

Nuclear Weapons: A Progress Report

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Nuclear weapons may or may not have kept the peace among various groups of rival states; they could be catastrophic for the world if ever used by both sides in a war between nuclear-armed rivals; and the prospects for their use have grown since the end of the Cold War. For nuclear peace to hold, deterrence and fail-safe mechanisms must work every single time. For nuclear Armageddon to break out, deterrence or fail safe mechanisms need to break down only once. This is not a comforting equation. It also explains why, unlike most situations where risk can be mitigated after disaster strikes, with nuclear weapons all risks must be mitigated before any disaster.¹

Almost a half century after the Nuclear Non-proliferation Treaty (NPT) was signed (1968) to stop further nuclear weapons proliferation and to facilitate nuclear weapons abolition, the world is yet to walk back from the nuclear cliff to the relative safety of a denuclearised security order. Nine countries seek security in nuclear weapons: China, France, India, Israel, North Korea, Pakistan, Russia, the United Kingdom, and the United States. Around forty countries—including Australia, Japan and South Korea in the Pacific—seek security through the nuclear weapons of their allies under extended nuclear deterrence.

The majority of the world's countries, however, remain interested in security from nuclear weapons by pursuing the threefold agenda of nuclear disarmament, nuclear non-proliferation, and nuclear security. The goal of an eventually denuclearised world is both necessary and feasible. As argued by the Canberra Commission, as long as any country has nuclear weapons, others will want them; as long as nuclear weapons exist, they will be used again some day, whether by design, miscalculation, rogue launch, human error, or system malfunction; any nuclear war fought by any set of nuclear-armed states could have catastrophic consequences for the planet.²

This comment first outlines the background and context of the deflation of the hopes and optimism that was almost palpable in 2009–10 for significant progress on the nuclear issues. It then analyses the main findings of the

¹ See Martin E. Hellman, 'How Risky Is Nuclear Optimism?', *Bulletin of the Atomic Scientists*, vol. 67, no. 2 (2011), pp. 47-56.

² *Report of the Canberra Commission on the Elimination of Nuclear Weapons* (Canberra: Department of Foreign Affairs and Trade, 1996), pp. 18-22.

inaugural *State of Play* report,³ which tabulates what progress has been made on all the relevant NPT Review Conference (RevCon), Nuclear Security Summit (NSS) and International Commission on Nuclear Non-Proliferation and Disarmament (ICNND) commitments and recommendations in the four dimensions of nuclear disarmament, nuclear non-proliferation, nuclear security, and peaceful uses of nuclear energy. The comment concludes with a brief remark on the need to pursue nuclear disarmament, non-proliferation and security with matching conviction and urgency at the risk otherwise of rollbacks and setbacks on all three.

The Evaporation of Optimism

In 2009–10 hopes were higher than for many years that the world was at last seriously headed towards nuclear disarmament as well as stopping any further proliferation of the most indiscriminately inhumane weapons ever invented. President Barack Obama's Prague Speech of 2009 had set the tone, with its elegant vision of a nuclear-weapon-free world.⁴ The report of the ICNND, building on others before it, had set an achievable global agenda, describing in detail all the building blocks that had to be constructed along the way.⁵

In 2009 the United States and Russia were back negotiating nuclear arms control more seriously than they had been for a decade. A major NSS was planned for 2010, with a sharply practical agenda designed to inhibit both proliferation and nuclear terrorism. And there was every sign, in the lead-up to the 2010 NPT RevCon, that unlike its failed predecessor five years earlier, there would be consensus for significant forward movement across the whole spectrum of inter-related disarmament, non-proliferation and peaceful-use issues.

By the end of 2012, however, with almost 18,000 nuclear warheads with a combined yield of almost 1,700 megatons still in existence, and around 2,000 of them deployed on high alert, much of the sense of optimism of three years earlier had evaporated. Certainly some progress had been made, and on a few issues, on the face of it, quite substantial progress. The New START treaty, signed by the United States and Russia in 2010, will significantly reduce the number of deployed strategic weapons. The 2010 US Nuclear Posture Review did make some moves in the direction of

³ Ramesh Thakur and Gareth Evans (eds), *Nuclear Weapons: The State of Play* (Canberra: Centre for Nuclear Non-Proliferation and Disarmament, 2013), available at: <<http://cnnd.anu.edu.au/files/2013/state-of-play-report/Nuclear-Weapons-The-State-of-Play.pdf>> [Accessed 28 November 2013].

⁴ 'Remarks by President Barack Obama, Hradcany Square, Prague, 5 April 2009', Washington DC: White House, Office of the Press Secretary, 2009, <<http://www.whitehouse.gov/video/The-President-in-Prague#transcript>> [Accessed 26 November 2013].

⁵ ICNND (Gareth Evans and Yoriko Kawaguchi co-chairs), *Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers* (Canberra and Tokyo: ICNND, 2009).

reducing reliance on nuclear weapons.⁶ The 2010 NPT RevCon succeeded in reaching agreement on 64 action points (a refreshing change from zero in 2005), adopted strong new language on the catastrophic humanitarian consequences of the use of nuclear weapons, and supported initial moves towards a weapons-of-mass-destruction-free zone in the Middle East. And at the NSS in both 2010 and 2012, states made strong commitments to ensure that weapon-useable materials, and weapons themselves, do not fall into the hands of rogue states or terrorists.

But New START left both US and Russian stockpiles intact, their high-alert status undisturbed, weapons-modernisation programs in place, disagreements about missile defence and conventional-arms imbalances unresolved—and talks on further draw-downs going nowhere. Nuclear weapons numbers have decreased overall, as a result of actions by the United States and Russia in particular, but there has been an actual acceleration of nuclear-weapons programs in India, Pakistan, and China. (Asia is thus the only continent where nuclear arsenals are actually growing.) The cautious initial doctrinal move by Washington towards accepting that the “sole purpose” of nuclear weapons is to respond to nuclear threats, not those of any other kind, has been mothballed, inhibited by resistance from its more nervous allies in Northeast Asia and Central and Eastern Europe.

The push for talks on a nuclear-weapon-free zone (NWFZ) in the Middle East had also stalled by the end of 2012. North Korea seemed no closer to being put back in its NPT box, and Iran perhaps closer than ever to jumping out of it. The US Senate was no closer to ratifying the Comprehensive Nuclear-Test-Ban Treaty (CTBT), while China, India, and Pakistan, among others, took shelter behind that inaction, with a fragile voluntary moratorium the only obstacle to resumed testing. North Korea’s “rocket” launch in December 2012 tested its ballistic launch capability, followed by another nuclear test in February 2013. Negotiations in Geneva on a treaty to ban production of fissile material for nuclear weapons remained at a total impasse, raising fresh questions about the utility of the Conference on Disarmament.⁷ And even on nuclear security, there is not much reason for optimism that the original target will be met, of achieving security of all nuclear materials by 2014.

⁶ US Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review Report* (Washington: April 2010), <<http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf>> [Accessed 26 November 2013].

⁷ See John Page, ‘Bringing the UN Disarmament Machinery Back to Life’, APLN/CNND *Policy Brief 6* (Canberra: Asia-Pacific Leadership Network and Centre for Nuclear Non-Proliferation and Disarmament, October 2013), available at: <<http://cnnd.anu.edu.au/policy-briefs/>>.

Progress on Recommendations and Commitments

DISARMAMENT

The stalled nuclear disarmament agenda is shown in Table 1, with progress being minimal or zero on 77 per cent of the items. Probably the best example of “Some Progress” is with respect to nuclear arms reductions. The global stockpile stood at nearly 18,000 nuclear weapons at the end of 2012. While nearly half of these were earmarked for dismantlement, there was little prospect of further major reduction. Significant cuts in Russian and US stockpiles, mainly under previous treaty obligations, have continued, but no agreement on further cuts is likely while divisions over missile defence and conventional weapons remain. France has met the limited disarmament objective it set itself in 2008, and the United Kingdom could complete planned reductions in warhead numbers ahead of schedule. But elsewhere—in China, India, and Pakistan—nuclear arsenals are growing.

Table 1: NPT RevCon, NSS and ICCND Recommendations and Commitments

	Nuclear Disarmament	Nuclear Non-Proliferation	Nuclear Security	Peaceful Uses	Total
Fully Implemented	3	2	1	1	7
Significant Progress	4	10	8	10	32
Some Progress	8	23	58	16	105
Minimal Progress	25	5	0	0	30
No Progress	25	13	1	0	39
Total	65	53	68	27	213

Source: Ramesh Thakur and Gareth Evans (eds), *Nuclear Weapons: The State of Play* (Canberra: Centre for Nuclear Non-Proliferation and Disarmament, 2013), pp. 231-69.

On “Minimal Progress”, there have been no significant publicly declared shifts in nuclear doctrine in recent years, although US doctrine has given some acknowledgement to President Obama’s 2009 undertaking to “reduce the role of nuclear weapons in national security strategy”, and an interagency review is examining revised constructs of deterrence and stability. The picture is the same on nuclear force posture. Apart from the reductions in deployed US and Russian strategic weapons under the New START treaty, the only significant changes in deployment practice elsewhere have been aimed at enhancing the survivability of nuclear weapons in case of attack. No progress has been made in reducing the dangerously high alert state of large numbers of US and Russian weapons.

There has been no progress on disarmament objectives and strategy or on parallel security issues that impact on nuclear weapons numbers and postures, like ballistic missile defence, weapons in outer space and conventional arms imbalances. Nuclear-armed states pay at best lip-service to the ultimate elimination of nuclear weapons, and none has committed to any “minimisation objective”, nor to any specific timetable for their major reduction—let alone abolition. Tensions between the United States and Russia and China continue unabated over ballistic missile defence and an emerging new generation of advanced US conventional weapons, and prospects for progress in conventional arms control have receded. This complicates an already very difficult environment for nuclear disarmament.

NON-PROLIFERATION

On non-proliferation too some of the individual commitments and recommendations that were fully implemented or showed significant progress turn out to be not very consequential. Probably the best example of this is the call for a conference on a Middle East NWFZ to be convened in 2012. The calls to designate a facilitator and a host government were fully implemented, but the conference itself was indefinitely postponed.

However, “Some Progress” was achieved on safeguards and verification issues and on providing modest additional resources to the International Atomic Energy Agency (IAEA). Additional Comprehensive Safeguards Agreements and Additional Protocols have entered into force but there is still strong resistance by some states to the idea of making the latter obligatory. The IAEA’s evolving state-level approach to safeguards has been criticised—albeit not compellingly—as discriminatory by some states who want the emphasis to return from an information-driven and detection-focused approach, back to traditional nuclear material accounting. A growing number of countries are also making use of multilateral guidelines in developing national export controls. But the Nuclear Suppliers Group’s 2008 decision to exempt India from its comprehensive safeguards requirement, and China’s determination to supply more nuclear reactors to Pakistan, have damaged this key mechanism’s credibility, and no progress has been made towards adopting a criteria-based approach to cooperation agreements with states outside the NPT.

“Minimal Progress” was made on NWFZ, nuclear testing, and fissile materials. No new NWFZ has been established or is under negotiation. There has been only modest movement on protocol ratifications. Of nine Annex 2 states which had not ratified the CTBT in May 2010, only one, Indonesia, had since done so by the end of 2012. The United States and China are among those who have not. Voluntary moratoriums on nuclear tests remained in place but North Korea, which never subscribed to the moratorium, conducted its third test in February 2013.

There has been no progress in beginning negotiations on a global ban on the production of fissile material for nuclear weapons purposes, a central non-proliferation policy objective. But NPT nuclear weapons states (NWS) have not produced highly enriched uranium (HEU) or weapon-grade plutonium for years and the facilities used for these purposes have been either shut down or converted to other uses in at least four of them: the status of facilities in China is unknown. The most significant growth in fissile material may be occurring in the non-NPT nuclear-armed states but, as with nuclear weapons stockpiles, their total stock is still hugely below that of the five NPT-recognised NWS.

The 2010 NPT RevCon made “no progress” on non-compliance and withdrawal issues and none has been made since. Efforts by the five permanent members of the UN Security Council (P5) and Germany to negotiate a resolution of the stand-off with Iran had made no substantive progress in 2012, although a “historic breakthrough” deal was announced in late November 2013. If it is indeed implemented, this agreement will reduce Iranian breakout potential in the short term, and might lead to a final agreement to resolve outstanding issues in the longer term.

NUCLEAR SECURITY

“Significant Progress” was made on national nuclear security regulations. UN Security Council Resolution 1540 has played a significant role in this area, resulting in a substantial increase in the number of states with legislative measures to prohibit proliferation of nuclear weapons. But more needs to be done in national implementation. Significant international cooperation is taking place in detecting and thwarting illicit trafficking, but this needs to be expanded as gaps are identified. States need to deepen cooperation also in developing and sharing nuclear security best practices.

“Some Progress”—the dominant category of progress for nuclear security (Table 1)—was made on global nuclear architecture. States have implemented many NSS commitments, additional states have ratified the Convention on the Physical Protection of Nuclear Materials (CPPNM) and its Amendment, more are taking advantage of IAEA tools and services, and states have cooperated with one another. The IAEA is providing a wide range of advisory services and other assistance on nuclear security issues. The centrality of the IAEA’s role makes a predictable and stable budget for nuclear security essential. However, NPT 2010 RevCon and ICNND-recommended support for universal application of the CPPNM and early ratification of the 2005 amendment is not in sight. Much of the architecture lacks any means to judge whether commitments are being met.⁸

⁸ See Ramesh Thakur, ‘The Global Governance Architecture of Nuclear Security’, *Policy Analysis Brief* (Muscatine, Iowa: Stanley Foundation, March 2013).

Some progress has been made also on sensitive nuclear materials, nuclear forensics, nuclear security culture, and advancing the role of nuclear industry. While progress is being made on minimisation of civil HEU use, states have been reluctant to ban outright HEU use in civilian applications. On non-civilian uses, the United States and Russia were on track to complete the conversion of 500 tonnes of HEU to low enriched uranium by the end of 2013 and have committed to the elimination of significant quantities of excess weapon-grade plutonium. In addition to national efforts, the IAEA continues to provide assistance with building nuclear forensics capacity, both through its own activities and by teaming with member states to hold workshops and other training. Increasing organisational activity suggests some progress on nuclear security culture, but the extent to which such a culture genuinely exists is unclear because of the lack of monitoring and reporting on whether states are implementing best practice standards and recommendations. There is general understanding that effective nuclear security is strongly in the interests of the nuclear industry. More work is needed on identifying practical ways the nuclear industry and state authorities can work together to improve nuclear security.

The one instance of “no progress” is in relation to ICNND Recommendation 30 to establish an intelligence clearing house: obviously a bridge too far at this stage for most states. In addition international standards, transparency and accountability are lacking in nuclear security.

PEACEFUL USES

“Some Progress” best describes the state of affairs on mitigating proliferation risks associated with the use of nuclear energy for peaceful purposes. Most states are meeting their NPT peaceful use commitments, but non-compliance cases—especially Iran and North Korea—are cause for concern. Issues of nuclear latency and hedging are not being addressed. The spread of sensitive nuclear technology and the prospective spread of fast reactors and plutonium fuels in the future will present serious challenges unless addressed. The establishment of two fuel banks and the work of the International Framework for Nuclear Energy Cooperation are positive developments, but further elaboration, and acceptance, of multilateral approaches have a long way to go. Not all states with significant nuclear activities have joined the Convention on Nuclear Safety, and there is a lack of international standards, transparency and accountability. Many states with power reactors remain outside the liability regimes.

SOURCES OF COMMITMENTS AND RECOMMENDATIONS

The results can also be divided by source: the 2010 NPT RevCon, the 2010 and 2012 NSS, and the ICNND commitments, action points and recommendations. One would expect the last, because it is an independent international commission made of people committed to achieving progress on the toughest issues, to contain the most challenging agenda and therefore the most difficult to implement. The NPT RevCon, because it is an

intergovernmental body, is likely to be much less ambitious and therefore demonstrate a higher level of compliance than the ICNND with its outcomes. But because it is comprised overwhelmingly of NPT non-NWS, the conference may still be expected to issue some calls for movement on items that the five NWS will resist and disregard.

Table 2: Progress by Source of Commitments and Recommendations

	NPT RevCon	Nuclear Security Summits	ICNND
Fully Implemented	5	1	1
Significant Progress	22	8	2
Some Progress	25	52	28
Minimal Progress	12	0	18
No Progress	12	0	27
Total	76	61	76

Source: Thakur and Evans (eds), *Nuclear Weapons: The State of Play*.

The NSS, finally, one would have expected to be the least problematical of the three when it comes to implementation of outcomes, for several reasons. To begin with, in the post-9/11 international environment, almost all countries do recognise the gravity of the challenge of securing all nuclear weapons and materials against illicit, unauthorised, criminal and terrorist transfers. They are aware that this is a common danger to all humankind and that international tolerance for lax standards has fallen dramatically. In addition, the summits have included only those states that are relevant to the agenda and at the same time they have avoided the problem that still bedevils the NPT conference, namely a distinction between NWS and others. At the NSS all participants accepted the same obligations.

All were also subject to the structural and peer pressures of summit diplomacy. Because expectations are raised before a summit is convened, leaders come prepared bearing gifts of low-hanging fruits: they came to confirm work already in train and to make additional individual promises they knew they could keep. These general structural pressures were given extra force in the case of the Washington NSS in 2010 because the host nation was the most powerful country in the world, and because the host was a president at the peak of his international popularity and aura and could leverage his reputation into tangible outcomes.

All this is indeed borne out in Table 2. But there is a risk of being misled by numbers at the cost of the weight of progress. An assessment of national commitments on nuclear security by the Arms Control Association concluded that of the more than sixty national commitments made by thirty participants in the 2010 summit, 80 per cent had been completed by the Seoul 2012 summit.⁹ Yet in a subsequent analysis the authors concluded that “Four years ago, President Barack Obama called preventing nuclear terrorism a top security priority, but the U.S. is only marginally safer from that threat today.”¹⁰

The explanation for the apparent discrepancy lies in the softness and incompleteness of the commitments entered into by the NSS participants in Washington. If a robust nuclear security culture is to be created, some existing gaps will have to be filled, including lack of universality, binding standards, transparency and accountability mechanisms, compulsory IAEA oversight, and broadened scope to include nuclear weapons and other non-civilian dimensions of the problem. The current regime is reliant almost entirely on national protection and control systems; the key to strengthening and improving the nuclear security regime is “balancing the principles of national sovereignty with international responsibility.”¹¹

Stepping Back from the Nuclear Cliff

Nuclear weapons are the common enemy of humanity. Overall, the *State of Play* report documents pockets of progress on nuclear security, non-proliferation and disarmament that are, however, overshadowed by the persistent drag of historical inertia in sustaining nuclear weapons programs, arsenals, doctrines and deployments. The sad reality is that while nuclear weapons continue to pose an existential threat to humanity, progress on their abolition, and on strengthening barriers to their proliferation, remains worryingly slow.

The existence of nuclear weapons is a sufficient guarantee of their proliferation and, some day again, use. Nuclear weapons could not proliferate if they did not exist. Nuclear disarmament is a necessary condition of nuclear non-proliferation. We must make the transition from a world in which the role of nuclear weapons is seen as central to maintaining national and international security, to one where they become progressively marginal and eventually unnecessary. This must be done while avoiding two

⁹ Michelle Cann, Kelsey Davenport and Margaret Balza, *The Nuclear Security Summit: Assessment of National Commitments* (Washington D.C.: Arms Control Association, March 2012).

¹⁰ Kenneth C. Brill and Kenneth N. Luongo, ‘Obama’s Modest Gains in Nuclear Security Vision’, *Politico*, 18 January 2013.

¹¹ Nuclear Security Governance Experts Group, *Improving Nuclear Security Regime Cohesion: Summary Report and Initial Policy Recommendations* (Muscatine, Iowa: Stanley Foundation, September 2012), p. 2.

unintended consequences. Care must be taken that efforts to make the world safe from nuclear weapons do not tip us back into a world safe for major power conventional wars. And allies sheltering under the nuclear umbrella must be sufficiently reassured not to break out with nuclear weapons themselves.

Like chemical and biological weapons of mass destruction, nuclear weapons cannot be disinvented. But like them, nuclear weapons too can be controlled, regulated, restricted and outlawed under an international regime that ensures strict compliance through effective and credible inspection and verification. What we need is a multi-phased roadmap to abolition that prioritises concrete immediate steps in the first few years, like introducing more robust firewalls to separate possession from use of nuclear weapons; further significant cuts in existing nuclear arsenals and a freeze on production of fissile materials in the medium term; further constraints on the deployment of nuclear weapons on the territories of other states, for example by means of regional NWFZ; and an enforceable new international nuclear weapons convention that requires credible, total and verified destruction of all nuclear stockpiles within our lifetime.

As part of a forward-looking agenda, the United States and Russia could initiate negotiations for a new treaty to reduce stockpile numbers for all classes of weapons, significantly cut back on their 2,000 warheads held in high alert status, and embrace the principle of “No First Use” in their nuclear doctrines. Washington could also address Chinese and Russian concerns about ballistic missile defence and prompt global strike capabilities. The United States, China, India and Pakistan could move to rapid ratification of the CTBT with the last three not holding their ratification conditional to the United States. China, India and Pakistan could freeze their nuclear capabilities at present levels and Pakistan could helpfully lift its veto on negotiations for a Fissile Materials Cut-off Treaty. India and Pakistan should avoid destabilising steps like the development of battlefield tactical nuclear weapons and missile defences. Finally, US allies could accept a significantly reduced role for nuclear weapons in their security protection, in particular by accepting and clearly stating support for the United States declaring that so long as nuclear weapons exist, the “sole purpose” of its nuclear weapons is to deter their use by others. None of these steps would jeopardise the national security of the country concerned; each would make the world a little bit safer and all together would make the world much safer.

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