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Keeping the lid on



Nuclear Security and
the Washington Summit

Nuclear Security Summit 2010

Keeping the lid on: Nuclear security and the Washington summit

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Summary

1. Introduction

In his Prague speech in April 2009 President Obama raised the profile of nuclear security issues. At the following G8 L'Aquila summit, he declared his intention to host a major Summit on nuclear security in Washington DC. The summit will take place on 12-13 April 2010. Representatives of over 40 countries will attend it, including some not signed up to the Non-Proliferation Treaty, such as Israel, India and Pakistan. This background brief addresses five questions in relation to it: Why is nuclear security important today? What measures have already been taken to address the issue? What progress has been made to date? What are the main remaining weaknesses and gaps in the current international response? And finally, what must the Washington Summit focus on if it is to add real extra value and be classified as a success? The paper addresses each of these questions in turn.

2. Why is Nuclear Security Important Today?

The paper argues that:

2.1 The risk of nuclear terrorism is real. The *intent* of certain terrorist groups like Al Qaeda and Aum Shinrikyo to go nuclear if possible has been demonstrated but recent investigations into the issue have also concluded that the risk of terrorist groups acquiring the *capability* is 'not negligible' (ICNND, 2009: 39).

2.2 There are weaknesses in many national nuclear security arrangements and an active black market in fissile materials exists.

2.3 Planned Growth in the civil nuclear industry will make the challenge of building an effective global nuclear security regime more difficult. Despite technical challenges and financial difficulties, almost 400 new nuclear plants are either already planned or proposed and will be built not only in those countries that already possess them, but also in places that have never had nuclear

power before and potentially in countries that are not stable.

2.4 The consequences of a major nuclear security incident would likely be catastrophic and global.

This is about far more than immediate casualties in the area of a nuclear detonation. It is about international conflict dynamics that would emerge in response to an attack and the resulting instability and economic chaos that would accompany it. Moreover, a post nuclear security incident world may be one suffering a very heavy and internationally widespread backlash against all things nuclear. Since many countries are seeing nuclear power as a key part of their strategy to fight climate change, failure to take the nuclear security challenge seriously could also lead to a global failure to respond to the challenge of climate change in time.

2.5 Nuclear security has an important role to play in strengthening both non-proliferation and multilateral nuclear disarmament. It is highly unlikely that counter-proliferation efforts will work, or that disarmament to very low numbers of even to zero could ever be achieved without a stronger nuclear security regime. One scenario that needs to be managed in particular, is that in which states might use terrorist groups to attack adversaries by proxy, 'engineering' nuclear security breakdowns on their own soil to facilitate terrorist access to weapons or materials. The linkages between nuclear security, disarmament and non-proliferation are one reason why attempts by the US and UK governments to separate the nuclear security summit from the rest of the non-proliferation and disarmament agenda are misguided.

3. What Measures Have Already Been Taken to Address Nuclear Security Concerns?

A multifaceted and complex set of international responses have emerged to deal with nuclear security, for the most part, since 9/11. There have been UN Security Council resolutions, such as UNSC 1540, other bi-lateral and multilateral initiatives, and several entirely new international instruments

to tackle the problem. The main initiatives are identified and summarized in section 3 of the report.

4. What Progress Has Been Made to Date?

Assessing progress to date in relation to all this activity is not a straightforward matter. Not all relevant activity has been effectively monitored against clear success criteria and not all of the activity is in any case amenable to assessment through reference to a series of quantitative indicators. Nevertheless, publicly available data compiled by the Harvard based nuclear security expert, Matthew Bunn (Bunn, 2008), and assessed against his framework of five core criteria, shows that:

4.1 On former Soviet buildings containing nuclear material, by the end of US Financial Year (October) 2008, 181 of an estimated 245 buildings, or around 70-75 per cent of the total, had received comprehensive security and accounting upgrades.

4.2 On security upgrades to Russian sites containing warheads, by the same time, October 2008, upgrades had been completed at 81 sites, a figure that represented 60-75 per cent of the estimated total (though this estimate does not include front-line tactical deployment sites). There are also an unknown number of both permanent and temporary warhead sites on which the US and Russia have never agreed to cooperate.

4.3 On security improvements at the world's HEU fueled nuclear reactor sites, at first glance there appears to be a positive story to tell. Considering the entire global set of HEU fueled reactors, by late 2008, it appeared that around 90 per cent had received upgrades of the kind necessary to meet IAEA physical protection recommendations. However, there are very serious concerns about the adequacy of the IAEA physical protection recommendations themselves and about the assumptions made by the IAEA in relation to which sites do and do not require security measures to be in place.

4.4 On HEU fueled reactor site readiness to meet plausible threats, further substantial progress is still required. This is because it is not safe to assume that the IAEA recommendations themselves are sufficient to deal with the level of security threat posed in each individual country around the world.

Bunn estimates that only 'roughly 25 per cent of the global total of HEU-fueled research reactors and related facilities that required security upgrades to be able to defeat plausible threats as of the early 1990s have received such upgrades' (Bunn, 2008: 101). 'For civilian sites outside of closed [former Soviet] territories, **none** of the reactors that have **substantial** stocks of HEU or plutonium are judged to be upgraded to a level to be sufficient to protect against demonstrated terrorist and criminal capabilities' (Bunn, 2008: 101).

4.5 On global HEU fueled research reactors with all the HEU removed, despite the activities of the Global Threat Reduction Initiative (GTRI) in this area, only a tiny fraction of the global stockpile of Highly Enriched Uranium and separated plutonium has been removed and made safe.

While some progress has been made on nuclear security overall therefore, on balance the conclusion is that that far, far more remains to be done before the world can feel assured that nuclear security issues are being addressed seriously enough.

5. Remaining Gaps in the International Effort

Despite all the international initiatives and mechanisms in place, many are overlapping and ineffective. Very significant gaps also remain. The most important of these are listed below, with more in the main body of the report:

Despite clear evidence that some terrorist groups have already sought a nuclear capability, there is still no international agreement on any specific and binding minimum standards for how well nuclear weapons and weapons related materials must be secured;

Although the passing of UNSC 1540 was a welcome development, and put a legal requirement on all states to take ‘appropriate effective’ measures to protect all nuclear weapons and weapons related materials in their possession, the phrase ‘appropriate effective’ has never been defined or turned into effective action.

IAEA safeguards allow only for inspections to ensure that nuclear material and facilities are in civil, not military, use and do not cover checks on the quality of security.

6. Summit Goals and Elements of a Forward Agenda

Many measures, such as reducing the stockpile of existing weapons through more multilateral disarmament, and negotiating and implementing a Fissile Material Cut-Off Treaty, would help to deliver improved nuclear security. However, at the Washington Summit, there is a need for a tight focus on some other immediate steps. The paper identifies 5 summit success criteria, listed below, and more details on which can be found in the report proper:

Summit Success Criteria 1: A Communique Giving More States a Stake in Addressing the Problem.

This means describing what is at stake in broader terms than a concern with nuclear terrorism and it means accepting some linkage between the nuclear security summit and wider non-proliferation and disarmament issues. Some US and UK officials are resisting this broadening of the summit dialogue and outcome.

Summit Success Criteria 2: Further Measures on Consolidation and Physical Security of Nuclear Weapons and Materials Around the World,

including increased financial and technical assistance from wealthier states to those lacking resources and capacity to address the problem: Further financial contributions need to be made to the UNSC 1540 implementation fund. Reference to an intention to extend the G8 Global Partnership beyond its 2012 expiry date would also be welcome.

Summit Success Criteria 3: Action to Ensure the Long Term Sustainability of Security Measures Introduced and to embed a Security Culture where this is lacking. A commitment to create regional nuclear security training centers around the world could greatly assist this effort.

Summit Success Criteria 4: Measures to extend international monitoring over all remaining excess military and civilian stockpiles.

Summit Success Criteria 5: A Commitment to a Forward Dialogue on Universalizing and streamlining the messy multilateral institutional architecture. Among other things, if this results in the creation of a new global instrument, such as the creation of a UN Framework Convention on Nuclear Security, or the strengthening of an existing institution like the IAEA, it will help to decontaminate offers of international help to those countries hostile to ‘made in America’ policy solutions.

1. Introduction

In his speech on nuclear issues in Prague on April 5th 2009, President Obama described nuclear terrorism as the ‘most immediate and extreme threat to global security’ and announced his intention to lead a new international effort ‘to secure all vulnerable nuclear material around the world within four years’. (White House 2009a). He spoke of the need to set new nuclear security standards, pursue further cooperation on this agenda with Russia, build new partnerships to lock down sensitive materials, and increase efforts to break up black markets, detect and intercept materials in transit, and use financial tools to disrupt the dangerous trade in nuclear materials. President Obama subsequently, at the L’Aquila G8 summit, invited leaders from a broad range of countries to attend a Global Nuclear Security Summit in Washington to ‘allow discussion on the nature of the threat and develop steps that can be taken together to secure vulnerable materials, combat nuclear smuggling and deter, detect, and disrupt attempts at nuclear terrorism’ (White House: 2009b).

The President’s nuclear security summit is now scheduled to take place on 12-13 April 2010 (White House: 2009b). In this background brief, I address five questions in relation to it:

- Why is nuclear security important today?
- What initiatives already exist to address nuclear security concerns?
- What progress has been made so far?
- What are the main remaining weaknesses and gaps in the current international response?
- And finally, what must the Washington Summit focus on if it is to add real extra value and be classified as a success?

Each of these questions is addressed in turn below.

2. Why is nuclear security important today?

Many people in the West appear to believe that improved nuclear security is a no-brainer; locking

down vulnerable nuclear materials, expanding intelligence capabilities, and planning better in advance how to both prevent and respond to the threat of a major nuclear incident all seem uncontroversial to some. But in reality there are disagreements between and within countries over key issues like the level of the threat, who exactly is threatened, and what the implications of that threat are, if any, for attempts at global nuclear disarmament and a strengthened non-proliferation regime. These disagreements, in turn, put question marks over the willingness of many states to engage cooperatively on nuclear security. The case for the importance of nuclear security as an issue cannot therefore be taken for granted and needs to be set out in full.

2.1 The threat of nuclear terrorism

According to the recent final report of the International Commission on Nuclear Non-Proliferation and Disarmament (ICNND), chaired by former Australian Foreign Minister Gareth Evans and former Japanese Minister for Foreign Affairs Yoriko Kawaguchi, President Obama’s fear of nuclear terrorism is justified. There are terrorist actors in existence, the Commission noted, ‘who would, if they could, cause massive and indiscriminate havoc in almost any one of the world’s major cities’ (ICNND, 2009: 39). Al Qaeda is known to have sought nuclear weapons before, and to have had a nascent nuclear program in Afghanistan prior to September 2001.¹ Other groups, such as Aum Shinrikyo, are also known to have sought a nuclear weapons capability and it seems likely that in future, groups motivated by a wide range of different ideas will seek to do the same.²

The ICNND further noted that, moving forward, terrorist groups were likely to be able to match

¹ For a discussion of Al Qaeda nuclear activities, based on documents recovered by western media and intelligence organisations after the fall of the Taliban in late 2001, see Albright (2002) and Mowatt-Larsen (2010).

² The ICNND speculates that in future we may see a growth of eco-terrorist groups with an interest in nuclear weapons and materials (see ICNND, 2009: 40).

their intent with real capability. Terrorist groups wishing to carry out an attack using a nuclear bomb, as opposed to an attack using a 'dirty bomb' or conventional explosives, would face substantial challenges and difficulties, not least in acquiring sufficient fissile material, overcoming the technical challenges of designing and building a device, keeping their activities secret for a lengthy period of time while the bomb was in preparation, and successfully delivering the bomb to target, probably across international borders, but these barriers could likely be overcome. While the risk of a terrorist dirty bomb is deemed much greater than a full terrorist nuclear explosion (because the technical barriers to be overcome are fewer), the risk of the latter, according to the ICNND, 'is not negligible' (ICNND, 2009: 39).³

In reaching this carefully considered judgment, the ICNND is not alone. In recent years, a range of other individuals and groups have examined the issue and arrived at similar conclusions (Daly, Parachini and Rosenau : 2005). Rolf Mowatt-Larsen, head of intelligence at US DOE, for example, told the US Senate in spring 2008 that 'al-Qaida's nuclear intent remains clear' and warned that the world's efforts to prevent terrorists from gaining the ability to 'develop and detonate a nuclear weapon are likely to be tested in the early years of the 21st century' (Bunn, 2008: 5). He has since backed this up with a more detailed public account of what is known of Al Qaeda's nuclear activities (Mowatt-Larsen: 2010). Other current and former senior US government officials, such as Robert Gates, George Tenet and J. Michael McConnell have also made similar public

³ A 'dirty bomb' would be one combining conventional explosives with radioactive material. Many believe its impact would be widespread psychological trauma and economic disruption rather than huge physical disruption. For a discussion, see Khripunov (2006). In this paper, I focus on terrorist intent and capability as related to the threat of a full nuclear detonation, and not on the likelihood of terrorist use of a dirty bomb, primarily because although the risk of this is deemed lower, its consequences would not only be physically far more destructive but also incalculable in terms of their impact on wider international security, a point developed later in the paper.

statements.⁴ Former US Assistant Secretary of Defense, Graham Allison, produced a book on the dangers of nuclear terrorism, and set out detailed policy prescriptions designed to avoid the 'ultimate disaster' (Allison, 2006). There are dissenting voices, such as that of John Mueller (Mueller: 2009), claiming that the threat is greatly exaggerated, but these are in the minority and as yet their arguments have had less observable influence on senior Western political opinion on nuclear issues.

2.2 Uneven Nuclear Security Arrangements and the Existence of Nuclear Black Markets

Another primary factor driving concern over nuclear security, and nuclear terrorism, is the reality that gaining possession of either a nuclear weapon or the necessary fissile material to make one may not be as hard as it should be. A recent study for the US based Nuclear Threat Initiative noted that 'nuclear weapons or their essential ingredients exist in hundreds of buildings in dozens of countries. Security measures for many of these stocks are excellent but security for others is appalling' (Bunn, 2008: 7). A bi-partisan US Congressional Commission on the Prevention of WMD Proliferation and Terrorism, reporting in December 2008, also noted that: 'There are currently well over 100 nuclear research reactors around the world that use Highly Enriched Uranium for fuel, and many of them lack adequate security' (CPWMDPT, 2008: 58).

In addition, some countries are of more security concern than others on this agenda. Russia, for example, is a major concern because of the sheer scale of its nuclear complex, the amount of weapons and materials in its possession, and

⁴ George Tenet, Testimony before the Senate Select Committee on Intelligence, February 24, 2004, www.intelligence.senate.gov/040224/tenet.pdf; Robert Gates, Statement at the Carnegie Endowment for International Peace, Washington D.C., October 28, 2008, www.carnegieendowment.org/files/1028_transcrip_gates_chec ked.pdf; J. Michael McConnell, Testimony before the Senate Armed Services Committee, February 27, 2008, www.fas.org/irp/congress/2008_hr/022708mcconnell.pdf

questions over the quality of its nuclear security. Pakistan is a worry because of the scale of the security challenge posed by militants and because of persistent speculation that elements within the Pakistani security service, the ISI, may be friendly to both the Pakistani Taliban and to Al Qaeda.

Concerns go wider than particular countries however. There is an active black market in nuclear materials, including fissile materials, and other nuclear weapons relevant technologies and know-how. According to the IAEA: 'During 1993-2008, fifteen confirmed incidents involved unauthorized possession of HEU and Pu (plutonium); some of these incidents involved attempts to sell these materials and their smuggling across national borders. A few of these incidents involved seizures of kilogram quantities of weapons-usable nuclear material, but the most involved very small quantities. In some of these cases, however, there are indications that the seized material was only a sample of larger quantities available for illegal purchase or at risk of theft. These larger quantities have not been identified and recovered and pose a potential security risk' (IAEA: 2009: 3).

Even this is only a partial picture. There is uncertainty over what else may have gone missing over the years since there is no global inventory of HEU and separated plutonium and there is uncertainty over how much has been produced since 1945 (Pluta and Zimmerman, 2006). There have also been high profile cases of proliferation networks, such as the AQ Khan network, being uncovered and specific incidents of break-ins at nuclear facilities that have to be a cause for concern.⁵

It is a stark and worrying fact therefore, that nuclear materials and weapons around the

⁵ On the AQ Khan Network, see Gordon Corera (2006), *Shopping for Bombs: Nuclear Proliferation, Global Insecurity and the Rise and Fall of the AQ Khan Network*, London; Hurst and Company, 2006. On a relatively recent incident of a nuclear break-in, see material on the Pelindaba nuclear facility, in South Africa, published in the New York Times and available at <http://www.nytimes.com/2007/11/15/world/africa/15joburg.html>

world are not as secure as they should be. There can be no grounds for complacency on the nuclear security issue.

2.3 Planned Growth in the Global Civil Nuclear Industry

The challenge of securing the world's stock of nuclear material, and of limiting or in some way managing access to nuclear technology and know-how, is also set to grow enormously given decisions in many countries to expand civilian nuclear programmes. Rising gas prices, concerns over climate change and energy security, and worries over the carbon impact of coal are combining to put nuclear energy back on the agenda in many countries. Increased nuclear capacity is already coming on stream in some places, as a result of the upgrading of existing plants. Numerous power reactors in the USA, Switzerland, Spain, Belgium, Sweden, Finland, and Germany, for example, have had their generating capacity increased.

But a large number of new reactors are also either already being built, or are likely to be built around the world in the next two decades. Countries such as Argentina, Brazil, Bulgaria, Canada, France, Russia, China, India, Pakistan, Japan, Romania, Slovakia, South Korea, South Africa, Ukraine, the UK, and the USA, all with already existing nuclear programs, have plans to build new power reactors. Many of the new plants will be in Asia, the region with the fastest-growing economies and fastest rising electricity demand. China, for example, has over 20 reactors either already under construction or ready to go into construction soon; India has six reactors under construction and at least 10 more are planned.

Nuclear power is also under serious consideration in over thirty countries that do not currently have it, including in Italy, Albania, Serbia, Portugal, Norway, Poland, Belarus, Estonia, Latvia, Ireland, Turkey, Iran, the UAE, Yemen, Israel, Syria, Jordan, Egypt, Tunisia, Libya, Algeria, and Morocco. In central and southern Asia, Azerbaijan, Georgia, Kazakhstan, Mongolia, and Bangladesh are interested in going

down the nuclear route and in Africa the same is thought to be true of Nigeria, Ghana, Uganda, and Namibia. In all, around the world, over 130 power reactors are currently planned and over 250 more are proposed.⁶

To be sure, there are substantial difficulties to be overcome in some countries and regions before the so-called nuclear renaissance is in full flight. Moving into the nuclear industry is not a straightforward or easy thing for a state to do. The technical challenges are large, and there are also problems with the financing of what are seen as high risk, long-term investments in the civil nuclear industry (Hollinger and Crooks: 2010). Also, the global pool of nuclear expertise is currently severely limited, and will take several years to build up - supply of experts will form a significant limitation on the speed of expansion. Despite the large number of new plants that may eventually be built in emerging countries therefore, it is likely that these are not going to contribute a large percentage to the expansion of nuclear capacity in the foreseeable future. The main short-term growth will come in countries where the technology and expertise is already well established.

Nevertheless, some nuclear plants may actually be built in countries that are not as stable in governance terms as one would like, and overall, it seems clear that a world with a much larger civilian nuclear industry lies just over the horizon. With nuclear expertise and enrichment and re-processing technologies distributed in many more countries, proliferation and nuclear security risks are likely to multiply.⁷ There is a strong case for strengthening international regimes to meet this challenge.

⁶ For background data and specifics of national nuclear expansion and development programs see World Nuclear Association web-site, available at <http://www.world-nuclear.org/info/inf17.html>. Last accessed on March 8 2010.

⁷ There are, of course, proposals to manage some of this through multilateral control of the nuclear fuel cycle and the profile of such initiatives has increased in recent years, though progress remains slow. See Yudin (2009).

2.4 The Possible Consequences of a Major Nuclear Security Incident

The previous statement is all the more true because of the devastating consequences that may accompany any major nuclear security incident.

At one level, despite the justified emphasis on the threat of nuclear terrorism in many Western policy circles, the literature addressing the consequences of a major nuclear security incident is more limited than one might expect.⁸ Ashton Carter, Michael May and William J. Perry have addressed a 'day after' scenario, in order to help officials in the US anticipate and plan for what would come on the day after the detonation of a nuclear device in a US city (Carter, May and Perry: 2007). Graham Allison has also speculated on the consequences of nuclear terrorism using blast maps on www.nuclearterror.org, the website that accompanies his book, *Nuclear Terrorism* (Allison, 2006). Others, such as Igor Khripunov, have examined issues surrounding the social and psychological consequences of radiological terrorism (Khripunov, 2006).

However, the consequences of a major nuclear security incident would be wider, and last longer, than even any of this analysis would indicate. Regardless of the fact that terrorists may not leave a known return address, it is very difficult to imagine any country subject to a nuclear terrorist attack not responding with massive military force directed at whatever target was thought responsible. The public and political pressure to identify the perpetrators and any states assisting them would be huge. Instability, economic chaos and wider conflict would almost certainly follow both the original attack and the response to it. Moreover, the consequences of a nuclear security incident of this kind for the political sustainability of the global civil nuclear renaissance, and therefore for the strategies of many countries trying to

⁸ A distinction is being made here between nuclear security and nuclear safety. There is of course a large literature examining nuclear safety issues and the consequences of nuclear accidents and safety failures.

achieve energy security while mitigating the effects of climate change could be severe (Bunn, 2009: 112). A post nuclear security incident world may be one suffering a very heavy and internationally widespread backlash against all things nuclear. Failure to take the nuclear security challenge seriously could therefore lead not only to major and large-scale international conflict and economic disruption but also to a global failure to respond to the challenge of climate change in time. Improved nuclear security, in this context, is in the interests of all states.

2.5 Linkages Between Nuclear Security, Strengthened Non-Proliferation and Nuclear Disarmament

Finally, nuclear security is important not only because nuclear insecurity is already creating serious proliferation risks, as the discussion above implies, but because proliferation risks in turn are intimately linked to the prospects for global nuclear disarmament. On the one hand, it is precisely the growth of proliferation risks that has persuaded the US and UK to take nuclear disarmament more seriously in the recent past. On the other hand, some in the nuclear weapons states (NWS) point to proliferation risks, among others, as a key justification for further developing and hanging on to strong national nuclear deterrent systems. Partially as a result there is less demonstrable support for a world without nuclear weapons in countries such as Russia, China, India, France, Pakistan and North Korea than there is in the UK and the US.

The linkage between the non-proliferation and disarmament debates is, of course, well known and is embedded at the heart of the global bargain that is the Non-Proliferation Treaty (NPT). Under the terms of that treaty, in return for a commitment to disarm on the part of the existing nuclear weapons states, the non-nuclear weapons states (NNWS) agree not to seek nuclear weapons of their own, and vice versa. Nuclear weapon states looking for support on measures that strengthen the NPT on the non-proliferation side, such as more widespread

inspections and verification, and the universal adoption of the Additional Protocol, are therefore constantly reminded by NNWS of the crucial importance of progress on disarmament for the legitimacy of their efforts to strengthen non-proliferation.⁹

However, what is less widely acknowledged is that neither strengthened non-proliferation nor nuclear disarmament, especially disarmament to very low numbers of weapons and perhaps even to zero, is likely to be possible without the additional confidence that would come with more effective nuclear security. This is because nuclear security provides an additional and necessary underpinning to both.

On disarmament, any attempt to build confidence in a world without nuclear weapons would require far more than disarmament on the part of the nuclear weapons states themselves. As George Perkovich and James Acton pointed out in their recent Adelphi Paper, *Abolishing Nuclear Weapons*: ‘To make abolition feasible and to enable the detection of rearmament, all states that possess nuclear reactors, uranium enrichment plants, plutonium reprocessing facilities, uranium reserves or even transshipment ports would have to accept more intrusive control measures and inspection procedures than they do today’ (Perkovich and Acton, 2008: 8-9). These measures would likely be pre-requisites to abolition because without them the perceived risk that others could re-arm would be too great for the leaderships of nuclear weapon states.

However, because the threat now also comes from non-state actors, effective additional nuclear security measures (including physical protection of sites and materials, and improved accounting and monitoring), taken by all the NWS and NNWS with

⁹ In truth though, the language about bargains is also often used to play politics with the issue. Some NNWS use limited disarmament progress as an excuse not to strengthen the non-proliferation regime, even though it would clearly be in their own self-interest to make the non-proliferation regime stronger, regardless of what the current NWS are doing on disarmament.

access to the relevant materials and technologies would also be needed. This is not so just to manage the fear that a terrorist group, acting alone, might be able to detonate a bomb but also to manage the risk states might seek to use terrorist organizations to attack their adversaries by proxy, 'engineering' break-downs in nuclear security to assist terrorist groups in their work.

The standards of accounting for, and protecting, nuclear weapons and materials and the intrusive control and inspection procedures required to build confidence in the nuclear abolition agenda, moreover, amount to the very same mechanisms required to deepen confidence in the non-proliferation regime.

It is for this reason that attempts by the US and UK governments to separate the nuclear security summit from the rest of the non-proliferation and disarmament agenda are misguided. The urge to make the Washington summit agenda more manageable, and to ensure that discussions there are not bogged down in debates on the legitimacy of the entire nuclear status quo may be understandable. But separating the issues could be counter-productive. If the linkages to disarmament and non-proliferation are not fully acknowledged some NNWS states present will see proceedings as a further attempt to put non-proliferation obligations and civil nuclear use controls onto them by states seeking to maintain their deterrent and technological advantages. Attempts to limit the scope of the discussion on nuclear security, in other words, may allow some to claim, internationally as well as to their own audiences at home, that nuclear security is primarily a Western NWS concern and not a global one. This itself could prevent achievement of a key summit objective, namely the development of a wider sense of international political ownership of the nuclear security agenda.

For all of the reasons set out above, nuclear security is neither a Western nor merely a technical issue. It also is not linked to concerns over nuclear terrorism alone. It is a vital issue of concern to the entire

global nuclear order, to wider global security, and possibly also to international efforts to mitigate climate change. President Obama is right to be giving it such high profile attention.

3. What Measures Already Exist to Address Nuclear Security Concerns?

The Washington Summit will take place against the backdrop of an already multifaceted and complex set of international responses to address this challenge. There have been UN resolutions, other bi-lateral and multilateral initiatives, and several new instruments have been created to tackle the problem. Most of the main ones are identified and summarized overleaf, with the date of origin or agreement of each initiative indicated in brackets. One initiative, the Cooperative Threat Reduction Programme (1991) emerged to tackle nuclear security in the chaos that followed the collapse of the Soviet Union. All others have emerged since the events of 9/11.

Key international nuclear security instruments and resolutions

- Cooperative Threat Reduction Programme (1991)**
 Based on the Nunn-Lugar Amendment passed by the US Congress in 1991, this Program established assistance programs in the former Soviet Union (FSU) 'to ensure the safe and secure dismantlement and transportation of nuclear weapons and the secure storage and consolidation of dangerous nuclear materials' (CPWMDPT, 2008: 56).
- G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (2002)**
 This has had a budget of US \$20bn and has been supported by more than 20 countries and the EU. It is also known as 10 plus 10 over 10 – \$10bn from the US, \$10bn from others, over ten years). Although now beginning to focus on new geographic areas, it initially also focused on Russia and other former Soviet states, 'specifically destroying their chemical weapon stockpiles and dismantling old nuclear submarines' (Heyes & Bowen, 2010: 1), as well as focusing on security at nuclear sites and the redeployment of scientists.
- Proliferation Security Initiative (2003)**
 This US led initiative aims to stop shipments of biological, chemical, and nuclear weapons, as well as missiles and goods that could be used to deliver or produce such weapons, to terrorists and countries suspected of trying to acquire WMD. Participants carry out cargo interdictions at sea, in the air, or on land. Initially controversial, partly because it was proposed by John Bolton, it has achieved wider support as it has developed.
- UN Security Council Resolution 1540 (2004)**
 This imposes binding obligations on all States to establish domestic controls to prevent the proliferation of nuclear, chemical and biological weapons, and their means of delivery, including by establishing appropriate controls over related materials. It also encourages enhanced international cooperation on such efforts.
- Global Threat Reduction Initiative (2004)**
 A US led scheme, often used in close cooperation with the IAEA, focused on converting research reactors around the world from use of highly enriched uranium to low enriched uranium, since the latter cannot be used in a nuclear weapon.

- Amendment to the Convention on the Physical Protection of Nuclear Materials (2005)**
 This Convention is arguably the only legally binding international instrument covering the physical protection of nuclear material. Originally focused on the protection of material during international transport, the 2005 amendment makes it legally obligatory, once the Convention comes into force, for states to protect both facilities and material in domestic civil use (IISS: 2009). The amendment can enter into force when two thirds of the states-parties have ratified it, but to date, only 32 of 142 countries have approved it (Luongo, 2010).

International Convention on Suppression of Acts of Nuclear Terrorism (2005)

This Convention sets up a legal framework to make international cooperation on the policing, judicial and extradition elements of the effort to combat nuclear terrorism easier. It excludes offences within single states where the victims are from that country alone.

- The Global Initiative to Combat Nuclear Terrorism (2006)**
 This is a non-binding initiative set up by Russia and the United States. The initiative has 75 countries signed-up to building legal infrastructure, law enforcement capabilities and emergency response capacity to deal with terrorist attacks involving nuclear or radiological materials. Partner countries include China and India (Bunn, 2008: xi).
- The World Institute for Nuclear Security (2008)**
 WINS was established to allow a forum for nuclear professionals to identify and share best practice on nuclear security at the organizational level. It currently has over 230 members, both corporate and individual, in over 39 countries and is looking to expand further (Howsley, 2010).
- UN Security Council Resolution 1887 (2009)**
 This wide-ranging resolution 'called on states to share best practices in order to raise nuclear security standards and to secure all vulnerable nuclear material within four years; to minimize and manage responsibly the use of highly enriched uranium for civilian purposes; to improve national capabilities to detect, deter and disrupt illicit trafficking in nuclear materials throughout their territories; and to enhance international partnerships and capacity building in this regard' (IISS, 2009; for the full text of the resolution, see UNSC, 2009).

4. What progress has been made so far?

Assessing progress to date in relation to all this activity is not a straight-forward matter. Not all relevant activity has been effectively monitored against clear success criteria and not all of the activity is in any case amenable to assessment through reference to a series of quantitative indicators. Improved nuclear security relies as much on qualitative factors like the commitment of guard forces and the strength of the security culture at any particular facility, as it does on measurable eliminations or consolidations of weapons and materials, which is presumably why the first Best Practice Guide published by the World Institute for Nuclear Security (WINS) focused on Nuclear Security Culture (Howsley, 2010: 6).

Nevertheless, and with this health warning in mind, it is possible to make some initial and general judgments as to the progress made to date by at least some of the larger initiatives.¹⁰

First, there is some good news. Cooperative Threat Reduction Program activities, for example, have made some real headway, particularly in the form of US initiated programs in the former Soviet Union. By the end of 2008, the US had spent in the region of US \$7bn on this activity and large quantities of both nuclear weapons and fissile material had been made more secure as a result.¹¹ The G8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction for its part, according to independent analysts, has ‘aided security in the former Soviet Union and has the potential to continue to do the same on a broader geographic level’ (Heyes & Bowen, 2010: 1). And the GTRI too,

¹⁰ The paper does not attempt, for reasons of space and the sheer number of initiatives involved, a comprehensive assessment of each and every one of them here. Instead it focus only on those that are considered the most important, where importance is defined a focus on practical measures to consolidate, make secure or eliminate nuclear weapons and weapons relevant materials.

¹¹ This is part of a larger figure of over \$11bn the US has spent in the former Soviet Union, to support of work to improve the security of nuclear, chemical, and biological weapons and materials (IISS: 2009).

has also ‘greatly accelerated the pace at which research reactors are being converted from HEU to low-enriched uranium (LEU) and the pace of removing HEU from those sites to secure locations’ (Bunn, 2008: xii). These are all valuable achievements.

Less promising has been the progress of UNSC Resolution 1540. According to a mid-2008 report from the UN Committee established to assess its implementation, despite some progress, member states need to do far more than they have already done to implement it (UN, 2008). The Amendment to the Convention on Physical Protection of Nuclear Materials is suffering from a similar lack of political will as not enough states have ratified it to bring it into force.

The picture is therefore mixed. There has been some good work done but progress is patchy. Despite the fact that no amount of quantitative data can paint the whole picture moreover, the data sources that are available do tend to support this judgment. Matthew Bunn, the Harvard based nuclear security expert has pulled the public data together in a framework based on 5 indicators of progress (Bunn, 2008, 89-114). These indicators are:

- Progress on Security Upgrades on Former Soviet Buildings Containing Nuclear Material
- Progress on Security Upgrades on Russian sites containing warheads
- The Percentage of Global Operating HEU Reactor Sites Upgraded to Meet IAEA Security Recommendations
- The Percentage of Global Operating HEU Reactor Sites Upgraded to Meet Plausible Threats (which may be of a different order to those covered by the IAEA security recommendations)
- The Percentage of Global HEU-Fueled Research Reactors with all their HEU removed.

Taking each of these in turn, and drawing heavily on Bunn’s *Securing the Bomb 2008* (Bunn, 2008) the data on each of these is reviewed briefly below.

4.1 Progress on Security Upgrades on Former Soviet Buildings Containing Nuclear Material

On this indicator, by the end of US Financial Year (October) 2008, 181 of an estimated 245 buildings, or around 70-75 per cent of the total, had received comprehensive security and accounting upgrades.

4.2 Progress on Security Upgrades on Russian sites Containing Warheads

On security upgrades to Russian sites containing warheads, by the same time, October 2008, upgrades had been completed at 81 sites, a figure that represented 60-75 per cent of the estimated total (though this estimate included only permanent sites, and sites like submarine bases where weapons may be stored for short periods, and not front-line tactical deployment sites). Further upgrades are planned, taking the figure up to 75-90 per cent of known Russian warheads sites but there are also an unknown number of both permanent and temporary warhead sites on which the US and Russia have never agreed to cooperate.

4.3 Percentage of Global Operating HEU Reactor Sites Upgraded to Meet IAEA Security Recommendations

The top line position on security improvements at the world's HEU fueled nuclear reactor sites appears to be positive, at least at first glance. Many states have adopted IAEA recommendations in their domestic security arrangements and most reactors globally therefore meet the standard set by these recommendations. Considering the entire global set of HEU fueled reactors, by late 2008, it appeared that around 90 per cent had received upgrades of the kind necessary to meet IAEA physical protection recommendations. However, according to Bunn, this estimate may overstate the extent to which the problem has been addressed for a number of reasons.

First, there may simply be more sites, not yet identified, where HEU is being used and the IAEA recommended measures are not yet in place: more work needs to be done to assess the scale of this problem.

Second, previous assumptions about the sites that needed the security measures in the first place may have distorted the picture. For example, 'any HEU-fueled research reactor that had less than 5 Kilograms of U-235 contained in fresh, unirradiated HEU was not considered to require many security measures' (Bunn, 2008: 99). There are many reactors in this category and it is not clear that the assumption against necessary security measures is a sound one.

The US DOE also now recognizes that the assumption that irradiated fuel was self-protecting was, in many instances, incorrect. 'Most of the world's irradiated HEU research reactor fuel is not self-protecting, even by the IAEA standard of material emitting 100 rads per hour at a distance of one meter (a standard which itself needs to fundamentally reconsidered in a world of suicidal terrorists) (Bunn, 2008: 99). There may therefore be a substantial number of sites with irradiated HEU fuel that is not self-protecting and where security upgrades are therefore still required if IAEA recommendations in are to be met in relation to them.

4.4 Percentage of Global Operating HEU Reactor Sites Upgraded to Meet Plausible Threats

Even if all HEU fueled reactor sites globally had been upgraded to comply with IAEA physical protection recommendations, further substantial progress would still be required. This is because it is not safe to assume that the IAEA recommendations themselves are sufficient to deal with the level of security threat posed in each individual country around the world. In several countries, including in Russia and Pakistan, terrorists and militants have demonstrated a capability to mount sophisticated attacks involving large numbers of well trained and well armed people. Given this, Bunn estimates that, based on the limited data publicly available, only 'roughly 25 per cent of the global total of HEU-fueled research reactors and related facilities that required security upgrades to be able to defeat plausible threats as of the early 1990s have received

such upgrades' (Bunn, 2008: 101). This 25 per cent moreover, is made up of HEU-fueled civilian reactor sites in Russia that have only modest stocks of HEU on-site, HEU-fueled sites in Russia's closed cities, and some HEU-fueled reactor sites elsewhere in the world that have had security upgrades but only have modest stocks of HEU on site. 'For civilian sites outside of closed territories, **none** of the reactors that have **substantial** stocks of HEU or plutonium are judged to be upgraded to a level to be sufficient to protect against demonstrated terrorist and criminal capabilities' (Bunn, 2008: 101). This is a very worrying position.

4.5 Global HEU Research Reactors with All HEU Removed

Finally, it is estimated that in 1996, the year in which the US re-started its effort to take back the HEU it had earlier supplied to other countries around the world, around 180-220 HEU-fueled reactors were operating globally. As of late 2008, US funded programs had contributed to the removal of HEU from around 50 of these sites, or from around 25 per cent of the estimated total.¹² In terms of kilos of material removed, rather than sites addressed, the Global Threat Reduction Initiative had been responsible for the removing 1948 kilos of HEU from sites around the world by October 2008. This represented 43 per cent of the material it hopes to have removed by 2015. However, the 'GTRI's removal target represents less than one quarter of one per cent of the global stockpile of nuclear material' (Bunn, 2008: 106). 'Moreover.... only a small proportion of HEU outside Russia and the United States has established alternative disposition pathsIrradiated research reactor fuel therefore continues to build up all over the world' (Bunn, 2008: 107). Despite some progress on removing HEU from research reactors, the world is not winning its battle to lock-down the global stockpile of nuclear material.

¹² This estimate does not include any reference to facilities where HEU may have been removed by countries without any assistance from the United States.

While some progress has been made on nuclear security overall therefore, on balance it seems fair to conclude that far, far more remains to be done before the world can feel assured that nuclear security issues are being addressed seriously enough.

5. Remaining gaps in the international effort

In addition, it is fair to say, as a recent *Strategic Comment* from the International Institute for Strategic Studies in fact did, that 'the overlapping treaties, conventions and mechanisms [outlined earlier] that comprise the emergent nuclear security framework tend either to be legally binding but ineffective or inclusive, nebulous and voluntary' (IISS, 2009). As a consequence, we still have no effective, inclusive and binding international nuclear security framework and real gaps in the framework remain. Among these, it is worthwhile noting that:

- Whereas there are international mechanisms in place for reporting, analyzing and sharing the lessons from nuclear safety incidents around the world, no such procedures and mechanisms are in place for breaches of nuclear security, despite the effort to make progress on related issues via the aforementioned World Institute for Nuclear Security.
- Despite clear evidence that some terrorist groups have already sought a nuclear capability, there is still no international agreement on any specific and binding minimum standards for how well nuclear weapons and weapons related materials must be secured;
- Although the passing of UNSC 1540 was a welcome development, and put a legal requirement on all states to take 'appropriate effective' measures to protect all nuclear weapons and weapons related materials in their possession, the phrase 'appropriate effective' has never been defined or turned into a set of accounting principles and agreed security standards that could serve as a guide to state action;

- IAEA safeguards work allows only for inspections to ensure that nuclear material and facilities are in civil, not military, use and do not cover checks on the quality of security;¹³
- While the NPT has enjoyed some success at preventing proliferation, it also does not contain provisions requiring states to secure nuclear materials from theft;
- Neither the International Convention on Suppression of Acts of Nuclear Terrorism (2005) nor the amended Convention on the Physical Protection of Nuclear Materials offers any details on how secure nuclear material should be (Bunn, 2009: 118-120).

These are profound weaknesses in the nature of the current international effort to get to grips with nuclear security concerns. Improved awareness, and a sense of urgency in addressing them, needs to frame the conversation at the Washington Summit.

6. Summit goals and elements of a forward agenda

In Prague, President Obama talked of the lasting nature of the nuclear security threat and his consequent desire to see the world ‘come together to turn efforts such as the Proliferation Security Initiative and the Global Initiative to Combat Nuclear Terrorism into durable international institutions’ (White House, 2009a). It is not clear how many other leaders share this ambition and the declared planned outcome of the Washington summit is more modest, being a communiqué ‘pledging efforts to attain the highest levels of nuclear security’ (White House, 2009b).

This, however, will not be enough for the summit to be a real or perceived success. While achieving a communiqué would be a welcome sign of further

¹³ Although the IAEA does provide advisory services to States to establish the necessary infrastructure to protect nuclear and other radioactive materials from theft and diversion, protect nuclear installations and transport against sabotage and other malicious acts, and to combat illicit trafficking in nuclear and other radioactive materials. For more information see, <http://www-ns.iaea.org/security/>

agreement, the truth is that there have already been many international statements of intent to do more to address the problem. What we need now is additional and coordinated international action.

The nature of the challenge is such that new steps in many areas of policy could play a very useful and important role. Reducing the stockpiles of nuclear weapons in existence, for example, through multilateral negotiations like the START follow-on talks would help, as would strengthening the NPT and ending the production of fissile material altogether through an agreed and operational Fissile Material Cut-Off Treaty. Getting effective long-term international control of the nuclear fuel cycle, particularly in the context of future growth in the global nuclear industry, would be a major advance and more could certainly be done to deter and prevent states from passing nuclear materials to terrorist groups.¹⁴ A particular area of weakness in the international effort also relates to disruption and interdiction of terrorist and criminal activity. Most seizures of material in the last 15 years have been serendipitous rather than a product of proactive action on the part of state authorities (Rolf Mowatt-Larsson, 2010).¹⁵ Police units around the world need improved training to be ready to deal with incidents of nuclear smuggling. Laws that put theft or attempted theft of nuclear weapons or weapons related material on a footing with crimes like murder and treason are not in evidence and

¹⁴ A common view expressed in relation to the latter is that the United States and others should put in place better means for identifying the source of any nuclear attack, including more extensive use of nuclear forensics, and should declare that any terrorist nuclear attack conducted using material consciously provided by a state will be treated as an attack by that state itself, inviting an appropriate response.

¹⁵ Comments made to the author by Rolf Mowatt-Larsson in London in February 2010. With greater investment in counter-terrorism intelligence, the monitoring of terrorist networks, and more effective international intelligence cooperation, more could be done to disrupt terrorist plots and to disrupt the ability of terrorist groups to recruit people with nuclear expertise. Efforts to impede recruitment of personnel could also be widened, to include those with access to nuclear material, guards, retired individuals still in possession of key information, and so on).

would be valuable. An even greater focus on creating an international rapid response capability to deal with any major global nuclear emergency could also be vital to limiting the impact of an incident and any follow on consequences.

For the Washington Summit, however, the goals need to be more focused and more modest. The complexities of producing nuclear bomb materials from scratch are thought to be beyond the capabilities of terrorist groups.¹⁶ In this context, if all the stockpiles of weapons and weapons related materials produced by states can be reliably kept out of terrorist hands, nuclear terrorism itself can be far more easily prevented, confidence in the nuclear order can be more widely felt, and attempts to grow the civil use of nuclear energy in response to climate change are likely to be more politically sustainable (Bunn, November 2008). To be a substantial yet focused advance on what has come before therefore, the summit should concentrate on demonstrating progress in a number of areas:

6.1 Summit success criteria 1: a communiqué giving more states a stake in addressing the problem

The agreed summit communiqué will go some way to binding more states into an effective policy response if it is broad in its explanation of what is potentially at stake and clear about the linkages between nuclear security on the one hand and wider non-proliferation and disarmament concerns on the other. Fears of nuclear terrorism are obviously central to the problem but as outlined earlier nuclear security should be important to all states concerned not just with that issue, but with non-proliferation, nuclear disarmament and the wider need to respond to climate change. As also outlined earlier, some policy-makers in the US and UK are resisting linkages between the summit and this wider package of issues for fear of leading the summit into controversial territory that is in any

¹⁶ Producing HEU, for example, requires a secure base at which to build and run an enrichment plant over a considerable period of time, using trained staff and maintaining high levels of secrecy throughout.

case going to feature at the NPT Review Conference in May. This resistance is only likely to undermine the level of political buy-in from some countries present in Washington. A communiqué setting nuclear security in its broadest context would help to de-Westernize the agenda and provide a basis upon which to pursue greater global buy-in.

6.2 Summit success criteria 2: further measures on consolidation and physical security of nuclear weapons and materials around the world

Here, the summit needs to make progress on some or all of the following:

- Further clarification on what ‘appropriate effective’ security and accounting systems and standards, as mentioned in UNSC Resolution 1540, actually are.
- The creation of, and agreement to, a global nuclear security roadmap that would serve as the framework for further action to reduce and consolidate the number of sites where nuclear weapons and materials are held and for action to secure material and weapons to the clarified ‘appropriate effective’ standard wherever they are stored (FMWG, 2009);
- Commitment to the translation of this roadmap into specific national commitments and timelines, consistent with the goal of securing all dangerous nuclear materials within four years;
- Agreement to reduce and eventually ban the use of HEU for civilian purposes. Where there is a need to provide financial and other incentives to shut down unneeded HEU-fueled reactors, these incentives should be provided. HEU is arguably the most important and accessible fissile material for a terrorist nuclear device in part because of its use in the civil sector and because crude if unwieldy nuclear devices are easier to design using HEU than plutonium. As noted earlier in this paper, we are currently a long way from making all of this material secure (FMWG, 2009);

- Further agreement on broader international scientific cooperation and best practice sharing on nuclear security issues;
- Reference to the need to continue the G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, beyond its current expiration date of 2012.
- Additional spending commitments on the part of wealthier states to support implementation of the agreed global nuclear security roadmap in those countries that lack the necessary money and capacity. Some of these funds should be dedicated to the UNSC 1540 implementation fund (Luongo, 2010).

6.3 Summit success criteria 3: action to ensure the long term sustainability of security measures introduced and to embed a security culture where this is lacking

Here, specific international support for stronger vetting of the people involved in delivery is needed, as is more support for the training of guard forces. The latter is especially important to ensure that all those responsible at key sites understand the threat properly and are aware of the seriousness of the task in which they are engaged.

Commitments to introduce effective national regulatory frameworks on nuclear security, to ensure clarity on what is expected and to provide criteria consistent with any agreed international standards against which compliance can be assessed, are also important. This again, also means that national commitments to direct resources into nuclear security, sufficient to ensure that security is maintained for the long-haul will be a key feature of success.

Without the training, regulatory frameworks and resources, expensive new equipment already deployed in some cases will just not be used, and even the limited progress that has already been made will be put at risk. This entire agenda could also be furthered by the creation and funding of regional nuclear security training centers in all major regions of concern. Absence of practical

measures to address these challenges at the summit in Washington should set alarm bells ringing.

6.4 Summit success criteria 4: extending international monitoring over all remaining excess military and all civilian stockpiles

This is vital if confidence in the global nuclear security regime is to be built. Further support to help the IAEA to address it is key, but states signing the summit communiqué must also indicate a willingness to be more transparent in relation to it. The countries present should agree to extend international monitoring over all civilian stockpiles and, in nuclear weapons states, over declared excess military fissile material as well (Luongo, 2010). The role of industry will also be important here. The summit needs to make clear what steps will be taken to make sure this issue is a top agenda item in the boardrooms of all the major nuclear industry players around the world and to set out a process whereby industry can cooperate with more extensive monitoring activity in this area.

6.5 Summit success criteria 5: commitment to a forward dialogue on streamlining and universalizing the multilateral institutional architecture

Finally, the summit needs to end with a commitment to begin a process aimed at streamlining and universalizing the multilateral institutional architecture. This streamlining might result in a new international instrument for addressing the nuclear security challenge, such as a UN Framework Convention on Nuclear Security, which legitimizes and validates all existing efforts but also sets out the nature of international agreement on the threat, the goals to be set in meeting it, the challenges still to be overcome and a series of regular meetings to discuss implementation. This could be modeled on the global effort to recognize and respond to the challenge of climate change (Luongo, 2010). Alternatively, the streamlining effort might lead to a greater or more central coordinating role being

given to an existing instrument or institution. Whatever the outcome, universalizing and streamlining the effort is vital to overall success for three reasons.

First, it is clear that more countries need to be drawn into collaborative action on this agenda. This does mean countries that are either a primary security concern or are likely to be at the forefront of the putative renaissance in civil nuclear power, but in the end, the global effort to deal with the problem will only be as strong as the weakest link, wherever that may be: all states can play a useful role and must therefore be encouraged to be involved. This broadening of participation is not likely to be an attractive prospect for the countries concerned if either the case to get involved is drawn too narrowly around nuclear terrorism or the initiatives to respond to it are ineffective, overlapping, and diffuse, as they currently are.

Second, in the context of difficult global economic conditions, and consequent political limits on the resources that are likely to be put into this, the world cannot afford the lack of focus and tolerance of waste currently on show.

Third, some countries that may benefit greatly from international assistance on nuclear security currently feel unable to take-up primarily US offers of help for fear of appearing to be involved in a US dominated donor-recipient relationship. If the nuclear security regime can be effectively universalized and streamlined, and assistance provided as part of a coordinated and internationally recognised effort to address a problem of genuine global significance, such states may not only be willing to ask for, but may also help shape, and accept, the help required.

While the Washington Summit cannot conclude the necessary diplomatic journey in relation to nuclear security, it provides a rare opportunity to pull the broad international community together in a common purpose – to reduce grave nuclear dangers.

7. Conclusion

President Obama has shown real leadership on this issue by inviting over 40 countries to attend the Summit. All should share the concerns he has expressed about nuclear security: the dangers he has flagged up are of global, not just US or Western significance. To be successful, the agenda has to be responsive to the concerns of all states, and adequately reflect the linkages with disarmament and non-proliferation. The meeting in Washington is therefore an opportunity to make real progress on building the international cooperation required in a crucial area. There is much that can be done but the test is action in the areas identified above, not more well meaning words.

References

- Albright, D. (2002) Al Qaeda's Nuclear Program: Through the Window of Seized Documents, The Nautilus Institute, Special Forum 47: November 6, available at http://www.nautilus.org/archives/fora/Special-Policy-Forum/47_Albright
- Allison, Graham (2006), *Nuclear Terrorism: The Ultimate Preventable Catastrophe*, New York, Henry Holt & Company
- Bunn, Matthew and Wier, Anthony (2005), 'The Demand for Black Market Fissile Material' in NTI Research Library, *Securing the Bomb* series (covers AQ and Aum activities)
- Bunn, Matthew (2008) *Securing the Bomb 2008*
- Bunn, Matthew (2009) 'Reducing the Greatest Risks of Nuclear Theft and Terrorism', *Daedalus*, Fall, 112-123.
- Carter, A., May, M. & Perry, W. (2007), *The Day After: Action in the 24 Hours Following a Nuclear Blast in an American City*, A Report Based on a Workshop Hosted by the Preventive Defense Project, Harvard and Stanford Universities, available at: http://belfercenter.ksg.harvard.edu/files/dayafterworkshopreport_may2007.pdf Last accessed, March 9th 2010.
- Commission on Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, Report to the President (Washington D.C: WMD Commission, 2005 available at <http://www.wmd.gov/report/>
- Commission on the Prevention of WMD Proliferation and Terrorism (2008), *World At Risk*, available at <http://documents.scribd.com/docs/15bq1nrl9aerfu0yu9qd.pdf>
- Daly, S. Parachini J and William Rosenau, Aum Shinrikyo, Al Qaeda and the Kinshasa Reactor: Implications of Three Case Studies for Combating Nuclear Terrorism, RAND, 2005, available at http://www.rand.org/pubs/documented_briefings/2005/RAND_DB458.sum.pdf
- FMWG (2009), Letter to President Obama and Submission of Top Five Policy Priorities, available at <http://fmwg.presstools.org/node/34505>, last accessed, 27th January 2010.
- Hollinger, P and Crooks, E. (2010), Sarkozy in Call Over Nuclear Energy Funding, *Financial Times*, March 9th.
- Howsley, R. (2010) World Institute for Nuclear Security, Strategic Plan, Rev. 1.2
- IAEA (2009) Illicit Trafficking Database, Fact Sheet 2009, available at <http://www-ns.iaea.org/downloads/security/itdb-fact-sheet-2009.pdf> Last accessed 23rd March 2010.
- IISS (2009) *New Impetus For Nuclear Security*, Strategic Comment, December 2009, Volume 15, Issue 10.
- ICNND (2009), *Eliminating Nuclear Threats: A Practical Agenda for Global Policy-Makers*, Report of the International Commission on Nuclear Non-Proliferation and Disarmament, Canberra/Tokyo.
- Khripunov, Igor (2006), *The Social and Psychological Impact of Radiological Terrorism*, *Nonproliferation Review*, Vol. 13, No 2, July.
- Luongo, Ken (2010), *Making the Nuclear Security Summit Matter: An Agenda for Action*, *Arms Control Today*, January/February.
- Mowatt-Larssen, Rolf (2008). Testimony to the C'ttee on Homeland Security and Governmental Affairs, US Senate, 2 April 2008 (head of intelligence, US Dep't of Energy and previously led CIA efforts to track AQ's WMD programme).
- Mowatt-Larssen, Rolf (2010) *Al Qaeda Weapons Of Mass Destruction Threat: Hype or Reality? A Timeline of Terrorists' Efforts to Acquire WMD*, Belfer Center for Science and International Affairs, Harvard, January. Available at: http://belfercenter.ksg.harvard.edu/publication/19852/al_qaeda_weapons_of_mass_destruction_threat.html?breadcrumb=%2Fexperts%2F1961%2Frolf_mowattlarssen
- Mueller, J. (2009) *Atomic Obsession: Nuclear Alarmism from Hiroshima to Al-Qaeda*, OUP.
- Perkovich, G. and Acton, J. (2009) *Abolishing Nuclear Weapons*, London, International Institute for Strategic Studies.
- Pluta A.M. and Zimmerman P.D. (2006), *Nuclear Terrorism: A Disheartening Dissent*, *Survival*, 48:2, pp. 55-69.
- UN (2008) Second Report of the UNSC 1540 Committee to the President of the Security Council, available at: <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N08/409/78/PDF/N0840978.pdf?OpenElement>
- UNSC (2009) Resolution 1887, available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N09/523/74/PDF/N0952374.pdf?OpenElement>
- White House (2009a), Remarks by President Obama in Prague, available at http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered
- White House (2009b), *Addressing the Nuclear Threat: Fulfilling the Promise of Prague at the L'Aquila Summit*, Press Release from the Office of the Press Secretary, available at www.whitehouse.gov/the_press_office/Addressing-the-Nuclear-Threat-Fulfilling-the-promise-of-Prague-at-the-LAquila-Summit
- Yudin, Y. (2009), *Multilateral Approaches to the Nuclear Fuel Cycle*, UNIDIR, 2009.