue the criticality of the project across the field of Pakistani players—from scientists, to government leaders, to members of the international community—contributed to its successful fulfillment in 1998.

“The personality, ambition, and leadership of Zulifiqar Ali Bhutto, who was always predisposed toward nuclear weapons... [was a major motivating factor]. As the nuclear program progressed, domestic politics and civil-military relations became important factors driving their acquisition.”⁶¹

The Great Socialist People's Libyan Arab Jamahiriya

In 1969, Muammar Abi Minuar al-Gadhafi became the head of state of Libya after a coup. Gadhafi gave up his official role and adopted the title of Leader of the Revolution in 1979. Despite this informal position, Gadhafi's political power has always been exercised through his blessing and his public statements, which become *de facto* policy. Gadhafi's nuclear ambitions have been well documented both in word and deed over the years. In 2003 and 2004, the extent of Libya's efforts were made public through unprecedented access to facilities and documents after Gadhafi renounced Libya's nuclear weapons program. Libya had sought not only the capability to enrich uranium to weapon-grade but also the know-how to design and fabricate nuclear weapons and had built a program nearly wholly dependent on foreign expertise and equipment.⁶²

Malfrid Braut-Hegghammer suggests that Libya's reasons for pursuing nuclear weapons reflected the regime's changing foreign and security policy priorities. Initially, Libya's interest in nuclear weapons, Braut-Hegghammer posits, was driven primarily by ideological and political motives, only later to be motivated by the utility of a nuclear deterrent.⁶³ Libya's military motivations take primacy first in 1986, with the Tripoli strikes by the United States and are augmented with the weakness and collapse of the Soviet Union in 1990 and 1991.

In 1970, Libya made its first attempt to acquire nuclear weapons from China, but was rebuffed. Afterwards, throughout the 1970s, Libya established a network of extensive bilateral negotiations to secure nuclear research facilities, power plants, and nuclear trade relations “which it hoped to gain rapid access to nuclear-weapons-related technologies.”⁶⁴ The network included countries such as the Soviet Union, Argentina, India, Pakistan, China, and Belgium, making quiet overtures to the states with weapons programs for aid. Despite being rebuffed on many fronts, in 1979, a Soviet-supplied nuclear reactor was installed at a research center at

⁶¹ Khan, 505.

⁶² International Atomic Energy Agency, *Implementation of the NPT Safeguards Agreement of the Socialist People's Libyan Arab Jamahiriya*, 20 February 2004, Accessible at <http://www.iaea.org/Publications/Documents/Board/2004/gov2004-12.pdf>, 6.

⁶³ Malfrid Braut-Hegghammer, “Libya's Nuclear Turnaround: Perspectives from Tripoli,” *The Middle East Journal* 62.1 (Winter 2008): 56.

⁶⁴ Spector and Smith, 175.

Tajura. Before the facilities were placed under IAEA safeguards in 1980, Libya imported a total of 2263 tones of UOC that went undeclared.⁶⁵

In 1981, it is believed that the 10- megawatt research reactor at Tajoura began operating, assisted by two Belgian firms, Belgatom and Belgonucleaire.⁶⁶ Extensive negotiations were then carried out with the two Belgian firms for acquiring a plant that would produce tetrafluoride, which can be used to enrich uranium. This plan was ultimately cancelled in 1985 under pressure from the US.⁶⁷ Yet, in December 2003, Libya provided information about the export of UOC to an unnamed country for processing into a variety of uranium compounds including hexafluoride and tetrafluoride, which were then transferred back to Libya and went unreported.⁶⁸

In the years after 1969, Braut-Hegghammer points out, pan-Arabism was a guiding theme for both domestic and foreign policy in Libya in the years after 1969.⁶⁹ Although, the Libyan nuclear program was instituted soon after Gadhafi came to power, tying the birth and growth of the country, the weapons program, and his leadership into one package, Libyan ideology and nationalism explain the motives for founding the weapons program. With hopes to one day be seen as a leading state in the region, Gadhafi saw the nuclear weapon capability as an important element in advancing Arab nationalism.⁷⁰ Arab nationalism was the central aspect of Gadhafi's ideology and has been called "his primordial value."⁷¹ The nuclear weapons capability was seen as part of a deep desire to establish a strong Arab nation on equal (or superior) footing with Israel and the West.

Without a concrete military threat, Libya's nuclear weapons program limped along at the whim of Gadhafi. Libyan officials occasionally expressed interest in purchasing nuclear technology and weapons-grade fissile material on the black market to restart or accelerate its nuclear weapons program, but there was no demonstrated, concerted effort or strategic choice to develop an interior infrastructure to develop nuclear weapons.

This changed, in April 1986, when the United States conducted a retaliatory air attack against Libyan targets that resulted in the death of his adopted daughter. Throughout the 1980s, Libya had steadily been moving into not only a pariah status, but also at odds with the United States. The pariah status and nuclear armed, conventionally superior threat solidified the vague, ideological threat feared from the "beginning."

It was at this point that Gadhafi began to call for the inclusion of a nuclear component in the development of a deterrent force. In June 1987, Gadhafi explained to a group of students that "We (Libya) do not undertake not to drop the atomic bomb on any state around us, but we most" and then later that year Gadhafi insisted that the agenda of an Arab summit meeting "include ... the manufacture of an Arab atomic bomb, since the Israelis, with the assistance of the United States, France, Western nations, and Britain possess it and target it against every Arab country."⁷²

⁶⁵ International Atomic Energy Agency, 3.

⁶⁶ Spector and Smith, 177.

⁶⁷ International Atomic Energy Agency, 3.

⁶⁸ Spector and Smith, 177.

⁶⁹ International Atomic Energy Agency, 3.

⁷⁰ Braut-Hegghammer, 60.

⁷¹ Leonard S. Spector, Mark G. McDonough and Evan S. Medeiros. *Tracking Nuclear Proliferation: A Guide in Maps and Charts*, 1995 (Washington, DC: Brookings Institution Press, April 1995): 141.

⁷² Ronald Bruce St. John, "The Ideology of Muammar al-Qadhdhafi: Theory and Practice, *International Journal of Middle East Studies* 15.4 (1983): 473.

⁷³ Spector and Smith, 178.

Then again in 1990, recalling the April 1986 U.S. air attack against Libyan targets, Gadhafi said:

If we had possessed a deterrent—missiles that could reach New York— we would have hit it at the same moment. Consequently, we should build this force so that they and others will no longer think about an attack. Whether regarding Libya or the Arab homeland, in the coming twenty years this revolution should achieve a unified Arab nation.... This should be one homeland, the whole of it, possessing missiles and even nuclear bombs. Regarding reciprocal treatment, the world has a nuclear bomb, we should have a nuclear bomb.”⁷³

In the early 1990s, news reports indicate that Libya attempted to exploit the chaos generated by the collapse of the Soviet Union to gain access to former Soviet nuclear technology, expertise, and materials. In 1992, for example, an official of the Kurchatov Institute in Moscow, one of Russia's leading nuclear research centers, claimed that Libya had unsuccessfully tried to recruit two of his colleagues to work at the Tajura Nuclear Research Center in Libya.⁷⁴

In July 1995, according to the IAEA director general's report of February 2004, “Libya made a strategic decision to reinvigorate its nuclear activities,” including gas centrifuge uranium enrichment.⁷⁵ Events moved quickly from this decision. In 1997, Libya began receiving nuclear weapons-related aid from A.Q. Khan and in late 2000, Libya's nuclear activities accelerated yet again. Libyan authorities informed the IAEA that at that time, Libya began to order centrifuges and components from other countries with the intention of installing a centrifuge plant to make enriched uranium. Libya also imported equipment for a precision machine shop (located at Janzour) and acquired a large stock of maraging steel and high strength aluminum alloy to build a domestic centrifuge production capability. Libya also received UF₆ in 2000 and 2001 from an unconfirmed origin.⁷⁶ Finally, in late 2001 or early 2002, the Libyan authorities have stated that they had received the documents relating to nuclear weapon components and notes related to the fabrication of weapon components.

Ukraine

After the fall of the Soviet Union, Ukraine found itself in a very peculiar situation that no other nation had ever experienced. Without asking for them, pursuing them, or spending a single cent on them, Kiev emerged from the Cold War world with an arsenal of more than 2,200 tactical and 1,900 strategic nuclear weapons, complete with ballistic missiles and intercontinental bombers. “Gaining operational control over those weapons would have made Ukraine the world's third-largest nuclear-weapon state after Russia and the United States.”⁷⁷ Yet Kiev elected not to.

The Wall Comes Down

Even while the Soviet Union was in the midst of collapse, “Ukraine's pre-independence efforts in 1968 and 1990 to accede to the NPT as a non-nuclear weapons state... clearly involved

⁷³ Spector and Smith, 183.

⁷⁴ Jack Kelley, “Russian Nuke Experts Wooed,” *USA Today* 8 January 1992, Final Ed.: 1A.

⁷⁵ International Atomic Energy Agency, 5.

⁷⁶ International Atomic Energy Agency, 5.

⁷⁷ Cirincione, Woldsthal and Rajkumar, 323.

the desire to gain greater international standing and recognition as a party to an important global regime.”⁷⁸ It no longer wanted to maintain its affiliation with the Former Soviet Union. Rather, it wanted to be recognized as a free-standing, independent state that operated according to international standards. When this reality finally manifested itself, Kiev wasted no time aligning its nuclear policy alongside international norms. According to a 1991 *New York Times* article, “the Ukrainian Parliament declared that the republic would have to give approval for any use of nuclear weapons based in Ukraine and repeated the hope that eventually all nuclear weapons would leave the territory.”⁷⁹

This hope stemmed from its July 16, 1990 Declaration of Sovereignty, which was passed by the Ukrainian Parliament, called the Rada. The Declaration established Ukraine’s intention to become a “permanently neutral state... holding to three non-nuclear principles: not to accept, produce, or acquire nuclear weapons.”⁸⁰

Ukraine’s decision to denuclearize was based in its “belief in the Western, democratic community, and understanding that its inclusion in that community required non-nuclear status.”⁸¹ Ukraine wanted to become a “100% European state,” and went so far as to state that the geographic center of Europe was based within Ukrainian territory to add legitimacy to its assertion.⁸² To be included in this Western club of liberal, democratic states, Kiev found that it had to adhere to international norms and surrender its inherited nuclear weapons.⁸³

Friends with the West

In the spring of 1992, Secretary of State Baker traveled to the former Soviet state to pursue assurances from Kiev that Ukraine would accede to the NPT and START treaties, and laid out the road to the Lisbon Protocol and efforts to dismantle Ukraine’s inherited nuclear stockpile. The relations between American, Russian, and Ukrainian leaders were tested during this transition period, as were relations between high ranking American officials. “Balancing Russia with a nuclear Ukraine was... discussed as possible strategy for enhancing national security,” yet Baker, in his wisdom, sought to maintain the same command and control assurances that kept the Cold War cold and exploited Ukraine’s desperation for American support as a mechanism for dismantlement.⁸⁴

These sentiments were echoed by President George Bush, who, in May 1992, welcomed Kravchuk at the White House and urged the Ukrainian leader to continue with his nonproliferation and dismantlement policies. In his remarks, Bush applauded Kravchuk’s leadership in agreeing to ratify and implement the START and CFE treaties. Kravchuk affirmed

⁷⁸ William C. Potter, *The Politics of Nuclear Renunciation: The Cases of Belarus, Kazakhstan, and Ukraine* (Washington, DC: The Henry L. Stimson Center, April 1995): 19.

⁷⁹ Cliness, A1.

⁸⁰ Potter, 19.

⁸¹ William J. Long and Suzette R. Grillot, “Ideas, Beliefs, and Nuclear Policies: The Cases of South Africa and Ukraine,” *Nonproliferation Review* 7.1 (Spring 2000): 36.

⁸² Long and Grillot, 35.

⁸³ Long and Grillot, XX.

⁸⁴ James M. Goldfeier and Michael McFaul, *Power and Purpose: U.S. Policy Toward Russia After the Cold War* (Washington, DC: Brookings Institution Press, 2003): 58.

his commitment to renouncing nuclear weapons and join the NPT, and mentioned a June 1, 1992 as the deadline for the removal of all tactical nuclear weapons from his territory.⁸⁵

President Kravchuk on 7 May (1992) reaffirmed Ukraine's commitment to the three non-nuclear principles originally stated in the Declaration of Sovereignty. In a letter to President Bush he also pledged that Ukraine would eliminate all nuclear weapons on its territory during the seven-year period provided for by the START Treaty. This letter was followed on 23 May by Ukraine's signing of the Lisbon Protocol to the START Treaty.⁸⁶

This strong language, however, was apparently forgotten within a year, as Kiev became more reluctant to ratify START I; this may be indicative of the absence of former Secretary of State Baker from negotiations with Kiev.⁸⁷ "The visit of two Ukrainian Rada members to Washington, DC in September 1992... revealed the opposition the executive branch would soon confront." Parliamentarian Yuri Kostenko and General Volodymyr Tolubko revealed—both in Washington and Kiev—a growing sentiment of ownership of their nuclear weapons. Concerns over Russia were one thing, but the very existence of a Ukrainian nuclear arsenal also reflected military and political influence in Eastern Europe. Some reports reference repeated attempts to gain access or otherwise circumvent the safeguard systems of weapons and missiles, indicating that the Ukrainian military had, at least on one occasion, toyed with the idea of acquiring its won command and control over the weapons.

If Ukraine could harness control over their weapons, it was argued, perhaps it did would need the economic or security guarantees from the United States, and, despite conventional wisdom, take its chances vis-à-vis a Russian threat. The rapid shift of popular opinion was notable. Author Kathleen Mihalisko points out that in February 1992, a Ukrainian official claimed that "the people of Ukraine wanted nothing to do with this "poison" after experiencing the suffering of Chernobyl." Within just a matter of months, however, these views seemed to have gone rather rapidly out of fashion.⁸⁸

Despite these concerns, "Ukraine proceeded to create a Center of Administrative Control of the Strategic Forces of the Ukrainian Ministry of Defense and sought to incorporate the strategic nuclear forced into the Ukrainian Armed Forces by requiring troops and officer to take the Ukrainian oath of allegiance. The government also sought to extend its control to the troops guarding nuclear warheads."⁸⁹ Indeed, Kiev was making strides to dismantle its program within the timeframe agreed upon by Presidents Bush and Kravchuk, and looked forward to the economic incentives promised by Washington in return for their efforts.

The Russia Threat

⁸⁵ "Joint Declaration with President Leonid Kravchuk of Ukraine: May 6, 1992," *Public Papers of the George Bush Presidential Library and Museum*, 2008, Accessible at http://bushlibrary.tamu.edu/research/public_papers.php?id=4262&year=&month=.

⁸⁶ Potter 20.

⁸⁷ The Clinton administration was inaugurated within nine months of the May 1992 remarks, with Warren Christopher serving as Secretary of State.

⁸⁸ Mihalisko, 241.

⁸⁹ Potter, 22.

At the same time, Ukraine started to feel boxed in. If it did not denuclearize by handing its weapons over to Russia, it risked abandonment by the United States and the West. However, if it aligned itself too closely to the West and surrendered its nuclear deterrent, it risked becoming extremely vulnerable to Russia. The assertions made by Kostenko and Tolubko only complicated matters. This increasingly difficult situation left Ukrainian Prime Minister Leonid Kuchma to claim, "They [the West] want to leave us to die on our own." Ukraine, he argued, was being asked to hand over its nuclear weapons to Russia "without getting anything in exchange"—neither security guarantees nor material aid, despite many promises to the contrary.⁹⁰

Ukraine's actions mirrored these concerns. Years after Kiev signed the NPT and became party to START I, its parliament had yet to ratify the latter of the two treaties in fear that doing so would leave Ukraine in a disadvantaged position vis-à-vis Russia. The United States feared that this foot-dragging posed more significant program to arms control efforts. "START 2 is not going anywhere until START 1 is ratified by everyone and everyone joins the NPT as a non-nuclear state," said one American official.⁹¹ The United States feared that Kazakhstan would follow Ukraine's lead if Kiev ultimately decided not to ratify START I, which would completely unravel its objectives for the new Commonwealth of Independent States.

To address these concerns, United States Ambassador-at-Large Strobe Talbott took a three day trip Kiev in May 1993:

Talbott proposed that the United States serve as a facilitator between Ukraine and Russia on nuclear weapons and other issues and suggested that additional funds, in excess of the \$175 million previously promised for nuclear weapons dismantlement, might be available once the START Treaty were ratified.⁹²

Initially, the Russians were not as receptive. The Massandra Accords, held on the Black Sea in September 1993, involved an agreement between Presidents Kravchuk and Yeltsin that "included a protocol on nuclear weapons dismantlement, and agreement on the dismantlement procedure and terms of compensation, and an arrangement for servicing the weapons while on Ukrainian territory."⁹³ However, due to misunderstandings in the text of the agreement, neither party actually adhered to the principles agreed upon in the Accords.

To pressure both states toward an agreement, Secretary of State Warren Christopher traveled to Kiev in October 1993 to press Kravchuk "to conclude a nuclear umbrella agreement similar to the one already in place with Belarus."⁹⁴ Coming off of the failed meeting with Yeltsin, Kravchuk agreed, promising that both the START Treaty and NPT accession would be ratified by the Rada in November. The Rada fulfilled this promise and ratified both on 19 November, but in a last minute attempt to have its cake and eat it, too, the Ukrainian Parliament added several stipulations to the ratification. Chief among these,

⁹⁰ Potter, 22-23.

⁹¹ "You'd be Nervous Living Next to a Bear," *Economist* 327.7811 (15 May 1993): 21-23.

⁹² Potter, 23.

⁹³ Potter, 24.

⁹⁴ Potter, 24.

Ukraine did not consider itself bound by Article 5 of the Lisbon Protocol which obliged Ukraine to adhere to the NPT as a non-nuclear weapons state “in the shortest possible time.”⁹⁵

The Rada wanted to hold onto its weapons a little longer, but the world took notice. The resulting response by international response was unanticipated by the Rada, and as William Potter suggests, “the move probably increased President Kravchuk’s leverage on the nuclear issue with the Rada.”⁹⁶ Under international pressure, the balance of power on Ukraine’s nuclear issue, which was held confidently by the Rada since independence, shifted into the hands of the president.

Resolution

Early the following year, Presidents Clinton, Kravchuk, and Yeltsin met to finalize each state’s role in Ukraine’s denuclearization efforts. On January 14, 1994, the three leaders agreed to a system that “provided security assurances to Ukraine, arranged “fair and timely compensation to Ukraine, Kazakhstan, and Belarus,” provided denuclearization assistance, and provided a timetable to denuclearization implementation.”⁹⁷ This Trilateral Statement, which had a 10-month deadline, required:

- Ukraine’s transfer of at least 200 warheads to Russia for dismantlement;
- Russia’s provision of 100 tons of low-enriched uranium nuclear fuel to Ukraine;
- US provision to Russia of \$60 million in advance payment for high-enriched uranium; and
- Ukraine’s deactivation of the SS-24 missiles by means of removing their warheads.

The Trilateral Statement did not meet all the stipulations outlined by the Rada in their November 1993 ratification of START and NPT, but with Kravchuk’s newfound leverage, the legislative body was eventually persuaded to reconsider its earlier decisions. The Rada finally decided to review formally the question of Ukraine’s NPT status in November 1994, though only after Kiev began receiving promised Nunn-Lugar assistance from the United States and promised supply of nuclear fuel from Russia.⁹⁸ With the Trilateral Statement agreements underway, Ukraine was finally acceded to the NPT on December 5, 1994. The last nuclear weapon was removed from Ukrainian territory in June 1996.⁹⁹

Conclusions

This dialogue illustrates how nuclear weapons in Ukraine were a domestic political issue. The debate over controlling or maintaining inherited nuclear weapons was not based in the pursuit of military strength or international security, but rather the ability of a legislative body to attempt to manipulate power away from a newly-elected president. Despite considerable domestic pressures that cited security and prestige considerations, Kravchuk’s ability to stand fast, abreast of Presidents Bush and Yeltsin, ultimately broke the Rada’s ability to control the

⁹⁵ Potter, 25.

⁹⁶ Potter, 25.

⁹⁷ Potter, 26.

⁹⁸ Potter, 27.

⁹⁹ Cirincione, Woldsthal and Rajkumar, 323

future of Ukraine's nuclear policies. Kravchuk's leadership and pursuit of a nonproliferation policy, in contrast to the aforementioned cases, may be considered the greatest motivator of Ukraine's denuclearization efforts.

In the end, however, the Ukrainian exercise does share some similarities with other case studies discussed in this paper. Under Kim Jong-Il's regime, for example, nuclear weapons were developed for several reasons: prestige, national security, nationalism. It can be said, however, that Kim's personal motivations for pursuing nuclear weapons are based in the exploitation of nuclear blackmail. After having tested nuclear weapons, the DPRK has been much more reasonable in nonproliferation negotiations with the United States and other Six Party members, but only because Pyongyang is getting the attention—and compensation—it had been hoping for. Potter concludes that similarly, "[e]ven in Ukraine, where policymakers could contemplate seriously asserting control over the weapons on their territory, nuclear arms were valued more for their bargaining chip potential than any concrete deterrent function."¹⁰⁰

MISSING MOTIVATIONS

As has been demonstrated throughout the case studies, outside motivations from those identified by Meyer are in play. Motivating indicators such as a dominant leadership personality (Kim, Gadhafi, Bhutto, and Khan) or an oppositional ideology (Iran and the DPRK) play roles in the decision making processes.¹⁰¹ These motivations matter at the initial decision to establish a nuclear weapons program and also develop and sustain the program in the face of international pressures.

Effective Leadership and "Great Men"

The decision to pursue nuclear weapons is certainly one of the most important changes a country's foreign policy could undergo. Major foreign policy redirection can be caused by a variety of change agents: leaders; bureaucratic advocacy; domestic restructuring; and external shock.¹⁰² In an age of globalization, the concept of great men and effective leadership may seem outdated. According many, today's leaders are constrained by powerful forces, which dictate the flow of international events. Yet, in the end, the foreign policy decisions are made by political leaders, some who are particularly influential, drawing power either from personal charisma, intellects, or great political impact, not on forces or trends. Even a cursory examination of history reveals that some leaders manage to generate enough political will to go nuclear, while most of their peers do not. How leaders deal with political constraints and assume authority may result in different reactions in similar decision-making environments.

The Great Man Theory is a theory held by some that aims to explain history by the impact of leaders or "Great Men". It focuses on particular influential statesmen and holds that it is individuals who push forward events, who are the agents of change, for good or for ill. The Great Man approach to history was most fashionable with professional historians in the nineteenth century. However, with the rise of the behavioral sciences, however, the Great Man

¹⁰⁰ Potter, 50-51.

¹⁰¹ There is academic precedent for these motivations. In 2006, Jacques Hymans authored *The Psychology of Nuclear Proliferation: Identity, Emotions, and Foreign Policy*. The book conducts a comparative empirical study of four nation's nuclear histories to show how some leaders do manage to generate enough political will to establish a nuclear weapons program and argues that oppositional nationalist leaders push for the bomb, while others do not.

¹⁰² Charles F. Hermann, "Changing Course: When Governments Choose to Redirect Foreign Policy," *International Studies Quarterly* 34.1 (March 1990): 3.

Theory has fallen out of favor. Instead, scholars have directed their focus elsewhere, and for the past fifty years behavioral theories, contingency theories, and characteristic analyses ad infinitum have dominated the literature.

When attempting to identify indicators for a Great Man figure who exerts disproportionate influence over the foreign policy decision making process, three powerful characteristics emerge. First, the leader must hold a large amount of formal or informal power vis-à-vis a potential nuclear program. For example, Hermann stresses how the authoritarian policy makers who “have the conviction, power and energy to compel their governments to change course” can make this change possible by imposing their own vision of the future direction of foreign policy.¹⁰³ Next, charisma also appears to be an essential ingredient. However, charisma is extremely difficult to define, quantify, and measure. Finally, the leader must be willing to accept a high degree of general uncertainty and accept a high-level of risk. Taking a country over the nuclear brink is irreversible and will have irreversible consequences and repercussions.

Ideology and a “Revolutionary Zeal”

The author of Ideology¹⁰⁴ identifies that ideology can play one of two roles in the foreign policy process. On one hand, ideologies must exist to legitimize the roles played by foreign-policy-makers; ideologies help identify decision-makers as separate actors in society. On the other hand, the ideologies of foreign policy makers themselves let them apprehend the world and ideologies act as guides to policy. In other words, ideology serves as a contextual variable in decision making.

Policymakers react to a particular situation and draw on ideological and cultural resources to make their decisions. While ideology does not intervene in international politics directly, it thus remains a significant determinant of policy by influencing the participants. In this sense, foreign policy cannot be understood in terms of ideology alone, but neither can ideology be ignored. This is especially true for what many believe to be the most important foreign policy decision a country can make, whether or not to build nuclear weapons.

An ideology is a formal, comprehensive and mutually consistent set of ideas by which a social group makes sense of the world, defining enemies and allies, dangers and opportunities, and identity. Catholicism, Islam, Khomeinism, Nazism, pan-Arabism, Liberalism, Communism, and Marxism are modern examples. An ideology can range from oppositional and revisionist or protective of the status quo. Whether an ideology is revisionist seems to depend on the conception of identity within the ideology.

In his book *The Psychology of Nuclear Proliferation: Identity, Emotions, and Foreign Policy*, Jacques Hyman provides a template for looking at identity. First, in an ideology the identity must define “us and them”. If an ideology uses a stark black and white dichotomy of interests and values in defining identity, it can be described as oppositional. Second, an ideology must describe the natural ordering of “us and them.” The foreign policy of a country that defines itself superior to the other would naturally behave differently than a country that defines itself as naturally below. Hyman finds that an ideology that uses a stark identity definition of naturally superior identity in comparison to others is more likely to found a nuclear weapons program.

¹⁰³ Hermann, XX.

¹⁰⁴ Who/what is this?

OTHER CONSIDERATIONS

In addition to these new motivational factors, another important element that may influence a state's decision to pursue a nuclear weapons capability is the type of state structure existing at the time of its decision. The state structure—unipolar, bipolar, or multipolar—does not act as a motivating force toward the acquisition of nuclear weapons. Rather, the aforementioned motivations act in different ways depending on the nature of the system.

Take, for example, national security as a motivating factor. The current international system is noteworthy because of the presence of only one “pole” with a system-wide view and influence: the United States. The power of the United States is not just larger than that of the other principal actors. Rather, it is more comprehensive and it is more engaged internationally through security guarantor roles and the leadership of multiple international processes. In a unipolar world, a given state may feel relatively secure in the shadow of a hegemonic power. Instead of having to develop a domestic security apparatus that could deter an aggressor, states concerned about security in this system can become reliant on the hegemon for security and expect—should an aggressor become belligerent—that the hegemon will act to maintain the balance of power in the system.

This is a shift from the bipolar system of the Cold War, when two poles—the United States and Soviet Union—fought for influence in the international arena, each supported by their respective bloc. The bandwagoning of states around a pole is expected in this system for the same reasons discussed in the unipolar model: the hegemon of the system can guarantee at least some level of security against an aggressor from the opposing pole. However, unlike the unipolar model, there exists the possibility that the pole upon which a state is dependent can lose. This possibility leaves the state in a vulnerable situation, perhaps because it lacks the conventional capability to defend itself from an aggressor. In this situation, the state may build a latent nuclear capability that—should security guarantees by the polar power weaken or fail completely—could become operational and serve as a deterrent against an aggressor.

A multipolar system assumes that multiple states interact within a system, constantly competing for power and influence over one another. A hegemonic or polar power is absent in this system, which leaves individual states to fend for themselves amidst security competitions. Without security guarantees from other states (save, of course, military alliances), a given state may be even more motivated to develop a nuclear weapon capability—if not to use its influence as a means to become more powerful within a system, then certainly to minimize its relative vulnerability to other states in the system.

As illustrated by this example, the state system is an existential mechanism that impacts the way motivating factors contribute to the development of a nuclear weapons capability. A state views threats and capabilities differently through the lenses of these various systems, which, in turn, affects the weight each factor has in the decision making process.

There remains, however, some uncertainty about how the evolution of state structures will impact motivating factors. Since the dawn of the nuclear age, only two systems—bipolar and unipolar—have been in operation. There exists no evidence of how nuclear states could operate in a multipolar system, and any such discussion remains purely counterfactual. However, the question surrounding the multipolar system is a good one: if there are no superpowers, will states' motivations for pursuing nuclear weapons change in this regard? The global situation will undoubtedly continue to evolve in coming decades, and this important issue is one to revisit at a later time.

SUGGESTIONS FOR FUTURE RESEARCH

One element previously considered—and abandoned—as a new motivating factor for his paper has to do with momentum factors. The idea behind this element is grounded in the observation that states' nuclear programs can accelerate or stall at various states of the development process. Is this the normal pace of nuclear weapon programs? If not, what causes a program in danger of stalling to accelerate once more? In short, what momentum factors exist that keep nuclear weapons programs going, especially those that span decades? Does the ability to move a program past hurdles rest in an individual? Several personal attributes were identified that could add momentum to a stalling program, including:

- Being the founding father or esteemed heir of a nuclear program;
- Showing persistence throughout the program's development;
- Shepherds the program along throughout governmental leadership changes;
- Finds and maintains resources; and
- Serves as a national leader or hero.

Eventually, this concept was eventually absorbed into the "Great Man" factor, but the questions regarding momentum factors remain valid.

Second (and somewhat related to the question of momentum factors), it is worth mentioning that global events and international agreements may serve as either motivational factors or momentum factors that can, at the very least, add a sense of urgency to a state's development of a nuclear weapons program. Over the second half of the twentieth century, the dynamics of the state system radically shifted in ways that could have had an impact on the decision making processes of states that were seeking nuclear weapons. Multiple events, many of which being related to nuclear weapons or nonproliferation regimes, could have either deterred states from going nuclear, or accelerated their pursuit of a nuclear weapons capability. These events might include (but are not limited to) the first nuclear detonation (1945); the Korean War (1950-1953); the Cuban Missile Crisis (1962); the emergence of the NPT (1968); the height of the Cold War (mid-1980s); and the signing of START I and the fall of the USSR (1989-1991).

Another interesting issue this paper briefly touches on is that of nuclear renunciation. Since Meyer's framework was first published, four nuclear states—Ukraine, Kazakhstan, Belarus, and South Africa—have dismantled their nuclear weapon program and surrendered their nuclear stockpiles. The three states of the Former Soviet Union, unlike South Africa, inherited their weapons and were faced with the decision to maintain them or align their policies with international norms. South Africa, on the other hand, saw the Soviet involvement in Angola as a threat to their national security, and only dismantled their program once the Soviet threat had evaporated. But what else might lead a state to surrender its nuclear weapons capability? France recently announced its intention to significantly reduce the number of its nuclear weapons, and the United Kingdom is widely speculated to become the first major nuclear power to completely dismantle its nuclear weapons program. Are these the first signs of larger trends? Further research on nuclear renunciation is needed to answer these questions.

Fourth, safeguards established within a system can also impact states' nuclear motivations, or at least restrict the ability of the state to act upon their motivation. By 1991, just as the unipolar world began to solidify, states had figured out how to circumvent IAEA inspections and international norms. However, with the exception of economic sanctions, the

punishment for violating these norms remains absent in the unipolar world. Would a bipolar world be as forgiving? Or a multipolar world? How does the importance of international norms (as they relate to nuclear proliferation) affect the strength of safeguards? Additional research must be undertaken to determine how safeguard initiatives impact a state's motivational factors, and under which state system such safeguards are most effective.

A final potential area for future research based in the utilization of incentivizing and disincentivizing attributes. By establishing weights for the each attribute, one ought to be able to identify potential breakout states for monitoring. The formula would first be impacted by defining the polarity of the international system. It is the projection of the authors that the international structure allows for different attributes to come to the fore. Another suggestion is that some attributes may be irrelevant in a different international structure. Each country would be evaluated by each attribute on a scale of one to ten. The formula suggested for utilizing these values is the MAUA formulas. The potential for proliferation will be determined by the summation of the weights multiplied by the attribute values.

CONCLUSION

There are many reasons why states decide to pursue nuclear weapons. National security is one. Prestige is another. In this paper, we have identified personality and ideology as two other important factors in a state's decision making process that Meyer had failed to include in his original framework. These two new motivational factors, we expect, will help better explain the decision making processes of states contemplating making the step toward a nuclear weapons capability.

It should, however, be recognized that there are limitations to these motivations. Certainly, there may be other, unknown motivations that have yet to be identified or discussed in great detail. As states continue to pursue nuclear weapons (which they will most certainly do), perhaps these unknowns will manifest themselves, or at least become better articulated.

In the end, there exists no magic bullet to answer the question of why states decide to go nuclear. The motivations discussed in this paper—either Meyer's 1984 motivations or those highlighted as new factors—may touch on one or two reasons, but not all of them. However, with further research and diligence, nonproliferation regimes and safeguard initiatives may one day capture the complete spectra of nuclear motivations to finally put an end to nuclear proliferation, either in the post-Cold War world or the next evolution of the state system.

BIBLIOGRAPHY

- Albright, David. "ISIS Imagery Brief: Destruction at Iranian Site Raises New Questions About Iran's Nuclear Activities." *Institute for Science and International Studies*. 17 June 2004. Accessible at <http://www.isis-online.org/publications/iran/lavizanshian.html>
- Braun, Chaim, and Christopher F. Chyba. "Proliferation Rings: New Challenges to the Nuclear Proliferation Regime." *International Security* 29.2 (Fall 2004): 5-49.
- Braut-Hegghammer, Malfrid. "Libya's Nuclear Turnaround: Perspectives from Tripoli." *The Middle East Journal* 62.1 (Winter 2008). 55-72.
- Campbell, Kurt M., et al. *Soviet Nuclear Fission: Control of the Nuclear Arsenal in a Disintegrating Soviet Union*. Cambridge, MA: Center for Science and International Affairs, 1991.
- Chubin, Shahram. *Iran's Nuclear Ambitions*. Washington, DC: Carnegie Endowment for International Peace, 2006.
- Cirincione Joseph. *Bomb Scare: The History and Future of Nuclear Weapons*. New York, NY: Columbia University Press, 2007.
- , ed. *Repairing the Regime: Preventing the Spread of Weapons of Mass Destruction*. New York, NY: Routledge, 2000.
- , John B. Woldsthal and Miriam Rajkumar. *Deadly Arsenals: Tracking Weapons of Mass Destruction*. Washington, DC: Carnegie Endowment for International Peace, 2005.
- Cliness, Francis X. "Soviet Army on Defense, in the Ukraine." *New York Times* 12 November 1991: A1.
- Corera, Gordon. *Shopping for Bombs: Nuclear Proliferation, Global Insecurity, and the Rise and Fall of the A.Q. Khan Network*. New York, NY: Oxford University Press, 2006.
- "Ex-envoy Says Iran to Make Own Decision on Possible Nuclear Deal" *BBC Monitoring* 3 September 2004.
- "Ex-President Says Iran Not Seeking War, Ready to Negotiate." *BBC Monitoring* 30 April 2005.
- "Former Iranian Foreign Minister Says Europe Not to be Trusted, Blair 'Bankrupt.'" *BBC Monitoring* 8 November 8 2003.
- Goldfeier, James M., and Michael McFaul. *Power and Purpose: U.S. Policy Toward Russia After the Cold War*. Washington, DC: Brookings Institution Press, 2003.
- Hermann, Charles F. "Changing Course: When Governments Choose to Redirect Foreign Policy." *International Studies Quarterly* 34.1 (March 1990): 3-21.
- Hughes, Christopher W. "North Korea's Nuclear Weapons: Implications for the Nuclear Ambitions of Japan, South Korea, and Taiwan." *Asia Policy* 3 (January 2007): 75-104.
- Hyman, Jacques. *The Psychology of Nuclear Proliferation: Identity, Emotions, and Foreign Policy*. New York, NY: Cambridge University Press, 2006.
- International Atomic Energy Agency. *Implementation of the NPT Safeguards Agreement of the Socialist People's Libyan Arab Jamahiriya*. 20 February 2004. Accessible at <http://www.iaea.org/Publications/Documents/Board/2004/gov2004-12.pdf>.
- "Iran wants to Settle its Nuclear Dossier at IAEA: Security Chief." *BBC Monitoring* 12 March 2005.
- "Iran weapons project 'continued.'" *BBC News*. 26 February 2008. Accessible at http://news.bbc.co.uk/2/hi/middle_east/7264090.stm.

- "Joint Declaration with President Leonid Kravchuk of Ukraine: May 6, 1992." *Public Papers of the George Bush Presidential Library and Museum*. 2008. Accessible at http://bushlibrary.tamu.edu/research/public_papers.php?id=4262&year=&month=.
- Kelley, Jack. "Russian Nuke Experts Wooed." *USA Today* 8 January 1992, Final Ed.: 1A.
- Khan, Feroz Hassan. "Nuclear Proliferation Motivations: Lessons from Pakistan." *The Nonproliferation Review* 13.3 (November 2006): 501-517.
- Koch, Andrew and Jeanette Wolf. "Iran's Nuclear Procurement Program: How Close to the Bomb?" *The Nonproliferation Review* 5.1 (Fall 1997): 123-135.
- Langeweische, William. *The Atomic Bazaar: The Rise of the Nuclear Poor*. New York, NY: Farrar, Straus and Giroux, 2007.
- "Leader Says US, Europe Aim to Hinder Iran's Scientific Development." *BBC Monitoring* 4 March 2005.
- Long, William J. and Suzette R. Grillo. "Ideas, Beliefs, and Nuclear Policies: The Cases of South Africa and Ukraine." *Nonproliferation Review* 7.1 (Spring 2000): 24-40.
- MacLeod, Scott. "Exclusive Interview: Iran's Foreign Policy Chief Talks with Time." *TIME* 27 February 2006. Accessible at <http://www.time.com/time/nation/article/0,8599,1167908,00.html>.
- Meyer, Stephen. *The Dynamics of Proliferation*. Chicago, IL: The University of Chicago Press, 1984.
- Mihalisko, Kathleen. "Security issues in Ukraine and Belarus" in *Central and Eastern Europe: The Challenge of Transition*. Ed. Regina Cowen Karp. New York, NY: Oxford University Press, 1993. 225-257.
- Potter, William C. *The Politics of Nuclear Renunciation: The Cases of Belarus, Kazakhstan, and Ukraine* (Occasional Paper No. 22). Washington, DC: The Henry L. Stimson Center, April 1995.
- "President Delivers State of the Union Address." *The White House*. 2002. Accessible at <http://www.whitehouse.gov/news/releases/2002/01/20020129-11.html>.
- Reiss, Mitchell B. "The Nuclear Tipping Point: Prospects for a World of Many Nuclear Weapons States" in *Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices*. Eds. Kurt M. Campbell, Robert J. Einhorn and Mitchell B. Reiss. Washington, DC: Brookings Institution Press, 2004. 3-17.
- "Remarks following Discussions with Prime Minister Benazir Bhutto of Pakistan: June 6, 1989." *Public Papers of the George Bush Presidential Library and Museum*. 2008. Accessible at http://bushlibrary.tamu.edu/research/public_papers.php?id=506&year=&month=.
- Scobell, Andrew. *Kim Jong Il and North Korea: Leader of the System*. Carlisle, PA: U.S. Army War College, March 2006.
- , and Michael R. Chambers. "The Fallout of a Nuclear North Korea." *Current History* 104.683 (September 2005): 289-294.
- "Small-Scale Atomic Research by Iran Is Risky, Experts Say." *New York Times* 8 March 2006, Late Ed. (East Coast): A14.
- Spector, Leonard S., and Jacqueline Smith. *Nuclear Ambitions: The Spread of Nuclear Weapons, 1989-1990*. Boulder, CO: Westview Press, 1990.
- , Mark G. McDonough and Evan S. Medeiros. *Tracking Nuclear Proliferation: A Guide in Maps and Charts*, 1995. Washington, DC: Brookings Institution Press, April 1995.
- St. John, Ronald Bruce. "The Ideology of Muammar al-Qadhafi: Theory and Practice." *International Journal of Middle East Studies* 15 (1983): 471-490.

United States. Central Intelligence Agency. *National Intelligence Estimate: Iran: Nuclear Intentions and Capabilities*. Washington, DC: Office of the Director of National Intelligence, November 2007.

Venter, Al J. *Allah's Bomb: The Islamic Quest for Nuclear Weapons*. Guilford, CT: The Lyons Press, 2007.

"You'd be Nervous Living Next to a Bear." *Economist* 327.7811 (15 May 1993): 21-23.