A Collection of Essays on Issues Related to International Security from
Canadian Student Young Pugwash

Authors:

Ferrara, Ryan
Harrington, Cameron
Nicolson, Vanessa
Nuraney, Faizal

Editors:

Dr. Michael Wallace
Steacy Henry

Sponsored by:

Canadian Pugwash
Affiliate of Pugwash Conferences on Science and World Affairs
**Table of Contents:**


United States Nuclear Posture

Author: Ryan Ferrara
July, 2008
ryanferrara@gmail.com
“In the new world we have entered, the only path to peace and security is the path of action.”

Introduction

Fifty years ago the United States dropped two nuclear weapon’s on Nagasaki and Hiroshima to end the Second World War. The destruction wrought by these weapons was devastating, causing immense casualties and destroying much of both cities. Reeling from these attacks and the horrific power of atomic weapons, in 1946 the international community initiated a UN task force to take action toward disarmament. The mission of disarmament initiated by the U.N. has, so far, had mixed results.

During the Cold War, the United States and the Soviet Union were able to generate a stable strategic dynamic by generating thousands of nuclear weapons. The notion that a nuclear war would assure mutual destruction arguably dissuaded both powers from nuclear weapon use.

The collapse of the Soviet Union initiated a dramatic shift in this dynamic. Although Russia still has a significant nuclear arsenal, the United States has emerged as the dominant nuclear weapon power. The United States has the ability to set the tone for international nuclear weapon policy. This unique position places the United States in a position of immense responsibility.

This paper argues that the current (at the time of writing in 2008) United States nuclear posture contributes to global insecurity. It undermines the ability of the international community to combat proliferation by weakening multilateral non-proliferation efforts. It also weakens the international norm against nuclear weapon use through its strategy of unilateral and pre-emptive deterrence.

U.S. Nuclear Weapon Policy: The Nuclear Posture Review

Since the end of the Cold War, U.S. nuclear weapon foreign policy has been articulated through the Nuclear Posture Review (NPR). The first review was conducted under the Clinton administration in 1994. The Bush administration conducted its review in 2001-2002. This paper will analyze the nuclear posture of the United States through the 2002 NPR because of the document’s primacy in formulating current nuclear weapon policy.

The Bush administration has argued that the 2002 NPR provides a new way to meet the challenges of the post Cold-War.1 However, there is debate about whether the 2002 NPR has actually diverged in any significant way from the 1994 NPR or whether it is merely a continuation of past policies.2 What is apparent is that the 2002 NPR offers clarity into the nuclear posture of the current U.S. government. It is also clear that the NPR is meant to provide effective deterrence and arms control strategies.

Deterrence and the Use of Nuclear Weapons

---


The approach of the U.S. administration, dubbed the ‘New Triad,’ combines offensive strikes (nuclear and non-nuclear), defences (both active and passive) and a revitalized defensive infrastructure. It also places emphasis on unilateral deterrence strategies.

Notably, the Bush administration does not rule out offensive nuclear strikes. The NPR states that, “in setting requirements for nuclear strike capabilities,” a distinction must be made between immediate threats involving well-recognized current dangers as opposed to possible threats, involving plausible but not immediate dangers or surprise threats.

Does the Bush administration consider nuclear weapons a viable foreign policy option? The NPR seems to vaguely outline several contexts in which the U.S. would be willing to use nuclear weapons on a number of states. The problem is that the terms immediate, possible or surprise threats are defined loosely in the NPR. For example, Dr. John Isaacs in, Ready, Aim, Fire argues that situations such as that of Saddam Hussein’s invasion of Kuwait or Slobodan Milosevic’s march into Kosovo could be classified as surprise contingencies. The concern with the ambiguity of the NPR is that it reduces the clarity of whether or not nuclear weapon use is an acceptable use of force. If the U.S. is not clear on its use of nuclear weapons, other states may feel that they have the right to be ambiguous as well.

Arguably, the NPR does not explicitly state that it will use nuclear weapons in regards to these threat contingencies. However, when taken into consideration with the Quadrennial Defence Review (QDR) supported by the U.S. National Security Strategy (NSS), the connection can be made. Specifically, the NSS outlines proactive counter-proliferation efforts involving deterrence and defence against a threat before it is unleashed. As well, the NPR explicitly states that nuclear weapons may be used against targets that may be able to withstand non-nuclear attack. Within the NPR, the Bush administration specifically highlights some countries that are a threat and presumably could be the target of American nuclear weapons. Countries specified include North Korea, Iraq, Iran, and Syria. Ostensibly, this is due to concern over their longstanding hostility toward the United States and its allies. As well, China and Russia are targeted because of their existing nuclear arsenal and possible modernization capabilities.

Arms Control

---


4 Ibid, 16.


8 Ibid, 16-17.

9 2002 Nuclear Posture Review Excerpts, 16.
The Bush administration places emphasis on uni and bilateral arms control efforts. It rejects the arms control regime that existed during the Cold War era as an imperfect and costly mechanism that has since become obsolete. As such, multilateral arms control initiatives are dismissed by the NPR. It is notable that the Nuclear Non-Proliferation Treaty (NPT)—arguably the most ambitious attempt at multi-lateral nuclear weapon control—is not even mentioned throughout the entirety of the NPR. In contrast, the U.S. emphasises the bilateral regulation of nuclear weapons through informal understandings that are not legally binding. Arguably, this would give them more room to manoeuvre during negotiations with other states.

The Nuclear Taboo

Nuclear weapons have not been used since Nagasaki and Hiroshima. Nina Tannenwald in, Stigmatizing the Bomb, argues that factors other than deterrence have contributed to this. She argues that after World War Two an international norm called the nuclear taboo was developed and is tangible throughout the historical record of nuclear weapon use. What is the nuclear taboo? She describes it as a widespread inhibition of nuclear weapons use based on a powerful sense of revulsion associated with the destructiveness of nuclear weapons.

Tannenwald argues that four factors were involved in the foundation of the nuclear taboo. The first involves the precedent set by President Truman domestically and internationally where nuclear weapons were placed under civilian control. Second, nuclear weapon use was delegitimized through the formation of the 1946 U.N. taskforce whose aim was nuclear disarmament. The delegitimization of nuclear weapon use was encapsulated in the 1946 tasking of the U.N. to disarm nuclear weapon states. The third was the creation of the weapon of mass destruction category which differentiated between conventional weapons and those of nuclear, chemical and biological weapons. Fourth, the global grassroots anti-nuclear movement sparked protests and initiatives to ban the use of nuclear weapons.

Tannenwald suggests that the taboo could unravel in several ways. First, through the weakening of international non-proliferation treaties like the NPT. Second, through a blurring of the line between conventional and non-conventional weapons. Third, through the intended or actual use of nuclear weapons in a first strike scenario.

In contrast to Tannenwald, Verna V. Gehring in, The Nuclear Taboo, argues that it is not revulsion at the thought of nuclear weapon use that has supported the taboo. Rather, it has to do with the leaders and citizens of countries who possess nuclear weapons. Public opinion in these countries reduces the likelihood that nuclear

---

12 Ibid, 184.
14 Tannenwald, Nina, 43.
15 Ibid., 43.
weapons will be used—not universal condemnation.\textsuperscript{16} Despite their differences, both theorists agree that a taboo against nuclear weapons exists in one form or another.

\textbf{Impetus for the U.S. Nuclear Weapon Policy}

The United States is determined to protect its interests unilaterally. This is the cause of the U.S. dismissal of multilateral treaties and arms control initiatives. It is also the cause of the U.S. strategy that considers the use of nuclear weapons as a possible policy option. The NPR projects a misplaced confidence in the ability of the United States to police the world and an over-reliance on the ability of the United States to modernize and produce a nuclear arsenal that will provide an effective deterrent.

\textbf{Proliferation and the Nuclear Non-Proliferation Treaty}

There is debate on whether the unilateral strategy of the Bush administration strengthens or weakens the international nuclear weapon non-proliferation regime. The NPR states that flexibility in nuclear policy is necessary for the United States to make reasonable decisions. This flexibility includes modernization of the nuclear weapon arsenal and the possibility of future nuclear weapon testing.\textsuperscript{17} Manoeuvrability, bilateral treaties and non-binding efforts seem to be the foundation of U.S. nuclear non-proliferation goals.

Jeffrey A. Larsen in, \textit{The Bush Administration’s New Approach to Arms Control}, argues that the flexibility within the NPR will allow for a more effective arms control regime. Its emphasis on self-reliance, preemption, and preventative war is a necessary “activist” approach to arms control in the current international climate\textsuperscript{18} He believes that the power and coercive ability of the United States is necessary to enforce and create incentives for international arms control. Thomas Barnett, the deputy director of the Department of Defence Office of Transformation in 2003 encapsulates the unilateral impetus of the NPR by stating that “arms control is dead. … The answer to dealing with nations that harbour terrorists is not arms control; it is to go in there and disarm them.”\textsuperscript{19} This unilateral approach is apparent throughout the NPR.

The Bush administration seeks to make examples of proliferators through sanctions and the possibility of military intervention. It does not, however, want to go through the “lengthy process”\textsuperscript{20} of negotiating treaties. Larsen explains that there is no need for codification or irreversibility. The Bush administration should not be bogged down by binding legal restraints because these could hinder the U.S. ability to adjust to unforeseen changes in the strategic environment.\textsuperscript{21} He believes that multi-lateral treaties are too much of a “hassle” and that unilateral reductions in nuclear weapons can be accomplished more quickly.\textsuperscript{22} This makes sense but only from a


\textsuperscript{17} Larsen, Jeffrey A, 153.

\textsuperscript{18} Ibid, 148.

\textsuperscript{19} Thomas Barnett quoted in Larsen, Jeffrey A, 150.

\textsuperscript{20} Larsen, Jeffrey A, 151.

\textsuperscript{21} Ibid., 150.

\textsuperscript{22} Ibid., 151.
unilateral (U.S.) perspective. Weaker states, both nuclear and non-nuclear, that are truly committed to non-proliferation will strive for binding and irreversible treaties in an attempt to solidify and clarify the rules and processes of the non-proliferation regime. In this sense the U.S. can only ever partially succeed in arms control because this way is based on force, not consent.

Larsen believes that flexible and non-binding treaties will allow the United States to focus on getting quick results. He claims that this unilateral approach by the United States will reduce the likelihood of war. The mix of strategic options, including an offence-defence combination, coupled with advanced conventional strike capabilities, will make nuclear weapon and development too costly.\(^{23}\) Given the ambiguity of the NPR, the “cost” to a state of developing nuclear weapons might include a nuclear or non-nuclear strike by the U.S. against an offending state.

The NPR puts a substantial amount of stock into the ability of the United States to unilaterally coerce states that seek to develop nuclear weapons. The effect of this confidence could result in U.S. military intervention or nuclear weapon strikes without the support of other nations. The approach of the Bush administration dismisses the ability of international regimes to combat nuclear proliferation.

This approach is based on a profound misreading of the historical record. Multilateral nuclear treaties—most notably the NPT—have contributed to the reduction and elimination of nuclear weapons in several countries. Specifically, it has contributed to the abandonment of nuclear weapon programs in Germany, Argentina, Brazil, South Africa and the Ukraine.\(^ {24}\) Each of these nations—through multilateral initiatives—was convinced that rejecting nuclear weapon development was in their interest.

Jeffrey W. Knopf in, *Nuclear Tradeoffs*, argues that the multilateral nuclear non-proliferation regime instils formal and informal norms that contribute significantly to stemming the proliferation of nuclear weapons. The NPT is the cornerstone of this regime. It has three pillars: non-proliferation, disarmament, and the dissemination of peaceful nuclear technology.\(^ {25}\) All three pillars must be taken into account and pursued for the NPT to be effective.

Within the NPT, the disarmament principle is of notable concern. It prohibits the modernization of nuclear arsenals and facilities. The logic behind this principle is to prevent states from eliminating the total number of its nuclear arsenal, while increasing its power or effectiveness.\(^ {26}\) This is particularly applicable to advanced nuclear weapon states who have large arsenals and advanced weapon-making capabilities like the U.S.

The Bush Administration rejects the efficacy of the NPT. Notably, a distinct element of the Bush Administration NPR is the modernization of the nuclear weapon arsenal and infrastructure. This not only ignores the NPT but directly contradicts the fundamental pillar of disarmament. Precise low-yield nuclear weapons—seen by some as more useable—are also considered in the NPR. The Bush administration argues that the targeting of enemy states with nuclear weapons is necessary for deterrence and for defence in the event of war.\(^ {27}\) The NPR does not rule out nuclear weapon strikes and specifically targets some countries, including several non-nuclear...
weapon states. This is a break from the traditional norm of not targeting non-nuclear states with nuclear weapons.

The Bush administration also rejects other international treaties like the Comprehensive Test Ban Treaty (CTBT). The CTBT prohibits the testing of nuclear weapons. Although the United States has refrained from testing nuclear weapons since 1992 it has not ratified the CTBT. The NPR specifies that the possibility of resuming nuclear testing in the future is an option.

The Nuclear Weapon Taboo Weakened

The Bush administration states that it would be willing to use nuclear weapons in certain contexts. One such case is that of hardened underground facilities. The NPR states that “Nuclear weapons could be employed against targets able to withstand non-nuclear attack.” It outlines a modernization strategy that would allow it to “defeat emerging threats such as hard and deeply buried targets … to improve accuracy and limit collateral damage.” What an emerging threat is, or how accuracy and limited collateral damage are defined is unclear.

The NPR proposes a low-yield “bunker buster” that will be more precise than larger nuclear weapons and will have a lesser fallout. The production of “more useable” low-yield weapons contributes to weakening the nuclear weapon taboo. Keith B. Payne in, The Nuclear Posture Review: Setting the Record Straight, argues that more useable weapons are necessary for deterrence. “Opponents” of the U.S. must accept the U.S. nuclear arsenal as credible for deterrence to be effective. He claims that those who oppose low-yield weapons because it is thought to be more usable “conflate the perspective of the U.S. president with opponents’ perspectives.” However, he does not explain why the U.S. President would not also find low-yield weapons a more useable and reasonable use of force.

Congress has since eliminated funding for the bunker buster. In 2005 both the Senate Defence Appropriations Subcommittee and the House Energy and Water Appropriations Subcommittee eliminated the funding for modification of the B-2 Bomber to carry the bunker buster and centered out low-yield weapons as unacceptable. However, the intentions of the Bush administration are apparent: a unilateral approach to deterrence which may include the use of nuclear weapons in retaliation or pre-emptive strike scenarios.

Within the “New Triad” concept, the NPR combines the use of conventional and non-conventional strategic weapon options. This may contribute to the perception that nuclear weapons are understood as a policy tool.
option on par with conventional weapons. This significantly weakens the nuclear taboo by lending legitimacy to the use of nuclear weapons.

**Possible Consequences**

The effects of the NPR strategy could be severe. It could contribute to nuclear weapon proliferation by undermining international treaties and weakening norms. A unilateral approach to non-proliferation could have significant costs. First, if the U.S. uses strong arm tactics, the legitimacy of its actions may be questioned. This will reduce the incentive to cooperate and cause some states to question the norm itself. Secondly, the burden on the United States financially will be incredibly large if other states are not willing to cooperate.

**The Effects of a Unilateral Approach to Non-Proliferation**

The U.S. emphasis on unilateral efforts, modernization, resuming nuclear testing and pre-emption ignore central tenets of the NPT and the CTBT. Without the support of the U.S., other states may question the effectiveness of multilateral regimes. If the U.S. does not take its international commitments seriously, others may follow suit. States may be less willing to invest in regimes such as that of the NPT and may seek other avenues to protect themselves.

Undermining these treaties may also reduce the legitimacy of the United States in its unilateral efforts. The abrogation of multilateral treaties could lead others to reject any subsequent non-proliferation guarantees. As well, the U.S. could be seen as hypocritical by developing its own nuclear arsenal while requesting a promise of disarmament by other states. This may not necessarily lead to proliferation but it would weaken the incentive to cooperate and may provoke some—especially those targeted by the NPR—into developing nuclear weapons.

The weakening of the NPT could contribute to the notion that nuclear weapons will continue indefinitely as a viable foreign policy option. Rising powers like that of Brazil or South Africa may question its policy regarding the development of nuclear weapons. As well, among lesser powers, the fear of a U.S. strike or a strike from a neighbouring country could contribute to the notion that nuclear weapons are necessary for national defence. This fear might provide some states with the justification for the development of a nuclear weapon program.

The collapse of multilateral efforts would eliminate the codified protocols and cooperative spirit of the international non-proliferation regime. The United States would be forced to stem the flow of nuclear weapons without international legitimacy or cooperation. This could prove a monumental task that unnecessarily taxes the resources of the U.S. and the international non-proliferation community.

**The Effects of a Weakened Nuclear Taboo**

---

36 Knopf, Jeffery W., 167.
37 Ibid., 168.
38 Ibid., 169.
39 Ibid., 164.
The size and technological capabilities of the U.S. contribute to the primary role that it has in supporting international nuclear weapon norms. The acceptance of nuclear weapon use as a possible policy option significantly undermines the nuclear weapon use taboo.

It could lead states and non-state actors to accept nuclear weapon use as a realistic policy option. The fear of a nuclear strike from the U.S. could lend legitimacy to the development and use by other actors. E.g. the arsenals of China, Russia or groups like Al Qaeda. Acceptance of nuclear weapon use as a viable policy option would significantly undermine international stability and could ultimately lead to nuclear weapon use.

Thomas C. Schelling in, *The Nuclear Taboo*, argues that it is necessary for the United States not only to accept, but to reinforce, the nuclear weapon taboo. This is especially so in the face of the past proliferation to countries like India and Pakistan and in light of the possibility of future proliferation to countries like Iran. These countries may not honour the taboo and accept them as realistic policy options. If the United States disregards or undermines the taboo there is the possibility that new nuclear powers or those in the future would disregard it as well. The policy of pre-emptive strikes is not tenable in the long run as it would increase international tension, reduce the efficacy of deterrence and likely lead to an increase of pre-emptive strikes overall. As well, the burden to U.S. intelligence of finding credible threats and acting on these threats would be significant.

### Policy Options and Recommendations

Multilateral cooperation is necessary to promote and accomplish the goals of non-proliferation and nuclear disarmament. The costs in terms of finances, legitimization and coordination would be significant under a unilateral approach. The Middle Powers Initiative is a group of non-governmental organizations that work with primarily “middle power” governments (i.e. states that are “politically and economically significant, internationally respected countries that have renounced the nuclear arms race” *The Middle Powers Initiative – Mission*). Its aim is the reduction and eventual elimination of nuclear weapons. The Middle Powers Initiative offers seven policy options to promote multilateral initiatives.

### Multilateralism

First, the international verification of arms reduction and nuclear weapon material non-proliferation is necessary. The United States must take the lead in first reducing and then allowing verification of its nuclear arsenal. This policy option will reinforce the legitimacy of verification and oversight while reducing the argument of states who claim that oversight is an infringement on sovereignty.

---

40 Tannenwald, Nina, 42.


44 The Middle Powers Initiative, “Towards 2010: Priorities for NPT Consensus” (Presented at the NPT Preparatory Committee meeting, Vienna, April 30-May 11, 2007) 3.
Second, de-alerting U.S. nuclear forces would help to convince other states that the U.S. is not seriously considering nuclear weapons as a viable policy option. Currently, U.S. nuclear weapons can be launched within minutes. Increasing the time to days or more would ease tensions.\(^{45}\) To accomplish this, a multilateral initiative with other major nuclear weapon powers is necessary. Weak or rising nuclear powers will not have the capability of rapidly launching nuclear weapons. Because of this, the fear for the U.S. and other major nuclear powers is that of an attack from a modernized nuclear force. If an agreement to de-alert nuclear forces is reached with other governments, the ostensible reason for having alert nuclear forces will be eliminated.

Third, the negotiation of a fissile materials cut-off treaty would restrict the movement of useable nuclear weapon material throughout the world. The Middle Powers Initiative notes that the International Panel on Fissile Material has demonstrated that a verification system works. Verification will be more legitimate and easier to undertake if it is done under the auspices of the IAEA.\(^{46}\) This means that multilateral cooperation is necessary.

Fourth, the U.S. must ratify the CTBT. The United States needs to show a commitment to permanently ending nuclear weapon testing. This will reduce the legitimacy of using nuclear weapons as a policy option.\(^{47}\) The current policy of a self-imposed restriction on nuclear weapon launching is insufficient to provide a clear view of U.S. intentions and to dissuade others from conducting their own launches.

Fifth, the United States must refrain from specifically targeting states and issuing first strike strategies.\(^{48}\) The use of definitive benchmarks and behaviour should be the criteria used to identify an offending state. Specifically targeting states without the use of objective criteria promotes the notion that the U.S. determines who the offending state is in a biased and subjective manner. This reduces the legitimacy and efficacy of U.S. policy and its non-proliferation goals.

Sixth, the regulation of nuclear fuel production and supply should be conducted. This will allow the monitoring of the transfer of nuclear material for peaceful purposes to take place. Also, this will increase the legitimacy and reduce the cost of multilateral initiatives.\(^{49}\) This can be accomplished by including nascent and middle powers in the process of nuclear material transference and monitoring.

Seventh, increasing the legitimacy of the NPT and its ability to develop a norm of non-proliferation and no first use must be supported.\(^{50}\) Essentially the United States must commit itself to international treaties and norms. Multilateral initiatives are the key to success.

**Incentive-Based**

Dr. Christopher A. Ford is a member of the U.S. State Department and is the U.S. Special Representative for nuclear Non-Proliferation. He offers a different solution to nuclear deterrence and non-proliferation. Ford argues that nuclear reduction must be conducted in a manner that is realistic and that provides for the safety and

\(^{45}\) Ibid., 4.
\(^{46}\) The Middle Powers Initiative, 4.
\(^{47}\) Ibid., 5.
\(^{48}\) Ibid., 5.
\(^{49}\) Ibid., 6.
\(^{50}\) The Middle Powers Initiative, 6.
security of the United States and its allies. He does not see nuclear disarmament as an end in itself. Rather, it is a means toward the end of achieving a safer world.\textsuperscript{51} Within this context, the safety of the present world must not be jeopardized.

Christopher Ford emphasizes the need to change the international security context. It is less a question of how to approach arms reduction and more a question of why to approach it. Eliminating the incentives for nuclear weapon production or providing incentives that reduce that value of developing a nuclear arsenal is the primary concern. He argues that strategies of deterrence must help to reduce the incentive to develop nuclear weapons.\textsuperscript{52} In other words, deterrence rests on the ability of the U.S. to provide aid and assistance to states that comply with non-proliferation while targeting and sanctioning those that do not.

To Ford, developing a nuclear and non-nuclear deterrence strategy is essential to non-proliferation. Only through creating an atmosphere where nuclear weapons are not an attractive option, will states be convinced to reject nuclear weapon development and use as a viable policy option.\textsuperscript{53}

\textbf{Conclusion}

The NPR takes a decidedly unilateral approach to nuclear weapon policy. It rejects the efficacy of current multilateral initiatives and places confidence in the ability of the U.S. to protect its interests with or without the cooperation of other states. Within this context, the Bush administration has alluded to the notion that it is willing to take whatever steps necessary to protect the interests of the U.S. and its allies. This is not a productive approach.

The multilateral and incentive-based nuclear arms control policy options both have merit. However, their effectiveness is limited when only one option is pursued. Through the NPR, the Bush Administration has accepted a limited form of incentive-based nuclear arms control. This limited form consists mainly of threats and punishment. Only through the use of both multilateralism and incentives—along with the punishment of bad behaviour—can the United States provide a positive reinforcement of the nuclear taboo and an effective nuclear non-proliferation regime.

The position of power that the U.S. holds gives them the unique opportunity to lead an effective cooperative multilateral approach to the nuclear weapon concern. Every opportunity must be taken by the U.S. government to openly and actively engage in a multilateral approach to nuclear weapon policy.


\textsuperscript{52} Ibid.

\textsuperscript{53} Ford.
Bibliography


Fluid Identities: Freshwater Scarcity and the Need for a Post-Security Ethics

Author: Cameron Harrington
July, 2008

cdharrin@uwo.ca
Introduction

The state of the world’s freshwater resources is increasingly perilous. The message being conveyed and repeated in many of the existing analyses and statements by international experts is that the world is on the verge of a water quantity and quality crisis. Occurring concurrently is the increasing number and severity of warnings that the world could experience future conflicts over water. Former United Nations Secretary General, Kofi Annan, warned in 2001 that “Fierce competition for water may well become a source of conflict and wars in the future.”\(^\text{54}\) Wangari Maathai, winner of the 2004 Nobel Peace Prize has suggested that “…we face the ecological crises of deforestation, desertification, water scarcity and a lack of biological diversification. Unless we properly manage resources like forests, water, land, minerals, and oil, we will not win the fight against poverty. And there will be no peace. Old conflicts will rage on and new resource wars will erupt unless we change the path we are on.”\(^\text{55}\) Robin Clarke and Janet King quote the World Bank when writing “if the wars of the Twentieth Century were fought over oil, the wars of this century will be fought over water.”\(^\text{56}\) While a general scientific and political consensus will remain elusive whether water resources are diminishing to the point of potential calamity, there is a broad range of literature and governing policies that is beginning to shape how water is conceived. Put plainly, the issue of freshwater resources is becoming an issue of security. This seemingly innocuous development may have wide-ranging and important effects. This preliminary discussion will sketch a critical rendering of the emerging securitization of water.

Security is increasingly a disputed concept. What is truly relevant for critical approaches to security though is how disputed it is becoming. In 2007, as part of a major intelligence bill, the US Congress was poised to instruct the intelligence community to produce a National Intelligence Estimate (NIE) on the impacts of climate change and its resulting security risks.\(^\text{57}\) Its inclusion was in part provoked by a report produced by eleven retired senior generals which argued that global warming "presents significant national security challenges to the United States," which it must address or face serious consequences. The 63-page report provided a detailed case for the potential for global warming to destabilize vulnerable states in Africa and Asia and produce vast migrations of peoples to rich countries. It focused on the potential for global warming to act as a “threat multiplier” for instability by causing water shortages and damaging food production, especially in more volatile, developing regions of the world.\(^\text{58}\) The NIE on climate change was eventually stymied by house Republicans, who were not persuaded by arguments that anthropogenic climate change is occurring. Clearly, as new and diverse issues such as climate change, terrorism, mass migration, and disease inform national security policy, and with the growth of new global norms of “human security”, we are experiencing a broadening and deepening of the conventional understanding of security itself. Then, security is much more than what it used to be during the

---


Cold War. Stephen Walt famously wrote in 1991 that security studies should only “focus on the threat, use, and control of military force.”\(^\text{59}\) However, given the conceptual broadening of security that states and scholars have undertaken especially since the end of the Cold War, it becomes imperative to investigate what the potential ramifications are for important global issues that may conventionally have been located outside its parameters and scope of analysis. It seems the allure of “reflectivism” within security studies has grown too promising for Walt to assuage. The broadening of the discipline on the one hand to include new, diverse threats is seen here as necessary. Simultaneous to this broadening must be a critical thrust that questions the discursive power of the concept of security. To provide a critical rendering of the conception of water security is to, as James Der Derian writes, “…reinterpret – and possibly reconstruct through the reinterpretation – a late modern security comfortable with a plurality of centres, multiple meanings, and fluid identities.”\(^\text{60}\)

The vast majority of literature exploring water and security approaches the problem strategically: the debate centres on the nature of the looming threat of water scarcity and how states should best respond. This paper begins elsewhere, not strictly concerning itself with strategy but rather how the ‘securitization’ of water itself might engender policies that understand its existence as a potential threat to states and its impact on, and susceptibility to, military means. It thus problematizes the prevailing statist ontology that underpins the majority of security studies. Anthony Burke echoes many of my own sentiments when he writes, “We live in a world where security will continue to be one of the most powerful signifiers in politics, and we cannot opt out of the game and its naming and use. It must be defined and practiced in normatively better ways, and kept under continual scrutiny.”\(^\text{61}\) It is important to explore not only the historical and contemporary political terrain of water security, but also the conceptual sites in which the production of the possibility of “security” occurs. The deeper line of critique questions statist political ontology and the obstacles that are posed by its conceptions and representations of sovereignty, and identity – the holders of life seemingly pre-existent and requiring security.

There is plenty of water in the world. The problem is that it is either hard/expensive to extract or is available at the “wrong time” and/or at the “wrong places.” Different levels of access are seemingly inevitable. Through the process of securitization, water scarcity becomes one of presumed urgency; one with the potential to produce an existential threat. The problem though is not in identifying a threat (usually undertaken by epistemic communities), but the extraordinary modes of control and ownership of the threat undertaken by its discursive masters – largely states. Water security might be best seen not as an end, but rather a process of power. That a resource as fundamental to life as water must contain within it visions of security, sovereignty, belonging, otherness, and violence is a telling sign of the unique value critical interpretations provide in an age of rapid development and blurring global identities.

Some immediate questions arise: Is it appropriate or naïve to conceive of environmental events and processes in such ways? Will such an approach generate appropriate and reasonable policy and societal responses? Will the conclusions in fact provide anything recognizable as security – and if so, what kind, to whom,


and for how long? And if not, how are we to go about rethinking and reshaping security, in theory and practice? The hope is that by interpreting the pressing issue of freshwater scarcity and its capacity for generating violent conflict in such a way, we might be able to construct an ethics of “post-security,” that transcends the conventional rationalist representations of world politics and takes seriously our mutual vulnerability and dependence on other humans.

Literature Review

Water and war are two topics that are becoming increasingly tied together. However, a review of relevant literature demonstrates that little has been written placing the concept of water scarcity within a framework developed from the insights of critical security. The vast majority of the scholarly literature on water conflict is organized around traditional statist ontologies that seek to articulate the problems of water and organize responses to them alongside a series of strategic, political, and economic questions. To my understanding no major publication has yet been produced questioning the terms of the discussion itself. As such, there is a tendency among authors examining water security to organize the debate along liberal or realist grounds, although it is not clear that such an approach will bring us any closer to stable solutions to the myriad problems linked with freshwater scarcity. A critical approach may allow us to uncover and problematize the seemingly innocuous placement of water as a Twenty-First Century security threat, and the resulting implications. By consistently moving the grounds on which water security is placed, one might succeed in meaningfully articulating more progressive solutions that meet the pressing needs of all global citizens, rather than replicating conventional (and ineffective and dangerous) understandings of the problem.

The historical concept of security is one that has historically demonstrated contested meanings. Conventionally understood, security refers to a condition of protection, free from danger, safety. In traditional realist interpretations, the will to security is born out of a primal fear, and is a natural condition of anarchy which diplomacy and international mediation attempt, but ultimately fail, to mitigate. However, Der Derian points out that security has also been used to convey a “second sense, that is, a careless, hubristic, even damnable overconfidence.” 62 Stephen Walt aptly writes that “the boundaries of intellectual disciplines are permeable.” 63 With that in mind, it is understandable that most surveys of security studies are only partially developed and arbitrary. For our purposes though, one should see that the intellectual history of security studies has been situated within a realist paradigm of world politics for most of its intellectual history. In recent decades though, efforts have been made to question the primacy of the military element and the role of the state in the conceptualization of security.

The traditional notions of security studies, earlier defined by Walt as the “study, threat, use, and control of military force,” centred on the quest for comfort from the absence of real or perceived threats to one’s being. In their early seminal survey of the field, Joseph Nye and Sean Lynne-Jones wrote that security studies “developed around military capabilities and East-West issues…Economic, cultural, and psychological aspects of secu-

62 Der Derian, 28.

63 Walt, 212.
rity were given scant attention.” The main actors were states and the primary issue was the threat and use of organized violence. While the field did expand to include non-state actors in important studies on ethnic conflict and civil wars, the focus continued to remain on explanations of, and answers to, violent conflict.

Beginning in the 1980s there was a general broadening of the security agenda. Essentially there was a move away from a rigid focus on the security of the state and towards the inclusion of a security of people, either as individuals or as a global or international collectivity. The widening of security studies can be seen to be issue-driven, mostly by the rise of economic and environmental topics in international relations, and later the rise of identity issues and transnational criminal activity. Authors arguing explicitly for widening include Ole Wæver and Barry Buzan, J. Anne Tickner, David Campbell, Ken Booth, Richard Wyn Jones, and Anthony Burke. They all explore the urgency of non-military sources of threats. With the disintegration of East-West military confrontation, a period of disorientation occurred, and the military focus of strategic analysis seemed vulnerable from the wideners. Traditionalists argued that new studies seeking to widen the security agenda risk intellectual incoherence and made it more difficult to devise solutions to important problems.

The inclusion of environmental issues into security studies arose from new hypotheses that ecological stress has the capacity to produce or stimulate armed conflict. Thomas Homer-Dixon wrote in 1991 that environmental changes may lead to shifts in global power balances, or that damages to the environment might induce countries to war with one another over scarce resources, or inculcate internal strife. This notion of environmental security is largely concerned with armed conflict.

The political issues of water have long been a source of inquiry for academics, policymakers, and journalists. There is no shortage of literature dealing with the various aspects of the concept of water, or of the peculiarities of the diversified experiences felt by its presence. Seminal investigations into water scarcity and con-

73 Walt, 213.
Conflict have been undertaken by Peter Gleick, Marq De Villiers, Aaron Wolf, and Ariel and Shlomi Dinar. In particular there has been a tendency to forecast the potential for “water wars”. This approach has been largely undertaken using a regional security framework. Potential and actual disputes over water in Africa, Asia, and the Middle East have been of considerable interest to scholars, and security analysts. Indeed, many of the articles dealing with the issue point to water not only as a cause of historic armed conflict, but as the resource which will bring combatants to war in the twenty-first century. Peter Gleick, one of the most prolific authors in the academic water security world describes water resources as military and political goals, using the Jordan and Nile as examples. John Cooley describes water as the causal factor in both the 1967 Arab-Israeli War and the 1982 Israeli invasion of Lebanon. Other authors are skeptical of the “water wars” literature. Aaron Wolf and Jesse Hamner write that the “actual history of armed water conflict is somewhat less dramatic than the ‘water wars’ literature would lead one to believe…there has never been a single war fought over water.” The literature examining water security is expanding in response to the interest generated by climate change, food security, and trade globalization. There is a pressing need for examinations that produce more thorough critiques of the implications generated by prevailing rationalist approaches. In so doing, one hopes that new approaches can be generated that more fully address the problems associated with freshwater scarcity and better inform conventional understandings of security.

Theoretical Approach

As Michel Foucault argues, “critique is the act of making facile gestures difficult.” It is in this spirit that the critical approach should proceed. However, theoretically, any worthy research is informed by the conception of critique developed in the work of a number of authors. One should bear in mind that the assumptions underlying water conflict discussions between realists, liberals, and rational constructivists are not necessary and objective givens, but rather contingently produced elements of a set of security discourses. It is necessary to question the revolutionary “widening” impetus is in security studies discourse, because new inclusions, of which water is certainly one, have largely been framed as threats to states and their impact on and susceptibility to military means. It is held here that the issue of water scarcity and its impacts on security discourses have wide-ranging effects that need to be explored and problematized. In this sense, a critique developed through a

---


82 Michel Foucault, “Practicing Criticism.” *Politics, Philosophy, Culture: Interviews and Other Writings of Michel Foucault, 1977-1984*. (London: Routledge) 152-156.
sustained application of the insights of both the “Copenhagen school” and the “Welsh School” of international relations is informative. The Copenhagen school of security studies is most coherently articulated in *Security: A new framework for analysis*, written by Barry Buzan, Ole Wæver, and Jaap de Wilde in 1998. In it, the authors developed the concept of “securitization.” To securitize an issue takes the politics of it beyond the established rules of the game and frames the issue either as a special kind of politics or as above politics. They write that when an issue is securitized it is “presented as an existential threat, requiring emergency measures and justifying actions outside the normal bounds of political procedure.”Securitization is a speech act, in that it is constituted by the intersubjective establishment of an existential threat with a saliency that is judged to have substantial political effects. Thus, one needs to study discourse to study securitization. In this sense by exploring the discursive nature of the issue of water scarcity and its relation to conflict through analyses of particular rhetorical and semiotic structures, it will achieve sufficient effect to make an audience tolerate violations of rules that would otherwise have been obeyed. It is here where the seeds of policy implications are grown.

Another important widening alternative in security studies comes from the Welsh School, promoted by scholars based at the University of Wales, Aberystwyth, such as Ken Booth, Richard Wyn Jones, and Andrew Linklater. They have drawn on a tradition of political theory ranging from Immanuel Kant and Karl Marx; through to Frankfurt School theorists such as Theodore Adorno, Max Horkheimer, and Jürgen Habermas. Their approach desires to radically re-conceive security as the *emancipation* of individuals and communities from structural constraints. Thus they argue for a holistic, non-statist approach to security that does not emphasise the use or threat of force. It is my view that we should link emancipatory values with cosmopolitan ideals that shape strategies of resistance and offers hope for new thinking that allows for conceptions of a common humanity. I can think of few issues more conducive to this vision than freshwater.

**Future Directions:**

My contested theoretical conceptions of security are central to the issue of water because they call into question the desirability and ethicality of security as an organizing force of modern life. Water security demonstrates aptly how “dreams of security, prosperity, and freedom hinge, from their earliest conceptions to the contemporary politics of the national security state, on the insecurity and dying of others.” As population growth, increased urbanization and industrialization, and technological progress combine to affect the availability of water for human uses and ecological needs, it is within the realm of possibility to describe water security as “ultimate security.” However, efforts to understand securitization of water issues have been given short thrift.

It is necessary to develop ethical concepts and practices that move beyond the hegemony of security as a form of discourse and mode of governance. Academics and policymakers must seek to articulate a response to the violence inherent in securitization and to acknowledge the histories of exclusion, exploitation and destruction that mark attempts to carve out secure territories. If water is to be truly considered a human right then cos-

---


84 Buzan et al, 25.

85 Burke, 13.
Metropolitan modes of political arrangement are better suited to manage and overcome discourses related to water as territory (and thus exclusive to its particular ‘owners’). There is plenty of water in the world. The problem is that it is either hard/expensive to extract or is available at the “wrong time” and/or at the “wrong places.” Different levels of access are seemingly inevitable. Through the process of securitization, water scarcity becomes one of presumed urgency; one with the potential to produce an existential threat. The problem though is not in identifying a threat, but the extraordinary modes of control and ownership of the threat undertaken by its discursive masters – largely states. Further explorations will examine how the referent object of water security might be the risk of losing achieved levels of civilization, not the “natural environment” as it might appear. By problematizing these “histories”, it is sought to produce a post-security ethics that transcends the particular notion of water security and articulate a humble, collaborative engagement with others (not competitors). Of course it must be recognized that this process, this ethics-of-the-other is an ongoing, forever incomplete process that seeks only it possibility in social and material structures related to water and resource management.
Bibliography


A Nuclear Renaissance: The Solution to Climate Change?

Author: Vanessa Nicolson

Spring 2008

vnicolson@msn.com
Introduction

Climate change poses an urgent threat to humanity, and requires immediate action. If left unresolved, the global warming crisis will cause detrimental harm to the political, economic and social structures of the current international system. As a result, debate over solutions to this problem has led to considerable emphasis on nuclear energy. Advocates argue that nuclear power provides the most effective solution to cutting carbon dioxide, the major greenhouse gas responsible for global warming. Although nuclear energy appears beneficial in the short term, long term challenges of high costs, dangerous waste, threats to reactor safety, and weapons proliferation still remain. These issues act as serious deterrents to the increased use of nuclear energy.

Climate Change and Nuclear Energy

The expected doubling of global energy consumption within the next 50 years will greatly impact the nuclear industry. Maintaining the status quo of consumption levels will lead to drastic increases in greenhouse gas emissions. Therefore, in order to reduce these emissions, nuclear advocates call for increased technology in energy efficiency. For example, Berry argues that efficiency must be obtained through different energy sources, including a substantial amount of nuclear power. In accordance with this view, the Massachusetts Institute of Technology (MIT) promotes efficiency through both renewable and nuclear sources. It claims that nuclear power provides a carbon-free source that can contribute considerably to future energy supplies. With the decline of fossil fuel reserves and the lack of adequate renewable sources, nuclear power represents a potential answer to the energy crisis. Currently, over six percent of global energy production comes from the 434 nuclear reactors worldwide, and supplies more than a billion people with power. Future increases in energy consumption will require an efficient and sustainable source of power, which some claim nuclear energy provides.

Nuclear proponents point out that other sources of energy, such as fossil fuels and renewable technologies have major drawbacks. For example, Rhodes argues that coal has harmful effects on the environment, emitting noxious chemicals and more radioactivity than a nuclear power plant of the same size. Other sources of renewable alternatives, including hydroelectric, solar, wind, geothermal, and biomass, have high capital investment costs and negative environmental consequences. These sources damage land, emit pollution, and create toxic waste. While solar power provides carbon-free energy, it remains vulnerable to drops in solar radiation. Furthermore, Berry argues that biofuels only slow GHG emissions, and hydropower causes damage to

89 Ibid., 31.
90 Ibid., 32.
91 Ibid., 33.
floodplains. In contrast, nuclear power produces large amounts of energy from small volumes of fuel, without emitting any carbon dioxide. Therefore, proponents argue that immediate reductions of carbon emissions must be made by switching to nuclear energy.

While nuclear advocates see a positive link between nuclear energy and global warming, critics provide compelling evidence to the contrary. They argue that nuclear proponents seek to exploit the climate crisis in order to benefit the nuclear industry. As a result, Bradford argues that global warming has replaced oil dependence as the “bogeyman” from which nuclear power can save the world. This propaganda threatens to create an international system in which nuclear energy will be “oversubsidized and underscrutinized”, and alternative energy sources will be ignored. Toyoda argues that some states and industries have deliberately underminded alternative energy options. The United States and Australia, for example, have paid little attention to international negotiations to combat climate change and have refused to sign many environmental treaties. Furthermore, Japan and Australia argue that their nuclear energy investments should be deemed “clean development mechanisms” under the Kyoto Protocol.

The declaration of nuclear power as a carbon-free energy source is highly flawed. Many carbon dioxide-producing industrial processes are required to convert uranium ore into fuel elements for reactors, to construct facilities, and to dispose of waste. As supplies become more limited, uranium has to be extracted from deeper mines and leaner ores, creating dangerous radioactive waste. Although the operation of a nuclear reactor produces no carbon dioxide, this process emits other greenhouse gases, like chloro- and flurohydrocarbons. In reality, the carbon-reducing ability of nuclear power is relatively insignificant. According to Pacala and Socolow a “wedge” constitutes any measure that leads to the reduction of 25 billion tons of carbon dioxide worldwide. They contend that energy efficiency creates three wedges, alternatives to current transportation methods comprise four, and the increase of natural carbon sinks provides two. In contrast, even tripling global nuclear energy supplies would only contribute one wedge at the most. Furthermore, a nuclear energy wedge requires fuel enrichment, waste disposal and reprocessing plants all of which produce carbon dioxide.

Another major flaw of the nuclear solution is the lack of infinite uranium reserves. Present supplies equal almost 3.5 million tons, enough to last 50 years at the current consumption rate. However, if consump-

---

92 Berry.


94 Bradford.


98 Ibid., 1.

99 Bradford.

100 Leeuwen, 2.
tion rises to 250,000 tons as proposed by the MIT study, these resources will be exhausted in about 14 years.\textsuperscript{101} In this “nuclear renaissance” scenario, even if new reserves are found, total supplies will last less than 30 years.\textsuperscript{102} Adding to the problem of limited uranium supplies is the inefficiency of nuclear reactors. The most common type of reactors only fission from 0.6 to 0.7 per cent of natural uranium.\textsuperscript{103} Although in theory “breeder” reactors can fission 60 per cent, this technology has not been made feasible in practice.\textsuperscript{104} The only energy sources which have no impact on the Earth’s climate are those based on solar energy, such as photovoltaics, biomass, and wind.

**The Economics of Nuclear Power**

The present cost of nuclear power remains higher than coal, oil or gas-generated energy.\textsuperscript{105} However, Berry emphasizes that identification of environmental damage from greenhouse gases makes nuclear energy much more cost efficient than other options. The implementation of carbon taxes or “cap and trade” systems on carbon dioxide emissions would greatly harm the fossil fuel industry. In contrast, the nuclear sector would not be affected. In addition, after new nuclear reactors are built, the cost of nuclear power will decline and become competitive with other sources of energy.\textsuperscript{106} However, ultimately the cost of nuclear power depends on societal choices and technological development. When countries accept nuclear energy as a carbon-free source and technology improves, the competitiveness of nuclear power will increase and the costs decrease.

Rather than a cheap energy source, opponents claim nuclear power requires larger capital investments and higher overall costs than alternative sources. Since nuclear reactors have a million times more radioactivity to retain than coal or gas plants, they are more expensive and controversial.\textsuperscript{107} As a result of their potential risks, nuclear power plants involve massive government support. Since governments need to regulate the dangerous nuclear materials, they establish concrete economic and political ties with the nuclear energy industry. The massive amount of government-funded research for nuclear power detracts from the development of renewable energy sources.\textsuperscript{108} Furthermore, in the future, states will need to decommission old nuclear plants. This procedure is very costly. For example, Britain has already spent over 46 billion pounds, which excludes the decommissioning of future plants.\textsuperscript{109} In addition, the research and development of adequate systems for nuclear waste disposal presents an expensive and challenging task.

\begin{itemize}
\item \textsuperscript{101} Ibid., 4.
\item \textsuperscript{102} Ibid.
\item \textsuperscript{103} Ibid., 7.
\item \textsuperscript{104} Ibid.
\item \textsuperscript{105} Berry.
\item \textsuperscript{106} Berry.
\item \textsuperscript{109} Rogers, 2.
\end{itemize}
Nuclear Waste Disposal

In the long term, states must develop a way to deal with stockpiles of nuclear waste which takes hundreds of years to lose its toxicity. While no state has implemented a disposal system yet, the MIT study argues that geologic repositories will be the best way to safely isolate nuclear waste. American efforts have been focused on a possible repository site at Yucca Mountain, Nevada. However, MIT argues that a larger, strategically balanced waste program is required to prepare for the expansion of the global nuclear industry. This program could include international facilities regulated by environmental agencies and the International Atomic Energy Agency (IAEA). In the mean time, interim dry-cask storage is essential to allow for the early expansion of nuclear power. Rhodes argues that since radioactive nuclear waste loses 99 percent of its toxicity after 600 years, the risks are less likely than people think. While current policymakers may find this option appealing, who are they to decide to leave toxic nuclear waste around for future generations?

Although nuclear advocates have no problem leaving waste around for hundreds of years, critics highlight the serious flaws of this plan. Nuclear materials used to produce energy can have deadly effects on humans and the environment. The radioactive fallout from past atmospheric nuclear tests caused as many as 86,000 birth defects and 150,000 premature deaths. Although these tests have been banned, their fallout may eventually result in over two million deaths from cancer. In addition, stockpiles of nuclear materials threaten human and environmental security. For example, Russia’s excess supplies of nuclear weapons pose such a serious environmental security challenge that the Group of Eight has created a fund to clean up the waste. Furthermore, the United States has also accumulated 60 years worth of radioactive waste in 120 sites across the country, all of which are supposed to be temporary.

In order to deal with this problem, the American government has researched the development of geologic repositories to dispose of nuclear waste. In 2002, Yucca Mountain was declared suitable for a geologic repository by the American government. Although the governor of Nevada has declared his disapproval, Congress overrode his veto and approved the site. However, it still remains unclear whether Yucca will be a viable long-term site. Problems with politicians, local inhabitants, radiation dose standards, and scientific fraud have caused serious delay to construction efforts. Opponents to Yucca argue that politics have overtaken science in the matter. MacFarlane claims that Congress is set on this site because it wants to avoid the political costs of

110 The Massachusetts Institute of Technology.
111 Ibid.
113 Rhodes and Beller.
114 Douglas Roche, The Human Right to Peace (Ottawa: Novalis, 2003), 60.
115 Ibid.
116 Roche, 60.
searching for another one. Site selection also has high financial costs. As of 2004, the United States had spent over 8 billion dollars researching Yucca Mountain, and estimates that it will cost over 60 billion to complete the repository. Future problems associated Yucca include uncertain geologic predictions, climate change, and seismic action in the area.

In order to deal with nuclear waste, the Bush administration also created the Global Nuclear Energy Partnership (GNEP), which promotes the reprocessing of spent fuel. GNEP intends to expand nuclear energy globally, advocate nonproliferation, and resolve waste disposal issues. However, some of the technology GNEP depends on for waste disposal will not be available for decades. Therefore this plan only defers dealing with high-level waste to a later time when immediate action is needed to resolve the problem. Macfarlane argues that despite the difficulties with Yucca Mountain, a geologic repository is the best solution to the current nuclear waste problem. However, the only way to avoid more waste is to completely phase out nuclear power. In addition to toxic waste, nuclear reactors produce highly radioactive materials which require high levels of reactor safety.

### Reactor Safety

Advocates of nuclear energy argue that reactor safety has increased greatly, and chances of accidents are very slim. Radiation exposure to workers and the amount of waste produced has hit record lows. Rather than harming workers, evidence exists that low-level radiation exposure can improve health and lengthen life, by stimulating the immune system like a vaccine. Furthermore, although nuclear accidents have occurred in the past, advocates downplay their serious consequences. For example, Rhodes and Beller argue that Chernobyl occurred because of human error in operating a reactor which would not have been used in the West. In contrast to the evidence of reactor disasters, advocates argue that nuclear power represents the safest and most reliable source of electricity. According to the European Union and IAEA, coal and oil plants produce the highest costs and lives lost in the energy industry. Furthermore, in comparison to chemical plant disasters, nuclear accidents have been low in number and minimal in scope. However, safety requires effective regulation, secure operations and skilled workers. Proponents claim that, with improved technology, reactors will only become more safe and efficient.

---

118 Ibid.
119 Ibid.
120 MacFarlane.
121 Ibid.
122 Rhodes and Beller, 39.
123 Ibid.
124 Ibid., 40.
125 Rhodes and Beller, 40.
126 Ibid.
In contrast to proponents, critics of nuclear energy argue that lack of quality control and proper storage compromises the safety of nuclear reactors. Nuclear disasters like Three Mile Island in 1979 and Chernobyl in 1986 caused a major decline in support for nuclear energy. Other accidents have also occurred at fuel cycle facilities in the United States, Russia and Japan.\textsuperscript{127} While Rhodes and Beller blame Chernobyl on non-Western technology, they fail to recognize that all accidents have international consequences. In addition to nuclear accidents, attacks or exploitation of nuclear reactors would have global implications. In particular, there is growing concern over the transportation of nuclear materials and the security of nuclear facilities against terrorist attacks. Toyoda argues that the huge amount of energy produced by nuclear power makes a nuclear reaction appropriate for destructive not peaceful purposes.\textsuperscript{128}

**Nuclear Energy and Weapons Proliferation**

The global fear of nuclear weapons proliferation remains one of the biggest challenges to the nuclear industry. Since materials used to produce nuclear power can also be used for weapons production, concern exists that the development of nuclear energy programs will lead to the proliferation of weapons programs. Civil energy programs can be exploited by non-state actors, used to exchange weapons technologies, or used to hide weapons programs. However, nuclear advocates claim that these fears remain exaggerated and unrealistic. They argue that although in theory reactor plutonium and uranium can be used to make nuclear explosives, spent fuel is beyond the capability of non-state actors to process.\textsuperscript{129} Even if terrorists were able to produce weapons, they would be too hot, unstable and of uncertain yield.\textsuperscript{130}

Rather than terrorist threats, MIT recognizes three main proliferation issues of stocks of separated plutonium usable for weapons, nuclear facility safety, and the transfer of nuclear technology.\textsuperscript{131} However, like other nuclear advocates, MIT claims that current international standards and regulatory bodies are sufficient to deal with proliferation concerns. Proponents emphasize the 1970 Non-proliferation Treaty (NPT) and the IAEA as the main preventative measures to proliferation. These institutions are apparently led by “responsible governments” which must continue to control the knowledge to produce and process highly enriched uranium or plutonium.\textsuperscript{132} The NPT originally admitted five states as nuclear weapons states (NWS), which had detonated a nuclear explosion before 1964. It then allowed other non-nuclear weapons states (NNWS) to commit to abstinence from nuclear weapons production. In return, these states receive preferential treatment and information for the development of peaceful nuclear energy.\textsuperscript{133} Garwin argues that states should be strongly encouraged to

\textsuperscript{127} The Massachusetts Institute of Technology.
\textsuperscript{128} Toyoda.
\textsuperscript{129} Rhodes and Beller, 41.
\textsuperscript{130} Ibid., 42.
\textsuperscript{131} The Massachusetts Institute of Technology
\textsuperscript{132} Ibid.
adopt the Additional Protocol of the NPT. This protocol commits them to return any materials or facilities obtained as a NNWS member.¹³⁴

In addition to the NPT, advocates claim the IAEA is an adequate instrument to prevent proliferation. Rhodes and Beller believe that IAEA inspections are proficient to prevent diversions from industrialized members reprocessing facilities.¹³⁵ Furthermore, advocates argue that safe transportation and protection of nuclear facilities against sabotage can be achieved through measures in the framework of the amended Convention on Physical Protection and standards of the IAEA.¹³⁶ An “internationalized” or “hub spoke” fuel cycle could also provide further protections. This arrangement would lease countries fuel for power plants and after discharge take it back under international supervision.¹³⁷ Despite the development of international non-proliferation institutions such as the NPT and IAEA, the possibility of proliferation remains great.

The connection between the production of weapons-grade plutonium or uranium and civilian nuclear programs is clear. While plutonium can be used most easily to produce nuclear weapons, enriched uranium can also be used for similar purposes.¹³⁸ Most nuclear reactors use uranium enriched to about four percent; however they contain the technology for enrichment to the 85 percent needed for a nuclear bomb.¹³⁹ Therefore, technically, any enrichment plant can be used for the production of weapons grade material. Despite the location of enrichment and reprocessing facilities, all carry the potential for weapons production.¹⁴⁰ Therefore, these facilities represent a significant barrier to the nonproliferation regime.

In contrast to arguments made by nuclear advocates, opponents assert that the opportunity for weapons proliferation makes nuclear energy unjustifiable. If nuclear energy is accepted as a global solution to climate change, more states will attempt to obtain enrichment and reprocessing capabilities. This “nuclear renaissance” scenario increases opportunities for weapons proliferation. In order to prevent proliferation, the United States has called for the closure of a loophole of the NPT. This ambiguity allows states to produce fissile material which can be used to make nuclear weapons under the cover of civilian programs.¹⁴¹ Furthermore, Bradford argues that the IAEA inadequately safeguards against the production of separated plutonium, which can be used directly for nuclear weapons.¹⁴² The Additional Protocol of the IAEA requires states to declare their nuclear material and activities, allow the IAEA to take environmental samples, and give the IAEA access to any loca-

---

¹³⁴ Garwin.
¹³⁵ Rhodes and Beller, 43.
¹³⁶ Erice International Seminars.
¹³⁷ Garwin.
¹³⁸ Rogers.
¹⁴¹ Blix et al.
¹⁴² Bradford.
tion to check for undeclared material or activities.\textsuperscript{143} However, since it is voluntary this protocol cannot guarantee state adherence.

A dozen states currently have nuclear energy programs; however, Argentina, Australia, and South Africa have also announced new commercial level uranium enrichment projects.\textsuperscript{144} There has also been recent evidence of exchanges among some developing countries of nuclear weapons-related materials and missile technologies. According to Braun and Chyba this suggests we are entering a world in which such countries can avoid the nonproliferation regime, and create networks of nuclear “proliferation rings”.\textsuperscript{145} These rings produce nuclear weapons and trade among themselves without the supervision of international organizations such as the IAEA.

Proponents argue that nuclear power can increase national security by providing energy independence for states which rely on fossil fuel imports. However, nuclear reactors would actually decrease their security, making them vulnerable and creating the possibility of horizontal proliferation.\textsuperscript{146} There has already been evidence of interactions between North Korea, Iran and Pakistan. For example, in 2002, Pakistan and North Korea made a deal for enrichment technology.\textsuperscript{147} In addition, in 2003, the French government produced a report which concluded that Iran was hiding a military nuclear program within its civilian program.\textsuperscript{148} While Iran denied these accusations, the UN Security Council has imposed sanctions to prevent any further Iranian nuclear fuel-cycle development. These examples show the opportunity for civil nuclear energy programs to be used for non-peaceful purposes. As a result of such dangerous activities, which create intense public concern, the international nuclear industry lacks political legitimacy.

**The Future of Nuclear Energy**

Concerns about nuclear energy costs, waste, safety, and proliferation, pose a significant challenge to the political legitimacy of the global nuclear industry. After World War Two, the “Atoms for Peace” policy encouraged trade liberalization in nuclear materials in order to expand foreign markets.\textsuperscript{149} The IAEA, in official operation by 1957, sought to spread nuclear power to the south. However, after the atomic explosion by India, concern arose over the proliferation of nuclear weapons to developing nations. Recently, the industry has used the threat of global warming to counter criticism about the economics of nuclear power, nuclear waste, reactor safety, and proliferation. While some states have promised to phase out nuclear energy programs, other countries are becoming more involved. In particular, nuclear power has become increasingly popular in Asia, and

\begin{footnotesize}
\begin{enumerate}
\item Middle Powers Initiative.
\item Braun and Chyba, 7.
\item Stoett, 2.
\item Braun and Chyba, 3.
\item Ibid., 7.
\item Ibid, 2.
\end{enumerate}
\end{footnotesize}
Africa has been recruited to participate in uranium exploration and mining. However, the participation of developing nations in nuclear energy programs creates numerous problems. Sales of nuclear materials can be especially dangerous to developing states which have poor human rights records, have outdated nuclear reactors, and lack the ability to deal with nuclear waste.

Demand for nuclear power began to decline in the 1970s and 1980s, and climate change should not be a reason to allow the industry to reemerge. Recent attempts to privatize the nuclear industry have strengthened concerns over the control of nuclear materials. As a result, the interests of states and the nuclear industry will likely remain strongly tied in the future. Therefore, if nuclear power becomes a dominant energy source, less funding will be directed toward the development of renewable alternatives. Furthermore, with more countries developing nuclear energy programs, the risks of reactor safety, waste disposal, and weapons proliferation will greatly increase.

In order to avoid these risks, Edwards advocates cutting off the source of nuclear energy. He supports an international ban of enrichment and reprocessing plants to prevent the production of materials from which nuclear weapons could be made. While uranium and plutonium would still exist, they could not be transformed into material for nuclear weapons. Other short-term recommendations include states giving up the right to create new reprocessing plants, and establishing a moratorium on the construction of enrichment plants. Long-term goals should seek to end the spread of nationally-controlled nuclear fuel production facilities and to phase-out existing plants. These recommendations are directed at both weapons and non-weapons states. Abolishing the trade of nuclear materials means foregoing nuclear energy as a power source. However, this would be a small price to pay to avoid nuclear disasters and weapons proliferation.

**Conclusion**

Climate change poses a serious threat to humans and the environment. However, the implications of global warming do not outweigh the disastrous potential of nuclear energy. The resurgence of the nuclear energy industry could lead to a global crisis worse than climate change. Therefore, in the short term, rather than increased nuclear development, the prevention of global warming requires increased energy conservation. The best option for a peaceful and sustainable future is for states to rely less on nuclear energy and more on renewable energy sources.

---

150 Ibid., 1.
151 Ibid., 2.
152 Ibid.
154 Middle Powers Initiative.
155 Ibid.
Bibliography


Iran’s Nuclear Ambitions and the Appropriate Response

Author: Faizal Nuraney
Fall 2008
fnuraney@gmail.com
Introduction

Our world, and the dynamics which govern the present balance-of-power between states, may soon undergo a significant transformation into a system less secure, as more and more states develop the means to destroy one another. This advent is the horizontal proliferation of nuclear weapons – the spread of nuclear weapons to an increasing number of states – what some scholars have begun referring to as a ‘nuclear domino effect’. Moving forward, in October 2006, North Korea became the first ‘rogue state’ in this century to reportedly test a nuclear weapon. While it is somewhat unknown the extent to which North Korea wields control of a nuclear arsenal, the relatively unimpeded actions it took to pursue such a course, produced a dangerous and unfortunate message to the world – that states seeking a new height of power and/or an enhanced ability to deter and further unilateral aims, can do so by attaining this apocalyptic piece of hard power. With the fall of the North Korean domino piece, Iran is now similarly on a descent, and is therefore, where serious preventative effort must be concentrated. Aside from the more apparent threat that nuclear weapons pose in the form of direct nuclear strikes, in the case of Iran, it merely having them would pose many corollary threats to international security and would more specifically, bring it into direct conflict with US interests in the region. Ending the nuclear domino cycle at Iran must be the chief priority of both the US as well as the UN in order to begin securing the world against the destructive power unleashed by such weapons. For, given the calamitous risk of a nuclear war, how strongly can the international system continue to rely on the ever more tenuous theory of nuclear deterrence, particularly as more and more states begin to possess weapons that can wholly destroy others? The purpose of this paper will be to identify: the direct threat posed by a nuclear Iran, how such an allowance would resonate throughout the rest of the world, the underlying causes of Iran’s decision to develop a nuclear program, and finally, what policy options can be taken to prevent Iran from its present course.

Problem Definition

Iran has long claimed its nuclear program to be one solely intended for ‘peaceful’ means, and in order to give rise to a new sustainable energy source – could this be true? Is it rational for a state to pursue a particular energy program, knowing that by merely doing so, it could bring about its own destruction? To further this inquiry, it is important to note that Iran is a nation fortunate enough to be located where it resides over the second largest reserve of natural gas and almost ten percent of the world’s oil supply. Would a nation so rich in energy need to devote so much of its resources into developing but another energy source? Another important observation, relevant to the question of Iran’s honesty in this matter, is the advances it continues to make in missile technology. Iran’s missile program, named ‘Shahab’ which translates to ‘comet’, began in the late-1970’s around the time of the Shah’s overthrow. It was then accelerated and reportedly deployed during the years of the Iran-Iraq War, and has continued to be developed to this day, whereupon Iran’s most current endeavor, the Shahab-6 missile, if and when operational, would be capable of delivering a strike of nearly 5,000 km. Gary Milhollin, director of the Wisconsin Report, described as a non-profit and non-partisan organization devoted to stopping the spread of nuclear weapons, points out the obvious fact that “no country has ever built a long-range

156 George Perkovich and Silvia Manzanero, “Iran Gets the Bomb-Then What?,” Getting Ready for a Nuclear-Ready Iran, (Carisle, PA: Strategic Studies Institute, 2005): 181.

ballistic missile without a nuclear weapon to put on it, [it] just doesn’t make sense otherwise”.\textsuperscript{158} Iran responds to such allegations by purporting that such missiles have only been used and are with the sole intention of carrying communication satellite equipment.\textsuperscript{159} This questionable justification has been the very same used by North Korea in its own development of a missile delivery system – along with the identical claim that its nuclear program is one intended for ‘peaceful’ energy purposes. Furthermore, Boris Yeltsin on May 10, 1995 at the Moscow Summit conceded that nuclear technology exchanges between Russia and Iran contained military as well as civilian nuclear technology.\textsuperscript{160} If we are to cede that Iran’s true intentions are to develop a nuclear weapon and the means to deliver a strike, the resulting picture is grim.

Iran’s possession of a nuclear arsenal would pose a myriad of threats, the first of which is the possibility of a direct nuclear strike by Iran against another state. Specialists in strategic studies such as Therese Delpech, director of strategic affairs at the Atomic Energy Commission, claim that classic deterrence theories are no longer relevant.\textsuperscript{161} She contends that “new actors, such as Ahmadinejad or Kim, are much more prone to act impulsively than the United States or the Soviet Union” during the Cold War.\textsuperscript{162} While this contention may be true, it is still unlikely that Iran would decide to engage in a direct nuclear strike, for it would know full well the implications of that act via Mutually Assured Destruction (MAD) – where it would almost certainly be destroyed in a retaliatory attack by either the victimized country or another nuclear state. A decision to launch a direct nuclear strike by the Iranian government would, therefore, be irrational. It is much more likely that Iran would either sell or offer nuclear weapons to militant groups, which may or may not be satellites of itself.

One of the chief threats facing the international community, in the event that Iran does develop nuclear weapons, is the possibility of those weapons falling into the hands of hostile militant groups. Hezbollah, a ‘terrorist organization’ according to the US State Department, was originally created by the Iranian Revolutionary Guard in 1979 and to this day continues to be funded by the Iranian government.\textsuperscript{163} Given Iran’s history of orchestrating indirect attacks through militant proxies, by funding and assisting Hezbollah, it seems likely that if Iran were to seek the destruction of one of its enemies, it could use these proxies to deliver a nuclear strike. The objective of the Iranian government in using such organizations would be to challenge the US and Israel in the Middle East and abroad and also to deter other nations from supporting them.\textsuperscript{164} While the possibility of a nuclear terrorist attack with an Iranian bomb may be more likely than a more straightforward Iranian nuclear strike, the possibility of this is still negligible, for if the origins of the bomb were traced, Iran could face retalia-

\textsuperscript{158} Howard 101.


\textsuperscript{160} Kenneth R. Timmerman, “The Day after Iran gets the Bomb,” Getting Ready for a Nuclear-Ready Iran, (Carisle, PA: Strategic Studies Institute, 2005): 121.


\textsuperscript{162} Ibid.

\textsuperscript{163} Howard 51.

tory attacks, thus still fulfilling the principle of MAD. It is rather the consequences of a nuclear Iran that is the greatest cause for concern.

Possible Consequences

The first possible consequence of Iran acquiring nuclear weapons, although it is more of a certainty, is that worldwide oil prices will see a dramatic rise. A nuclear Iran would have more bargaining power with a nuclear arsenal, thus emboldening it during oil negotiations. It could do this by threatening to close the Straits of Hormuz – the junction separating the Gulf of Oman from the Persian Gulf, by placing mines at oil transit points or even by using its proxies to threaten the destruction of Saudi Arabian and other Gulf pipelines and facilities. In addition, Iran could threaten other oil producing nations, specifically Saudi Arabia, to lower its exports of oil in order to remain competitive and put pressure on the world’s oil market. Using these mechanisms, Iran would effectively have the ability to disrupt the flow of oil and drive up its price, if it so wished. In the nuclear world, how can a rogue regime be made to halt? A nuclear Iran, employing these aggressive negotiation tactics would likely be met by appeasement from the US and the international community. For, aside from the difficulty of contending with a rogue nuclear power, if the words of Therese Delpech discussed earlier in this paper, can shed any perspective, it is that at the very least, there would be a perception of uncertainty as to whether Iran would be prepared to use such weapons.

As yet another consequence, a nuclear Iran would be emboldened to effectively increase its support for rogue militant groups if it so wished. While doing so would likely make any ongoing support of such organizations less clandestine, a nuclear arsenal would provide it with the ability to deter a response from nations opposing its state-sponsorship of rogue militant activities. Given that Iran indeed provides financial and military aid to Hezbollah, Islamic Jihad and Hamas, as Reza Simbar suggests, an increase in support would likely make these groups more powerful and therefore, more of a threat. Additionally, Iran is already suspected of helping insurgent forces in Iraq and Afghanistan against US and coalition forces. A nuclear Iran would be emboldened further to give aid to insurgent groups and further exacerbate the hard-fought efforts of US and coalition forces to provide stability in Afghanistan and Iraq, while subsequently discouraging a response through nuclear deterrence.

The third significant consequence of allowing Iran to develop nuclear weapons would be a “‘cascade’ of nations seeking the ultimate weapon” – what Graham Allison, former Clinton Administration US Defense Department official, terms a ‘nuclear domino effect’. North Korea’s efforts to pursue the ultimate weapon took a significant stride in October 2006 with its first successful nuclear test, demonstrating how a rogue regime can

---

165 Sokolski 2.
166 Timmerman 122.
170 Powell 14.
pursue a nuclear agenda while remaining undeterred by both the US and the UN—a dangerous precedence—a process that is set to continue due to statements on April 29th, 2009 by North Korea declaring its intention to resume nuclear and ballistic missile testing.¹⁷¹ If Iran were to possess a nuclear arsenal, its neighbors would also be forced to develop such capabilities for the purpose of self-defense, and to be free of Iranian influence.¹⁷² The threats to international security identified in this paper would be multiplied further if more Middle-Eastern nations develop nuclear arsenals, in turn pressuring even more states to develop them as well. The ultimate result is a more insecure world, one that can at any time destroy itself. Therefore, efforts must be concentrated towards ending the nuclear domino effect at Iran, where the potentially devastating trend of horizontal nuclear proliferation can be brought to an end.

**Probable Causes**

When the diplomatic history between the ‘West’ and Iran are examined, as well as the elements behind the theocracy in Iran, the origins to this international security dilemma become more clear to observe. As contended in this paper, it is the response to Iranian aggression by the US which has taken adversity and converted it into rift; actions that while justified, could have been dealt with in an alternative fashion with the long-term goal of promoting constructive relations between Washington and Tehran, so as to have avoided the dire, while still manageable, international crisis we see today. The starting point at which this examination will begin is 1979, the year of the Iranian Revolution, and the year where the US, responding to the Iranian hostage crisis, initiated a series of economic sanctions against the now Islamic Republic of Iran.¹⁷³ A second series of sanctions was issued in 1987, and then in May 2000, the Clinton Administration responding to evidence of terrorist funding by the Iranian government, decreed there to be a comprehensive elimination of trade and investment with Iran.¹⁷⁴ As a result of these unilateral sanctions, Iran has since looked to others for trade, namely Russia and China.¹⁷⁵ As Simbar asserts, unilateral sanctions by the US never had much of an effect on the Iranian economy and have since not deterred it from supporting ‘terrorism’.¹⁷⁶ On the contrary, the sanctions have been counter-productive, for more tension between the two countries was created, making Iran feel less secure and thus, more inclined to seek the ultimate weapon as a means of safeguarding its self-determination. Furthermore, the US-led wars in Afghanistan and Iraq have since brought its forces close to the Iranian border, and, given the foretold tension, this fact has only served to further Iran’s insecurity, leading more and more to the perception that nuclear weapons are ‘necessary’ for its survival.¹⁷⁷ Moreover, the fact that Washington continues to avoid direct diplomacy with Tehran has only served to bolster the legitimacy of Iran’s clerical elite, who label the US ‘occu-

---


¹⁷² Ibid 15.

¹⁷³ Simbar 73.

¹⁷⁴ Ibid. 77.

¹⁷⁵ Timmerman 119.

¹⁷⁶ Simbar 77.

priers’ and ‘oppressors’ in collaboration with the ‘evil’ Israeli regime. While the US still attempts to squeeze Iran vis-à-vis economic sanctions, Russia and China – and to a lesser extent the EU – have undermined the effectiveness of these efforts by continuing trade with Iran. Both Russia and China assisted in the growth of Iran’s nuclear program, leading many American policy-makers to the conclusion that Russia and China should also be held responsible for the current crisis - an evaluation of this allegation follows.

As early as during January 1995, Russia began its nuclear transaction with Iran, signing an 800 million-dollar nuclear deal, which included an offer to provide a comprehensive centrifuge enrichment plant, and as mentioned earlier, Yeltsin announced that the deal contained military as well as civilian nuclear technologies. Russia was also of known assistance to Iran in its development of the Shahab-3 missile, capable of reaching a target approximately 1,350km away. While the US has since pressured Russia to abandon its transaction with Iran, attempts to maneuver Russia into abandoning its relations with Iran have been unsuccessful. China’s role in Iran’s experiment has primarily been to supply it with small amounts of enriched uranium, milling machinery and uranium hexafluoride gas – the feedstock for enrichment centrifuges. However, unlike the Russian case, China halted nuclear assistance to Iran in 1997 due to increased pressure from Washington. While Pakistan and North Korea are also known to have supplied nuclear technology to Iran, Russia and China have been its largest nuclear trading partners. Therefore, at the very least, it would be fair to say that Iran would have had a more difficult time with its ongoing development of nuclear capability had it not been for Russian and Chinese help, making both states the target of scrutiny in the international community.

Another important component in understanding how this crisis has come about must lie in comprehending the strength of the clerical elite in Iran, led by it’s ‘Supreme Leader’ - the center of state control. It is by this way that irregardless of how Iranians would hypothetically feel towards its country pursuing a course to acquire nuclear weapons, placing it into direct strategic conflict with the ‘Western’ world, how it would matter none; how no matter how elections were decided and how strongly a citizen majority dissented, the Supreme Leader and his elite group still have the authority to pursue whichever course it independently decides. The Supreme Leader, namely Ayatollah Ali Khamenei, is entitled to have final ruling on all laws and policies of state. While Iran’s President is democratically elected by its citizenry, as President Mahmoud Ahmadinejad was in

178 Howard 160.
179 Timmerman 121.
180 Ibid.
181 Ibid.
182 Duffy 24.
184 Ibid. 23.
185 Ibid. 24.
186 Timmerman 121.
187 Howard 124.
August 2005, presidential nominees are selected by the Guardian Council, made up of various Muslim clerics and scholars, whom are in turn, selected by the Supreme Leader.\textsuperscript{188} Thus, the Supreme Leader has ultimate control over all policies both domestic and foreign in Iran. While Iran has given signs of seeking transparency and democratic reform in its lower bodies of government, the Supreme Leader is still left virtually unchecked.\textsuperscript{189} At the same time, as Howard claims, the “most powerful force pressing for sweeping political reform is demographic change”.\textsuperscript{190} Howard goes on to state that the younger generation in Iran has views and attitudes profoundly different from those in power.\textsuperscript{191} Furthermore, he asserts that this younger generation is beginning to show a greater interest towards the political processes, as evidence by student protests in July 1999 and again in June 2003.\textsuperscript{192} While there is hope that the younger generation in Iran will one day be able to influence policy, the current apparatus is by no means apt to lend voice to this disenfranchised demographic. As long as the current structure is maintained, the elite will continue to dominate public policy, suppressing voices of dissent; voices urging the abandonment of policies which continue to alienate their great nation and place it on a path of confrontation and potential military conflict.

\textbf{Policy Options & Recommendations}

Policy makers hold contrasting views on how best to move forward in response to the Iranian nuclear crisis. The following is an examination of three profoundly differing approaches. The first response available would be a military strike. The attack would likely involve ‘surgical’ joint missile and air strikes aimed at precise locations suspected of being integral to Iran’s nuclear capacities.\textsuperscript{193} The sooner the better as far as the mission would be concerned, as naturally it would be less likely that any primitive, or ‘dirty’ bomb would at that point be operational. An important consideration against this option is that even if the strikes were successful, they would only delay Iran by a few years, thus rendering this option merely a short-term solution.\textsuperscript{194} Further, it would be a response constituting an act of war against Iran, obliterating what little diplomatic fabric that keeps it in the relative fold of the international community. What Duffy terms the ‘asymmetrical retaliations’ that Iran would almost certainly undertake are the greatest cause for concern. First, Iran could attempt via Afghani and Iraqi insurgent forces to destabilize those countries and the coalition efforts therein.\textsuperscript{195} Second, it could cause mayhem in the oil supply chain by way of the possible attacks mentioned earlier, namely by placing mines at the Straits of Hormuz and pressuring OPEC.\textsuperscript{196} Third, it could direct its militant and terrorist proxies in Lebanon

\begin{itemize}
  \item \textsuperscript{188} Ibid.
  \item \textsuperscript{189} Ibid.
  \item \textsuperscript{190} Howard 112.
  \item \textsuperscript{191} Yaphe and Lutes 5.
  \item \textsuperscript{192} Howard 114.
  \item \textsuperscript{193} Duffy 25.
  \item \textsuperscript{194} Ibid.
  \item \textsuperscript{195} Duffy 26.
  \item \textsuperscript{196} Ibid.
\end{itemize}
and Palestine to conduct attacks against Israel.\textsuperscript{197} And fourth, Iran could exit the Non-Proliferation Treaty (NPT) claiming that it would now have to obtain nuclear weapons for its survival, an argument the attacks could potentially legitimize.\textsuperscript{198} Thus, the option of conducting a military strike is seriously unadvised; more intelligent and strategically advantageous options warrant evaluation.

Another approach would be to attempt to level multi-lateral sanctions against Iran. This plan would only work if the sanctions were initiated by all of Iran’s major trading partners, lest not enough pressure be put on Iran to halt its program, and it simply continue along its current path. Realistically, possibly China and almost certainly Russia would not support the sanctions, for both states are reliant on Iran for oil and various other resources.\textsuperscript{199} As a pre-emptive challenge to this response, Ali Larijani, secretary of Iran’s Supreme National Security Council and Iran’s chief nuclear negotiator, claimed, Iran “would endure any UN-imposed sanctions rather than end its enrichment program”.\textsuperscript{200} Furthermore, Russia’s long-term interests are best served by an Iran that is capable of challenging US power in the Persian Gulf.\textsuperscript{201} Even if a coalition of countries were to agree to issue sanctions against Iran, while Russia and China remained its trading partners, Iran would be only partially weakened, and thus only partially pressured to forego its efforts to complete its experiment. Rather, an effort to engage Iran directly in talks would be the wisest approach in forging a new truly peaceful way forward.

The third option, and the one promoted in this paper, is one of proactive conciliation. Proactive conciliation seeks to approach and engage Iran in discussions aimed alleviating its security concerns and allowing constructive mutually beneficial diplomacy to ensue. The first and foremost objective of addressing Iran’s security concerns would involve removing the ‘perception that a nuclear bomb is necessary’.\textsuperscript{202} As Israel is pointed out as both a justification for Iranian aggression as well as one of its genuine security concerns, Israel should be encouraged to increase the transparency of its own nuclear program, as well as reduce its stockpile significantly. Second, in the way of softening US overtones in seeking to develop constructive relations with Tehran, Washington should end the language of ‘regime change’ and the stigmatization of Iran being a part of the ‘axis of evil’.\textsuperscript{203} US sanctions should also be lifted so that regular trade can resume with Iran as both a sign of good faith and also because economic relations result in stronger diplomatic relations through economic interdependence.\textsuperscript{204} Third, Iran should be admitted to the World Trade Organization (WTO). Admission to the WTO would require Iran to revise both its economic as well as political infrastructure, which would theoretically lead to a higher degree of democratization and give more clout to the younger generation and the ideas

\begin{itemize}
\item \textsuperscript{197} Ibid.
\item \textsuperscript{198} Yaphe and Lutes 35.
\item \textsuperscript{199} Simbar 78.
\item \textsuperscript{201} Wyn Q. Bowen and Joanna Kidd, “The Nuclear Capabilities and Ambitions of Iran’s Neighbors,” Getting Ready for a Nuclear-Ready Iran, (Carisle, PA: Strategic Studies Institute, 2005): 60.
\item \textsuperscript{202} Ferguson and Takeyh 12.
\item \textsuperscript{203} Timmerman 126.
\item \textsuperscript{204} Simbar 81.
\end{itemize}
they are attempting to bring into the political sphere, as discussed earlier.\footnote{Ibid. 82.} It should be noted that in June 2006, China, France, Germany, Russia, the UK and the US offered a similar incentives package to Iran which was essentially turned down when it refused to comply with the August 31, 2006 deadline to halt uranium enrichment.\footnote{Kerr 31.} If these conditions are not used as bargaining chips for Iran to cease uranium enrichment, they should be employed nonetheless to reduce tensions between Iran and the international community and positioning such relations on a path of eventual reconciliation and understanding.

**Conclusion**

Ultimately, the only lasting solution to the crisis outlined in this paper will have to involve direct proactive conciliation – by Washington actively seeking out a partner in Tehran and forging a new direction toward: an alleviation of Iranian security concerns, a mutual understanding and reconcilement of each others national concerns and interests; and the ways and means of building trust and eventually peace between two nations that stand separated by unnecessary rift. The challenge of ending the vicious cycle of horizontal nuclear proliferation has to be dealt with as it stands today, a reality. It will not be met by continued policies of rejection and alienation, indeed it is those very policies that gave rise and continue to generate mistrust and insecurity, to the need to develop a means of ultimate self-defense against a world of foe. While the cycle of war and peace, detente and rapprochement, will almost certainly always ebb and flow, the risk is too great and the consequences too dire to allow for more and more states to develop the means to destroy each other, as the forces which stave off mass destruction flutter in time and space.
Bibliography


