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The Vision of a World Free of Nuclear Weapons

A Comparative Analysis of the Op-Eds of Elder Statesmen
and Defense Experts

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GRUPPENPROFIL IFAR²

Die „Interdisziplinäre Forschungsgruppe Abrüstung, Rüstungskontrolle und Risikotechnologien (IFAR²)“ beschäftigt sich mit dem komplexen Zusammenspiel von rüstungsdynamischen Faktoren, dem potenziellen Waffeneinsatz, der Strategiedebatte sowie den Möglichkeiten von Rüstungskontrolle und Abrüstung als sicherheitspolitische Instrumente. Der Schwerpunkt der Arbeit liegt dabei auf folgenden Forschungslinien:

- Grundlagen, Möglichkeiten und Formen von Rüstungskontrolle, Abrüstung und Nonproliferation nach dem Ende des Ost-West-Konfliktes sowie die Entwicklung von anwendungsbezogenen Konzepten präventiver Rüstungskontrolle
- „Monitoring“ der fortschreitenden Rüstungsdynamik und Rüstungskontrollpolitik in Europa und weltweit mit Fokus auf moderne Technologien
- Technische Möglichkeiten existierender und zukünftiger (Waffen-) Entwicklungen, besonders im Bereich Raketenabwehr und Weltraumbewaffnung

Der steigenden Komplexität solcher Fragestellungen wird in Form einer interdisziplinär arbeitenden Forschungsgruppe Rechnung getragen. Die Arbeitsweise zeichnet sich durch die Kombination von natur- und sozialwissenschaftlichen Methoden und Expertisen aus. Durch die intensiven Kooperationen mit anderen Institutionen unterschiedlicher Disziplinen wird insbesondere Grundlagenforschung im Bereich der naturwissenschaftlich-technischen Dimension von Rüstungskontrolle geleistet. Darüber hinaus beteiligt sich IFAR auch an einer Reihe von Expertennetzwerken, die Expertisen aus Forschung und Praxis zusammenführen und Forschungsanstrengungen bündeln.

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Die Arbeitsgruppe kooperiert mit einer Vielzahl von nationalen und internationalen Organisationen.

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List of Abbreviations

ABM	Anti-Ballistic Missile Treaty (1972-2002)
A-CFE	Adapted Conventional Armed Forces in Europe Treaty
BMD	Ballistic Missile Defense
CD	UN Conference on Disarmament, or Disarmament Conference
CFE	Treaty on Conventional Armed Forces in Europe (1992-2007)
CTBT	Comprehensive Nuclear Test Ban Treaty
DoD	US Department of Defense
DoE	US Department of (Atomic) Energy
EU	European Union
FMCT	Fissile Material Cut-off Treaty
HEU	Highly Enriched Uranium
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
INF	Intermediate-Range Nuclear Forces Treaty (1988)
LEU	Low-enriched Uranium
MAD	Mutually Assured Destruction
NATO	North Atlantic Treaty Organization
NNWS	Non-Nuclear Weapon State (under NPT)
NPR	Nuclear Posture Review
NPT	Nuclear Non-Proliferation Treaty (1970)
NWS	Nuclear Weapon State (5 under NPT)
OSCE	Organization for Security and Co-operation in Europe
Op-ed	Opposite the Editorial page
P5	The five permanent members of the UN Security Council
PTBT	Partial Nuclear Test Ban Treaty (1974)
RRW	Reliable Replacement Warhead
TNW	Tactical Nuclear Weapons
SALT	Strategic Arms Limitation Talks/Treaty (1972)
START	Strategic Arms Reduction Treaty (1991)
SORT	Strategic Offensive Reductions Treaty (or Moscow Treaty of 2001)
UN SC	United Nations Security Council
Zero	Zero nuclear weapons

Introduction: Why Nuclear Abolition Now?

The Cold War is long over, yet the relics of that war are still with us two decades later. With the fall of the Soviet Union, the United States and Russia had a monumental chance to do away with the most destructive weapons ever made by mankind, but a lack of political will allowed that chance to slip away. Now, twenty years after the fall of the Berlin Wall, the old superpowers still have thousands of nuclear weapons each, many still pointed at each other on high alert, leaving little time for informed decision-making but a high potential for accidents and error. US nuclear weapons are still deployed along the old Warsaw Pact border in Europe. Mutually Assured Destruction is still in the military doctrine, which would wipe out two of the largest countries in the world who are now officially strategic partners.

It would be bad enough if these were the only two nuclear powers, but the nuclear club is gaining members steadily. Despite the best intentions of the Nuclear Non-Proliferation Treaty, Israel, India, and Pakistan have all developed nuclear weapons and delivery systems. These nuclear-armed states are involved, not in out-dated conflicts of a by-gone era, but in current regional conflicts which are threatening to explode. The addition of a nuclear element to these crises only makes finding peace agreements more intangible. And the most recent break-out state, North Korea, presents the entire international community and nuclear regime with a problem that has no obvious solutions and is exposing the weaknesses in this already endangered treaty.

Unfortunately, it appears that the situation will only get more complicated. As the world's demand for energy soars due to economic development and population growth combined with concerns about the environment, many countries are thinking about nuclear power as a solution. However, with the dual-use issue connected with the radioactive material used in nuclear reactors, many states will be just one step closer to an indigenous nuclear weapons program, should they choose to start one, not only because the material will be available to them but also because of the technical knowledge and experience of their scientists. Controlling this technology in a way which is cost-effective, verifiable, enforceable and above all, fair, has proven an obstacle thus far and will only escalate during the predicted nuclear energy renaissance if not solved soon. We must not forget that the current war in Iraq is a manifestation of the seriousness of this problem.

If all of these problems were not enough, nuclear terrorism has been described by many as the greatest security threat facing us today. The psychological trauma, not to mention

the physical destruction, makes a nuclear attack the ideal method of creating fear and collateral damage for sub- and inter-state extremist groups. Al-Qaeda have already said that they would use Pakistani nuclear weapons if they get a hold of them, a very worrying statement indeed considering how close the Pakistani branch of the Taliban are to the capital, Islamabad. Cases of fissile material smuggling from under-protected former-Soviet storage facilities and documents containing information about nuclear weapons found as the Taliban fled from Kabul, raise fears of a nuclear-armed Al-Qaeda. Although this is very improbable, the catastrophe which it would cause, much worse than another 9-11, makes this an unacceptable risk. Perhaps the most unsettling of all: the deterrence which has prevented nuclear war in the past will not work against a nuclear-armed terrorist group willing to die for their cause.

Despite a lack of progress on negotiations with Iran and troubling developments in North Korea, the newly-elected President of the United States, Barack Obama, gave a speech in Prague on April 5, 2009, reaffirming his commitment to the vision of a world without nuclear weapons, in the face of the North Korean missile test just hours before. Abolishing nuclear weapons was supported by both Senators Obama and McCain during the 2008 presidential campaign, but some worried that the prolonged financial crisis, fighting two wars and domestic issues would limit the idealism of the new president's campaign promise, that his focus would be turned to less controversial and more immediate problems. However, this vision was again upheld by President Obama in his June 4 Cairo address to the Muslim world where the nuclear weapons issue manifests itself on both sides of the Arab-Israeli conflict, despite the successful North Korean nuclear test which shocked the world less than two weeks earlier.

This mantle of a nuclear weapon-free world that Obama has taken up is not a new one, nor is he the first US President to have believed in this vision. It can be traced back to the 1986 nuclear disarmament negotiations between Presidents Ronald Reagan and Mikhail Gorbachev in Reykjavik, Iceland, where the two superpowers were a hair's breadth from agreeing to destroy nuclear weapons altogether. Or to the speech given by the Indian Prime Minister Shri Rajiv Gandhi in 1988 to the UN General Assembly appealing for the UN to stop the madness of nuclear war. But more recently, a series of op-ed articles have been published in major newspapers internationally by groups of former statesmen and experts calling for a

renewal of the vision of a nuclear weapon free world and immediate political action to begin the process.

The ball got rolling on January 4, 2007 with the publication of the op-ed article “A World Free of Nuclear Weapons” in the *Wall Street Journal*, signed by the four prominent US statesmen Henry Kissinger, Sam Nunn, William Perry and George Schultz. The subsequent support given a few weeks later in Mikhail Gorbachev’s response, “The Nuclear Threat,” which appeared in the same publication, began a pattern which would continue with similar op-eds signed by groups of statesmen from other NATO countries, all reiterating the call for nuclear abolition as a way of diminishing the threat which nuclear weapons continue to pose, despite the end of the Cold War.

The second wave of articles was spurred again by the US “Gang of Four” or “Four Horsemen” as they have come to be known, in January of the following year, with an updated version of their call, “Towards a Nuclear-Free World.” Over the next year, the United Kingdom, Italy and Germany – all European nations with nuclear weapons in their country¹ – published op-eds signed by groups of statesmen and experts who added their support and unique perspectives to the debate. Each article exhibits its own set of priorities while voicing general approval of the original article’s call to put complete nuclear disarmament back at the top of the political agenda and begin taking immediate steps that would start the world down a path to that end.

Questions, Aims and Parameters of Research

What steps have been laid out by these visionaries and veterans of the Cold War, and are their recommendations and priorities similar enough to make a unified roadmap? What progress is being made now or planned for the future along the guidelines presented in the articles? What will the biggest obstacles be as world leaders take on this monumental challenge – which steps will be the hardest and which countries or leaders will stand in the way – and what can be done to move past them? These three questions will be addressed through an analysis of the six aforementioned op-ed articles; recent political speeches, public statements and documents from nuclear-armed states and other key non-nuclear weapon states; and the

¹ Although the UK and France have their own indigenous nuclear weapons programs, 5 other states, including Italy and Germany, have NATO-controlled US nuclear weapons stationed on their soil.

mounting body of research and literature on the subject of total global nuclear disarmament, including conference transcripts. Special focus will be given to nuclear-armed states in the post-Cold War era and the development of the Obama Administration's policies.

The aim of this study is to compile a set of steps which have been suggested by the op-ed authors to be taken in the near-term to begin the process of eliminating the threat nuclear weapons pose, and to see to what extent each is being acted upon and how much progress is being made. The ultimate goal is to identify the greatest challenges that the movement will face as well as any gaps in the discussion about nuclear abolition. It is hoped that this study will contribute to the wider discussion on the subject and to suggest further analysis to guide future research.

This study finds itself in the unique position of being able to observe the initial performance of the new US leadership, leadership which was cited in all of the op-eds as the necessary catalyst in realizing the first steps towards a world free of nuclear weapons. The process of researching began shortly after the inauguration of the new US President Barack Obama and the focus has been the chronicling of his administration's actions and policies, and how they further or stray from the guidelines laid down by the authors of the op-ed articles, as well as the reactions of other world leaders to the new US Administration, and how world events are shaping the environment around which this process is taking place, either to ease or exacerbate the first steps of this effort.

Of course, a few assumptions have been made in order to limit the scope of the research and analysis. It will be assumed that the op-eds in question are generally representative of expert opinion within the country where they were published and that the intended audience of the articles, all published in mainstream media within democratic countries, is the voting public and therefore meant to influence public opinion and put pressure on politicians elected by the people of those countries. Also assumed is that the information given to the public is accurate and that politicians mean what they say in speeches and statements, and that promises will be carried out, unless there is overwhelming evidence that this is not possible. Research materials will prove harder to come by from countries where political systems are less accountable to the public or where secrecy is a key aspect of nuclear policy, such as China or Israel. The scope of the thesis is limited by the fact that Obama has only recently entered into office and analysis will only cover what has been

done or planned in the first half year of his term. Therefore, follow-up analysis will be needed to reassess what progress has been made.

Strict parameters have been placed on the analysis. Only the immediate steps towards nuclear disarmament will be explored. Steps which must be taken in the distant future, especially the complicated situation where numbers of warheads are approaching zero, will not be explored in much depth. No causality between the op-ed articles and political action will be assumed or proven. The articles are simply providing the matrix with which to categorize political activity. Neither is this paper meant to be an argument for or against the vision of a world free of nuclear weapons, nor its feasibility. As well, this is not an investigative piece about the validity of publicized statements or documents on the subject. They will be taken more or less at face value with minimal interpretation.

Hypothesis: Yes We Can

After a cursory reading the six op-ed articles compared in this study, there do seem to be quite a lot of similarities although the tone varies from article to article and a few minor differences are noticeable. Exactly how similar or different are they and is there something close to a unified set of guidelines for reaching a nuclear free world? As they are all expressing support of the original four US statesmen's op-ed, it can be assumed at least that there will not be any irreconcilable disagreements. However, the point of these articles is not only to voice support of the idea and bring the topic to the attention of the public and policy-makers, but also to contribute to and emphasize areas of concern relating to each country. Therefore, it is also to be expected that each article will have its own priorities and agendas, but no serious disagreement is predicted.

Once the articles have been compared and the main steps identified, the next task will be to see if these are also being followed through on by the policy-makers who say that they share the vision of a world without nuclear weapons. Are they really doing what the op-ed authors have recommended or are they going in a different direction? Are there areas where no progress is being made at all? Based on statements made by Senator Barack Obama during his 2008 Presidential campaign, it can be predicted that he will make efforts to fulfill those commitments. The type of leadership he spoke of promised to be a radical departure from the previous Bush Administration's foreign policy and it is hard to imagine this not being both

visible to and welcome by other countries. This new image of American world leadership would perhaps give him enough political capital with countries who had been anti-American over the past eight years Bush was in office, even perhaps the benefit of the doubt among US antagonists in terms of willingness to accept diplomatic invitations or even negotiations with US diplomats in order to solve some of the problems now standing in the way of reaching the nuclear abolitionist goal.

Finally, after looking at each of the steps in turn, it is predicted that non-proliferation issues, specifically those concerning uranium enrichment and the management of plutonium spent-fuel from reactors, would be the toughest problems to be solved in the near future. The dual-use nature of many of these technologies make them complex problems, which combined with the forecasted nuclear energy boom and an under-funded IAEA, would lead to a wide range of possible solutions but no single clear idea on how to proceed. In addition, the current financial crisis might make many of the best of these solutions unfeasible due to simple budgetary short-comings and an inability to make near-term investments in infrastructure and technology for many countries. This would include the United States where the financial crisis would not only deplete and divert funds but also distract the President's attention and limited time.

Structure of Thesis

Each of the three chapters is devoted to answering a different research question. In order to begin answering the first question – Do these op-ed authors present a unified roadmap? – a list of the steps recommended by the op-ed articles has been compiled and a table comparing the positions of the authors on each of the steps was made, in order to create a visual comparison of each group's set of priorities (see Appendix.) This initial overview was key to simplifying issues enough to see where diverging points of view among authors might lead to difficulties down the road. This list of steps in a condensed form provides the outline of this work. A summary of the op-eds, the backbone of this study, has been given to provide an overview of the general context before the recommendations of the articles are explored in detail, in order to answer the second research question – What progress is being made on the steps proposed in the articles?

The bulk of this paper is a step-by-step analysis of these recommendations which makes up Chapter 2. For each recommendation, an introduction to the problem is given with a comparison of the relevant op-eds which discuss the matter, followed by a summary of important current political action or lack thereof. Although these steps are presented individually, it should be noted that they are all interconnected and thus each step makes reference to others when significant. This is to illustrate the complexity of these problems; however, an effort was made to keep overlap and redundancy to a minimum.

Part 1 is concerned more with the idea and role of nuclear weapons in military doctrine, war-fighting and deterrence. It begins with the relics of the Cold War – Mutually Assured Destruction and nuclear weapons on hair-trigger launch – moving on to the first-use policy and the deterrence of non-nuclear threats. Part 2 involves those steps specifically concerned with arms control and disarmament, the physical weapons themselves and the treaties meant to limit them, specifically the Comprehensive Nuclear Test Ban Treaty, Strategic Arms Reduction Treaty and Conventional Armed Forces in Europe Treaty, as well as the elimination of forwardly-deployed nuclear weapons and the controversial subject of missile defense. The development and creation of new nuclear weapons was also added to this section as it pertains to the CTBT. Part 3 deals with the proliferation of nuclear technology, economics and energy, specifically those related to nuclear power and fissile materials: strengthening the Nuclear Non-Proliferation Treaty, negotiating a Fissile Material Cut-off Treaty and controlling the cycle of nuclear fuel for power plants, and dealing with states in violation of treaties. Part 4 looks at political issues related to nuclear disarmament: improving US-Russian relations, beginning multilateral talks between nuclear weapon states and getting non-nuclear weapon states on board, and resolving regional conflicts which create the security threats that can lead to nuclear programs.

In Chapter 3, the findings of the analysis are presented in order to answer the final research question – What will be the greatest obstacles to the vision of a world without nuclear weapons? – specifically those steps and states which will present the greatest challenges. As well, a list of events happening in the near future which will affect the progress of nuclear abolition is given. When possible, policy suggestions and requests for further research have been made.

Chapter 1: The Abolitions' Op-Ed Articles

Summary and Comparison of Articles

For many average Americans, it might have seemed out of place that both candidates during the 2008 Presidential election were talking about nuclear disarmament. Where was this coming from and why in this election cycle and not previously? However, for those who are frequent readers of the *Wall Street Journal*, they might have seen the back and forth of the discussion between a group of four prominent US statesmen and former President of the USSR, Mikhail Gorbachev, as they published op-eds which played off of each other and brought to public focus a topic which had fallen off the political agenda. It was this public discussion that rejuvenated the idea of total nuclear abolition and brought it onto the platforms of both Senators John McCain and Barack Obama. In fact, during a meeting at the White House on May 19, 2009, with the authors of the two US op-ed articles, President Barack Obama said these men are “four of the most pre-eminent national security thinkers that we have...all who’ve come together and helped inspire policies of this administration and a speech that I gave to Prague which set forward a long term vision of a world without nuclear weapons.”

The first US op-ed article was signed by a bi-partisan group: George Shultz, Secretary of State from 1982-1989 under President Ronald Reagan; William Perry, Defense Secretary from 1994-1997 under President Bill Clinton; Henry Kissinger, Secretary of State from 1973-1977 under President Richard Nixon; and Sam Nunn, Democratic Senator of Georgia from 1972-1997 and current CEO of the Nuclear Threat Initiative. It was published in the *Wall Street Journal* on January 4, 2007 entitled “A World Free of Nuclear Weapons” and sought to rekindle Reagan and Gorbachev’s vision. It presents the case for such an endeavour in the first half by appealing to fears of nuclear terrorism and the failed attempt at Reykjavik. The second half presents some concrete steps which can be taken now to start the process of moving towards zero including eliminating short-range nuclear weapons which are meant to be “forwardly-deployed” US nuclear missiles in Europe, taking nuclear weapons off hair-trigger launch, ratifying the CTBT and Additional Protocols of the NPT which would improve stockpile security, controlling the Uranium enrichment process including phasing out the use of HEU for civil use, and holding negotiations between nuclear weapon states along with Japan and Germany to resolve regional confrontations.

Mikhail Gorbachev was quick to approve of the “Gang of Four” op-ed, writing his own response in the same newspaper only weeks later. As the former General Secretary and President of the Soviet Union from 1985-1991, Mikhail Gorbachev, who at the October 1986 conference on arms control with then President Ronald Reagan nearly reached an agreement to eliminate all nuclear weapons, did succeed in negotiating the Intermediate-Range Nuclear Forces Treaty (INF) which eliminated an entire class of weapons and began lowering the threat of nuclear war. Gorbachev also met with President Obama March 20, 2009 in an effort to help reset US-Russian relations. His article, “The Nuclear Threat,” is a criticism of the lack of progress made after the Cold War to eliminate nuclear weapons and “a failure of political leadership,” mostly on the side of the US, but also Russia to a lesser degree. Some problems he presents are the US withdrawal from the Anti-Ballistic Missile Treaty, the re-emphasis of nuclear weapons in military doctrine, including first- and pre-emptive strike, and the fact that the CTBT has yet to come into force because of the nine countries whose ratification the treaty needs, above all the US. The two steps Gorbachev highlights are the ratification of the CTBT and “removing nuclear weapons from the Cold War-era high alert status.” Although he calls on the US to take the initiative, he also points to Russia, Europe and all nuclear-armed states to be fully involved.

A year later, the same four American authors of the original *Wall Street Journal* op-ed published another more comprehensive article, “Towards a Nuclear-Free World,” listing the immediate steps to be taken by the US and Russia. The steps are more numerous and detailed, comprising two thirds of the article, while the case for such actions is more concise than the first, with the addition of new developments since the date their first article was published, including Gorbachev’s response and a list of other supporters. Eight clear steps are presented and explained, giving the article a thorough and well-defended tone. This time, more of Russia’s concerns are addressed such as START, SORT and a cooperative missile defense system, as well as the removal of Mutually Assured Destruction from the military doctrine.

The first European response to the op-ed came from the nuclear weapon state, the United Kingdom, in an article published in June in *The Times* entitled “Start Worrying and Learn to Ditch the Bomb” written by Douglas Hurd, Secretary of State for Foreign and Commonwealth Affairs under Margaret Thatcher and John Major from 1989-1995; Malcolm Rifkind, Secretary of State for Defence 1992-1995 and Secretary of State for Foreign and Commonwealth Affairs under John Major from 1995-1997; David Owen, Foreign Secretary

from 1977-1979; and George Robertson, Secretary of State for Defense from 1997-1999 and Secretary General of NATO from 1999-2004. It begins with a more emotional appeal to the same nuclear terrorism mentioned in the other articles, saying that “terrorist organizations of today would have little hesitation in using weapons of mass destruction to further their own nihilistic agendas.” Britain’s nuclear disarmament track record is praised, although they are not let off the hook that easily. Britain’s role in the new movement is a recurring theme, for example by providing experts for the teams to improve nuclear stockpile security as laid out in UN Security Council Resolution 1540. France is also mentioned as the other European nuclear power, although nothing specific is suggested. The UK response is more limited in scope than the US op-ed, and it mirrors the US positions on nearly every point except the creation of new generations of nuclear weapons.

Less than a month later, an Italian response was published in the *Corriere Della Sera*, significant as a participant in the NATO nuclear sharing program, which means Italy hosts US nuclear weapons as a part of extended deterrence. The authors are Massimo D'Alema, Prime Minister 1998-2000 and Foreign Minister 2006-2008; Gianfranco Fini, Foreign Minister 2004-2006 and current President of Italian Chamber of Deputies; Giorgio La Malfa, Minister for European Affairs from 2005-2006; Arturo Parisi, Defence Minister 2006-2008; and Francesco Calogero, Dept. of Physics, University of Rome and former Secretary General of Pugwash, an international organization which jointly won the Nobel Peace Prize in 1995 for efforts on nuclear disarmament. They do not delve into arms control or military doctrine much, but focus their suggestions on treaties and issues of non-proliferation and international relations, explicitly citing the need for improved US-Russian relations. The first two steps they clearly lay out are the entry into force of the CTBT and continued negotiations on the Fissile Material Cut-off Treaty, both of which would strengthen the Nuclear Non-Proliferation Treaty. A list of other positive responses and efforts from key countries is given, although Italy’s own role in the process is kept vague.

The most extensive response was given by another NATO nuclear sharing partner and member of the 5+1, by the four German authors of “Toward a Nuclear-Free World: A German View” published in the *Frankfurter Allgemeine Zeitung* a year after the second US op-ed, January 2009, signed by Helmut Schmidt, Chancellor of Germany from 1974-1982; Richard von Weizsäcker, President of Germany from 1984-1994; Egon Bahr, former German Minister and key negotiator between East and West Germany as well as Germany and the

Soviet Union; and Hans-Dietrich Genscher, Foreign Minister of Germany from 1974-1992. They cover the broadest range of issues including many brought up by Gorbachev but not addressed in any of the other articles. This is the only article to bring up concerns about conventional weapons and space. Unlike the Italian article, a specific plea is made for the removal of US forwardly-deployed nuclear weapons from German territory.

See Appendix for a table comparing the six articles on the steps they mention.

Chapter 2: A Look at the Roadmap

Part 1: Military Doctrine and Deterrence

Remove MAD and Extend Launch Times

During the Cold War, the concept of nuclear deterrence developed into the doctrine of Mutually Assured Destruction (MAD) between the two superpowers, which provided a precarious strategic stability based on vulnerability. Key to this set-up was having enough nuclear weapons on high alert that an immediate counter-strike would be possible, even before the first-strike would have hit. Thus, any first-use of nuclear weapons would be suicidal, resulting in a crippling retaliation within minutes, the idea being that this would take the option of a nuclear attack off the table, and most would argue that it prevented nuclear war.

However, many wonder why this relic has remained in military doctrine even until today, and thousands of nuclear weapons of both the US and Russia are still on high alert and pointed at each other² despite the ending of the Cold War two decades ago. Other nuclear-armed countries engaged in current Cold War-like balances of strategic power, such as India, have refrained from having nuclear weapons on high alert and even keep warheads separate from delivery systems.³ In fact, the Chinese have even requested specifically that these policies be changed.⁴

2 George Perkovich and James M. Acton. 2009. *Abolishing Nuclear Weapons: A Debate*, pg. 24.

3 *Ibid.*, pg. 28.

4 See Working Papers submitted by Chinese Ambassador Hu at the 2005 NPT Rev Con.

Both the 2007 and 2008 US op-eds, as well as Gorbachev's response, address the continuation of this Cold War doctrine and deployment, although only the 2008 US op-ed specifically calls on the US and Russia to "discard any existing operational plans for massive attacks that still remain from the Cold War days" referring to MAD. The others focus more specifically on "changing the Cold War posture of deployed nuclear weapons to increase warning time and thereby reduce the danger of an accidental or unauthorized use of a nuclear weapon." This concern is not unfounded, when one looks at the close calls and mistakes in the past, including the Norwegian rocket incident of 1995 when Russian radar stations had not been informed that Norway was launching a meteorological rocket to study the Northern Lights and were minutes from launching a counter-strike.⁵ This would also be a good sign for other countries, a form of confidence-building and political good will, not only limiting the importance of nuclear weapons in military doctrine but also lessening the risk of accidental nuclear war.

Improvement in US-Russian relations, a high priority on the Obama agenda, will make these changes easier, although there will be some resistance among the old guard on both sides. For the US, extended deterrence and NATO Article 5 commitments to defend members of the alliance will not be compromised by this change in doctrine, but some allies may need to be convinced and reassured of this fact. Russian influence remains a concern for some former Soviet countries, even two decades after the end of the Cold War, fears which were heightened by the recent armed conflict in Georgia. The official position of the US will be revised when the 2010 Nuclear Posture Review is completed, work which began April 2009 and should finish early next year. It may reflect Congressman Visclosky's urging for a transition of policy and funding "free of reflexive ties to the policies of the past."⁶

No First-Use or Deterrence of Non-Nuclear Threats

The role of nuclear weapons traditionally was as the ultimate last resort, the highest insurance, a counter-strike that no country would be willing to face, as a means of preventing a nuclear attack or possibly other weapons of mass destruction, such as chemical or biological attacks, in the case of Israel. Traditional ideas of the use of nuclear weapons was primarily as a deterrent to an adversary's first-strike of nuclear weapons, the weapon that was never meant

5 Alan F. Philips. 1998. 20 Mishaps that Might have Started Accidental Nuclear War.

6 Richard M. Jones. May 27, 2009. Key Appropriations Hearing for the NNSA. AIP.

to be used but always ready if necessary. Although the term “counter-strike” with good enough early warning systems and nuclear weapons on hair-trigger launch need not wait until the first-strike hit,⁷ it is a far cry from being the one to initiate a nuclear war. Similarly, acquiring nuclear weapons was generally a reaction to an opponents’ possession of such weapons, revealing the fact that their development was defensive and aimed at deterring other nuclear attacks. However, these traditional doctrines and concepts of war-fighting have changed. In 1993, Russia dropped the Soviet “no first use” policy, and both the US and Russia maintain “strategic ambiguity” about pre-emptive use and as retaliation to non-nuclear attacks.⁸

The German authors, again reflecting concerns also held by China, are the most vocal and concrete about removing first-strike from doctrine, as well as agreeing not to counter non-nuclear threats or threaten non-nuclear weapons states with a nuclear attack, although Gorbachev also writes about how unacceptable these doctrines are saying, “the military doctrines of major powers, first the U.S. and then, to some extent, Russia, have re-emphasized nuclear weapons as an acceptable means of war fighting, to be used in a first or even in a ‘pre-emptive’ strike.” The German article is even more specific, not only explaining the problem but also offering solutions: “Partnership fits in badly with the still-active NATO and Russian doctrine of nuclear first use, even if neither side is being attacked with such arms. A general non-first-use treaty between the nuclear-weapon states would be an urgently-needed step.” However, the German authors do not stop there but also include how they think the relationship between nuclear weapons and non-nuclear weapon states should look: “Germany, which has renounced the use of nuclear, biological and chemical weapons, has every reason to call on the nuclear-weapon states not to use nuclear weapons against countries not possessing such arms.”

China was very explicit in its disagreement with such policies as was laid out in the Working Papers submitted by Ambassador Hu at the 2005 NPT Review Conference and has also submitted a No-First-Use treaty in 1994 and rejects even the threat of the use of nuclear weapons on non-nuclear weapon states.⁹ This treaty is still on the agenda of the UN Conference on Disarmament (CD).

7 Indeed in order to guarantee survivability for a counter-strike, especially for land-based missiles in silos, it should be launched before retaliatory capabilities are eliminated, according to MAD.

8 Perkovich and Acton, pg. 25.

9 See also China’s Contributions to Nuclear Disarmament. <http://china.org.cn/e-caijun/e-caijun.htm>

Conclusion of Part 1: Military Doctrine and Deterrence

Not much political action can be seen with regards to changing the role of nuclear weapons in military doctrine, although improving US-Russian relations will make this easier. For the time being, many of these issues are still up in the air until the US NPR is finished. The Obama Administration's willingness to allow multiple issues and treaties to be linked will aid the negotiations of the binding agreement by nuclear weapon states not to use or threaten to use nuclear weapons against non-nuclear weapon states currently on the UN CD agenda.

Part 2: Disarmament and Arms Control

Ratify the Comprehensive Test Ban Treaty (CTBT)

There is only one topic that all op-eds clearly agree on and give high priority to: the ratification of the Comprehensive Test Ban Treaty, which would codify the unofficial moratorium on nuclear explosion tests observed by the five recognized nuclear weapon states (NWS) following the opening of the signing of the CTBT in 1996. Since the ratification of the Partial Test Ban Treaty in 1963, nuclear tests were confined underground due to concerns about radioactive debris in the environment.

Although the CTBT might seem like an unlikely area for such unanimous approval by the op-ed authors, its significance is both military and political. Testing is necessary in order to increase nuclear explosion yields past a basic level, to cross over into a higher technical threshold, therefore observance of the CTBT would freeze national capabilities to their current yields.¹⁰ Nuclear testing can also have a powerful political impact as we saw with the tests performed by India (1974 and 1998), Pakistan (1998), and North Korea (2006 and 2009). These tests acted as public demonstrations of military and technological achievement, with very destabilizing regional effects. The most recent nuclear and missile tests by North Korea at the end of May 2009 have caused significant concern, not only for neighboring countries, specifically South Korea and Japan, but also the United States, with whom North Korea is still technically at war.

10 Statements from Thomas Mützelberg, CTBTO, Vienna, Prague. May 26, 2009.

As stated before, all of the op-ed authors give the ratification of the CTBT an important place in their articles. The first and second US op-eds set out guidelines for getting the CTBT ratification through the US Congress: “This calls for a bipartisan review, first, to examine improvements over the past decade of the international monitoring system...and, second, to assess the technical progress made over the past decade in maintaining high confidence in the reliability, safety and effectiveness of the nation's nuclear arsenal under a test ban,” addressing both Republican concerns which blocked the CTBT ratification in 1999.¹¹ Gorbachev writes that the CTBT ratification is one of two crucial steps which should be taken without delay. Similarly, the Italians put the CTBT as the first of two key steps as well. The German op-ed very directly states, “America should ratify the Comprehensive Nuclear Test-Ban Treaty,” which is quite a contrast to the vague wording in the UK article: “Bringing the Comprehensive Test Ban Treaty into effect would, similarly, represent strong progress in the battle to reduce the nuclear threat,” which abstains from pointing the finger at its close ally.

So far, 92% of states world-wide have signed the CTBT, but a provision, Annex 2,¹² was written into the treaty that 44 significant states must ratify the treaty for it to enter into force, of which 9 have yet to ratify: the US, China, India, Pakistan, Iran, Israel, Egypt, Indonesia and North Korea. Although over half have signed, this ratification process will be difficult, also within the United States despite President Obama’s commitment to push it through the Senate, due to a strong core of Republican opposition which remains from the 1999 Congressional ratification rejection, led by Senator Jon Kyl (Republican, Arizona), and a lack of a Democratic two-thirds majority in the Senate,¹³ although the recent victory of Al Franken, newly confirmed Senator from Minnesota, makes one less Republican the Democrats will have to convince. Verification was a major concern last time, but now the monitoring system is mostly in place, with 337 stations world-wide and the two North Korean nuclear tests which had the positive effect of providing test-runs for and validating the monitoring system. The new issue which will probably be used by Republicans to block ratification is “stockpile testing” to ensure the quality of stored US nuclear weapons, an idea

11 Sean Dunlop and Jean du Preez. Feb. 2009. NTI Issue Brief: The United States and the CTBT: Renewed Hope or Politics as Usual? http://www.nti.org/e_research/e3_ctbt_united_states.html

12 “Annex 2 States are the 44 States that formally participated in the 1996 session of the Conference on Disarmament and possessed nuclear power or research reactors at the time, *all of whom* must ratify the Treaty for it to enter into force.” Official CTBTO website, <http://www.ctbto.org/faqs/?uid=44&cHash=303fb705c1>

13 Dunlop and Preez, 2009.

which was dismissed by CTBTO representative Thomas Mützelburg.¹⁴ The latest North Korean test will likely raise US fears and delay decision-making until at least after the 2010 NPT Review Conference, but at least the US is now paying in full its financial obligations to build up the CTBTO verification system.

Although the ratification of the CTBT by the US would certainly ease doubts from other countries waiting to see concrete steps from the former superpower, many other issues stand in the way. The on-going Arab-Israeli conflict has kept both Israel and Egypt from ratification, as well as Indonesia, the state with the largest Muslim population in the world. However, Israel is not against the CTBT and has been “constructively engaged,”¹⁵ hosting two certified monitoring facilities with another planned.¹⁶ Indonesia should not be difficult to get on board. A ratified CTBT by the US and other key nuclear weapon states would be a powerful bargaining chip and sign of commitment to NPT non-proliferation promises, especially at the upcoming NPT Review Conference in 2010, although this now seems unlikely. The world has yet to see what the repercussions of the 2009 North Korean nuclear test will be, however, its punishment with unanimous UN sanctions is a positive display of the rest of the world’s normative ban on nuclear testing.

Replace the Strategic Arms Reduction Treaty (START)

The drastic reduction of nuclear weapons is, of course, the key to creating a world without such weapons. Although both the United States and Russia, successor state to the USSR, now have arsenals about a third of their peak levels during the height of the Cold War, both still have thousands left, about 9,000 and 13,000 warheads respectively. The third most powerful nuclear force, found in France, is only 300 warheads strong, putting these two giants in a nuclear league of their own. If Russia and the US cut their arsenals down to the minimum level which would still ensure a believable nuclear deterrent, estimated to be 1,000,¹⁷ they would still be by far the largest nuclear powers. The other seven nuclear-armed states have less than 1,000 nuclear warheads combined, but this step would eliminate 92% of currently

14 Thomas Mützelberg, CTBTO, Vienna, Prague. May 26, 2009.

15 Ibid.

16 CTBTO official website, Country Profile: Isreal, <http://www.ctbto.org/member-states/country-profiles/?Fsize=a&country=84&cHash=923955ffff>

17 Ivo Daalder and Jan Lodal. 2008. The Logic of Zero: Toward a World Without Nuclear Weapons. In: *Foreign Affairs*, Nov/Dec. 2008, pg. 81.

existing arsenals if both superpowers dropped down to 1,000 each.¹⁸ These levels would make maintaining stockpile security easier and cheaper, and decrease the chance of serious accident, either human or technical error. To give a recent example, one which is also mentioned in the 2008 US op-ed and sometimes referred to as the Minot Incident, “on Aug. 29-30, 2007, six cruise missiles armed with nuclear warheads were loaded on a U.S. Air Force plane, flown across the country and unloaded. For 36 hours, no one knew where the warheads were, or even that they were missing.”¹⁹ Dropping down to these minimal deterrence levels would give both countries fewer balls to juggle and lessen the chance that one of them drops.

Drastic nuclear cuts are also the most important instrument for nuclear powers to build confidence among weaker nuclear powers and non-nuclear weapon states, by showing their seriousness to uphold Article VI of the Nuclear Non-Proliferation Treaty, promising to make efforts toward an end to the arms race and complete disarmament. By honoring Article VI, it will encourage other states to uphold their Article II agreements not to acquire nuclear weapons or use nuclear energy programs for military purposes. But this step must be taken relatively early in the process to get other states on board. The US and Russia must prove their determination first, with a new bilateral agreement to replace the Strategic Arms Reduction Treaty (START) of 1993 which reduced levels of delivery systems to 1,600 and deployed warheads²⁰ to 6,000. It expired December 5, 2009 and by January 2010 the negotiations of a follow on treaty is still in progress. The eliminations agreed upon in the Strategic Offensive Reductions Treaty (SORT) of 2002 have been fulfilled, which cuts deployed warheads down to 1,700-2,200 each, although verification measures were not included in the text of the document.

As Russia and the US disarm and prove their commitments to the vision of Zero, the rest of the nuclear-armed states will need to join, making it important to include the five nuclear weapon states formally recognized by the NPT (P5) as well as other nuclear-armed states outside of the treaty (India, Pakistan and Israel), in multilateral disarmament talks. How low Russian and US level would have to get before other states feel comfortable reducing their already minimal arsenals, would depend on the country and other security factors. If

18 Calculations based on figures from the Federation of American Scientists, <http://www.fas.org/programs/ssp/nukes/nuclearweapons/nukestatus.html>

19 2008 US op-ed

20 “Deployed” means the warheads are integrated into the military command structures of the DoD, rather than remaining in storage and under the command of the DoE.

other states have indeed only acquired nuclear capabilities to ensure their own security to deter a nuclear attack, as many of them say, then getting these non-superpower states to disarm should be relatively easy, although all disarmament close to zero will be tricky and security assurances and verification must be in place. However, those who have expanded the role of nuclear weapons in their military doctrine to include non-nuclear threats, such as France, may be harder to convince because the thinking is not the same. One can hope that as other security threats are dealt with in a reasonable manner, such as a WMD Free Zone in the Middle East, reliance on nuclear deterrence for non-nuclear attacks will diminish, making it easier for states to give up their nuclear weapons or at least cut their arsenals down.

It is not surprising then that this subject is mentioned in the majority of the op-eds, with Italy as the only exception. The first US op-ed begins the discussion by simply saying that *all states* that possess nuclear weapons should continue to reduce substantially the size of their nuclear forces. “Continue to reduce substantially” applies the most to Russia and the US, both of whom have reduced their stockpiles to a third of their Cold War peaks, although also to France and the UK who have halved their stockpiles. Gorbachev merely mentions a formal reiteration of the nuclear club to “reducing and ultimately eliminating nuclear weapons,” although nothing was said specifically about the process itself. The second US op-ed is much more specific than the first, calling for “an agreement to undertake further substantial reductions in U.S. and Russian nuclear forces beyond those” in SORT. Positive meetings between Obama and Medvedev make this look possible, including their Joint Statements of April 1 and then again on July 6, 2009.

The UK article supports Kissinger and Shultz’s claim that “dramatic reductions in...arsenals could be made without risking America’s security.” The Italian article keeps its nose out of issues that have little to do with Italy, especially those concerning nuclear disarmament. However, the op-ed from the German group makes the strongest case: “Negotiations aimed at drastically reducing the number of nuclear weapons must begin, initially between the United States and Russia, the countries with the largest number of warheads, in order to win over the other countries possessing such weapons.... It will be vital to the credibility of the 2010 NPT Review Conference that nuclear-weapon states finally keep their promise under the Nuclear Non-Proliferation Treaty to reduce their nuclear arsenals.” This is indeed true as the last NPT Review Conference in 2005 “failed to reach any

substantive agreement”²¹ according to the Nuclear Threat Initiative, due to debate wracked with division on my different levels, for example between geographical regions or non-nuclear against nuclear weapon states. It is interesting to point out that all three articles which mention the START call for its *extension*. None of the op-eds say anything about a successor treaty which goes beyond both START and SORT arsenal cuts, although this could be what is meant by the “agreement” spoken of in the second US op-ed.

In fact, negotiations are currently underway on a successor to START because of active support on both Obama and Medvedev’s sides. Three preparatory negotiation meetings have already been held between teams from both countries this year, in preparation for the meeting July 6-8, 2009, of the two heads of state in Moscow, where they discussed the general issue of further cuts in their arsenals. Two issues that many worried might block progress on the negotiations had to do with missile defense and delivery system counting. It was thought that Russia may still insist on discussing the US missile defense program in Europe and that the Americans would not agree to include the counting of delivery systems and missiles, of which the US is better equipped. In a nuclear weapon free world, these systems could be used conventionally, the nuclear warhead replaced with conventional explosives. The result of this meeting was a substantial first step towards a replacement treaty, which will cut deployed warheads to 1,500-1,675, and strategic delivery systems to 500-1,100 according to the Presidents’ announcement after the meeting.²² Although these levels are only slightly lower than those of the SORT treaty, the legally binding nature complete with verification measures will make it must more robust.

Remove US Warheads from Europe

“Forwardly-deployed” is a term used to describe the roughly 200 US nuclear weapons which have been stationed on the territory of a handful of NATO allies near the old border of the Warsaw Pact: est. 20 in Germany, 50 in Italy, 20 in the Netherlands, 20 in Belgium and 90 in Turkey.²³ Under Article 5 of the North Atlantic Treaty, “an armed attack against one or more

21 NTI: NPT Tutorial, Chapter 4, http://www.nti.org/h_learnmore/npttutorial/chapter04_01.html

22 Elaine M. Grossman. July 7, 2009. U.S. Arms Control Proponents Laud Obama-Medvedev Pact as “Progress” *Global Security Newswire*.

23 Bob van der Zwaan. Jan. 12, 2009. Nuclear Weapons in Europe: Time for Disarmament? An International Workshop of the Pugwash Conferences on Science and World Affairs.

of them in Europe or North America shall be considered an attack against them all,”²⁴ and these short-range weapons are part of the US extended deterrence which protected its allies back when Western Europe was in danger of Soviet expansion. This class of weapon is not forbidden by the Intermediate-range Nuclear Force Treaty (INF) negotiated by Ronald Reagan and Mikhail Gorbachev at their historic meeting at Reykjavik, which eliminated an entire class of weapon with a range of 500-5,500 km (300-3,400 miles). However, this form of nuclear sharing is considered by some, especially those in the Non-Aligned Movement, to be a breach of Article I and II of the NPT which states: “Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons” and “each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons.” Additionally, the continued stationing of these weapons along Cold War boundaries, combined with the US missile defense plan for Europe with the stationing of anti-ballistic missile interceptors and radars, raises political questions of intent in already strained US-Russian relations. If Russia and the United States are no longer enemies but in fact strategic partners, why does the US continue to leave its short-range nuclear weapons forwardly-deployed? They remain a symbol of political relevance which will need to be dealt with sooner or later. They are an important political umbilical cord.

Both US op-ed articles from 2007 and 2008 make specific reference to the elimination of “short-range nuclear weapons designed to be forward-deployed.” In the 2008 article more detail is given to how this should come about, through “a dialogue, including within NATO and with Russia, on consolidating the nuclear weapons designed for forward deployment to enhance their security, and as a first step toward careful accounting for them and their eventual elimination,” in order to prevent nuclear terrorist from getting their hands on these more portable weapons. The wording in both articles exhibits a lack of transparency about the real meaning. “Forward deployment” is not a term that most readers of the *Wall Street Journal* are familiar with, and yet no clarification is given. Even the phrase “designed for forward deployment” is misleading in that it suggests these weapons have not yet been deployed but are merely *designed* for this purpose. As well, in the 2008 article, no explanation is given for “consolidating” these nuclear weapons, whether that means having the warheads in fewer sites or if this means the removal of these weapons back to the United States, which is the suggestion of the German op-ed authors: “We are also of the opinion that all remaining U.S. nuclear warheads should be withdrawn from German territory.” This statement, unlike

24 See text of North Atlantic Treaty, Article 5. <http://www.nato.int/docu/basicxt/treaty.htm>

the US articles, is clear and direct, and would be understood by any casual reader of the *Frankfurter Allgemeine Zeitung*, and might come as quite a surprise to many Germans who are unaware that US nuclear warheads are still stationed on their country's soil after nearly two decades of a unified Germany. It is understandable that it is not given priority in the UK article, as they have their own nuclear arsenal and are no longer partners in nuclear sharing, but the Italian article, with Italy sharing an estimated 50 warheads, is conspicuously silent. As the nuclear sharing programs in the UK and Greece have both ended and the nuclear warheads removed, it is likely that this trend will continue in the future.

Missile Defense and the Anti-Ballistic Missile (ABM) Treaty

The only area where there is disagreement between the authors of the op-eds is on missile defense and the Anti-Ballistic Missile treaty. Whereas Gorbachev and the German authors talk specifically about the ABM treaty, the US and UK authors turn their comments to a cooperative missile defense system. These two positions are irreconcilable as the ABM treaty, which went into effect in 1972 “prohibits the deployment of anti-ballistic missile systems for the defense of the national territory.”²⁵ This was to preserve the mutual vulnerability that nuclear deterrence depends on as defense can be seen as preparation for an attack and the elimination of a counter-strike as well as a first-strike. The first nuclear arms control treaty, the Strategic Arms Limitation Treaty (SALT), was signed in conjunction with the ABM treaty by Presidents Nixon and Brezhnev. However, since Ronald Reagan's Presidency, ballistic missile defense (BMD) has been an American objective. It is, in fact, the single issue which stood in the way of nuclear abolition back in Reykjavík, due to Reagan's insistence on his Strategic Defense Initiative. Russia even conceded and allowed the US to have limited theater missile defense under Clinton. However, after 9-11, the Bush Administration withdrew from the bilateral treaty in 2002, effectively killing the treaty, in order to pursue a missile defense system to protect the US from ICBM attacks from “rogue states.”

Although, or perhaps because, this is such a controversial topic, it was absent from the original 2007 Gang of Four op-eds, but possibly because Gorbachev placed the abrogation of the ABM treaty as number one in a list of political failures which have allowed nuclear weapons to continue to pose a threat, the second US op-ed diplomatically included “reducing

25 NTI. 2002. Russia: ABM Treaty Overview, <http://nti.org/db/nisprofs/russia/treaties/abmdescr.htm>

tensions over missile defense” and “negotiations toward developing cooperative multilateral ballistic missile defense and early warning systems” as steps which should be taken. These four were supported by the UK authors who wrote a more abstract statement that “any missile threat to Europe or the United States would also be a threat to Russia,” which can be interpreted as favoring a cooperative missile defense system in Europe. This is not, however, a position taken by Moscow which does not see itself threatened by ‘rogue states’ like Iran and North Korea as the US and its NATO allies do. However, factions within Russia can see benefits in a common missile defense system for more political and economic reason, as a way of connecting itself to Europe and NATO and gaining technical knowledge and equipment. The German article takes the hardest line, saying that “the Anti-Ballistic Missile (ABM) Treaty must be restored,” something which is not mentioned in any other article but reflects Russian and Chinese sentiments, however remote the possibility seems.

As the upper-atmosphere and outer orbits around the Earth play a role in many proposed missile defense systems – where monitoring satellites can be stationed in the most peaceful BMD designs and a wide range of weapons being developed and currently tested would be based in more ambitious systems – there is the threat of an arms race in space which would prove destabilizing, not to mention extremely expensive for all who would be involved. The German article cites the need for the preservation of outer space for peaceful purposes directly after the restoration of the ABM treaty, mirroring Chinese Ambassador Hu Xiaodi’s statement at the 2005 NPT Review Conference that “missile defense programs should not undermine global strategic balance or disrupt international or regional peace” which he followed directly with a call for a legally binding treaty “preventing weaponization of and arms race in outer space”²⁶ listed as the sixth of ten points China has always held.

A US missile defense program has been under development in Europe, as well as interceptors which would cover the Pacific, where US allies like Japan and South Korea feel threatened by North Korea’s nuclear and missile tests. These systems, whatever claims made by the US and allies, could potentially be directed against Russia and China just as easily according to a study done of missile trajectory models and interception points, and are causing concerns that these BMD systems are in fact meant for defense against multiple targets.²⁷ Progress has been made on this front by a diplomatic tight-rope walk being carried

26 See Chinese Working Papers presented to the NPT 2005 Rev.Con

27 Hans-Christian Gils. 2009. Modeling of Ballistic Missile Trajectories and their Application for the Analysis of Missile Defense Systems

out by President Obama and Secretary of State Hilary Clinton, as they “reset” US-Russian relations while reassuring new NATO allies and former Soviet block countries, Poland and Czech Republic, where planned interceptor and radar components were to be stationed.

Adapt the Treaty on Conventional Armed Forces in Europe (ACFE)

The Treaty on Conventional Armed Forces in Europe (CFE) was negotiated between the two blocs of the Cold War, NATO and the Warsaw Pact, signed on November 19, 1990 with the aim of reducing conventional forces to lower levels and thus preventing possible surprise attacks and large scale offensive actions in Europe. The limitations cover five categories of conventional armament: combat aircraft, attack helicopters, artillery pieces, battle tanks and armored combat vehicles. Rigid information-sharing and verification measures intended to lead to verifiable compliance are an integral part of the treaty. So far, the CFE treaty is the world’s largest and most successful arms control treaty, accountable for almost 60,000 destroyed pieces of armament and over 4,000 on-site inspections. This is why the treaty is often referred to as the “cornerstone of European security.”²⁸

Rooted in the bloc-to-bloc mentality of the Cold War, the treaty was designed to balance the conventional armies of NATO and the Warsaw Pact, the two different “groups of states.” By setting a system of zones from the Atlantic to the Ural Mountains, the problem of military concentration at the heart of Europe was solved with stark restrictions imposed in these zones, especially on the territory of the USSR. Nevertheless, with the end of the Cold War the treaty faced significant change, namely the collapse of the Warsaw Pact, followed by the end of the Soviet Union. By the mid-nineties it became clear that NATO would expand eastwards which meant that parties to the treaty belonging to the one “group of states” would switch to the other “group” causing problems with the balance of forces. Even harder would have been the inclusion of Non-Aligned states like the Baltics into NATO. Another serious concern of the Russian Federation were the limits which already covered most of the European part of Russia, especially as Russia was facing turmoil in the North Caucasus which partially led to the two Chechen Wars.

28 Arms Control and Nonproliferation: A Catalog of Treaties and Agreements. CRS Report. Feb. 2009.

Addressing the Russian concerns, the treaty's parties accepted moving the Russian limits up in a manner that allowed Moscow more freedom of military movement in 1996. Shortly afterwards, NATO agreed to fully adapt the treaty to the new situation thereby allowing a smother process of NATO enlargement. The decision was accompanied by the NATO-Russia Founding Act of 1997. The Founding Act assured Russia of the Alliance's peaceful intentions. Further assurances were made such as no stationing of "substantial combat forces" on the territory of new members.²⁹ In November 1999, the states party to the treaty convened in Istanbul for the signing ceremony of the new Adapted CFE Treaty (ACFE). Crucial parts of ACFE were the replacement of the old "group" structure by a system of national ceilings, a new flexibility modus for the stationing of foreign troops, the abolition of the zonal system (except the northern and southern flank restrictions), an increased verification regime, and the opening of the treaty to new members such as the Baltics. The treaty was accompanied by a number of politically binding statements, for instance Russia's commitments to fully withdraw its troops from Moldovan and Georgian soil by a certain time. These so called "Istanbul Commitments", although not an integral part of the treaty, were used by NATO member states to delay ratification, thereby expressing their disagreement with Russia's non-compliance with full withdrawal.³⁰

For nearly ten years, the treaty has been in a state of limbo because of NATO's insistence on fulfillment of the "Istanbul Commitments". In 2007, Russia decided to "suspend" the treaty (though the treaty does not offer the possibility of suspension) citing a number of requirements for a possible return to the treaty's regime. Most of them were closely linked to NATO enlargement and the stationing of foreign troops. Another part of Russian concerns were Washington's former plans to establish tracts of a ballistic missile defense system (BMD) in Poland and the Czech Republic.³¹ Although intended to counter possible attacks from "rogue states" the radar system in the Czech Republic would have allowed for coverage of large areas of Russian territory.³² To implement such a system the U.S. unilaterally withdrew from the Anti-Ballistic Missile Treaty (ABM) in 2002 thus provoking harsh Russian criticism. The link to the conventional level is not obviously identifiable.

29 Founding Act on Mutual Relations, Cooperation and Security between NATO and the Russian Federation Paris, 27 May 1997, at: <http://www.nato-russia-council.info/HTM/EN/documents27may97.shtml>.

30 Alyson Bailes, *Arms and the Man: The Conundrums of Control*, in: Wolfgang Zellner/Götz Neuneck/Hans-Joachim Schmidt, *The Future of Conventional Arms Control In Europe*, Baden-Baden 2007, p. 34

31 Annual Address to the Federal Assembly, April 26, 2007, Kremlin, Moscow, at: http://www.kremlin.ru/eng/text/speeches/2007/04/26/1209_type70029type82912_125670.shtml.

32 Zolotarev, Pavel: *Missile Defense Challenges*, in: *Russia in Global Affairs* (Vol. 6; No. 3; July-September 2008), p. 66-78.

Nevertheless, it is there and Russia's firm stance for abolishment could hinder visible improvements in arms control on the conventional as well as the strategic level as the latest talks of President Obama with his Russian counterpart Medvedev in Moscow have showed.

Strangely, the German op-ed is the only article to mention conventional weapons, dedicating a large paragraph to explaining the importance of the CFE treaty and its connection to the ABM treaty. As the concern about the balance of power in a post-nuclear weapon world would be paramount, this is a topic which has received too little attention and discussion in the US and western European debates. Were nuclear weapons to disappear tomorrow, the US would be left with by far the world's greatest military power due to its conventional force. Those particularly concerned are nuclear weapon states who see themselves as balancing the US's potential global dominance with their own nuclear arsenals, currently supplementing weaker conventional forces. Therefore, as nuclear forces drop, so must convention forces, in a way that guarantees regional and global stability. Here again we see the German article voicing Russian and, to a lesser extent, Chinese concerns, and bringing these issues into the debate.

Stop the Development of New Nuclear Weapons

In order to get to zero, not only will there need to be massive reductions in nuclear stockpiles over a period of time, but there also needs to be a freeze on the creation of new nuclear weapons. The CTBT is part of that freeze, as well as the ratification of a strong Fissile Material Cut-off Treaty (FMCT) which will not only ban the production of new weapons-grade fissile materials but also monitor the large stockpiles held by the US and Russia which could be diverted for the creation of new nuclear weapons. Signing treaties to reduce old nuclear weapons on one side but then modernizing and creating new weapons on the other, would make preaching a world free of nuclear weapons simply rhetoric. Yet this is exactly what the US is in danger of doing, if it does not abandon its Reliable Replacement Warhead (RRW) program begun under the Bush Administration and the Dept. of Energy's National Nuclear Security Administration (NNSA). The idea behind the program was to extend the life of the existing stockpile by replacing aging warheads to make them last longer and be more reliable. Retaining a believable nuclear deterrent is important to provide security not only for nuclear-armed countries but also their allies covered by their extended deterrence umbrella.

The two articles which articulate this concern are from the UK and German authors. In the UK op-ed, the creation of new nuclear weapons is connected with the ratification of the CTBT: “The treaty would ban the testing of nuclear weapons, ensuring that the development of new generations of weapons ceases.” The use of the phrase “new generations of weapons” points to a concern, not of new nuclear weapon states doing their first testing to demonstrate their capabilities, but of existing nuclear weapon states improving their current stockpiles, such as the RRW program. It should also be pointed out that this is the only point where the UK authors stray significantly from the two US op-eds and criticize their close ally, the United States. This is echoed in the German op-ed which touches on the topic towards the beginning of the article, juxtaposing the growing number of states with nuclear capabilities and “at the same time, existing nuclear-weapon states are developing new nuclear arms.” It is presented more as Gorbachev might have done, bringing attention to the problem but offering no concrete ways to deal with it.

This lack of a solution may be due to the RRW program’s fiscal death at the hands of the US Congress, where critics say it would “send the wrong message.”³³ It has received no funding in the 2008 and 2009 budgets and for the upcoming 2010 budget the NNSA has not requested any funding for the RRW program.³⁴ As well, the Obama Administration has requested flat funding for the NNSA until the new Nuclear Posture Review is completed early 2010 and US nuclear policy is more clearly defined.³⁵

Conclusion of Part 2: Disarmament and Arms Control

It now appears that the necessary political will to make deep cuts in the nuclear arsenals of the two former superpowers is there and making promising progress, as seen with the July 2009 agreement signed by Presidents Obama and Medvedev demonstrating their commitment to cooperation on nuclear reductions that will go beyond the SORT treaty and the accelerated rate with which the START successor treaty is being negotiated. Removing US forwardly-deployed nuclear weapons is also more of an issue of political will. If assurances can be granted to these NATO allies that the US will not weaken its commitments to extended

33 Elaine M. Grossman. Sept. 12, 2008. Military’s RRW Alternative is Warhead Life Extension. *Global Security Newswire*.

34 NNSA Seeks No Fund for Reliable Replacement Warhead. *Global Security Newswire*. May 11, 2009.

35 Richard M. Jones. May 27, 2009. Key Appropriations Hearing for NNSA. *FYI: The AIP Bulletin of Science Policy News*.

deterrence and Article 5 of the NATO Pact, this move should also not be too difficult. This may also be true of the missile defense program. More difficult will be the ratification of the CTBT, especially in light of the most recent North Korean nuclear test. Some in US will be hesitant to lock themselves into such a treaty with an unpredictable and ever escalating conflict brewing, especially as the US is still officially at war with this small Communist state. This and perceived threats from Iran have led the US to step up its missile defense which has in turn led China and Russia to modernize their nuclear forces. Solutions to the North Korean and Iranian problems are paramount.

Part 3: Non-Proliferation and Nuclear Energy

Strengthen the Nuclear Non-Proliferation Treaty

The Nuclear Non-Proliferation Treaty (NPT), with 189 states as party, is the single most important treaty pertaining to the possession and spread of both nuclear weapons and technology connected to the use of civil nuclear energy. At the time the treaty was open for signatures in 1968, there were five states with nuclear weapon capabilities: the United States, the USSR (now Russia), the UK, France and China. These states are also the five permanent members (P5) of the UN Security Council who, unlike the other seats on the Council, do not rotate and have veto power.³⁶ The NPT can be summarized by its three pillars: non-proliferation, disarmament and the right to peacefully use nuclear technology. Even before the NPT, the International Atomic Energy Agency was set up to control this new science due to Eisenhower's famous "Atoms for Peace" speech in 1953.³⁷

Pillar 1, Non-proliferation, has two parts: one directed at the five recognized nuclear-weapon states (NWS) and one for all other non-nuclear weapon states party to the treaty (NNWS). Nuclear weapon states shall not "transfer...assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons"³⁸ and non-nuclear weapon states shall not receive or manufacture nuclear weapons, or seek or receive assistance for creating a nuclear weapon.³⁹ Basically, the five who have them can keep them but no one else is allowed, in an effort to freeze the 1970 status. This caused problems for

36 Background Information: NPT. 2005. <http://www.un.org/events/npt2005/background.html>

37 Ibid.

38 Article I of the NPT

39 Article II of the NPT

countries who had advanced nuclear programs at the time but had not tested and therefore did not sign the treaty: India, Pakistan, Israel and South Africa. Critics argue that this unfairly allows some states to retain monopolies on nuclear weapons that they then use to threaten those locked out of developing nuclear deterrents.

Pillar 2, Disarmament, holds that, “each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.”⁴⁰ After nearly four decades of the NPT being in force, such a treaty has yet to be negotiated due to varying interpretations of Article VI and the phrase “an early date.” The closest the world has come was at the bilateral agreement nearly reached at the Reykjavik meeting of Gorbachev and Reagan.

Pillar 3, The Peaceful Use of Nuclear Technology, says that “all the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy”⁴¹ and of course all of these activities must be under the safeguards of the IAEA, which ensures that a non-nuclear weapon states (NNWS) is not diverting fissile materials for military purposes. The NPT not only allows NNWS to develop and use nuclear technology but requires nuclear weapon states (NWS) to share their knowledge in a non-discriminatory manner.

Many problems are presented by these pillars of the NPT. Firstly, the NPT pariahs, those states with nuclear weapon capabilities who are outside of the treaty, have found engaging in the global nuclear transfer of materials and technology difficult. This has led to the development of self-sufficient nuclear programs and trading with other NPT outsiders. We see this in the increasing arms trade between Israel and India, as well as the clandestine international proliferation network headed by Pakistani engineer, A. Q. Khan. Incorporating these states into an international nuclear disarmament treaty could be difficult because they would have to be given incentives to induce them to participate. Other NNWS would be upset if they felt these outsider states were being rewarded for not signing the NPT. For example,

40 Article VI of the NPT

41 Article IV, paragraph 2 of the NPT

India might use their nuclear weapons as a bargaining chip to get UN Security Council permanent membership, an act that would anger China and Pakistan.⁴²

Secondly, the lack of action on the second pillar by the NWS has caused many NNWS, currently subjected to safeguards, to question the fairness of the enforcement of the treaty. This argument can be seen with the Additional Protocols, which would grant the IAEA “expanded rights of access to information and sites.”⁴³ Some states, such as Argentina and Brazil, feel unequal expectations when they are pressured to accept stricter verification, while NWS do not receive the same pressure to disarm, and directly connect NWS nuclear disarmament with signing the Additional Protocols. This is why the new START treaty is so important to building political good-will among NNWS ahead of the NPT Review Conference which takes place every 5 years. Many Middle East countries connect signing the Additional Protocols with Israeli nuclear disarmament, and in Africa the Additional Protocols lack support as the issue of nuclear weapons in general is not as important on the continent as a whole.⁴⁴

A third issue is the fairness of how safeguards are imposed on individual NNWS, seen most dramatically in the case of Iran, a party to the NPT who has again and again stated that their nuclear program and Uranium enrichment is for civil nuclear energy. Their argument is that “Iran submitted its nuclear facilities to an unprecedented inspection by the (IAEA) in the preceding years, which enabled the agency to organize the most robust inspection it has ever carried out. It included more than 2,000 inspector-days of scrutiny in the past three years. Iran even went far beyond any of its legal obligations by taking the unprecedented step of repeatedly allowing inspectors to visit military sites in order to investigate baseless allegations.”⁴⁵ However, US intelligence sources say that Iran is researching nuclear weapons, based on information allegedly found on a stolen Iranian laptop.⁴⁶ Many are hesitant and sceptical as the source of the laptop can not be verified by foreign analysts for security reasons, this in the aftermath of the Iraq debacle, where faulty US intelligence was given before the UN to justify a pre-emptive war.⁴⁷ If the Iran problem can not be solved soon, it

42 Perkovich and Acton, pg. 106-107.

43 IAEA Factsheet & FAQs, http://www.iaea.org/Publications/Factsheets/English/sg_overview.html

44 Tariq Rauf, IAEA, presentation at UN Headquarters

45 Javad Zarif, Iranian Ambassador to the UN, October 20, 2009, Zarif: United Nations unfairly pressuring Iran. CNN. <http://edition.cnn.com/2006/US/08/14/zarif.commentary/index.html>

46 William J. Broad and David E. Sanger, Relying on Computer U.S. seek to prove Iran’s Nuclear Aims, *The New York Times*. November 13, 2005.

47 Tariq Rauf, IAEA, presentation given at UN office in Vienna. May 26, 2009.

will further undermine confidence in the NPT on both sides of the tensions, those who sympathize with Iran and those who fear a nuclear-armed Iran.

Gorbachev makes a very clear and bold statement in his op-ed that “we are united by a common understanding of the need to save the Non-Proliferation Treaty.” He uses the word “save” where the second US article, now containing a reference to the NPT, speaks more of “strengthen(ing) the means of monitoring compliance with the (NPT).” The UK authors also choose to use a strong word to underline the seriousness of the state of the NPT which, “for 40 years the foundation of counter- proliferation efforts, is in need of an overhaul. The provisions on monitoring compliance need to be strengthened.” The Italian authors mention “strengthening the world’s non-proliferation regime” in connection with the 2010 NPT Review Conference, and the favourable ground for negotiations which the entry into force of the CTBT and FMCT would make. The German article simply says that “the Nuclear Non-Proliferation Treaty (NPT) must be greatly reinforced.”

Negotiate a Fissile Material Cut-off Treaty

Fissile materials are those elements which are unstable enough that they can be used for applications ranging from cancer treatment to nuclear energy and weapons. It is precisely this dual-use dilemma – that fissile materials can have peaceful civil as well as military applications – which makes this issue so complicated. Four of the P5 have declared an unofficial moratorium on the production of weapons-grade fissile material, especially Uranium and Plutonium. China is believed to be observing the moratorium but has made no official statement. This makes the other nuclear-armed states India, Pakistan and Israel, pivotal to negotiating this treaty.⁴⁸

The Fissile Material Cut-off Treaty (FMCT) was first supported by President Clinton in 1993 and negotiations were on the agenda of UN Conference on Disarmament (CD), but little progress was made largely due to the next American president, George W. Bush, whose administration refused to discuss the FMCT in connection with other issues on the CD’s agenda, such as keeping space for peaceful purposes and a binding agreement guaranteeing that NWS would never threaten a nuclear attack on a NNWS, both of which China vocally

48 Arend Meerburg and Frank N. von Hippel. March 1, 2009. Complete Cutoff: Designing a Comprehensive Fissile Material Treaty. *Arms Control Today*.

advocates. The first and only draft of the treaty was put forth by the Bush Administration but had no verification provisions, as they believed that verification which was affordable without compromising national security secrets would be impossible.⁴⁹ President Obama seems more optimistic, saying he will “lead a global effort to negotiate a verifiable treaty ending the production of fissile materials for weapons purposes.”⁵⁰ In 2008 there were three unofficial meetings to discuss the treaty and a Working Group has been established in the CD, according to May 29, 2009 CD official document, which will discuss “a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices.”⁵¹

These negotiations will not be simple, with the parties split in three: major nuclear weapon states, minor nuclear weapon states and non-nuclear weapon states. The major nuclear weapon states, like the US, want a FMCT which freezes current levels of weapons-grade materials, leaving them their stockpiles and a monopoly on access to the explosive element for the creation of new nuclear warheads in the future. They argue for a “focused approach” which would involve the IAEA monitoring enrichment and reprocessing plants only, new fissile materials or those created after the treaty comes into force, basing their arguments mostly on lower expenses to the IAEA. The minor nuclear weapon states, such as India and Pakistan, are both accelerating their rate of production of fissile materials, and will not join until they feel they have enough. The NNWS want a strong treaty which will cover not only fissile material produced after the treaty goes into force, but also monitors existing stockpiles so they can not be diverted to weapons-use, with the ultimate goal of eliminating nuclear weapons and the possibility of creating any new ones.⁵²

Only the American and Italian authors list a FMCT as a priority in their articles. We can see a development in the US op-ed between the first and second, as the issue gets more detailed attention in the second. It is mentioned in the first US op-ed as one of eight important steps, the “halting (of) the production of fissile material for weapons globally.” Over a year, the idea seems to have become much more concrete: “Completing a verifiable treaty to prevent nations from producing nuclear materials for weapons would contribute to a more rigorous system of accounting and security for nuclear materials.” Although in both articles the *production* of nuclear materials is given focus, the second article perhaps hints at

49 Ibid.

50 Arms Control Today. 2008. Presidential Q&A: President-elect Barack Obama, *Arms Control Today*, Dec.

51 Decision for the establishment of a Programme of Work for the 2009 session (CD/1864). May 29, 2009. UN Conference on Disarmament.

52 Meerburg and von Hippel, 2009.

including stockpiles of fissile materials made prior to the treaty under the new regime to improve “accounting and security.” Gorbachev writes that “the states that have nuclear-power programs would pledge to terminate all elements of those programs that could have military use,” which can be understood as pertaining to the production of weapons-grade fissile materials, and this he says will be the logical response of non-nuclear weapon states to the confidence-building measures the nuclear weapon states would take with his main two steps: CTBT ratification and removing nuclear weapons from high alert.

The Italian article is the strongest advocate of the FMCT. Of the two steps it lists as the main priorities on the road to a nuclear weapon free world, restarting negotiations on the treaty is one of them. They call for a formal agreement with verification measures to solidify the de facto moratorium on the production of fissile materials. Here again, the focus is on the production of fissile materials and no where in the article does the issue of stockpiles come up. Both the UK and German op-eds are silent on the matter, although the British authors do talk about improving stockpile security, especially for those countries such as former-USSR states who inherited Soviet storage facilities but lack the technical and financial capabilities to properly secure them. Although, again, the emphasis is not on monitoring the states’ stockpiles by an outside regime so they can not be used by the state to make new weapons, but helping reduce the risk of these materials getting onto the black market and into terrorists’ hands.

Control the Nuclear Fuel Cycle

Ballooning global energy demands and the search for alternative energy sources in the face of global warming, has led to a rebirth of nuclear power as a potential solution, one which has the added benefit of bestowing practical nuclear technical know-how and the raw materials which could be used by a state to begin a nuclear weapons program, should they feel it necessary. This dual-use problem is unfortunately shared by biological and chemical weapons, and makes regulation and verification difficult. Of special concern is the radioactive fuel used in the nuclear reactors to create energy, as it is also the explosive ingredient in a fission bomb. Gas centrifuges needed to enrich uranium and reprocessing plants for plutonium, the spent fuel or “nuclear waste” which can be made into weapons-grade plutonium, are at the center of this dual-use issue. Although the technology surrounding the production of fissile materials is complicated, it has become easier and easier to acquire

thanks to loose export controls and illicit proliferation rings like that attributed to Pakistani engineer and “Father of the Pakistani bomb,” A. Q. Khan.

The first and second US op-eds are very preoccupied with these proliferation issues, which is understandable as they and their allies perceive themselves as threatened by many of these break-out states. The first article not only raises the issues of the control of HEU production and the management of spent fuel, but even goes so far as to call for an end to civil use of HEU in various research laboratories world-wide, a call not echoed in any other article. Whereas the first US op-ed basically lists the problems faced, the second is much more proactive, making suggestions for handling fuel: “An international program should be created by advanced nuclear countries and a strengthened IAEA... to provide for reliable supplies of nuclear fuel, reserves of enriched uranium, infrastructure assistance, financing, and spent fuel management.” The only other article which gives this issue priority is the UK, which also calls on “those states that possess advanced nuclear expertise” to “provide those nations wishing to develop a civilian nuclear capability with ...assistance and co-operation.” It basically requests that states honor their third pillar commitments in the NPT, while hinting at an international regime which might be equally as discriminatory, depending on verification measures, decision-making processes and enforcement.

Many solutions to this problem are being explored, solutions that are both technological and also political. The most popular seems to be the idea of a “fuel bank,” a multilaterally-controlled uranium-enrichment center. However, as energy demands rise, maintaining a steady and reliable source of fuel is not only of economic concern; it becomes a security matter, as we have already seen when Russia stopped natural gas flows to Europe. Self-sufficiency and sovereignty for many developing countries like India are more important than non-proliferation issues, and they fear the fuel bank would be one more way that the powerful nuclear states would consolidate their monopolies on access to fissile material.⁵³

Deal with Non-Compliance

One way of strengthening the Nuclear Non-Proliferation Treaty is by reinforcing the monitoring and verification measures, such as the Additional Protocols. These can act as a

53 Sylvia West, June 18, 2009. Obama-backed nuclear fuel bank plan stalls at IAEA. *Reuters*.

deterrent for illicit behavior because the likelihood of being caught engaging in clandestine activities and the repercussions from the international community are too high. However, the current nuclear regime has proven incapable of dealing with extreme situations of non-compliance, such as the refusal by Iran to halt its Uranium enrichment program, which has led to unsuccessful sanction imposed by the US, European Union and the UN Security Council. An even more serious problem was the withdrawal of North Korea from the NPT in 2003, which has resulted in the country, still technically at war with the US, conducting its second declared nuclear test May 25, 2009, as well as multiple missile tests which might provide them with the means of delivering nuclear warheads to the west coast of the US. The prompt UN Security Council approval of imposing even harder sanctions still have not had the desired effect of dissuading North Korea from further missile tests and provocations.⁵⁴ Unless the international community finds a way to deal with these two cases, progress on a myriad of other issues will not be made and skepticism surrounding the vision of a world without nuclear weapons will remain.

This problem is raised by the two US op-eds and perhaps not surprisingly, by the authors who come from the US's strongest ally, the United Kingdom. Both countries currently have combat troops in Iraq because it was believed that Saddam Hussein was developing nuclear and other weapons of mass destruction, and the Bush Administration's dissatisfaction with handling of the situation by the IAEA and UN. The Gang of Four acknowledges in the 2007 op-ed that "achieving the goal of a world free of nuclear weapons will also require effective measures to impede or counter any nuclear-related conduct that is potentially threatening to the security of any state or peoples," and although Gorbachev makes no comment, the second US op-ed in 2008 reiterates this position in different words: "We should also build an international consensus on ways to deter or, when required, to respond to, secret attempts by countries to break out of agreements." This rephrasing to include "international consensus" is a significant indication of disapproval of unilateral response. The UK article focuses less on enforcement and more on willing compliance saying that in return for being provided "with assistance and cooperation" for "those nations wishing to develop a civilian nuclear capability" "proper verification procedures must be in place and access for the IAEA must not be impeded" by those receiving nations.

54 U.S. Extends Trade Restrictions on North Korea, Mulls Options on Cargo Ship. *Global Security Newswire*. June, 25, 2009.

Finding a way to deter and respond to such illicit attempts based on international consensus will not be easy. As it is now, in both the UN Security Council and the G8, Russia and China intervene to soften sanctions on both Iran and North Korea, despite the US and its European allies calling for tougher actions. All of these states share varying degrees of wariness about US intervention in the affairs of other countries. There is also often the domestic problem of appearing to be siding too favorably with the Americans, especially when it meddles in sacred issues of autonomy and national security. A contingency for the most extreme cases must be agreed upon, whether this would entail the use of military force, and if so, what would that look like and what role would the United States in relational to other powers? This is a difficult question and requires more discussion. However, the repairing of diplomacy that the Obama Administration is engaged in now should make slow progress towards finding a solution.

Conclusions of Part 3: Nonproliferation and Nuclear Energy

The issues surrounding the peaceful use of nuclear energy and measures taken to prevent military use are complex as they deal with nuclear as well as non-nuclear states, regional conflicts and the fair and effective enforcement of treaties. At stake are concepts of sovereignty, self-sufficiency, and security. Progress is being made which may have widespread effects, such as NWS nuclear disarmament and apparent willingness on the part of the US to connect disarmament with proliferation concerns. Many US-critics remain skeptical of Obama's efforts and it will take a lot of positive momentum to get past mistrust, but the first steps have been made and plans are underway to continue in this direction. Technology and politics will need to come together to find solutions which are cost-effective and reliable.

Part 4: International Relations

Improve US-Russian Relations

Instead of relations improving after the end of the Cold War, the relationship between the former superpowers actually experienced a significant amount of cooling during the end of the Clinton-era and reaching its height toward the end of George W. Bush's second term, due to conflicts over the US missile defense program and NATO expansion bringing Russia's old enemy ever-closer to its border. The missile defense conflict peaked with plans to incorporate Poland and the Czech Republic into the system. NATO expansion also came to a head when Vice President Dick Cheney and other key Bush Administration names called for expediting NATO membership for Georgia and the Ukraine immediately after the Georgian War in 2008.⁵⁵ These issues are also standing in the way of adapting a new CFE treaty.

This was the atmosphere that the op-ed articles were written in. Although the first US 2007 article stresses the need for US leadership even in the first sentence, Russian leadership is conspicuously absent. Gorbachev points out this omission by saying, "While I agreeing with the Jan. 4 article that the U.S. should take the initiative and play an active role in this issue, I believe there is also a need for major efforts on the part of Russian and European leaders." This correction is reflected in the second US op-ed: "The U.S. and Russia...have a special responsibility, obligation and experience to demonstrate leadership." The Italian article puts it the bluntest: "It will call for certain political conditions. The first is an actual improvement in the relations between the nuclear superpowers, United States and Russia" a sentiment which is only vaguely alluded to by the German article, although many of the specific issues pertaining to US-Russian relations are discussed in greater depth.

Although both Senators McCain and Obama supported the vision of a nuclear weapons free world, on the issue of US-Russian relations they were polar opposites, with John McCain criticizing President Bush's seemingly friendly relationship with then President Vladimir Putin, and Obama reiterating a renewal of diplomatic relations. In fact, to give a clear message that the new Obama Administration was breaking with the direction of the old administration, Secretary of State Hillary Clinton presented Russian Foreign Minister Sergei Lavrov with a comical but symbolic "reset" button at their meeting in March 2009 in

55 US Condemns Russia over Georgia: *BBC News*. Sept. 4, 2008.

Geneva.⁵⁶ Another key moment under the new administration in 2009 was the joint statement given at the G20 Summit, April 1, by US President Obama and Russian President Medvedev which covered a range of topics, including a section which harkened back to the op-eds: “We committed our two countries to achieving a nuclear free world, while recognizing that this long-term goal will require a new emphasis on arms control and conflict resolution measures, and their full implementation by all concerned nations.”⁵⁷

Other tripping stones which have stood in the way of an improvement of this relationship are carefully being removed through patient diplomatic work. The Obama Administration is walking a thin line between NATO allies Poland and Czech, who would feel that their willingness to accept missile defense system components was not being honored by the newly elected President, and Russia on the other side, a partner who’s cooperation is direly needed in order to replace the START treaty and push forward on the path to zero, as well as other issues such as Iran and Afghanistan. The Obama Administration first has been careful to state that they would not deploy any missile defense system which had not been thoroughly tested and proven to work, a clever way of denying support for the current flaw-ridden design, while saving political face with its allies and domestic critics.⁵⁸ Finally the new Obama Administration cancelled the plans of the Bush-Administration for a European Midcourse Defense System with interceptors in Poland and a radar site in the Czech Republic and instead decides in favor for a seabased mobile missile defense architecture.

The START treaty is, as a result, going forward with negotiations. The third set of talks ended June 24, 2009, and the meeting between Presidents Medvedev and Obama in Moscow to discuss the START successor pact was held July 6-8 with both sides agreeing to include verifiable cuts. Despite many doubts, a new treaty may be signed before the NPT Review Conference in May 2010.⁵⁹

Begin Multilateral Talks

Negotiations are imperative, especially at the beginning of this long and difficult process. Nuclear-armed states need to get together and talk about disarmament treaties, like the new START replacement treaty between the US and Russia, but soon a treaty will need to be

56 Michele, Kelemen. Clinton Says She’ll Hit ‘Reset Button’ with Russia. *NPR: Morning Edition*. March 6, 2009.

57 Main Points from Obama/Medvedev Statements, April 1, 2009. *Reuters*.

58 Russia, U.S. to Pursue Missile Defense Cooperation. *Global Security Newswire*. July 7, 2009.

59 Russia, U.S. Finish Latest Round of START Talks. *Global Security Newswire*, June 25, 2009,

negotiated by all nuclear states. Given that the US and Russia combined possess 95% of all nuclear warheads in the world, they will have to drastically reduce their stockpiles before they start getting close to the other P5 states whose stockpiles are in the low hundreds. It must be negotiated at what point the others can be expected to begin disarming. It is hard to imagine that any of these countries would give up their nuclear capabilities without strong confidence in the international nuclear regime and its enforcement abilities, as well as possible benefits in exchange for giving up weapons, as is likely in the case of India and a permanent UN Security Council seat.⁶⁰

However the importance of non-nuclear weapon states should not be underestimated, because they will have to be convinced that the nuclear weapon states, especially the US and Russia, are making serious progress on their NPT commitment to disarm after all these years, before they will be comfortable accepting more regulation in the area of nuclear power and fissile material control. They will also have to be convinced that enforcement will be fair and that they will have protection from potential aggressors, both neighboring states engaged in regional conflict as well as the nuclear weapon states themselves intervening in their domestic affairs.

The first US op-ed stresses this point by saying, “First and foremost is intensive work with leaders of the countries in possession of nuclear weapons to turn the goal of a world without nuclear weapons into a joint enterprise.” However, the key ingredient which they were missing was pointed out in Gorbachev’s article: “I am calling for a dialogue to be launched within the framework of the Nuclear Non-Proliferation Treaty, involving both nuclear-weapon states and non-nuclear-weapon states, to cover the full range of issues related to the elimination of those weapons.” A year later, the US authors revised their previous statement to de-emphasize the importance of multinational talks while incorporating Gorbachev’s point: “in parallel with these steps by the U.S. and Russia, the dialogue must broaden on an international scale, including non-nuclear as well as nuclear nations.” These are the only two articles which make mention of the role of non-nuclear weapon states. The British op-ed emphasizes the contribution that the UK and France should make in multilateral effort, but is not clear about the priority of negotiations, either with nuclear or non-nuclear weapon states.

60 Perkovich and Acton, pg 107

The recent announcement by President Obama at the G-8 summit in Italy of his intentions to plan a global summit to discuss nuclear issues ahead of the 2010 NPT Review Conference is the first step in this direction and will possibly lead to a more positive outcome at the NPT Rev. Con. as Gorbachev suggested in his article. Of course many more summits like this will be need to take place to hammer out all of the complexities and compromises that will need to happen but this could set an important precedent.

Resolve Regional Conflicts

“Nuclear abolition has to be the cart to a geopolitical horse. Nations don’t distrust each other because they’re armed. They’re armed because they distrust each other.”⁶¹

Retired US Admiral Richard Mies

Although the risk of intentional nuclear war between the original five nuclear states is relatively low, the chances of a more localized nuclear war breaking out and even possibly getting the major powers involved is much higher, and within these regional conflicts we find states who are testing the current international nuclear regime: Israel, North Korea and Iran. There are three regional conflicts which pose the largest problem to total global nuclear disarmament, although they are interconnected in a way that makes them impossible to separate: Israel and its neighbors, India and Pakistan, and North Korea and its neighbors.

Israel first received assistance on its nuclear program from France, although the UK and the US are also complicit. To this day, it maintains secrecy about its program, going so far as to kidnap and hold for decades in solitary confinement Mordechai Vanunu, dismissed Israeli nuclear technician who gave information and photographs to *The London Sunday Times* in 1986. Israel’s nuclear capabilities were developed to deter conventional, chemical and biological attacks from the Arab countries around it which do not recognize its right to exist and see it as an occupying force. A few of its Arab neighbors have started but stopped nuclear programs, mostly due to the lack of funding. Iran is the only one enriching uranium, despite UN sanctions, and testing missiles capable of putting satellites in space or a nuclear warhead into Israeli territory. Iran is a perfect example of the dual-use dilemma, as both Uranium enrichment and missile technology can have peaceful civilian uses.

61 Carnegie International Nonproliferation Conference: U.S.-China Strategic Stability. April 6, 2009.

India acquiring nuclear weapons was a result of the uneasiness it had with its long-standing rival, China, becoming nuclear-armed in 1964. The idea of a nuclear-armed India caused concern in Pakistan, the two countries being engaged in a territorial dispute. Eighteen days after India tested its first fusion bomb, Pakistan tested its first nuclear bomb, both in May 1998. Pakistan's bomb comes as a result of the A. Q. Khan clandestine nuclear proliferation network which sold technology to Libya, Iran and North Korea. Although terrorists developing their own nuclear capabilities is unlikely, radical groups coming to power within a nuclear-armed state, like what is currently happening with the Pakistani arm of the Taliban, is a much more realistic scenario and has many analysts worried, despite official statements that the weapons are safe.

North Korea is a problem with few solutions. Sanctions do not seem to be working and even the stricter UN arms embargo following the latest nuclear test, which urges member states to inspect vessels if there are "reasonable grounds" for suspicion, has been taken by the North Korean government as an act of war should any state board a vessel. This embargo is aimed at putting pressure on North Korean arms exports which make up a large part of its revenue.⁶² Even attempts by China, one of North Korea's few allies, have not been fruitful. The North's nuclear and missile programs seem to be based on fears of US aggression, fears which are not unfounded considering that the Korean War did not end in a peace treaty but only a cease fire, combined with the US's long history of regime change and police actions against communist governments. Also the United States reinforcing its extended nuclear deterrent umbrella over its regional allies South Korea and Japan, including an expanded missile defence system, appears threatening to North Korea but also and China, whose small nuclear arsenal might not support a counter-strike large enough to break through a functioning missile defence shield, were the US to launch a first-strike.

All of these conflicts must be eased in order to stop current nuclear enrichment programs and begin reducing arsenals in these regions, including biological and chemical weapons for a WMD-free zone in the Middle East. Confidence-building measures, such as transparency and information-sharing, might follow the model set up by US-Russian bilateral arms control agreements. However, countries with relatively small arsenals depend on secrecy to ensure survivability for a counter-attack and transparency about defense secrets such as locations and numbers of warheads might actually lead to increases in stockpiles to ensure a

62 North Korean Ship Might be Carrying Missile Technology, *Global Security Newswire*. June 22, 2009.

quantitative relative advantage. Another issue would be the verification and enforcement of compliance. Assurances would have to be given to all states that verification would be effective and fair, that illicit activities would be detected early enough to stop a proliferating state, and that quick measures would be taken by a unified international community strong enough to punish or even deter any illegal behaviour.

The very serious and daunting task of easing these regional tensions which create security concerns extreme enough to make developing a nuclear weapons program seem like a good investment, is not dealt with in as many of the articles as one might expect. It appears in the first US op-ed article, but not in either Gorbachev's nor the second US op-ed, which is all the more unusual because it was handled so thoroughly in the first: "The negotiations on proliferation of nuclear weapons by North Korea and Iran, involving all the permanent members of the Security Council plus Germany and Japan, are crucially important...(to) redoubling our efforts to resolve regional confrontations and conflicts that give rise to new nuclear powers." The UK article, following suit, is as silent as the 2008 US op-ed.

However, the other European authors found it important enough to emphasize, perhaps to bring it back up as an issue. Here, the Italian article is the most specific, even going so far as to talk about the different regional conflicts by name and stressing the immediacy of these conflicts as they pertain to possible nuclear war: "It is also necessary to reduce the tensions in those parts of the world where the risk of nuclear weapons actually being used is highest, perhaps even by terrorist groups. We refer here to South-east Asia (India and Pakistan) and to the Israeli-Palestinian-Arab problem in the Middle East." In the German op-ed, a connection is made between cooperation within the northern hemisphere – NATO, the European Union and the Organization for Security and Cooperation in Europe (OSCE) whose membership includes the US and Russia – and easing conflict in the rest of the world: "Stable security in the northern hemisphere would certainly defuse global crises and make them easier to resolve."

Conclusions of Part 4: International Relations

As US-Russian relations continue to improve, other nuclear-armed states must join the discussion. Through international consensus, solutions must be found to the problems of Iran and North Korea so that faith in the NPT can be restored. To ease tensions, peace talks will

also need to get underway. Finding a solution to the Arab-Israeli conflict, perhaps a two-state solution as proposed by President Obama in his Cairo address, might lessen the temptation of states mistrustful of a nuclear-armed Israel to considering gaining nuclear capabilities of their own. Equally as destabilizing would be a nuclear-armed Iran, with power struggles in the region between Iran and Saudi Arabia, Iraq, and Turkey. Also the issue of other WMD must be discussed as Israel's nuclear weapons are to deter chemical and biological weapons. A WMD Free Zone in the Middle East would be a productive step.

Chapter 3: Conclusion

The Greatest Obstacles and the Near Future

After looking at all of the recommendation from the op-ed authors individually and what progress is being made and what challenges must still be faced, recurring themes present themselves: some countries pose greater threats to the movement towards a world without nuclear weapons and some steps will be more difficult to make than others. What are the real obstacles which must be grappled with now in order to solve them in the near-future?

The country posing the greatest problems but offering the fewest solutions is North Korea. Since its second declared nuclear test May 25, 2009, the world must now deal with a nuclear-capable North Korea.⁶³ The new stricter UN arms embargo designed to put pressure on the country's arms export-heavy economy are not having the desired effect. The North Korean government is as belligerent as ever, threatening to declare war on any country which inspects its vessels under the new UN Resolution. Since this second test, there have been a number of additional missile tests, further provoking the US and its allies in the Pacific. This raises serious issues about dealing with non-compliance, and the international community must now decide what to do next.

As well, the more threatening North Korea becomes, the more the US will reinforce its missile defense system in Japan and on its western coast to protect itself and allies. This might increase the perceived threat China feels, who will in turn continue to modernize its military to maintain the credibility of its modest nuclear deterrent. China expanding its nuclear arsenal

63 CTBTO: Experts sure about nature of DPRK event, 12 June, 2009, <http://www.ctbto.org/press-centre/highlights/2009/experts-sure-about-nature-of-the-dprk-event/>

could lead to a domino effect which will spread to India and then Pakistan. Pakistan continuing its nuclear enrichment and nuclear weapons program will only create more dangerous material which will need to be secured from the reach of the Taliban. Luckily, Russia has agreed to help the US-led war in Afghanistan by allowing transport through its territory. However, Iran, a neighbor to Afghanistan and natural enemy of the Taliban, would be a very important ally in this renewed US-NATO effort. It is also in Iran's best interest that Afghanistan stabilizes as the two countries share a common language and culture and Iran would also have to deal with an influx of refugees should the situation further deteriorate. This could be a common, non-nuclear issue the US could use to re-open diplomatic relations with the Iranian government unwilling to discuss its Uranium enrichment program.

However, with the re-election of Iranian President Mahmoud Ahmadinejad, hopes of having a new, more moderate government to negotiate with have faded.⁶⁴ President Obama addressed the issues of a nuclear Iran and preventing a nuclear arms race in the Middle-East in his speech in Cairo, where he also called on Israeli cooperation while respecting its nuclear ambiguity policy, in a very veiled comment, "I strongly reaffirmed America's commitment to seek a world in which no nations hold nuclear weapons... That commitment is at the core of the (NPT) Treaty, and it must be kept for all who fully abide by it. And I am hopeful that all countries in the region can share in this goal."⁶⁵

In response to perceived threats from Iran, and previously WMD attacks from Iraq or terrorists after September 11, the US unilaterally withdrew from the ABM treaty to develop a missile defense. A potential close proximity of missile defense facilities to Russian borders gave rise to fears from Russia that this system was meant to defend against a Russian counter-strike, as the US still has first-strike in its military doctrine. Tensions between the US and Russia had been mounting as NATO's insistence on the Istanbul Commitments which involved Russian withdrawal of troops from Moldova and Georgia, caused Russia to suspend the CFE treaty in 2007, effectively killing it. With the outbreak of violence in Georgia the following year, key Bush Administration officials rushed to forcefully support NATO expansion and the expedited membership of the Ukraine and Georgia. These tensions caused concern that the START treaty would run out in December 2009, without being renewed or replaced. It now looks like the current negotiations are moving forward quickly and a

64 Iranian Election Aftermath Dims Hopes for Nuclear Dialogue. *Global Security Newswire*. July 2, 2009.

65 President Obama's speech in Cairo, Egypt, June 4, 2009.

successor treaty will be in place, thanks to the joint efforts of Presidents Medvedev and Obama.

It was a combination of these problems led to the deep world-wide divisions which caused the 2005 NPT Review Conference to fail, the FMCT negotiations to stall in the CD and the future of the CTBT to remain uncertain. However, because of the new US push and action being taken simultaneously on multiple fronts, the futures of these treaties all look more promising. The positive outcome of the 2009 NPT Preparatory Committee, the approved agenda for the 2010 Review Conference, is a sign that things are beginning to move in a different direction. Generally, the advice of the op-eds has been taken and progress is already being made.

There are many events in the next year which will play a decisive role in the future of nuclear abolition, beginning with the writing of the final draft and signing of the new START successor treaty at the end of 2009. At the request of Congress, sometime in early 2010 a new Nuclear Posture Review will be sent, a document which will set the US nuclear policies for the next ten years, specifically strategy and deterrence.⁶⁶ President Obama also announced at the G-8 summit in Italy that he is planning a Global Nuclear Summit for March of 2010. This should make the NPT Review Conference in New York, May 3-28 run more smoothly than the 2005 NPT Rev Con., widely considered to have been a disaster. Further analysis should be conducted mid-2010 in order to process these events and create an updated status report of the progress made.

There is one major issue which comes up in the literature about total global nuclear disarmament but which was absent in all of the articles. Strangely enough, the topic was broached at a conference on nuclear disarmament in Rome April 16-17, 2009 entitled "Overcoming Nuclear Dangers," inaugurated by Mikhail Gorbachev and attended by three of the US Gang of Four: Shultz, Perry and Nunn. In his opening comments the first day of the conference, Gorbachev came down hard on the United States for withdrawing from the ABM treaty, not ratifying the CTBT and standing in the way of verification measures for the SORT treaty. He also criticized the West for interpreting the end of the Cold War as victory and proceeding to dictate the New World Order rather than taking the opportunity to reform it. However, the most concrete criticism had to do with the problem of non-nuclear weapons

66 Jones, Richard M. 2009. Key Appropriations Hearing for National Nuclear Security Administration. *FYI: The AIP Bulletin of Science Policy News* (68). May, 27.

when he said that “the nuclear danger can only be removed by abolishing nuclear weapons. But, could one regard as realistic the prospect of one country retaining the quantities of conventional weapons that exceed the combined arsenals of practically all other nations – the prospect of one country achieving absolute global superiority?” When asked to respond to Gorbachev’s statement, William Perry replied, “Many things need to happen in parallel with nuclear disarmament. If there is no solution to all of these problems it does not mean that you don’t proceed on nuclear arms control.” However, it could be argued that precisely because so many things must happen in parallel, the issue of US conventional weapon superiority must be discussed along with all of the other issues pertaining to nuclear abolition.

Indeed, this dismissive attitude of Perry and other Americans will do nothing of alleviate the fears of states like Russia and China, who, as George Perkovich, co-author of the Adelphi Paper “Abolishing Nuclear Weapons” said at the Carnegie Endowment for International Peace conference of the same name, “the US will also confront this question – not only from Russia and China, but from other states as well – which is to say, is a world without nuclear weapons basically a way for the US to seek domination through conventional superiority? This is one of the ways in which people...already respond to the op-eds by Secretaries Kissinger, Shultz, Perry and Senator Nunn, which is in private, they will say, sure, sure, these guys are realists. We know who these guys are. And they understand that the US can dominate a world that only has conventional weapons.”⁶⁷ This is a reason why Russia is so determined to make sure that delivery systems like missile launch sites and bombers are included in the successor treaty to START, systems which could be converted into conventional arms by removing the nuclear warheads. This will most likely be the greatest challenge to the START successor as the US has declared roughly 1,200 launch systems whereas Russia has about 800. Russian negotiators would like the new treaty to cap numbers at 600 while US diplomats are pushing for levels still far above current Russian amounts, between 1,000-1,100 launch systems each. If Obama’s team of negotiators goes much lower than 100, the number of disused launch sites which could easily be eliminated, Republican lawmakers “would eat him alive,” according to Pavel Podvig, an arms control expert at Stanford University.⁶⁸

67 Perkovich, George. 2008. 2008. Abolishing Nuclear Weapons. Carnegie Endowment for International Peace. Sept. 22.

68 *Global Security Newswire*. July 6, 2009. Obama, Medvedev Agree to Nuclear Arms Reduction Goals.

Recommendations for Further Analysis

This issue of US conventional superiority must be dealt with in a more direct and honest way. A treaty controlling not only the quantitative but also qualitative advantage the US enjoys should be discussed more in conferences and think tanks who are concerned about nuclear abolition. In order for a treaty of this nature to be possible in the distant future, major changes in the mindset of the United States must also change, especially those who promote US military engagement as a justifiable form of US global power projection.

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Frequently Used Websites

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<http://www.ctbto.org/>
- Federation of American Scientists
<http://www.fas.org/>
- NTI - Global Security Newswire
<http://www.globalsecuritynewswire.org/gsn/>
- Nuclear Threat Initiative
<http://www.nti.org/index.php>
- Reuters
<http://www.reuters.com/>

Appendix

**Comparison of the Priorities of
the Core Op-ed Articles**

X = given as an important step -- = mentioned but not emphasized Recommendations:	2007 US op-ed	Gorbachev	2008 US op-ed	UK op-ed	Italy op-ed	Germany op-ed
DISARMAMENT AND ARMS CONTROL						
Drastic nuke reduction	X		X	--		X
Extend START			X	X		X
Complete SORT reductions			X			
CTBT ratification	X	X	X	X	X	X
No creation of new nukes				X		--
Remove US nukes from Europe	X		X			X
MILITARY DOCTRINE AND DETERRENCE						
Remove MAD doctrine			X			
Lengthen launch times	X	X	X			
No first use in doctrine		X				X
Limit deterrence to nuclear attacks		--				X
ABM Treaty restored		--				X
Cooperative BMD system			X	X		
Space kept nuke-free						X
Adapt CFE Treaty						X
NON-PROLIFERATION AND ENERGY						
Strengthen NPT		X	X	X	X	X
Additional Protocols of NPT	X		X	X		
Improve stockpile security	X		X	X		
Fissile Material Cut-off Treaty			X		X	
Moratorium on weapons-grade HEU	X	--			X	
Control the fuel cycle	X		X	X		
Stop civil HEU use	X					
INTERNATIONAL RELATIONS						
Improve US-Russian relations			--		X	--
Begin NWS talks	X		X	X	X	X
P5+2 with Iran and North Korea	X					
Give UN SC key role		X				
Include NNWS in talks		X	X			
Resolve regional conflicts	X				X	X
Deal with non-compliance	X		X	--		

Dedication

In loving memory of my grandfather, Harper Welton, who worked under Oppenheimer during World War II at the Los Alamos Laboratory in New Mexico developing the first US atomic bombs. His reaction as he watched the Trinity test – “My God. What have we done?” – was the inspiration for this paper.



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