



NEW YORK UNIVERSITY

CENTER ON INTERNATIONAL COOPERATION



Preparing for a “Second Nuclear Age”

*Evolving Multilateral Arrangements for the Nuclear Nonproliferation
and Disarmament Regime*

**Dr. Fiona Simpson, Prof. Ian Johnstone, and Dr. Christine Wing with Dr. Bruce Jones
and Dr. Elsin Wainwright**

April 2010

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It is now widely agreed that the world faces old and new security challenges that are more complex than our multilateral and national institutions are currently capable of managing. International cooperation is ever more necessary in meeting these challenges. The NYU Center on International Cooperation (CIC) works to enhance international responses to conflict, insecurity, and scarcity through applied research and direct engagement with multilateral institutions and the wider policy community.

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Director's Note

This report was prepared by the NYU Center on International Cooperation's program on Strengthening Multilateral Approaches to Nuclear and Biological Weapons – to my knowledge, the only research program dedicated to the multilateral dimensions of the problem of weapons of mass destruction. The program, and this report, is motivated by the same purpose that underlies CIC's overall work: our goal is to enhance international responses to global security threats through applied research and direct engagement with multilateral institutions and the wider policy community.

Since its inception, the program has received welcome support from the Government of Norway's Nuclear Seven Initiative, the Ford Foundation, the Carnegie Corporation, the Nuclear Threat Initiative, the US Institute for Peace, the Government of Sweden, the Government of New Zealand, and the Government of the Netherlands. Further details can be found at www.cic.nyu.edu

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Executive Summary

At the time of finalizing this report, the US and Russia have signed an agreement on a replacement to the Strategic Arms Reduction Treaty (START), just days before the opening of a high-level Nuclear Security Summit in Washington, D.C. After years of divisiveness and lack of progress, it is tempting to conclude that the nuclear nonproliferation and disarmament regime is on the upswing.

This is overdue. Both the Nuclear Nonproliferation Treaty and the broader regime have suffered from a series of events and actions that have eroded their credibility in the eyes of governments. Over the past several years, doubts have mounted as to whether the regime is indeed capable of addressing the proliferation of nuclear weapons, managing the risks posed by ostensibly peaceful nuclear programs of several governments that have provided cause for concern, maintain progress on disarmament by the five nuclear-weapon states, or deter non-state or terrorist use of nuclear materials.

Adding to the challenges faced by the nuclear regime are three separate sets of developments. First, after a long period of relative stability, changing patterns of power at the regional and global level have increased interstate security tensions. Second, growing national and international concern about the effect of carbon-based energy on climate change is leading to growing calls for new investment in nuclear energy. Third, as globalization leads many countries into middle-income status, their energy consumption needs are growing, bolstering the demand for new energy sources. All of this has led some analysts to describe a coming 'second nuclear age.'

Against these backdrops, recent years have witnessed important changes to facets of the multilateral system, beyond the NPT, to address the challenges faced by the nuclear regime, particularly in the realm of nonproliferation. Changing roles have been envisioned and pursued for the existing relevant international institutions, most notably the International Atomic Energy Agency (IAEA), the Comprehensive Nuclear-Test-Ban Treaty and the United Nations Security Council.

Much of this has been positive; some of it has been controversial; and some of it has at times risked tilting too far the balance embedded in the original NPT deal, between the 'three pillars' of the regime – disarmament, nonproliferation and civilian use. Looking ahead at the evolution of the multilateral regime, reinforcing all three pillars is important. Nor should we lose sight of the fact that the overarching purpose of the regime is global and regional security.

Though very real dangers associated with the three pressures on nuclear capacity remain, there is now a political window in which to strengthen the multilateral nuclear regime. This report sets out some possible steps as to how.

The Report

It starts by providing an overview of the evolving multilateral system that supports the stated aims of the nuclear nonproliferation regime.

The increasing level of activity of the UN Security Council (UNSC) in nuclear nonproliferation and disarmament is the first such example, and one that has been a source of controversy within the international community. The legitimacy and legal authority of the Council on these matters is addressed within the body of this report, alongside its enforcement role in nonproliferation and disarmament and its role in management of these issues when they come before the Council. In addition, the report identifies an underestimated role for the Council in this context—a signaling or normative function—and ways in which this role might be expanded.

Proposal: Adopt a resolution that sets out a list of factors the UNSC should consider when deciding whether a proliferation event constitutes a threat to international peace and security justifying action.

Second, the report examines the unfinished business of the Comprehensive Nuclear-Test-Ban Treaty (CTBT). The CTBT has not yet entered into force, in spite of being considered by many states to be a crucial component of

a credible nonproliferation regime, as well as being one of the thirteen agreed-upon steps towards disarmament that came out of the 2000 NPT Review Conference. The political dynamic so far rests on a “waiting for the United States” attitude; but other actors could take leadership steps to move the CTBT ratification process forward.

Proposal: Encourage other Annex 2 states to take leadership on CTBT entry-into-force; encourage key non-Annex 2 states that have not ratified the CTBT, to do so.

Third, the IAEA has also undergone a rapid change in the past decade, both as a consequence of external events and as a consequence of decisions taken from within its Secretariat to address the challenges it has faced – both with respect to the Additional Protocol, and the now-stalled discussion of a multinational fuel cycle. What is needed now are efforts to move these issues forward cognizant of the political obstacles they have encountered so far.

Proposal (1): Conduct a more systematic assessment of obstacles to state ratification of the Additional Protocol.

Proposal (2): Focus efforts on multinational fuel arrangements towards the back end of the fuel cycle, in particular to exploring the possibilities for fuel leasing and spent fuel take-back.

Finally, the report assesses the potential for realistic movement on the long-debated issue of the Middle East nuclear-weapon-free zone (MENWFZ), expected to be a key topic of discussion at the 2010 NPT Review Conference. Any credible proposal has to take into account the issues of Israel’s non-membership of the NPT and the growing regional security concerns – hence the merits of a confidence-building approach, along the lines proposed by the International Commission on Nuclear Nonproliferation and Disarmament.

Proposal: The Secretary-General should signal his willingness to appoint a Personal Envoy for purposes

of preparing a conference on Confidence Building Measures towards a MENWFZ; the NPT States Parties should endorse or encourage this decision.

Preparing for a “Second Nuclear Age” *Evolving Multilateral Arrangements for the Nuclear Nonproliferation and Disarmament Regime*

I. Introduction

The nuclear nonproliferation regime has been in existence since the entry into force of the nuclear Nonproliferation Treaty (NPT), in 1970. When the NPT entered into force, it did so with the proviso that a conference would later be convened to decide, on the basis of a majority vote, whether the Treaty would continue in force indefinitely or be extended by a fixed period or periods.¹ The NPT Review and Extension Conference, held in 1995, resulted not only in the indefinite extension of the Treaty, but in a set of “Principles and Objectives for Nuclear Nonproliferation and Disarmament”² and a resolution on the Middle East.³ Despite not being able to adopt a Final Declaration, this Review Conference is often seen by the Treaty’s supporters as one of the high points in its now-forty year history.

Still, it would be an oversimplification to characterize the years since 1995 as one long, slow decline in the nonproliferation regime. The meeting of 1995 set the stage for the next Review Conference, in 2000, and it was at this Conference that a final document was agreed for the first time since 1985, in large part due to the role played by the seven diverse states that comprised the New Agenda Coalition (NAC). The Review Conference of 2000 was also significant in its adoption of thirteen practical steps towards nuclear disarmament (often simply referred to as “the thirteen steps”), the agreement of which was crucial in obtaining the support of many of the Non-Aligned Movement of states (NAM).

Since that time, however, it seems clear that the both treaty and regime have suffered from a series of events and actions that have led to a growing credibility gap in the eyes of many of its states parties. The failure to reverse the Democratic People’s Republic of Korea’s (DPRK’s) acquisition of nuclear weapons, and to bring Iran’s nuclear efforts into full compliance with the NPT, are the most obvious examples. It has become increasingly unclear whether the treaty, or the regime it encapsulates, is indeed

capable of addressing the challenge of the proliferation of nuclear weapons and, in so doing, to stem and reverse their spread. The ostensibly peaceful nuclear programs of several governments have provided cause for concern, as has the lack of progress of late on disarmament by the five nuclear-weapon states. In addition, fears regarding nuclear and WMD terrorism – particularly in the wake of the 9/11 terrorist attacks – have highlighted the fact that the NPT is designed to constrain the behavior of states and does not address the potential threats posed by non-state actors.

Adding to the challenges faced by the nuclear regime are three separate sets of developments. First, after a long period of relative stability, changing patterns of power at the regional and global level have increased inter-state security tensions. The combination of regional and global dynamics has been particularly relevant in new crises and unresolved conflicts in the Middle East, and still high tensions in South Asia and Northeast Asia – all regions where nuclear weapons are a factor in government day-to-day security calculations. Second, quite separately, growing national and international concerns about the effect of carbon-based energy on climate change is leading to growing calls for new investment in nuclear energy. Third, as globalization leads a growing number of countries into middle-income status, their energy consumption needs are growing, bolstering the demand for new energy sources. All of this has led some analysts to describe a coming “nuclear renaissance” or a “second nuclear age.”⁴ The second depiction seems more apt, conveying as it does both the potential benefits but also the very real risks associated with growing demand for nuclear capacities.

Against these backdrops and lingering doubts about the viability of the NPT, recent years have witnessed important changes to facets of the multilateral system to address the challenges faced by the nuclear regime, particularly in the realm of non-proliferation. Changing roles have been envisioned and pursued for the existing relevant international institutions, most notably the International Atomic Energy Agency (IAEA) and the United Nations Security Council. In addition, novel ways of addressing the problem of proliferation—whether through elaborating

the mandate of existing structures or through developing new ones—have also been proposed, particularly in the years since 2000.

Much of this has been positive; some of it has been controversial; and some of it has at times risked tilting too far the balance embedded in the original NPT deal, between the “three pillars” of the regime – disarmament, nonproliferation and civilian use. Looking ahead at the evolution of the multilateral regime, the roles of all three pillars remain important; in addition, we should not lose sight of the fact that the overarching purpose of the regime is global and security.

This report is being drafted at a moment when there are signs that the tide may be turning at the diplomatic level, and that the opportunity may now be ripe for genuine and tangible progress in the nuclear regime. Though very real dangers remain, there is now a political window in which to strengthen the multilateral nuclear regime. This report sets out some possible steps as to how.

II. The Report

The report seeks, first, to provide an overview of the multilateral system that has been created to support the stated aims of the nuclear nonproliferation regime. Key events in regional and global security have brought the issue of the nuclear regime to the center stage of international politics. These have included: the nuclear programs of Iran and the Democratic People’s Republic of Korea (DPRK); the war in Iraq; and the anticipated growth in nuclear power worldwide, for both economic and climate reasons. These issues have generated substantive disagreements between governments that resulted in the failure of the last NPT Review Conference, in 2005. Given the common citation of the NPT as the “cornerstone” or “foundation” of the larger regime, it comes as no surprise that the NPT itself is one of these key issues.⁵ The language of the Treaty, specifically, has been subject to new and varying interpretations that have arisen primarily in response to these systemic challenges. These have informed an ongoing exegesis of the Treaty’s text with respect to how, and how sufficiently, the NPT deals

with compliance issues; how and whether the varying responsibilities of states parties are being fulfilled; and whether the text of the Treaty allows for or discourages attempts to close certain perceived “loopholes” to proliferation.

In addition to the NPT, other multilateral institutions have either expanded their roles or been created in an effort to deal with the systemic challenges noted above. The report will consider these first, before turning to the NPT and the fundamental questions raised by the text of the Treaty itself.

The increasing level of activity of the UN Security Council (UNSC) in nuclear nonproliferation and disarmament is the first such example, and one that has been a source of controversy within the international community. The legitimacy and legal authority of the Council on these matters is addressed within the body of this report, alongside its enforcement role in nonproliferation and disarmament and its role in management of these issues when they come before the Council. In addition, the report identifies an underestimated role for the Council in this context—in a signaling or normative function—and ways in which this role might be expanded. The report lays out a proposal for a generic Security Council resolution that could strengthen it in all three roles.

Second, the report examines the unfinished business of the Comprehensive Nuclear-Test-Ban Treaty (CTBT). The CTBT has not yet entered into force, in spite of being considered by many states to be a crucial component of a credible nonproliferation regime, as well as being one of the thirteen agreed-upon steps towards disarmament that came out of the 2000 NPT Review Conference. The report proposes some practical steps to advance this agenda. Third, the IAEA has also undergone a rapid change in the past decade, both as a consequence of external events and as a consequence of decisions taken from within its Secretariat to address the challenges it has faced. The report provides some ideas on how to carry forward to proposals related to the IAEA, the Additional Protocol and a multinational fuel cycle.

Finally, the report reviews another important confidence-building measure and evaluates its potential for redressing the cynicism that has built up regarding the ability of the international community to enact the commitments they have previously undertaken. The long-discussed Middle East nuclear-weapon-free zone (MENWFZ) and WMD-free zone is expected to be a key topic of discussion at the 2010 NPT Review Conference. Although part of the resolution on the Middle East at the 1995 NPT Review Conference, it has been given little more than lip-service since then, in spite of the call for all states parties to exert their utmost efforts towards its establishment (and in spite of increasing nonproliferation concerns in the region).⁶ The report examines the prospects for movement on this issue during the upcoming Review Conference and recommends next steps that may facilitate its progress.

III. Context: From 2005 to Today

If the NPT Review and Extension Conference of 1995, and the final document and Thirteen Steps of 2000, constituted the high-point of the nonproliferation regime, then the Review Conference of 2005 may safely be said to have represented its nadir. Suspicions were increasing, on the part of some states parties, regarding the intentions of Iran's nuclear program. Underscoring this apparent trend in non-compliance, the DPRK had, in 2002, allegedly admitted to the US that it possessed a clandestine uranium enrichment program. When this alleged admission was made public, the DPRK responded by denying it vociferously, before terminating the Agreed Framework between itself and the US, expelling IAEA inspectors and, in January 2003, announcing that it was withdrawing from the NPT. Shortly thereafter, the 2003 invasion of Iraq by the US and its allies, which was premised on Iraq's alleged possession of weapons of mass destruction, further drove the governments apart. Meanwhile, bilateral arms control reductions had stalled. Concerns that had always existed regarding the ability of the international community to deal with NPT non-compliance on the one hand, and regarding the willingness of nuclear-weapon states parties to live up to their disarmament obligations on the other, were fueled by these events.

Unsurprisingly, then, the Review Conference of 2005 took place in a divided and often hostile atmosphere, and was typified by a fundamental disagreement on the part of those who felt the nonproliferation obligations were not being adequately addressed by the states parties and those who felt the same regarding other states' disarmament obligations. The Review Conference was unable to agree on procedure, a state of affairs that was symptomatic of, rather than the reason for, the problems that plagued it. Not only was it not possible to agree on an agenda prior to the start of the conference, but the conference was then unable to agree on an agenda until halfway through the second week of the four-week meeting. This was followed by a failure to agree on a program of work, delaying the work of the conference's main committee by another week. This left very little time for substantive negotiations, a situation that might actually have proved problematic, had the states parties agreed on any issues of substance about which to negotiate. The final document of the conference stood as proof of this lack of substantive agreement, resembling less a report containing actionable recommendations or resolutions than a laundry-list of official attendees and activities. As a result, there were few who did not consider the 2005 Review Conference to be a depressing failure. The sense of failure was compounded by the absence of any reference to nonproliferation and disarmament in the World Summit Outcome document adopted later that year.

If the NPT Review and Extension Conference of 1995, and the final document and Thirteen Steps of 2000, constituted the high-point of the nonproliferation regime, then the Review Conference of 2005 may safely be said to have represented its nadir.

The years since 2005 have raised both concern and optimism. Superficially, the nonproliferation landscape of 2010 is not significantly different from that of 2005. The hard cases of Iran and the DPRK not only remain, but have worsened: Iran's enrichment program has expanded significantly, while the DPRK has conducted two nuclear weapons tests. The level of the UN Security Council's involvement in these cases has been viewed by some as

inadequate, and by others as excessive. In addition, and in light of the Israeli attack on an alleged Syrian nuclear facility and the finding of anthropogenic uranium particles at the site, there is some reason to believe that Syria may soon be added to the list of hard cases.⁷ The sense among many NPT non-nuclear-weapon states (NNWS) that their nuclear-weapon-state counterparts are failing on their disarmament obligations is still present. This sense has been heightened by the Indo-US Civil Nuclear Cooperation Agreement, which has been viewed by some NNWS as further undermining the credibility of the NPT by, in essence, rewarding India for its failure to join the Treaty.

2010 is a critical opportunity to renew the international community's faith that the nuclear regime retains credibility and that there are worthwhile, actionable items that can be identified and pursued that will serve to strengthen it.

In the meantime, and despite calls from the nuclear-weapon-states (NWS) for increased inspections powers and access to be granted to the IAEA, the additional protocol to the basic safeguards agreement remains far from universal, and will continue to be so until and unless the Agency's Board of Governors takes the decision to make ratification of the additional protocol binding. Finally, attempts over recent years to formulate and implement meaningful UN Security Council action in the form of sanctions against safeguards non-compliance by Iran and against the proliferation activities by the DPRK have been the product of extensive compromise among the P-5 and have thus been less strict than some had wished (i.e. those states that are most suspicious of Iran's nuclear intentions).

However, the recent change in rhetoric and policy by the new US administration has altered the nonproliferation regime's atmosphere – most obviously in US President Barack Obama's April 2009 speech in Prague, which called for a world free of nuclear weapons, and in the re-launching of bilateral arms control negotiations with Russia.⁸ As this report was being finalized, news had broken that Russia and the United States had completed negotiations for

the replacement to the Strategic Arms Reduction Treaty (START) and have produced a new treaty which will be signed in Prague on April 8. The Obama administration has also indicated its intention to bring the CTBT before the US Senate for ratification, over a decade since the Senate rejected it (though it likely will not do so until after the November elections, particularly if the new START treaty has not yet been ratified).⁹

Going into the 2010 Review Conference, the mood is optimistic. This is not to say that governments are naïve about the challenges ahead. The long-awaited US Nuclear Posture Review will be factored into other governments' perception of the extent to which policy changes by the administration have indeed heralded a change in the practical approach to both nuclear nonproliferation and disarmament. Also, there is a growing awareness of the difficulty that the US administration may have, even with the best will in the world, in pushing the CTBT through the US Senate. The same is true of any new START treaty with Russia. On the other hand, the dynamics of Senate ratification of the START treaty – which will be drawn out, involve consideration of other issues like stockpile management, but which are likely to ultimately succeed – may actually increase the odds of CTBT ratification.

Adding wind to various governments' sails is acute awareness of what is at stake in 2010, during both the NPT Review Conference and in the regime more generally. Quite apart from important practical steps, 2010 is a critical opportunity to renew the international community's faith that the nuclear regime retains credibility and that there are worthwhile, actionable items that can be identified and pursued that will serve to strengthen it. A shared sense that there is no better time for progress to be made is both a curse and a blessing. A curse because if, even in the face of such apparent opportunity, progress *still* proves impossible, it inevitably raises the question of whether, in fact, progress is possible at all; a blessing, because the belief in a temporary window of opportunity provides a strong incentive for immediate and good-faith cooperative efforts. So far, states from all regions and groupings are signaling that they are aware that the 2010 NPT review must not fail – an essential and encouraging sign.

IV. Multilateral Arrangements on Nuclear Nonproliferation

(A) The Role of the UN Security Council. The level of UN Security Council activity in the field of nonproliferation and disarmament has grown in recent years. This has been both with respect to particular cases like the DPRK and Iran, and on more generic approaches like UNSC resolution 1887. Does this new engagement open the door for strategic leadership by the Council? What are the prospects and obstacles to that leadership?

On the one hand, the P5 share an interest in stemming the proliferation of weapons of mass destruction. This has not led to identical positions on hard cases, but that sanctions have been imposed and ratcheted up on Iran and the DPRK demonstrates that the institution has not been paralyzed. The common interests and growing engagement are tied to the Council's increasing level of activity in counter-terrorism, manifest most notably by resolution 1373 on the financing and other forms of support for terrorism. These two concerns – counter-proliferation and counter-terrorism - converged in resolution 1540, designed to stop weapons of mass destructions from falling into the hands of non-state actors.

On the other hand, there are constraints on the ability of the UNSC to assert strategic leadership given skepticism that the P5, who are also the NPT nuclear-weapon-states, can be counted on to strike the right balance between non-proliferation and disarmament. In addition, there are differences among the P-5 themselves, which have become apparent during, for instance, efforts in the Council to impose sanctions on Iran. At a minimum this raises legitimacy concerns; at a maximum, an outright conflict of interest. There are genuine questions about the extent to which the UN membership is willing to cede leadership to an institution in which five nuclear-weapon states wield disproportionate power.

This highlights a broader question: is a proactive UNSC likely to complement and reinforce the existing nonproliferation regime, or weaken it? An added layer of complexity arises when one considers new approaches

that have found their way onto the nonproliferation scene. The Proliferation Security Initiative (PSI), for example, is an informal arrangement whereby states agree to share information and interdict cargo suspected of carrying WMD or WMD related-material through their territorial waters, land, or airspace. Arguably the PSI and resolution 1540 fill gaps in the existing nuclear regime – gaps that would not be filled quickly enough if traditional approaches to multilateral decision-making were pursued. However, that regime is based on a carefully calibrated set of bargains and compromises. These new approaches, while useful on their own terms, risk throwing off that balance.

Is a proactive UNSC likely to complement and reinforce the existing non-proliferation regime, or weaken it?

All WMD proliferation treaties are ultimately enforced by the UNSC. Thus, for example, the Statute of the IAEA provides that its Board of Governors shall report violations of safeguards agreements to the SC. The Treaty of Tlatelolco imposes a similar obligation on the General Conference of the Agency for the Prohibition of Nuclear Weapons in Latin America (OPANAL), although the relevant provision limits the reporting requirement to violations “which might endanger peace and security.” The CTBT contemplates that “the Conference or, alternatively if the case is urgent, the Executive Council may bring the issue, including relevant information and conclusions to the attention of the UN.”

Beyond explicit references in the treaties, the UN Charter itself provides various means by which the UNSC may become seized of a matter relating to weapons of mass destruction. Any member of the UN may bring to the attention of the UNSC any situation that is likely to endanger the maintenance of international peace and security (Article 35); the GA may bring such matters to the attention of the UNSC and make appropriate recommendations (Article 11); and the Secretary-General may refer matters to the Council which “in his opinion” threaten international peace and security (Article 99).

Yet the UNSC's basic authority stems not from these external sources, but from the general powers conferred

by the UN Charter. Thus even if a matter is not referred to the UNSC by some other agent or if it falls outside the treaty regimes, the Council can act. Indeed, the Council's mandate is not to enforce international treaties per se, but to maintain international peace and security. Whether and how it chooses to act in a particular situation is a matter of discretion, within the broad parameters of Chapters VI and VII, and the constraining force of Article 24(2), which stipulates that it must act in accordance with the purposes and principles of the UN.

The UNSC serves as a pulpit, from which both reassuring messages and threats of action can be delivered.

The academic literature on compliance distinguishes the “enforcement” model from the “management” model.¹⁰ In over-simplified terms, the enforcement model holds that states comply with their commitments when they calculate it is in their short-term interest to do so; when the commitment requires them to act against their short-term interests, they will comply only if they fear the prospect of sanctions. The management model states that for various reasons (e.g. bureaucratic routine, reputation) there is a general propensity to comply with international commitments and that non-compliance is often—not always, of course—the result of uncertainty about what compliance requires or limitations on the capacity of parties to carry out their undertakings, rather than deliberate defiance.

This suggests two distinct roles for the UNSC in the nonproliferation regime, enforcement and management, to which we would add a third—signaling. The UNSC serves as a pulpit, from which both reassuring messages and threats of action can be delivered.

(i) Enforcement. Enforcement can take one of three forms: diplomatic condemnation, sanctions, or military action. Instances of true enforcement by the Security Council are rare. It condemned nuclear tests by India and Pakistan in 1998, and it imposed sanctions on Iraq, Iran, the DPRK and—in 1977—South Africa. The Security Council has never explicitly authorized military action in response to proliferation, although the US-led intervention in Iraq

in 2003 was justified by the US and UK on the basis of violations of resolutions 687 and 1441.¹¹

Despite this rather slim enforcement record, two points are particularly noteworthy. First, the sanctions on Iraq were maintained for many years, despite relentless efforts by the regime of Saddam Hussein to break the unity of the Council and international community as a whole. While compliance with the sanctions was far from perfect, considerable pressure was sustained. Moreover, sanctions on Iran and the DPRK, though largely restricted to the import and export of weapons and weapons-related material, have been tightened incrementally. The diplomatic action in both cases is occurring outside the Council, but the sanctions—and the threats of further sanctions—affect the context in which that diplomatic action occurs.

Second, although the Council has not authorized military action against the DPRK, it took a firm stance in resolution 1874. That resolution not only ratchets up sanctions but also calls on states to inspect cargo from North Korean ships and planes on their territory, and “decides” that flag states who refuse to allow inspection of their vessels must direct them to a convenient port where such inspection can occur.¹² This does not authorize forcible interdiction, but it does impose a binding legal obligation on flag states. This plus the successful seizure of weapons from a plane that landed in Thailand,¹³ indicates that the Council can build coercive pressure on a recalcitrant state incrementally, without jumping straight to the dramatic step of authorizing military action.

A number of other considerations come into play when one considers the pros and cons of enforcement action by the Council: selective application; the reaction (or lack thereof) when pre-emptive unilateral action is taken by a state; and the obvious fact that enforcement action will never be taken against any of the P5, even if they are directly or indirectly responsible for an act of proliferation.

(ii) Management. Short of enforcement, there is much the UNSC can do to “manage” the proliferation regime and threats. The best illustration is resolution 1540

and its associated committee. Among other things, the resolution requires all states to take regulative, legislative and other forms of action to ensure WMD do not fall into the hands of non-state actors. It was controversial when adopted, in part because it was the Council's second foray into "legislating" after resolution 1373.¹⁴ Implementation occurs through a system of state reporting to the 1540 committee on measures taken. Functioning as a platform for cooperation rather than a sanctioning mechanism, the reports are reviewed by the committee and its group of experts, who engage in constructive dialogue and try to broker technical assistance to help states come into compliance. Despite its initially controversial nature, the resolution still enjoys considerable support, not least because it is seen as a counter-terrorism as much as a counter-proliferation initiative. The comprehensive review held at the end of September 2009 gave all states the chance to weigh in on the functioning of the regime, and the Chairman produced a useful report in early 2010. Thus despite its shaky start, resolution 1540 still has life as a vehicle through which the UNSC can manage non-coercive efforts to address the risk of WMD terrorism.

Other "management" functions the UNSC has performed relate to better information sharing and analysis between the various counter-terrorism committees (1267, 1373 and 1540). It can call on the IAEA to act on its broad reporting function to the UNSC, based on its relationship agreement with the UN.¹⁵ Demands on countries to accept IAEA safeguards (Israel in 1981 and India/Pakistan in 1998) may also be seen as serving a management function, as could the upgraded inspection regime imposed on Iraq by resolution 687.

(iii) Signaling. In addition to its enforcement and management functions, the UNSC has sought to reinforce existing NPT norms, introduce new standards, offer reassurances and warn of worrisome actions in particular cases. Illustrations of this signaling role are legion, including in the landmark Summit of 1992, when it declared the proliferation of weapons of mass destruction to be a threat to international peace and security. At a minimum, this statement signaled the SC's determination to take its nonproliferation role seriously.

A more robust message was sent by resolution 1874 concerning the DPRK. As noted above, this does not authorize forcible action, but it does carry an implicit threat – collectively issued by the Security Council – that coercive interdiction is not off the table.

In addition to its enforcement and management functions, the UNSC has sought to reinforce existing NPT norms, introduce new standards, offer reassurances and warn of worrisome actions in particular cases.

On the other side of the ledger, the negative security assurances endorsed in resolution 984 (1995) also serve a signaling function. There has been backtracking among some of the P5/NWS since then, but the broader point is that it is a way for the Council to signal commitment to NPT-based norms. It could be reinforced with endorsement of a policy to use nuclear weapons only in extreme circumstances,¹⁶ or even a "no first use" policy should the NWS be able to agree on that. However, all indications at the time of writing are that it seems unlikely that the upcoming US Nuclear Posture Review will endorse "no first use," although it appears that some change in (or clarification of) the US position on negative security assurances will be part of it. Resolutions that reaffirm the NPT goal of nuclear disarmament, like 984, 1172 and 1540, serve a similar goal, as do those on nuclear weapons free zones, including one for the Middle East, referred to in 687 and elsewhere.

Security Council resolution 1887 is the most important of these "signaling" resolutions. It was the outcome of the Security Council summit presided over by President Obama in September 2009. The first ever chaired by the US, and only the 5th in the UNSC's history, the summit was an attempt by the US to build on the momentum created by President Obama's Prague speech of April 2009. Even more important, it was a signal that the US saw the UNSC as a key venue for action in the nonproliferation field. Perhaps for that reason, the lead-up to the summit was not all smooth, with concerns expressed about the imbalance between nonproliferation and disarmament in an early draft resolution. Yet a revised draft was adopted

unanimously on September 24, 2009. Deliberately designed to avoid debate over Iran and the DPRK, the resolution nevertheless incorporates some significant pledges, including a preambular statement of resolve to “create the conditions for world without nuclear weapons.” The resolution touches on most hot-button non-proliferation and disarmament issues, from the UNSC’s determination to act in response to non-compliance with nonproliferation obligations and withdrawal from the NPT, to the CTBT and the determination of the Council to address the risk of nuclear terrorism through resolution 1540 and other means. Though not greeted with universal enthusiasm, perhaps because of skepticism about the P5’s role in this field, resolution 1887 is a striking attempt at strategic leadership by the UNSC and a building block for the future.

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The P5 can use the UNSC platform to send these sorts of signals. Because they have enforcement authority and military capability, a unified signal from them is likely to be powerful. On the other hand, because of questions about the legitimacy of the UNSC as a strategic leader in this field, the Council would need to balance this by using the pulpit also to signal their willingness to take disarmament, support for peaceful nuclear programs, and global and regional security seriously.

(B) The Comprehensive Nuclear-Test-Ban Treaty.

Proposals to ban nuclear testing have been on the international agenda for decades, beginning in the 1950s. Both then and now, the logic of a test ban has been to prevent vertical and horizontal proliferation, and ultimately, to support and guarantee nuclear disarmament. Accordingly, arguments for a Comprehensive Nuclear Test Ban have been integral to the NPT, reflected in the NPT’s preamble and in discussion in NPT Review Conferences. A commitment to negotiate a CTBT was central to the 1995 decision to extend the NPT indefinitely; and entry-into-force was the first of the agreed “thirteen steps” toward disarmament.

Indeed, the Principles and Objectives articulated at the conclusion of the 1995 Review Conference were very specific regarding the CTBT, calling for “the completion by the Conference on Disarmament of the negotiations on a universal and internationally and effectively verifiable Comprehensive Nuclear-Test-Ban Treaty no later than 1996.” The Treaty was in fact negotiated by the CD by 1996 (although the CD could not obtain complete consensus on adopting the Treaty, and it was taken to the General Assembly, which approved it by near-consensus).

The Treaty opened for signature in September 1996. Seventy-one countries signed the first day, including all five nuclear weapon states that are NPT members. Overall, approximately 150 states have now signed and ratified the CTBT. Thirteen have not signed (and therefore not ratified). The remaining states have signed the CTBT but ratification is pending.

During the CTBT’s negotiation, one difficult question concerned the conditions under which the Treaty would enter into force, with disagreements about how many and which states needed to have ratified the Treaty for it to come into effect. Ultimately the CD decided to name forty-four states that must ratify the CTBT before it can enter into force. These are states that have nuclear power reactors or research reactors (including, therefore, all nuclear weapon states both in and outside the NPT, as well as all other states with civilian nuclear programs).

The large majority of these states have ratified the CTBT. But nine of the forty-four states have not done so. These include China, Egypt, Indonesia, Iran, Israel, and the United States, all of which have signed but not yet ratified the Treaty. The DPRK, India and Pakistan have not signed it.

Although the CTBT has not yet entered into force, a CTBT Preparatory Commission has been established with a Provisional Technical Secretariat. It constantly monitors for nuclear tests, relying on a network of approximately three-hundred monitoring stations throughout the world. This International Monitoring System successfully detected both DPRK nuclear tests.

The major outstanding issue for the CTBT is the question of if and when it will enter into force. Progress stalled in the late 1990s, when the US Senate rejected the Treaty, and when, in the wake of that decision, other key Annex 2 states also declined to ratify. Since that time, there has been a near-universal sentiment that the future of CTBT ratification is located squarely in Washington. However, action in the US is not likely before 2011: although the US Administration appears to be truly committed to CTBT ratification, the legislative agenda in Washington is already challenging, mid-term elections are approaching, and START will have to be ratified before CTBT.

This is therefore a good moment to revisit assumptions about the necessity for the US to act before the CTBT can continue moving forward. One might argue that “waiting for Washington” reflects political reality—that the other necessary Annex 2 states are either willing to ratify, but not sufficiently motivated in the absence of US ratification, or that they are sufficiently opposed to ratification that US action does not matter.

But to fall back on arguments about “political reality” is to assume that US decisions are impervious to the action of other states. This seems unlikely. One of the arguments of US critics of the CTBT is that other states will not ratify anyway, so if the US ratifies it will only be binding itself while others continue to test (an argument that mirrors CTBT critics in other countries). However, if China, or Israel, or India, or Pakistan were to ratify, this would create a different context for the US decision (as well as that of other states) when the CTBT come up for discussion in the US, and it is certainly possible that some states would ratify the Treaty once the US did (Indonesia, for instance, has indicated that it would do so). Certainly, the CTBT will not enter into force until the US ratifies—but that does not mean that all other states have to wait.

(C) The International Atomic Energy Agency. Another major component of the multilateral nuclear regime is the IAEA, which, while created primarily to be a purely technical agency, has been pulled into the political spotlight as never before. The open disagreement with the US over the claims regarding Iraq’s alleged WMD program made the Agency,

in practice, a political actor. Its stated nonproliferation mandate, to verify safeguards agreements and report the results to its Board of Governors (and, in the case of non-compliance, to the Security Council) has therefore become increasingly blurred. As the Iraq case gave way to the IAEA’s handling of Iran’s nuclear program—and the open disagreement with the US continued—its then-Director General, Mohamed ElBaradei, put forward certain Secretariat positions and proposals designed to address the challenges that had been presaged by the case of Iran and, to a lesser extent, the DPRK.

This is therefore a good moment to revisit assumptions about the necessity for the US to act before the CTBT can continue moving forward.

The first of these was the continuing and stolid insistence (an insistence that contradicted the more agnostic position of the Agency’s own Board of Governors) that IAEA inspectors required an additional protocol to the basic safeguards agreement to be in force in order to provide credible assurance to the international community that the inspected state was free of undeclared nuclear materials or activities and that the additional protocol should therefore be universalized.

In addition, and in light of the anticipated renaissance in nuclear power, ElBaradei renewed efforts towards multilateralizing the nuclear fuel cycle. This concept had its last hey-day in the 1970s; now, however, the prospect of the spread of proliferation-sensitive technologies (a prospect made more uncomfortable by the concerns over Iran) called for its resuscitation. ElBaradei convened a group of experts to explore the options for multilateralization. Following the group’s report in 2005, the IAEA Secretariat continued to press for progress in the area, particularly with regard to establishing an assurance of supply of nuclear fuel in the form of a last-resort, IAEA-administered fuel bank, although with the ultimate aim of full multilateralization (or internationalization) of all enrichment and reprocessing activities.

The impact of this activism on the part of the IAEA made itself keenly felt in meetings of NPT states parties, and

brought broader concerns regarding the balance of responsibility and “loopholes” in the current regime, to the surface. (These are discussed in sections IV.E.ii and IV.E.iii, below.) At this point, it is necessary simply to note that the Agency’s efforts to confront the challenges of the past decade took the form of efforts to adapt its own mandate and structure for the creation of new multilateral arrangements. These efforts, however, have often highlighted divisions between governments that still need to be overcome. In addition, with the election of a new Director General, it is unclear how much momentum will continue in these areas, or whether the IAEA will step back from the more political role it has undertaken and focus, once again, on the more technical aspect of its mandate. This may be particularly true with regard to the efforts on multilateralizing the nuclear fuel cycle, a project that was very much associated with, and strongly supported by, ElBaradei.

With the election of a new Director General, it is unclear how much momentum will continue in these areas, or whether the IAEA will step back from the more political role it has undertaken.

(D) Other Institutions. The Security Council and the IAEA are not, of course, the only institutional players in the non-proliferation/disarmament regime.

The General Assembly (GA) and Related Intergovernmental Bodies. As the UN’s principal deliberative body, the GA can be an important venue for making and shaping global norms. Article 11(1) of the Charter enables it to consider “general principles governing disarmament and the regulation of armaments.” Accordingly, it has created three bodies to consider disarmament issues—the First Committee, the Disarmament Commission, and the sixty-six nation Conference on Disarmament. These bodies serve distinct, though overlapping, functions, which range from forging consensus on specific disarmament issues (the Disarmament Commission), to drafting non-binding resolutions and declarations for adoption by the GA (the First Committee) and the negotiation of multilateral agreements (the Conference on Disarmament).

The very first resolution ever adopted by the GA declared the goal of “elimination from national armaments of atomic weapons and all other weapons adaptable to mass destruction.” The GA has gone on to adopt hundreds of resolutions on disarmament and non-proliferation, including annual resolutions on the legality of the threat or use of nuclear weapons, the failure to achieve the entry into force of the CTBT. The GA has also adopted resolutions on the risk of proliferation in the Middle East, and has called for a nuclear weapon free zone in that region. The Millennium Declaration of 2000 contained some fairly strong language on disarmament and non-proliferation. Conversely, the World Summit of 2005 tried—and famously failed—to include any such language in its outcome document. While that failure was seen as a major setback, it is important to bear in mind that some states – and the Secretary-General – preferred no language to heavily watered-down language that would have represented a reversal from progress made in early NPT review conferences and elsewhere. Moreover, just before the Summit, in April 2005, the General Assembly did manage to agree on an International Convention on the Suppression of Acts of Nuclear Terrorism. The Convention had originally been proposed by the Russian Federation in 1998. The Convention not only criminalized acts of nuclear terrorism, but required governments either to prosecute terrorist suspects in domestic courts or extradite them to their home countries. The Convention also called upon states to increase their protection and security of radioactive materials.

Indeed if cacophony, discord, and stalemate rather than the forging of normative consensus has characterized the work of these intergovernmental bodies over the last decade, a glimmer of hope can be found in the ability of the Conference on Disarmament to agree on a work program in 2009, the first time since 1998. Whether the GA is able to harness the normative power inherent in its universal membership¹⁷ depends in large measure on how effectively small groups of like-minded states (like the New Agenda Coalition) can generate broad consensus on how to move forward.

The Secretary-General and UN Secretariat. The Secretary-General's broad responsibilities under Articles 97-99 of the Charter certainly include nonproliferation and disarmament, in his or her role both as spokesperson for Charter values and in exercising good offices. Secretaries-General Perez de Cuellar, Boutros-Ghali, and Annan all played diplomatic roles in respect of Iraq since 1990—with varying degrees of success. Kofi Annan made far-reaching recommendations in *In Larger Freedom*, while current Secretary-General Ban Ki-Moon made an important speech to the East-West Institute in October 2008, laying out a five-point plan to revitalize and implement the nuclear disarmament agenda.¹⁸

Finally, the Office for Disarmament Affairs has a role described as encompassing administration, advisory functions, research, advocacy and education.¹⁹ As the institutional memory of the UN on disarmament and nonproliferation, ODA is likely to continue to play an important role. However, given the high stakes and extreme security concerns that exist regarding nuclear weapons nonproliferation and disarmament, ODA's particular contributions may be hostage to the fluid politics among groups of states.

Non-UN arrangements. There are also a number of multilateral nonproliferation arrangements that have not been institutionalized. The Cooperative Threat Reduction (CTR) program was established in 1991 to destroy or otherwise remove WMD and related material from the former Soviet Union, in order to prevent the creation of new nuclear-weapon states as a result of "inheritance," as well as to prevent such weapons falling into the hands of "rogue states" or terrorists. CTR expanded into the G-8 Global Partnership in 2002, and was buttressed in 2006 by the Global Initiative to Combat Nuclear Terrorism, a coalition of seventy-six states seeking to prevent terrorists from acquiring nuclear weapons or fissile materials. The April 2010 nuclear security summit, hosted by the US, will provide a valuable opportunity for states – specifically those states that possess the majority of nuclear materials – to take concrete steps to move this agenda forward and, in particular to explore whether a realistic program can be agreed to place all fissile materials under strengthened controls within four years.

Another important non-UN initiative is the Proliferation Security Initiative (PSI). When UNSC resolution 1540 was adopted, the US sought to include a provision on the interdiction of ships, aircraft or trucks suspected of carrying weapons of mass destruction or related material. The prospect of a veto led to the deletion of that provision and instead the Bush Administration launched the PSI—an agreement among 11 countries, the most important feature of which is a set of interdiction principles designed to prevent proliferation to state and non-state actors. PSI was viewed with a great deal of initial skepticism by some states, many of whom considered it an example of US-based *ad hocism* of questionable legality and lacking clear standards on when an interdiction would be warranted, how much proof is needed and other process-related questions.²⁰ Today, however, the PSI comprises 95 partners, plus ship-boarding agreements with key flag states, enabling interdiction on the high seas with their consent. The PSI has also improved cooperation and strengthened linkages between the relevant agencies of participating governments. Nevertheless, perhaps in a nod to its limitations as an *ad hoc* arrangement, President Obama stated in his Prague speech that he wished to convert the PSI into a "durable international institution."

The Secretary-General's broad responsibilities under Articles 97-99 of the Charter certainly include nonproliferation and disarmament.

How the Security Council relates to these other institutions and arrangements is critically important in contemplating how to move forward. Reverting to a point made above, it is as yet unclear whether a proactive UNSC role will complement and reinforce the regime or undermine it. If the regime is fatally flawed, then the risk of undermining it further should not be the overriding consideration. However, the assessment of the international community appears to be less pessimistic. Certainly the regime is under pressure, but the "grand bargain" is still relatively intact and the recent challenges it has faced have not led to a complete collapse. It is thus important that the UNSC act in ways that reinforce the regime as a whole.

(E) Issues Related to the NPT. As noted at the outset of the report, the NPT—in spite of its lack of universality—remains the accepted cornerstone of the nonproliferation regime. As a result, the Treaty reflects, and its meetings of states parties have become, the locus of many of the discussions in the international community regarding how to move nonproliferation and disarmament forward. As a consequence of the Treaty’s central role, perceptions of the health of the Treaty serve as a litmus test for the perceived credibility of the regime more generally along with its ability to address the systemic challenges that have arisen. Unsurprisingly, these challenges have highlighted broader thematic issues that are difficult for the Treaty address.

The NPT—in spite of its lack of universality—remains the accepted cornerstone of the nonproliferation regime.

(i) Compliance. The hard cases of Iran and the DPRK have raised questions not only about IAEA safeguards procedures and the adequacy of its safeguards system, but about the ability of the NPT to address such issues. The IAEA is not the secretariat of the Treaty; the Treaty, in fact, has no secretariat. Rather, the Agency’s mandate under the Treaty is as laid out under Article III: to negotiate and conclude a safeguards agreement with each non-nuclear-weapon state party and apply them to all source or special fissionable nuclear material in all peaceful nuclear activities within the territory of the state, under its jurisdiction, or carried out under its control anywhere. The Agency does not report to the NPT states parties; it does not pass judgment as to a state’s intentions with regard to that state’s program, ultimate ambitions or aims. Rather, it determines, and reports to its own Board, as to whether a state is or is not in compliance with its safeguards agreement. Those conclusions are then subject to interpretation by the Agency’s member states, rather than by the Agency itself.

Complicating matters is the fact that the assessment of compliance, under the NPT, includes—but is not limited to—the provisions as set forth under Article III. Unlike the IAEA, the text of the NPT does, implicitly, make the question of a state’s intentions a part of its understanding and

assessment of compliance. Article II of the Treaty requires NNWS not to receive the transfer of nuclear weapons or other nuclear explosive devices, nor to manufacture or otherwise acquire them, nor to seek or receive assistance in their manufacture. The question of whether a transfer, or not, of a nuclear device has taken place may lend itself to a yes-or-no answer; answering the question of whether or not a state is attempting to manufacture, or to seek assistance in manufacturing, a nuclear device may require a judgment as to the state’s intentions rather than a conclusion regarding compliance. Whereas compliance with Article III may be judged on the basis of the IAEA Director General’s determinations (based on the results of safeguards inspections), the NPT does not make clear how compliance with Article II can be assessed, nor by whom, and the Treaty lacks an institutional procedure or mechanism for doing so.

Nor can it be assumed that compliance with Article III (IAEA safeguards) means, ipso facto, compliance with Article II, or vice-versa. Nowhere are the implications of this better demonstrated than with the case of Iran. The Treaty’s lack of specificity on how to judge compliance further shades the already-grey area occupied by Iran, which—in spite of its numerous IAEA safeguards violations—claims that it has no plans to contravene its Article II obligations and develop nuclear weapons.

(ii) The Balance of Responsibility. The division of states into those who focus largely on the disarmament obligations of nuclear-weapon-states and those who wish to bolster the nonproliferation aspects of the regime has always been a source of internal tension. As noted earlier, however, this division has become more deeply entrenched over the past decade, often creating an atmosphere of suspicion, mistrust, and disappointment.

Although Article VI of the NPT obliges the states parties to work in good faith towards nuclear disarmament, there is widespread belief that the nuclear-weapon-states have not been moving towards this goal—and thus not living up to their Treaty obligations—in sufficient good faith. Conversely, the hard cases of Iran and the DPRK, and to a lesser extent to newer concerns about Syria,

have convinced others that greater emphasis should be given to guarding against the exploitation of Article IV, which *inter alia*, reaffirms the inalienable right of NNWS to research, development, production, and use of nuclear energy for peaceful purposes. The anticipated nuclear power renaissance has further underscored these fears.

These differing approaches have manifested in more than simply ideological intransigence. Most notably, they have had the practical outcome of negatively affecting the prospects for universal adherence to the additional protocol (AP), something that, as noted previously, has been strongly favored by the IAEA itself. The IAEA's model additional protocol to the basic safeguards agreement was created in the 1990s, in the wake of the discovery of Iraq's clandestine nuclear weapons program. It allows the Agency to verify not only the correctness of a state's safeguards declaration, but also provides new tools for the IAEA to look for undeclared nuclear materials and activities and thereby assess the completeness of the declaration.

Since the text of the model additional protocol was agreed in 1997, it has remained a voluntary safeguards measure pending any decision to the contrary by the IAEA Board of Governors (and in spite of frequent and ominous observances by the Agency's Secretariat that its inspectors cannot provide credible assurance of undeclared materials and activities in any state without an additional protocol in force). The additional protocol has since become both a symbolic and practical point of contention, with some non-nuclear-weapon states (including some states with significant nuclear activities) maintaining that the protocol is one more obligation being imposed upon them—another attempt to circumscribe their rights under Article IV (as per section IV.iii, below), in spite of the fact that they are in compliance with the NPT and in spite of the fact that the nuclear-weapon-states have, in their estimation, failed to live up to the binding Article VI obligations they have already undertaken.

Here the issue of compliance surfaces once again, with the text of Article VI providing no clarity, and thus producing no agreement, on what "negotiating in good faith" towards the nuclear disarmament might look like. On the one

hand, the Article VI exhortation to negotiate specifically towards full nuclear disarmament has not been seriously pursued, forty years after the Treaty entered into force. On the other, it can certainly be argued that previous arms reduction efforts undertaken by the NWS, including the recently concluded US-Russian negotiations for a START replacement, are in keeping with the Article VI obligation

The additional protocol has since become both a symbolic and practical point of contention.

to negotiate towards a cessation of the nuclear arms race. The new attention given to the "getting to zero" concept breathed new life into broader disarmament goals, albeit not without sparking important discussions about the extensive improvements in security conditions and the even more extensive amendments and additions to the nonproliferation and enforcements regimes.

(iii) "Loopholes" in the NPT.

a. Article IV. The rights of NNWS under Article IV, and the concerns regarding perceived attempts to erode those rights, have been inflamed by the suggestions that those rights are not, in fact, as "inalienable" as the language of Article IV states. In the mildest version of this point of view, Article IV rights may be viewed as conditional upon compliance with all the other parts of the Treaty. A more controversial reading of the notion of "inalienable" rights suggests that the longstanding interpretation of Article IV has actually constituted a loophole in the Treaty, and that Article IV does not, in fact, guarantee access and assistance in developing a full nuclear fuel cycle, particularly proliferation-sensitive activities, such as uranium enrichment and reprocessing for plutonium. The spread of these technologies—something seen as increasingly feasible in light of the planned expansion of nuclear power around the globe—and the notion that the NPT, and those states parties in a position to do so, should facilitate their spread, has been disputed. Concerns have been raised that such an interpretation would result in widespread "nominal proliferation," in which an increasing number of states would, in theory, be within months of developing a nuclear weapon.

As discussed earlier, the concept of multilateralizing the nuclear fuel cycle was resuscitated by the IAEA Director General, in an attempt to address these concerns.²¹ In the 1970s, the “peaceful” nuclear test by India and concerns regarding a “plutonium economy” (which, it was feared, would be instigated by the growth of nuclear power) led not only to the creation of the Nuclear Suppliers’ Group, but also to efforts to try and constrain access to, in particular, the “back end”²² of the nuclear fuel cycle. For a variety of reasons (not least the fact that the anticipated nuclear renaissance proved to be a damp squib), these efforts did not result in any concrete results.

Modern efforts at multilateralizing the fuel cycle have, in keeping with current nuclear trends, focused on the front end, i.e. uranium enrichment.

This time, however, tangible progress has been made, in spite of the fact that the idea itself has been viewed with even more suspicion than it was during its first incarnation. Modern efforts at multilateralizing the fuel cycle have, in keeping with current nuclear trends, focused on the front end, i.e. uranium enrichment. And, also in keeping with current trends, these efforts have been greeted with skepticism, viewed as an attempt by the current technology-holders, and some of their allies, to do an end-run around Article IV.

Significantly, this divide is not easily understood as lying between the developed and developing world. Some early proposals suggested that participation in multilateral alternatives to domestic uranium enrichment would be voluntary, but should be conditional upon the consumer state’s having foresworn or otherwise not taken steps to develop its own enrichment capability. As a consequence, even longtime and staunch nonproliferation advocates such as Canada expressed skepticism, unwilling to commit themselves in perpetuity to foregoing uranium enrichment. The IAEA’s then-Director General ElBaradei went further, proposing that a “last resort” fuel bank be established, in order to provide as base-level assurance of supply, encouraging states to rely on the international market for enrichment services. The next stage would see all new, and later all existing, enrichment and reprocessing

facilities being multilateralized. Unsurprisingly, this was interpreted by many states not only as an infringement of their Article IV rights, but as an echo of the original, and problematic, NPT bargain, which saw a majority of states curtail their activities immediately, in exchange for an undertaking by the minority to curtail their activities at some unspecified point in the future. This debate is now stalled, notwithstanding the fact that some states view a multinational fuel cycle to be a vital component of future management arrangements in a context of spreading nuclear capability.

The “Breakout Scenario”

b. Article X. Article X of the NPT, which sets out the terms for a state party’s withdrawal from the Treaty, has also been cited as a “loophole” in the Treaty, particularly against the backdrop of an interpretation of Article IV that sees it as facilitating the spread of proliferation-sensitive technologies. The DPRK is often cited as a classic example of the breakout scenario, in which a NPT non-nuclear-weapon state masters the full fuel cycle, before exercising its right of withdrawal and going on to develop nuclear weapons. (Holding the case of the DPRK aloft as a possible precedent does require one to ignore the fact that the DPRK was never in good standing with its NPT obligations, first as a consequence of its failure to conclude the required safeguards agreement under Article III and then, after eventually concluding that agreement, as a result of IAEA findings during the Agency’s initial inspections). Nonetheless, it is a source of concern that a state in good standing with its Treaty obligations could legally develop a full fuel cycle and then withdraw from the Treaty on three months notice, having first self-identified the extraordinary events, related to the subject of the Treaty, which had jeopardized its supreme national interests.

As a result, there have been calls to amend Article X, if not by a literal alteration in the text of the Treaty then by pursuing a common understanding for a reinterpretation of this Article, one that could extend the notice given for withdrawal; accept that other states parties can question whether the “supreme interests” of the country are truly jeopardized; set forth acceptable withdrawal conditions

that must be met; or even one that would require the withdrawing state to return any materials or technologies it had received as a result of being a NNWS party to the NPT. Another approach might be to reinterpret Article X in such a way that a state that withdraws from the NPT would still be held accountable for violations of the treaty prior to its withdrawal. Naturally, such proposals have been criticized as a further attempt to curtail NNWS rights. There is also concern that laying out conditions for withdrawal may simply serve as an “instruction manual” for how to get out of the Treaty, and thus end up running counter to the goals of nonproliferation.

The NPT is not only the “cornerstone” of the regime, but is also both the source and focus of the divisions that have characterized the international community’s approach to nonproliferation and disarmament. Changing circumstances, and differing perceptions of the most pressing concerns, have heralded various attempts to clarify or even reinterpret the text of the Treaty. The final section of the report (Part V) will suggest not only what might be done to address the issues outlined above, but also—and equally importantly—will make recommendations of what steps should be avoided, at least in the short-to-medium-term.

(F) A Middle-East Nuclear-Weapon-Free Zone. Since 1974, the General Assembly has regularly approved proposals for a nuclear weapons free zone in the Middle East. The issue was pivotal to the 1995 decision to extend the NPT indefinitely, and a key part of all subsequent Preparatory Committee (PrepCom) and Review Conferences. It is expected to remain so in 2010.

Concluding agreements at the 1995 Review and Extension Conference addressed the question of a Middle East Nuclear Weapons Free Zone in two ways. The statement of Principles and Objectives, under the discussion of Nuclear Weapon Free Zones, stated specifically that “the development of nuclear-weapon-free zones, especially in regions of tension, such as in the Middle East, as well as the establishment of zones free of all weapons of mass destruction, should be encouraged as a matter of priority, taking into account the specific characteristics of each

region.”²³ In addition, the Conference adopted, without a vote, a resolution on the Middle East that was sponsored by Russia, the UK, and the US. It included, among other points, language that the Conference “calls upon all States in the Middle East to take practical steps in appropriate forums aimed at making progress towards, inter alia, the establishment of an effectively verifiable Middle East zone free of weapons of mass destruction, nuclear, chemical and biological, and their delivery systems, and to refrain from taking any measures that preclude the achievement of this objective.”²⁴

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The 2000 Review Conference continued and elaborated support for this objective; it was again a major topic in the 2005 conference that, in the end, took no action on any substantive matters. Discussions at the 2009 NPT PrepCom meeting, and in subsequent months, all suggest that forward action on the Middle East resolution is strongly desired and expected by many states.

There are two particular complexities to this issue in the NPT context. First, the contentious regional security issues at play are central to actual progress toward implementation, but those issues are not themselves formally within the NPT remit. Secondly, a key player, Israel, is not party to the NPT. That is, although the prospects for a “successful” Review Conference may be significantly shaped by how the Middle East Resolution is addressed, the Review Conference itself is not sufficiently inclusive of the key issues or of all parties. The issue therefore needs to be “worked” both within the NPT context and in parallel discussions or processes. In practice, real progress towards a MENWFZ is only likely in the context of wider progress on peace processes and security arrangements within the region.

In the context of the Review Conference, proposals for forward progress on the Middle East Resolution tend

to include mechanisms that would engage all states in the region. At the 2009 PrepCom, although there were ultimately no substantive recommendations forwarded to the 2010 conference, there was substantial discussion of the Middle East Resolution and the final draft recommendations under consideration proposed that the states parties:

Consider the proposal to call upon the nuclear-weapon States to convene a conference of all States of the Middle East region to address ways and means to implement the Resolution. Invite all States Parties to undertake consultations with a view to facilitating the convening of such a conference. Call upon all States Parties to issue periodic reports to each of the Preparatory Committees and the Review Conference on their efforts to implement the Resolution.²⁵

Real progress towards a MENWFZ is only likely in the context of wider progress on peace processes and security arrangements within the region.

A closely related idea that has been proposed, including in the recent report of the International Commission on Nuclear Nonproliferation and Disarmament, is to request that the Secretary General of the UN convene a conference of all relevant states in the region that would consider and promote confidence-building measures toward implementation of the 1995 Resolution.

V. RECOMMENDATIONS

(A) Words of Caution. The rapid growth and adaptation of the nonproliferation regime's multilateral instruments all share the overarching goal identified at the outset of this report: to ensure that the regime is considered by the international community as being capable of providing states with the security they require. The divisions that have characterized the international community's approach to nonproliferation and disarmament have undermined that sense of security and must therefore be addressed in order for progress to be made on either front. The report lays out the initial steps that have been

taken to redress this perceived security deficit, primarily those that involve attempts to reassess and adapt existing multilateral institutions. However, while putting forward actionable recommendations is potentially fruitful, it is always useful to briefly touch upon the kinds of actions that, at least for the time being, are best avoided.

The overview of the key NPT issues, for instance, highlighted the difficulty over what constitutes compliance with the Treaty or, more accurately, the lack of precision regarding the point at which a state may be found to be in non-compliance with its broader Treaty obligations (as encapsulated in Article II) rather than simply, or solely, its IAEA safeguards agreement. This difficulty is certainly worthy of consideration, as the debate surrounding it has proved central to the discussions over how to address the nuclear ambitions of hard cases such as Iran, as well as others who might be to emulate Iran. It was suggested that, with no secretariat or institutional mechanism of its own, the states parties are at a serious disadvantage in trying to determine compliance, and are left to address the hard cases on an *ad hoc* basis. This is made all the more complicated by the fact that decisions are, by tradition, taken on the basis of consensus.

However, attempting to address these issues by creating new institutions or attempting to push through new interpretations of Article II is almost certain to be a wasted effort, at the best having no result and at worst, inculcating a hostile atmosphere that may taint the prospects for more achievable priorities (such as, for instance, those suggested in the section below). Attempting to concretize a mechanism for addressing the hard cases, while the hard cases are still unresolved, would risk institutionalizing an approach designed in reaction to a specific situation (i.e. the case of Iran), rather than one designed to address the broader, and admittedly more abstract, question of how to assess compliance or non-compliance with the Treaty as a whole.

Similarly, efforts to reinterpret Article X of the NPT are, at the present time, likely only to confirm the suspicions of some states that efforts are underway by others to move the proverbial goalposts of the NPT at their expense. This

makes it more likely that potential avenues of progress will be closed off, as a consequence of the negative reaction. Moreover, it remains unclear that a reinterpretation of Article X by the NPT states parties will benefit the regime and not, as suggested previously, simply serve to provide a checklist for future states to point to as evidence of the validity of their withdrawal from the Treaty. For those who consider that a withdrawing state should return the technology and equipment received while a party in good standing with the Treaty, a better chance of success would perhaps lie in introducing such clauses into bilateral agreements or even in the Nuclear Suppliers Group, rather than in the context of the NPT itself.

Finally, the efforts to multilateralize the fuel cycle have so far generated the joint enrichment center in Angarsk (Russian Federation). In addition, the IAEA and the Russian Federation have now reached agreement to establish a last-resort fuel bank in the form of a reserve of low enriched uranium (LEU) for supply to the IAEA for its member states. The reserve will be located at the enrichment center in Angarsk. Although questions regarding fuel fabrication remain unanswered (i.e. since it is impossible to know in advance the type of reactor that might need to draw on the bank as a last resort, one cannot say by whom, and how quickly, the LEU could be fabricated), the creation of such a fuel bank is an important step in these efforts and demonstrates that these efforts have already attained more success than was apparently possible during the 1970s.

Nonetheless, broader proposals – those that envision all new, and then all existing facilities being placed under multilateral control – seem to have few short- or even medium-prospect of success. The echoes of the Article IV/Article VI tension (immediate constraints upon the majority in exchange for an undertaking by the minority to accept similar constraints later) show no signs of being overcome.

(B) Suggested Actionable Items. Fortunately, it is not only possible to identify steps and actions that would be ill-advised. It is also possible, and equally important, to propose concrete and tangible steps that may, with

further study and exploration, serve as practical options for mitigating the concerns that have arisen in the context of nonproliferation. In so doing, they may confirm the value of the regime by reaffirming its ability to enhance the overall security of the international community.

(i) UN Security Council

Proposal: Adopt a resolution that sets out a list of factors the UNSC should consider when deciding whether a proliferation event constitutes a threat to international peace and security justifying action.

The UNSC set the stage for such a resolution in the first operative paragraph of resolution 1887, where it emphasized that “a situation of non-compliance with nonproliferation obligations shall be brought to the attention of the Security Council, which will determine if that situation constitutes a threat to international peace and security, and emphasize[d] the Security Council’s primary responsibility in addressing such threats.” The aftermath of the forthcoming nuclear security summit and NPT Review Conference present an opportunity to give content to that generic statement and expand on it to include disarmament and other considerations.

There is a model for this in a May 1994 Presidential Statement on peacekeeping (S/PRST/1994/22), in which the Security Council set out a set of questions it should ask itself when considering deployment of a peacekeeping operation, reaffirmed in its Presidential Statement of August 2009 (S/PRST/2009/24).

A “trigger list” of proliferation events that would give rise to an automatic response is not realistic, because the P5 would not want to tie their hands in that way.²⁶ But it is conceivable that the UNSC could come up with a list of factors it would take into account in considering whether and how to react to a threatening situation, for example: whether the act entails the breach of any nonproliferation or related obligations (e.g. violation of safeguards); whether it was committed by a state or non-state actor deemed to be of ‘proliferation concern’ (a way of getting at the risk of nuclear terrorism); whether the act is being

addressed effectively in other forums; whether evidence of the potential threat comes from reliable sources, confirmed through objective third-party assessments, et cetera.

The purpose would be threefold: to deter would-be proliferators, by sending a signal that the Council takes these threats seriously and is prepared to act if necessary; to provide a framework for threat assessment; and to enhance accountability through deliberative legitimacy, hopefully stimulating action when it should happen and constraining action when it should not. Framed as considerations the UNSC should take into account, rather than triggering criteria, they would not lead to automatic conclusions, but would induce UNSC members to justify their positions for and against action on the basis of agreed standards, structuring debates on highly contested political issues.

To expand support for this element of the resolution, which addresses proliferation and nuclear terrorism, it should also address the other side the ledger – disarmament. Negative security assurances – perhaps linked to a NNWS’s good standing in the NPT – and a positive signal on a NWFZ in the Middle East, would be steps in that direction. Some of the NPT interpretation issues noted above could be addressed. Appeals to India, Israel and Pakistan on testing, nuclear security and other dimensions of nonproliferation and disarmament may be considered.²⁷ President Obama’s pledge to “institutionalize” the PSI could also be advanced through a new UNSC resolution, bearing in mind that some of the concerns about the PSI relate to uncertainty about the legality of interdictions, the lack of clear standards as to when an interdiction would be warranted, and who ultimately dominates the process.

This is ambitious for one resolution, especially soon after the adoption of resolution 1887 – thus, this set of items may require two or more resolutions, albeit seen as a package. It should only be adopted following broad and genuine consultations with all stakeholders. The Council can play an enhanced role, but it will only succeed if it balances its enforcement powers with management and signaling initiatives in a manner that addresses legitimacy concerns.

(ii) Additional Protocol to the Comprehensive Safeguards Agreement

Proposal: Conduct a more systematic assessment of obstacles to state ratification of the Additional Protocol.

There are, as noted earlier, frequent calls for the universalization of the additional protocol. These come from the IAEA itself, as well as many NPT States Parties, the UN Secretariat, and numerous non-governmental organizations. Such calls have even included calls for safeguards tools that go beyond those of the protocol (i.e. in those states that carry out proliferation-sensitive activities). At the same time, these calls are resisted or ignored by many states. Proponents of the AP often interpret a state’s reluctance to adopt the protocol as being a purely political decision, and of course, universalization of the protocol has become one item in the larger debate about Article IV and Article VI rights. To the extent that the AP is embedded in those debates, universalization will be difficult until the debates begin moving toward resolution. However, the fact that the protocol *can* be an intensely political issue does not mean that states’ reservations are always and only political in nature. It would be useful to gain a more realistic and nuanced understanding of the rationale behind states’ decisions related to the AP, as well as to identify steps that may be able to remove or redress obstacles, where objections exist. If those reasons are other than political, then perhaps they can be addressed through other than political means? It is also worth exploring what additional factors may also affect states’ decisions, including the demand on technical/administrative resources; economic and/or commercial considerations; and even the simple relevance of the protocol to a state’s priorities.

Such an exploration could be carried out in a variety of ways. It could be done in a relatively informal manner, for instance in the form of one-on-one conversations or series of consultations, either officially or in “Track II” format. Alternatively, these efforts could take the form of a high-level panel—commissioned jointly by the UN Secretary-General and IAEA Director General—that would

produce a detailed report addressing states concerns and, if necessary, outlining practical steps that could be taken to remove any credible obstacles to the AP.

(iii) A Nuclear-Weapon-Free Zone in the Middle East

Proposal: The Secretary-General should signal his willingness to appoint a Personal Envoy for purposes of preparing a conference on Confidence Building Measures towards a MENWFZ; the NPT States Parties should endorse or encourage this decision and encourage the SG and his Envoy.

Prospects for a successful 2010 NPT Conference will be enhanced if it is possible to take some concrete action on the Middle East Nuclear-Weapon-Free Zone. To do so, however, it must act with sensitivity to two complicating real world issues: the difficult of including Israel in any mechanism established by the NPT; and the importance of acting in ways that address regional security.

In this regard, the recommendation made by the International Commission on Nuclear Non-Proliferation and Disarmament is astutely stated. It says that priority issues for the 2010 Review Conference include “Agreement that the Secretary-General of the UN should convene an early conference of all relevant states to address creative and fresh ways to implement the 1995 [Middle East] Resolution, including the identification of confidence building measures that all key states in the region can embrace, and to commence early consultations to facilitate that.”²⁸ By putting the nuclear-weapons free zones into a broader context of confidence building (and thus security), it places it in more realistic context. In addition, by suggesting a mechanism outside the NPT per se, it avoids the question of membership in the NPT.

Still, in the delicate balancing act that will be the NPT 2010 Conference, many states will want to take action on this issue. A set of steps that squares this circle is thus necessary. These could be:

- the Secretary-General, after consultation with interested parties, should signal his willingness to

appoint a Personal Envoy to consult with parties towards preparing a conference on confidence building measures towards a MENWFZ;

- informal consultations, perhaps led by a trusted state or a small team of states, prepare draft language, in parallel to the broader preparatory process; and
- the NPT States Parties should endorse or encourage this decision and encourage the SG and his Envoy to pursue active steps towards a conference on confidence building measures towards implementation of the 1995 resolution.

(iv) Comprehensive nuclear Test-Ban Treaty (CTBT)

Proposal: Encourage other Annex 2 states to take leadership on CTBT entry-into-force.

As suggested earlier, there is no inherent reason why non-ratifying Annex 2 states should await US action. According to a high proportion of analysts in those states, the entry into force of the CTBT is at heart a political, not a security issue, and the decision about ratification will be taken at a high political level. Particularly for states that intend to ratify if the US does, there is an opportunity for demonstrating real leadership in the international realm without taking on undue risk.

Proposal: Encourage key non-Annex 2 states that have not ratified the CTBT, to do so.

International discussion has focused on decisions by those states whose ratification is required for CTBT entry into force. But in at least one region—the Middle East/Gulf—there are three non-signatories that are also crucial to regional politics and security: Saudi Arabia, Somalia, and Syria. A focus on bringing these states into the CTBT would be an important step both in the context of the Treaty and in terms of broader regional security. As part of a wider initiative on confidence-building in the region, the Secretary-General (or his Personal Envoy, if appointed) could encourage these states to ratify CTBT as part of that process.

(v) Multilateralization of the nuclear fuel cycle

Proposal: Focus greater efforts towards the back end of the fuel cycle, in particular to exploring the possibilities for fuel leasing and spent fuel take-back.

At least some of the skepticism expressed regarding multilateral arrangements on the nuclear fuel cycle is the result of the “target” states’ uncertainty that there is sufficient incentive for them to rely solely on the international market or on a multinational center. As stated earlier, this is in part due to continuing fears that such participation would, whether explicitly or tacitly, require those states not to explore domestic enrichment.

However, in the midst of justifiable concerns regarding the proliferation potential of the front end of the fuel cycle, the back end of the nuclear fuel cycle has been largely ignored (in contrast, notably, to the work undertaken in the 1970s). And yet, with the expansion of nuclear power still anticipated, the world is nonetheless moving towards a significantly greater number of interim spent fuel repositories – one, presumably, for each state with a nuclear power program, raising not only financial and environmental concerns, but also resulting in a growing number of potential targets for non-state actors seeking material for use in, for instance, a radiological dispersal device.

The possibility of a state being able to offer to lease and take-back spent fuel, or the establishment of an international spent fuel facility, would avoid this scenario and may also hold immense appeal for new nuclear power states. At the same time, it would bring those states onboard with multilateral efforts to manage the nuclear fuel cycle, while demonstrating a willingness on the part of nuclear fuel suppliers to accept some of the burden of multilateral approaches to the fuel cycle – something that is often felt to have been lacking in the proposals put forward thus far. Of course, fuel leasing or take-back will face political, legal and even constitutional barriers that would be difficult to overcome; some of the work already undertaken in the context of initial discussions of the multinational fuel cycle applies here.

VI. CONCLUSION

Of the litany of transnational and global issues, three stand out for the scale of threat they pose – climate change, biological insecurity, and nuclear use. Of these, it is the nuclear issue which poses the greatest near term risk to global security.

Quite apart from the short-term dangers, the medium-term challenges of the nuclear regime are sizeable. Pressures from changing regional and global balances of power, growing emphasis on reducing the use of fossil fuels, and rising energy needs of the emerging powers and new middle income countries, each create new demands for nuclear capacity.

This report has set out a series of proposals that could strengthen the multilateral regime. It does so against the positive backdrop of renewed bilateral engagement on disarmament, most importantly between the United States and Russia. We have outlined possible steps that can be taken to strengthen the role of the UN Security Council, the Comprehensive Test Ban Treaty, the IAEA and the NPT itself, as well as efforts to move forward on confidence building measures towards a MENWFZ.

These proposals are designed individually to answer some of the challenges confronted by specific multilateral institutions. Taken collectively, they are designed to start a discussion on this question: do we have the multilateral mechanisms we need to foster the benefits and manage the risks of a “second nuclear age?”

Endnotes

¹This proviso constituted the “other part” of Article X of the Treaty – Article X.2 (Article X.1 being the increasingly debated paragraph that contains the option for withdrawal from the NPT).

²“Principles and Objectives for Nuclear Nonproliferation and Disarmament,” NPT/CONF.1995/32 (Part 1), Annex.

³“Resolution on the Middle East,” NPT/CONF.1995/32 (Part 1), Annex.

⁴The phrase was originally coined by Paul Bracken. See, Paul Bracken, “The Second Nuclear Age,” *Foreign Affairs* 79 (1), pp. 146-156. For a longer exegesis of the issues, see Bruce Jones, Carlos Pascual and Stephen John Stedman, *Power and Responsibility: Building International Order in an Era of Transnational Threats* (Washington, DC: Brookings Press, 2009), pp. 107-138.

⁵At the time of writing, googling “NPT” and “cornerstone” produces 317,000 hits, demonstrating either a widespread acceptance of the centrality of the treaty to the regime as a whole or a lack of imagination on the part of nonproliferation commentators, or both.

⁶See “Resolution on the Middle East,” NPT/CONF.1995/32/RES/1, paragraph 6.

⁷“Implementation of the IAEA Safeguards Agreement in the Syrian Arab Republic,” Report by the Director General, 18 February 2010, GOV/2010/11.

⁸Barack Obama, Remarks of 5 April, 2009, available at: <http://prague.usembassy.gov/obama.html>.

⁹The US Senate rejected the CTBT by a vote of 51-48, in October 1999.

¹⁰Abram Chayes and Antonia Handler Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements* (Cambridge, MA: Harvard University Press, 1998); George Downs, David Rocke and Peter Barsoom, “Is the Good News About Compliance Good News About Cooperation?” *International Organization* Vol. 50 (1996), p. 379.

¹¹See, for example: Letter of 20 March 2003 from the Permanent Representative of the US to the UN to the President of the Security Council, S/2003/351 (21 March 2003).

¹²S/RES/1874 (2009), paras. 11-13.

¹³BBC, “Thailand seizes arms plane flying from North Korea”, 12 December 2009, available at <http://news.bbc.co.uk/2/hi/8410042.stm>.

¹⁴Ian Johnstone, “Legislation and Adjudication in the UN Security Council: Bringing Down the Deliberative Deficit”, *American Journal of International Law* Vol. 102 (2) (2008), pp. 275-308.

¹⁵INFICIRC/11, Article IX stipulates that the Agency “shall cooperate with the Security Council by furnishing to it at its request such information and assistance as may be required in the exercise of its responsibilities for the maintenance or restoration of international peace and security.

¹⁶Phil Stewart and Matt Spetalnich, “Obama limits US use of nuclear arms”, Reuters April 6, 2010, <http://www.reuters.com/article/idUSTRE6352YK20100406?feedType=RSS&feedName=topNews>

¹⁷Boulden, Thakur and Weiss, “The UN and nuclear orders: context, foundations, actors, tools, and future prospects”, in Jane Boulden et al (eds), *The UN and Nuclear Orders* (New York: UNU Press, 2009), p. 12.

¹⁸Ban Ki-Moon, “The United Nations and security in a nuclear-weapon-free world,” Address to the East-West Institute, 24 October, 2008, available at: http://www.un.org/apps/news/infocus/sgspeeches/search_full.asp?statID=351.

¹⁹Randy Rydell, “The Secretary-General and the Secretariat,” in Boulden et al 2009.

²⁰On legal and policy assessments of the PSI, see Douglas Guilfoyle, “Maritime Interdiction of Weapons of Mass Destruction”, *Journal of Conflict and Security Law* 12, No. 1 (2007): 1-36; Daniel Joyner, “The Proliferation Security Initiative: Nonproliferation, Counterproliferation and International Law”, *Yale Journal of International Law* 30 (2005): 507-548; Jack Garvey, “The International Institutional Imperative for Countering the Spread of WMD: Assessing the PSI”, *Journal of Conflict and Security Law* 10, No. 2 (2005): 125-47.

²¹A brief history of these efforts, and the proposals made thus far, are detailed in: Tariq Rauf and Zoryana Vovchok, “Fuel for Thought,” IAEA Bulletin, vol.49, no.2 (March 2008).

²²The back end of the fuel cycle covers activities such as the interim storage of spent fuel, reprocessing, and final disposal. Concerns regarding the spread of reprocessing facilities, in the 1970s, led to multilateral efforts such as the International Nuclear Fuel Cycle Evaluation (INFCE) and the Committee on International Plutonium Storage (IPS).

²³“Principles and Objectives for Nuclear Nonproliferation and Disarmament,” NPT/CONF.1995/32 (Part 1), Annex. Para 6.

²⁴“Resolution on the Middle East,” NPT/CONF.1995/32 (Part 1), Annex. Para 5.

²⁵Draft Recommendations to the Review Conference, Third Session, New York, 4-15 May 2009, NPT/CONF.2010/PC.III/CRP.4.

²⁶See Jack Garvey, “A New Architecture for the Non-Proliferation of Nuclear Weapons”, *Journal of Conflict and Security Law* 12, No.3 (2008): 339-357.

²⁷See George Perkovich, Jessica Matthews, Joseph Cirincione, Rose Gottemoeller, and Jon Wolfsthal, *Universal Compliance: A Strategy for Nuclear Security* (New York: Carnegie Endowment for International Peace, 2005), pp 42-49.

²⁸International Commission on Nuclear Non-Proliferation and Disarmament, *Eliminating Nuclear Threats*, 2009.

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