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Taking Nuclear Disarmament Seriously[1]

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The prohibition of nuclear weapons has never been taken seriously either by the nws or nnws. No nuclear-weapon state has a full-time employee, let alone an inter-agency group, tasked with figuring out what would be required to verifiably decommission all its nuclear weapons. Non-nuclear-weapon states have not really engaged the challenge either, in spite of their disarmament rhetoric. They have tended to view disarmament as something that the nuclear-weapon states should do and report back on when it is accomplished, failing to recognize that disarmament has ramifications for all nations.

At the outset, it must be recognized that the prohibition and decommissioning of all nuclear weapons, whether by omnibus treaty or incremental agreements and steps, will inevitably be preceded by numerous arms control, reduction and nonproliferation agreements. These will include entry into force of a global comprehensive test ban, a ban on production of fissile materials for weapons purposes, further verifiable reductions by the U.S and Russia, and the establishment of stronger, more reliable firewalls against proliferation. At an intermediate stage, China, France, the United Kingdom and Israel, India and Pakistan would have to be persuaded to enter negotiations to reduce or operationally control their nuclear arsenals. These and other steps would facilitate and could be motivated by the goal of eliminating all nuclear arsenals. Measures to strengthen nonproliferation rules and their enforcement will be necessary to encourage progress in this direction.

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[1] This paper draws on a much longer Adelphi Paper that James Acton and I are writing for the International Institute for Strategic Studies

This paper takes such steps as a given and leaps past them toward the latter steps of a hoped-for process of prohibiting and dismantling all nuclear arsenals. We don't debate whether or why it is a good idea to have this objective; instead we explore the steps you'd have to take to accomplish a prohibition on nuclear weapons.

An early step toward taking nuclear disarmament seriously is to recognize that the existence of thousands of nuclear weapons today distorts our thinking about the challenges of verifiably dismantling all of them. The effects of these weapons are more pervasive and subtle than we know.

On the one hand, some of the conditions that may seem to make nuclear disarmament feasible, could actually be products of nuclear deterrence, so that eliminating the last weapon might negate the conditions that made the act possible. For example, over the last 20 years, Russia and the United States have dismantled nuclear warheads in the context of a series of bilateral treaties. Although there have been fears about cheating (especially in the early days), these did not prevent progress because each side still possessed, then and now, a large arsenal which acts as an insurance policy against cheating. Eliminating the last nuclear weapons would be qualitatively different because these insurance policies would no longer exist. As zero is approached, fears of cheating would be magnified and could limit the speed of progress. The hedge provided by the existence of nuclear arsenals enables progress to be made not just on reducing the number of nuclear weapons, but also on eliminating delivery systems, controlling the production of fissile material and banning the testing of nuclear weapons. Those steps are widely seen as vital to achieving a nuclear weapon free world, but they may become harder if states imagine doing without the insurance of at least some nuclear deterrence.

On the other hand, the states that now possess nuclear weapons do not even try to imagine how they could manage a world where no one had them. They say, "Nuclear weapons cannot be disinvented," pre-empting further reflection and discussion of the matter. No human creation can be disinvented, but this has not stopped civilization from prohibiting and dismantling artifacts deemed too dangerous or undesirable to continue living with. The U.S. and most other states have agreed to ban biological weapons even though they are probably harder to verifiably eliminate and keep from being invented than nuclear weapons. Mass-scale gas chambers such as those used by Nazi Germany have not been disinvented, but they are prohibited. [CFCs] that caused a hole in the ozone-layer cannot be disinvented, but they have been prohibited. The issue is whether means exist to verify that a rejected technology – nuclear weapons in this theoretical case – has in fact been dismantled by everyone and to minimize the risks to society if someone cheats on a prohibition. The challenges of verification and enforcement may be so daunting that states will choose not to prohibit and dismantle all nuclear weapons, and this paper seeks to help explore these challenges. But the question of disinvention should not deter us from this exploration.

Another deflection is to say, "We can't get rid of our nuclear weapons, because other people have them or might get them." But this misses the key point that a prohibition of nuclear weapons will have to be reciprocal and universal or it will not be undertaken. The more pertinent question is, "if no one else had nuclear weapons, would it be fair or tenable for your state to keep them?" Put this way, the issue of nuclear disarmament can be taken seriously.

So, in the spirit of encouraging an international discussion of what it would mean to take nuclear disarmament seriously, this paper skips over some of the earliest steps and avoids some diversions. We focus on latter steps that will require contributions by all states, not only those with nuclear weapons. In doing so, we recognize that calls for nuclear disarmament are intensifying just as the nuclear industry is expected to expand greatly worldwide. Much greater tension exists between the objectives of nuclear disarmament and expansion of nuclear industry than has been publicly discussed.

For example, states would likely have to endorse much more intrusive inspection procedures on all civilian nuclear programmes than is the case today. After the Iraq War of 1991 and the discovery that Iraq had a much more advanced uranium enrichment program than the IAEA had detected, the Agency and member states spent years to develop a model Additional Protocol that would strengthen the Agency's inspection rights. Among the states that resist adopting this protocol are Algeria, Argentina, Brazil, Egypt, Iraq, Serbia, Syria and Venezuela. Yet, it is impossible to imagine moving close to a world without nuclear weapons without an even stronger inspection regime than the Additional Protocol.

If there is to be a significant expansion of the nuclear industry, global capacity to manufacture nuclear fuel will have to be increased. Many international leaders recognize that the spread of uranium enrichment and plutonium separation capabilities to non-nuclear-weapon states poses an inherent proliferation risk

Various proposals have been put forward for persuading additional states from getting into the enrichment and reprocessing "business." Each proposal to guarantee or at least strengthen assurances of fuel-supply is controversial, as are the many constructive ideas on requiring the international management of enrichment and reprocessing facilities. Little momentum has been developed to advance any of these ideas, as states and industry find it difficult to agree on alternatives to nationally-based and controlled operations.

The current system is too loose to encourage nuclear-weapon states to seriously consider an agreement to eliminate their nuclear arsenals. The experience with reprocessing plants suggests why. The Director General of the IAEA, Mohammed ElBaradei, while discussing the putative FMCT, told a Georgetown University audience in October of 2006 that "we do not assume that we have a perfect verification system" for this treaty, but "it's still better than a treaty that has absolutely no verification clauses."[2] ElBaradei cited verification of civilian reprocessing in Japan as an example of effectiveness. However, Japan admitted in 2003 that it had “lost” 206 kilograms of plutonium at its Tokai-mura reprocessing plant. The IAEA had learned of this five years earlier but did not take further action. Moreover, much of the world discounted this news due to Japan’s good intentions and it does not seem to be a bar to realizing an FMCT. Yet, would China, for example, contemplate eliminating its last nuclear weapons in world where Japan continued to operate national reprocessing facilities that could not account for many bombs worth of plutonium?

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[2] Georgetown transcript, p. 14.

At a minimum, states need to discuss whether (i) the goal of a NWFW should be abandoned because reprocessing is more important; (ii) reprocessing should be banned because the goal of a NWFW is more important; or (iii) sufficiently effective verification and enforcement arrangements can be developed to enable reprocessing to take place in a NWFW. We might agree that option three is the most politically and economically feasible, but then we are led back to the Japan problem mentioned above.

A similar discussion is necessary regarding enrichment of uranium, which is vital for nuclear industry, but which poses major proliferation risks. Time does not allow me to go through such an analysis here, but suffice it to say that the issue poses enormously difficult political, economic, legal and technical challenges. Humanity has never collectively managed a technology or industry in the way that would be required to manage uranium enrichment so as to give states confidence to relinquish their last nuclear weapons.

The disarmament process itself would pose major verification problems that have not yet been worked out. One challenge is to ensure that the declarations of fissile material inventories truthfully account for all past production. Because no verification scheme can assure the world that all of the highly enriched uranium and plutonium that has been produced is accounted for, and no technical system is full-proof to verify that all nuclear weapons have been dismantled, eye-witness insider accounts of nuclear programs will be vital. If the world is to have confidence that all states with nuclear weapons have truly eliminated their last one, expert-on-expert interviews with key figures in each country's nuclear weapon and fissile material production programs will be necessary.

However, experience in today's world is not encouraging. In negotiations of the Comprehensive Test Ban Treaty (which still has not entered into force), the United States, Russia, China and others refused to allow interviews as an element of the verification regime. Nor has Iran acceded to all IAEA requests to interview leaders of its enrichment program, despite Security Council resolutions ordering Iran's full cooperation and transparency.

In any case, there will unavoidably be large uncertainties in fissile material inventories. Even with perfect intentions and honest accounting such uncertainties will be, at least, on the order of a few percent of production. As the widely respected physicist Steve Fetter wrote in 1996 " [this] could prove to be the largest obstacle to verifying nuclear disarmament. …An uncertainty of five percent in the US or Russian stockpiles corresponds to enough material to build about 5,000 nuclear explosives; in the case of the United Kingdom, France, or China, about 100 nuclear explosives; in the case of Israel or India, about 5 explosives. To this challenge we also must add the difficulty of accounting for hundreds of tons of civilian fissile materials (mostly plutonium) in these states that has not been safeguarded by the IAEA."[3]

Because technical means of verification alone can not provide sufficient assurance in disarmament, it seems likely that societal verification will be required to fill the gaps that are left by technical means. Societal verification implies that the responsibility for detecting a treaty violation rests not just with a handful of designated inspectors but with society at large.[4] The need for societal verification probably would grow stronger if a renaissance of the nuclear industry brought capabilities and expertise to new states.

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[3] Fetter, *Verifying Nuclear Disarmament*, p. 15—16.

[4] Rotblat, 1993.

Typical proposals suggest that a nuclear disarmament treaty should require states to implement national laws, which would make it the right—and indeed the duty—of every citizen to report evidence of a treaty violation to an international body. Governments would be required to educate their populations about this duty. Indeed, if nuclear weapons are to be prohibited globally, it would be appropriate that directors or chief executive officers of nuclear-related industries annually sign legal documents certifying that no production of illicit equipment or material has occurred in his or her enterprise. Employees could be required to sign annual agreements that they will reveal any illicit activity, or risk prosecution, and that this obligation would supersede secrecy agreements. Parallel laws forbidding enterprises or the state from interfering with a whistle blower or from taking retaliatory action on his or her family would be measures of a state's commitment to adhere to a nuclear weapon ban. Going further, some have suggested the establishment of large monetary reward (funded globally) for information leading to the detection of a violation of ban on nuclear weapons.

To increase the feasibility of whistleblowing, a free press would be vital. Potential whistleblowers would face severe, perhaps life-or-death quandaries regarding whether and how to inform the world of suspect or forbidden nuclear activities. After all if a government has taken the decision to build a nuclear weapon in violation of its treaty commitments, it is highly likely that it would take action to try and prevent whistle blowing. Therefore, not only would a free press provide an invaluable, realistic outlet for a whistle blower but, even more importantly, it could also highlight attempts by a government to silence whistle blowers.

Disarmament would certainly necessitate a new willingness to enforce international rules with more alacrity and robustness than has been historically normal in international politics. Even if perfect means existed to verify a nuclear weapon ban, someone could still break out and dash to acquire nuclear weapons. People will want to know that enforcement of such a ban would be extremely reliable before they dismantle their last nuclear weapon. As importantly, they will want to know that the absence of nuclear weapons will not make major war more likely, even if there were no cheating on a nuclear-weapon ban.

These two concerns – the reliability of enforcing a nuclear-weapon ban, and the possibility that a perfectly enforced ban could make non-nuclear war more likely -- are difficult to sort in a linear way. Reliable, robust enforcement of a nuclear-weapon prohibition would require cohesion among the states or other entities holding coercive power in the international system. If major powers were conflicted, or simply slow to agree on what to do, doubts would arise about the surety of enforcement. Some of the eight states that now legally possess nuclear weapons feel that they will face greater risks of non-nuclear attacks against their vital interests – *especially from other states that currently possess nuclear weapons* -- if they were to give up nuclear weapons.

Perhaps the most severe near-term impediments to going to much smaller nuclear arsenals and then zero are unsettled questions of sovereignty. China insists that Taiwan is an internal affair. India does not accept that Kashmir is a matter for international resolution. Palestine is not recognized as a separate state. The Russian periphery contains pockets of separatist dynamics that could produce conflict between Russia and other states, which Russia would insist should not be considered matters of international peace and security. In each of these cases, questions arise over what legal principles exist to be enforced, and whether international bodies have jurisdiction to enforce them.

These disputes all involve states that now possess nuclear weapons. Prospects of intervention by outside actors in them simultaneously inhibit political interest in relinquishing nuclear weapons and heighten doubts about the enforceability of a ban on nuclear weapons prior to the resolution of the underlying disputes. Resolving, or at least reliably stabilizing these sources of contention – especially regarding Taiwan, Kashmir and Palestine -- appears to be necessary to enabling far-reaching progress toward nuclear disarmament. This need not block significant action to create preconditions for eventual disarmament, as discussed above and below. But without resolution of disputed issues of sovereignty, final steps toward the elimination of all nuclear arsenals is highly unlikely.

Assuming for the sake of discussion that these core disputes could be resolved and the way could be cleared for a negotiation on the prohibition of nuclear weapons, the enforcement of such a prohibition would raise profoundly difficult issues. Consider a short list of the sorts of disagreements that could confront an enforcement regime:[5]

- Disagreement whether 'breakout' is being accomplished, or even intended;
- Disagreement whether the action – 'breakout' or not – is sufficiently serious to require enforcement;
- Disagreement about the urgency of the enforcement action required (resulting from disagreements about the timescale for breakout);
- Disagreement whether the means of enforcement at hand would prove, or could prove, efficacious;
- Disagreement about the relative weight to be assigned to interest in 'enforcement' and interest in other aims which states pursue vis a vis the supposed violator;
- Concerns by some states that a specific enforcement initiative is both unsound on its face and an instrument to enhance the authority/power of the enforcers.

Today it is difficult to foresee an alternative to the UN Security Council as the repository of authority to resolve such disagreements and enforce security as the world moves toward a prohibition on nuclear weapons. For an alternative to be created, the permanent five members of the Council presumably would have to agree to it, which is extremely unlikely.

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[5] This list is provided by Bruce Larkin, Designing Denuclearization: An Interpretive Encyclopedia, June 29, 2007, p. 99.

Relationships between the U.S., China and Russia in the Council are key to future progress. Not only do they sit on the Security Council, they also determine the evolution of the largest and most elaborate nuclear arsenals and exert the greatest influence in the Middle East, Northeast Asia, and South Asia, where current and prospective nuclear challenges are greatest.

All of the P-5 insist genuinely that they have no interest in other states' acquisition of nuclear weapons. Yet when confronted with North Korea's and Iran's violations of safeguards agreements, the NPT, and Security Council resolutions, the U.S. and China and Russia have differed seriously in assessing the degree of threat and on the pace and character of measures to seek compliance. China and Russia have been more reluctant than the U.S. to impose sanctions and to increase their severity once sanctions have been introduced. China and Russia have different economic and political-security relations with North Korea and Iran, as was the case with Iraq previously and other potential proliferators.

China and Russia simultaneously (and naturally) seek greater balance in the international system which has been characterized since the early 1990s by U.S. hegemony. They also are wary of establishing precedents of Security Council coercion that could be applied in cases of Russian or Chinese action to preserve their internal sovereignty or interests in their peripheries, as regarding the south Caucasus and Taiwan. While Moscow and Beijing could veto such Security Council coercion, they would rather avoid the political costs of doing so, and therefore are quite conservative in establishing precedents of Security Council intervention.

Even if the U.S., Russia and China were to negotiate limits on their strategic competition and capabilities and, say, seek a stable transitional plateau of several hundred total nuclear weapons, with corresponding limits on ballistic missile defenses, it would not necessarily follow that they would collectively feel secure enough with each other to embrace nuclear disarmament The nonproliferation regime has been successful in large part because the established nuclear-weapon states share an interest in keeping others from acquiring these weapons, even as they value the deterrent power their arsenals give them against each other. But contemplating the total elimination of their own nuclear arsenals raises the acuteness of the tensions among them over Taiwan, ballistic missile defenses, NATO expansion, etc.

Clearly, therefore, there is no prospect of moving far from today's world toward a nuclear-weapon-free world if the U.S., Russia and China will not begin trialogue to stabilize their strategic relationships, reassure each other about their intentions, and establish an arms control framework wherein the U.S. and Russia reduce their arsenals closer to China's level, and determine whether and how ballistic missile defenses can be accommodated in such a framework. Without this, there is no prospect to get near a global prohibition on nuclear weapons.

One of the most important and overlooked challenges in taking nuclear disarmament seriously is to bring India, Pakistan and Israel into the process. These three states never signed the NPT. In contrast to North Korea, their possession of nuclear weapons is not illegal. However, progress toward disarmament depends on these states as much—if not more—as on the five recognized nuclear weapon states. India, Pakistan and Israel are central to the Middle Eastern and Asian tensions that cause the greatest concerns of proliferation and possible nuclear war. Indeed, perhaps the most effective way to illuminate the challenges to nuclear disarmament is to start from the positions of India, Pakistan and Israel. In return for giving up their nuclear arsenals, India, Pakistan and Israel would likely insist on as much formal power in bodies responsible for enforcing international peace and security, including the UN Security Council. Others, particularly non-nuclear-weapon states would fiercely resist "rewarding" these three for having acquired and then traded in nuclear weapons. Rather than working "down" from the U.S.-Russian relationship, as is normally done, working "up" from analyzing the requirements to persuade India, Pakistan and Israel to eliminate their nuclear arsenals yields a richer, more detailed picture of the overall disarmament problem.

States will need to be certain that prohibiting nuclear weapons will lower, not raise the risks of catastrophic conventional warfare. They will insist on being reassured that they will not re-subject themselves to conventional threats to their vital interests if nuclear weapons are eliminated.

The states that now rely on nuclear weapons for security guarantees, would not embrace final moves toward the elimination of all nuclear arsenals without the prior resolution or, at least, attenuation of the major conflicts and disputes that now make nuclear weapons vital to their national security. As part of these processes of building more secure relationships, conventional arms control would likely emerge.

The United States figures into the security threats of the actors in each of the regional clusters where new balances will be necessary in order to induce states to give up all their nuclear weapons. In the China-Taiwan scenario, the U.S. is key, as it is to reassure Japan in the face of growing Chinese power. Russia, too, would be interested in eliciting reassurances against U.S. competition on its periphery and American conventional and space power, which Washington cannot easily provide to the extent that it also seeks to protect the interests of Russia's neighbors. In the Middle East, U.S. military power projection at least partially drives the military policies of Iran, Syria, and others that Israel must balance. Washington also provides conventional military reassurance to Egypt, Jordan and the Gulf Cooperation Council states. In South Asia, the perceived strategic partnership between the U.S. and India, including in ballistic missile defense, high-end conventional weaponry, and civilian space and nuclear technology affect the calculations of Pakistan and China. With the exception of the Russia, none of these regional actors have ever negotiated conventional arms control measures. Russia's 2007 withdrawal from the Conventional Forces in Europe (CFE) Treaty indicates this generic problem.

Several current nuclear-weapon-possessing states, and many others, see nuclear weapons as the only way to deter the U.S. from exerting overweening influence on global and regional affairs. Sometimes the projection of American power in behalf of democratic values and human rights is welcome, but the underlying reality of U.S. power can be disconcerting regardless of the purposes it is serving in a particular case. In a world without nuclear weapons, many wonder, who will keep the U.S. in its place? This concern is political and psychological, but it also has military dimensions. The more states reduce their nuclear arsenals and the closer they get to zero, the more concerned they will be either to reduce U.S. conventional power or to ensure that somehow it is harnessed to international purpose and directives. And, as noted above, in specific regional contexts such as Europe, the Taiwan Straits, and the Middle East, U.S. forces will factor into the conventional power adjustments that likely would precede or parallel the elimination of nuclear arsenals. Similar concerns could arise regarding China in coming decades as it increases its military, economic and political power in Asia and more broadly.

Here again there will be few, if any precedents. U.S. conventional military power derives less from quantity than quality. Arms control traditionally operates on quantitative principles – weapons that can be counted, stacked against their counterparts, and then verifiably withdrawn under agreed ratios. But the revolution in military affairs has added huge qualitative variables into balance of power calculations. (This is multidirectional: terrorism, or asymmetric warfare also is revolutionary and uses qualitative measures to balance quantity). The world does not have experience in negotiating limits of the complexity that would be required to offset U.S. qualitative advantages, even if the U.S. were willing to entertain them. Indeed, the difficulties of conventional arms control in the multiple scenarios sketched here appear so great that emphasis must be placed on resolving the political conflicts in each regional setting. Arms control will have to lag far behind political reconciliation.

However, it should also be acknowledged that concerns about strategic intentions and conventional force imbalances in a nuclear-disarmed world should not justify U.S., Russian and Chinese refusal to reduce their nuclear arsenals to very low numbers (if the ballistic missile defense problem were resolved). As long as each had survivable nuclear forces capable of threatening each other’s capitals and leadership centers (which would be targeted even under doctrines disavowing the purposeful targeting of civilians), conventional force imbalances would not be less bearable than they have been historically. Indeed, cyber-warfare capabilities will pose a greater strategic threat, and no state has found it politically or strategically justifiable to threaten nuclear use to deter and retaliate against such threats, let alone to insist on large nuclear arsenals for this purpose.

The foregoing considerations make it clear that nuclear disarmament will be a shared enterprise in ways that have not been appreciated yet. Nuclear-weapon and non-nuclear weapon states together must analyze and discuss the burdens which nuclear disarmament puts on all states, not just the nuclear-weapon states.

To be sure, the challenges of going from one hundred weapons to zero are considerably greater than the challenges of going from, say, tens of thousands to one hundred. The transition from a low number of weapons to zero will require quantum leaps in verification capabilities, expense, reform of ownership and management in the nuclear industry, state transparency, international enforcement, and so on. Today's nuclear order casts such a large and dark shadow over international thinking that it has precluded serious examination of the requirements of an order based on zero nuclear weapons.

It is tempting to avoid exploring some of the crucial difficulties posed by going to zero by saying simply instead, "problems of enforcement and international politics will naturally be worked out on the way toward zero, or else states won't agree ultimately to make a nuclear-weapon-free world." We believe this is insufficient. States will not begin to make the vital changes necessary to secure the world against today's and tomorrow's nuclear dangers if there is not a shared sense that the actual real goal is to prohibit all nuclear arsenals. And states cannot demonstrate their real commitment to this goal if they do not understand and accept the challenge of trying to implement the changes that must be made along the way. If you want to get to a particular destination, it is not true that all roads will get you there.

The first step in mapping the road ahead is to convene those who must lead the way in a sustained discussion of the preparations that must be made – both in their relationships with each other and in the political-strategic landscape they seek to traverse. Article VI of the NPT requires states to "pursue negotiations in good faith on effective measures relating to…nuclear disarmament." While there has been much debate on the value of the specific arms control and reduction measures that have been taken, it is clear that the states that possess nuclear weapons have never actually engaged in a discussion of nuclear disarmament, let alone a negotiation. It is time to rectify this omission and at least to begin discussions – not negotiations – on the challenge of prohibiting nuclear weapons.

Recent experience with the climate change challenge might provide a model. In the late 1980s the Intergovernmental Panel on Climate Change was established to assess the latest scientific, technical, and socio-economic literature relevant to understanding the risk of human-induced climate change and options for dealing with it. This was not a negotiation, but rather an effort to understand the problem so as to identify possible options for redressing it. More than a decade later, the IPCC shared the Nobel Peace Prize for having elevated the issue on the governmental policy agenda in a way that fostered governmental action.

Leading states might consider an analogous undertaking to protect the world from nuclear danger and to enhance the peaceful use of atomic energy. With a target of the 2010 NPT Review Conference, the nuclear-weapon states and leading non-nuclear-weapon states should create an experts forum to identify and explore the central requirements that must be met to make the prohibition of nuclear weapons a realistic prospect. Not a negotiation, but an exploration, such a forum could involve serving and retired experts from nuclear weapons laboratories, militaries, nuclear industry, foreign ministries and NGOs. Such a group, like the IPCC, should be given a charter and resources to undertake a sustained series of meetings to design and then begin working through a research agenda on the key conditions that must be addressed to free the world from the dangers of nuclear war.