



Progress towards nuclear disarmament?

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In April 2009 President Obama set out his vision for a world without nuclear weapons, and in doing so laid the groundwork for renewed international efforts to strengthen and advance the nuclear disarmament and non-proliferation regime. Over the past year that momentum has translated into the agreement of a successor to the US-Russia START treaty, global commitments to secure highly vulnerable nuclear materials within four years and the establishment, at the May 2010 Review Conference, of an action plan in support of the three main pillars of the *Nuclear Non-Proliferation Treaty*.

Sustaining that momentum in the future, however, has been recognised as a key challenge for the international community. Continued political leadership will be crucial. This paper seeks to examine the prospects for achieving that vision of 'global zero'.

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Summary

There are five acknowledged nuclear weapon states: the United States, Russia, the UK, France and China. Israel, India and Pakistan are regarded as de facto nuclear weapon states, having developed a nuclear capability since the *Nuclear Non-Proliferation Treaty* (NPT) came into force. North Korea is acknowledged as being nuclear capable, although it is not recognised as a nuclear weapon state by the international community. It is widely suspected that Iran has a nuclear weapons programme, and that Syria and possibly Burma have nuclear weapons aspirations, all in contravention of their NPT obligations. More than 180 states have also signed the NPT as non-nuclear weapon states and renounced the development of nuclear weapons.

In an attempt to reduce the dangers posed by existing nuclear arsenals and prevent the further proliferation of nuclear weapons technology, the current international nuclear arms control architecture has evolved, broadly speaking, into three main strands: disarmament, non-proliferation and restrictions on the development of new weaponry. Although several treaties and other bilateral and multilateral initiatives have emerged in the last three decades, including the Strategic Arms Reductions Treaties between the US and Russia, the cornerstone of that arms control regime has been the NPT.

The objective of the NPT is to prevent the spread of nuclear weapons and weapons-related technology, further the goal of nuclear disarmament, and promote cooperation in the peaceful uses of nuclear energy. At the heart of the treaty is an implicit bargain between the non-nuclear weapon states which are able to access peaceful nuclear technology while pledging to forego the acquisition of nuclear weapons, and the nuclear weapon states which are permitted to possess nuclear weapons, but only if they commit themselves to the principles of nuclear arms control and eventual disarmament. A safeguards system under the auspices of the International Atomic Energy Agency is used to verify compliance and to prevent the diversion of fissile material for use in a weapons programme.

The credibility of the NPT regime has come under increasing pressure, however, as the non-nuclear weapon states have consistently accused those possessing nuclear weapons of undermining the 'grand bargain' and not doing enough to move disarmament forward. More recently, nuclear proliferation and nuclear terrorism have come to be acknowledged as the two greatest threats to international security in the modern age; while the possibility of a 'nuclear renaissance' has prompted proliferation concerns as non-nuclear weapon states look increasingly towards nuclear energy to meet both their energy security needs and address the global challenge of climate change.

In the last few years the need to strengthen the NPT, and renew global commitments to disarmament and non-proliferation, have therefore gained ground. Indeed, the vision of a world free from nuclear weapons is one that has been widely advocated, most notably by President Obama during a speech in Prague in April 2009.

Over the past year significant progress toward achieving that aim has been made: a new START successor treaty has been agreed, although awaits ratification; efforts to address nuclear security have culminated in an agreement to secure vulnerable nuclear materials within four years and in April 2010 the US published its new *Nuclear Posture Review* which established the US's nuclear priorities for the next five to ten years. At the same time, however, all of the nuclear weapon states are pursuing nuclear modernisation programmes, including the UK's Trident replacement programme. Analysts have argued that such programmes undermine the disarmament obligations of the nuclear weapon states under the NPT, and effectively neutralise the perception that practical progress toward disarmament is actually being made.

In May 2010 the eighth NPT Review Conference was held. The majority of observers expressed a sense of optimism about its prospects and the hope that a consensual Final Declaration on how to move the disarmament and non-proliferation agenda forward could be successfully reached. Reactions to the measures agreed at that Conference have been mixed however. An agreement to progress the 1995 Resolution on establishing a Weapons of Mass Destruction free zone in the Middle East was concluded; along with decisions to seek ratification of the *Comprehensive Test Ban Treaty*, establish the IAEA Comprehensive Safeguards Agreement and the Additional Protocol as the verification standard, strengthen nuclear security, and adopt multilateral approaches to the nuclear fuel cycle. However, the failure of the Review Conference to agree specific measures on non-strategic weapons, harsher penalties for those states that contravene their NPT obligations and/or withdraw from the treaty, or a specific timeframe for disarmament negotiations between the nuclear weapon states, was criticised.

For the longer term, and setting aside the school of thought which argues that the abolition of nuclear weapons is a futile aspiration given that they cannot be 'uninvented', President Obama's vision of a world without nuclear weapons will ultimately be determined by three things: evolving threat perceptions among states (both inside and outside of the NPT framework); continued political will and how the international community responds to the actions of Iran and North Korea and seeks to engage the nuclear capable states outside of the NPT framework.

The importance of establishing the right international conditions to allow states to progress beyond their mutual distrust of each other and pursue real disarmament measures, without also prompting a conventional arms race, cannot therefore be overstated. Arguably, a confidence-building agenda should be the first priority going forward, including broader diplomatic efforts to resolve regional security disputes. In relation to nuclear weapons specifically, complete transparency and the development of an international verification and compliance system that is robust, to the point of virtual perfection, is essential if those states in possession of a nuclear capability are to be instilled with the confidence to finally move toward zero, and indeed stay there.

The long term prospects for global zero are therefore highly uncertain. It is more realistic, some have argued, to focus on what could be achieved in the short to medium term, and use those measures to build confidence and lay the groundwork for future initiatives toward achieving this aim, should the political will exist and the strategic circumstances of the international order allow. Analysts have argued that those short term aims should include ratification of the *Comprehensive Test Ban Treaty*; the institution of negotiations on a *Fissile Material Cut-Off Treaty*; discussions on a treaty to reduce non-strategic nuclear weapons; the examination of a possible global convention on nuclear weapons and reform of the IAEA. However, even in the short term, the prospect of making progress is questionable due to the inevitable clash of national interests between the nuclear 'haves', the nuclear 'have-nots' and those states, such as Iran, that choose to tread a path through the middle.

Background

1.1 State Possession of Nuclear Weapons

In order to appreciate the difficulty and complexity of the disarmament and non-proliferation debate, and assess any political commitments towards advancing it, it is useful to consider at the outset the state possession of nuclear weapons; the circumstances in which those countries would be prepared use them (declaratory policy) and their ability to do so (delivery capability).

Transparency is a major challenge however. Even in the most open of democracies nuclear weapons programmes are largely classified; information is not widely available; while for those countries motivated either by threat perception or conventional military inferiority the tendency to exaggerate the extent, or operational nature, of their nuclear arsenals is commonplace. As a consequence, there is significant disparity in the estimates of each state's active arsenal, reserve stockpiles of operational warheads and those warheads awaiting dismantlement. This lack of openness is a particular difficulty in relation to those states that operate outside of the *Non-Proliferation Treaty* (NPT) and International Atomic Energy Agency (IAEA) framework, and those which are suspected of harbouring nuclear intentions.

NPT Recognised Nuclear Weapon States

There are five acknowledged nuclear weapon states, an internationally recognised status conferred by the 1968 *Nuclear Non-Proliferation Treaty* (NPT). The United States was the first state to demonstrate a nuclear weapons capability in 1945 and, so far, is the only state to have used such weapons with the attacks on Hiroshima and Nagasaki. The Soviet Union tested its first atomic weapon in 1949; while the United Kingdom conducted its first nuclear weapons test in 1952, France in 1960 and China in 1964.

United States and Russia

Under various bilateral arms control agreements signed since the mid 1980s: the *Intermediate Range Nuclear Forces Treaty* (INF), the *Strategic Arms Reduction Treaty* (START) and the *Strategic Offensive Reduction Treaty* (SORT), limitations on both nuclear warheads and delivery vehicles have been imposed on the US and Russia. In summary, those treaties committed both countries to the following:¹

- **START** – Under the treaty, both sides undertook to cut their active stockpiles of strategic nuclear warheads to 6,000 each by 2001. Both sides also undertook to reduce the number of strategic nuclear delivery vehicles (intercontinental ballistic missiles (ICBMs), sea-launched ballistic missiles (SLBMs) and heavy bombers) to 1,600.² However, the provisions of START, including its inspection provisions, expired on 5 December 2009. In March 2010 a successor to the START treaty was concluded between the US and Russia, under which both countries are committed to reducing deployed strategic warheads to 1,550 with seven years of the treaty entering into force. The new treaty, which must now be ratified by the Russian Parliament and the US Senate, is examined in greater detail in section 2.1.

¹ Further detail on each of these treaties is available in Library Standard Note SN/IA/1404, *Arms Control and Weapons of Mass Destruction*

² Under START II, negotiated in 1993, further reductions in strategic nuclear arsenals were to occur in two phases: initially reducing to a ceiling of between 3,800 and 4,250 strategic warheads, and then down to 3,000 to 3,500. The treaty also provided for the elimination of all ICBMs capable of carrying multiple independently targetable re-entry vehicles (multiple warheads or MIRVs). In the event, START II did not enter into force, and Russia declared on 14 June 2002 that it would no longer be bound by the treaty, following the US withdrawal from the *Anti-Ballistic Missile (ABM) Treaty*. The move was seen as essentially symbolic, given that START II had been effectively superseded by the SORT treaty, which had been signed a few weeks earlier.

- **INF** – The treaty committed both parties to eliminating all nuclear-armed ground-launched ballistic and cruise missiles with ranges of between 500 and 5,500km.³
- **SORT** – The treaty would reduce nuclear arsenals to between 1,700 – 2,200 *operationally deployable* strategic warheads by 31 December 2012.⁴ However, the treaty did not place further limitations on the number of nuclear delivery vehicles; while the verification and inspection provisions for SORT were based on those set down in the previous START I treaty. SORT will now expire once the START successor treaty enters into force.

In line with its current treaty obligations (excluding the START successor treaty), Russia is estimated to possess an active operational arsenal of approximately 4,600 warheads, in addition to approximately 7,300 intact warheads in reserve or awaiting dismantlement. In contrast, at the end of the Soviet period in 1991 Russia was estimated to be in possession of approximately 35,000 warheads in total. Of those 4,600 operational warheads, 2,600 are strategic offensive warheads and 2,000 are non-strategic,⁵ which Russia retains for two primary reasons: the existence of potential nuclear powers within Russia's sphere of influence and the deployment of US nuclear weapons in Europe.⁶ Dismantlement is believed to be proceeding at a rate of 1,000 to 2,000 a year.⁷

Despite these reductions, however, Russia continues to have the largest nuclear arsenal in the world, capable of being delivered from land, sea and air (the nuclear triad). In early 2009 the Head of the Russian ICBM force, General Nikolai Solovstov, suggested that "at least 96% of all missile systems are ready for deployment within several dozen seconds" and that "this is the highest readiness level within Russia's nuclear triad".⁸ However, that assertion has been refuted by experts who have argued that no more than 75-80% of Russian missile systems are maintained at this readiness level.⁹ Despite the official disclosure of the size of the US nuclear stockpile in May 2010 many analysts concurred that a similar gesture was unlikely to be forthcoming from Russia which relies more heavily on nuclear weapons in its security posture, partly as a means of offsetting Russia's conventional inferiority compared to the US.¹⁰

The extent of Russia's holdings of fissile material is also uncertain. Although the country no longer produces fissile material for weapons purposes,¹¹ a 2009 report from the International Panel on Fissile Materials estimated that Russia had in the region of 590 metric tons of highly enriched uranium (HEU) and 111 metric tons of plutonium stockpiled for weapons production.¹²

³ Text is available at <http://www.fas.org/nuke/control/inf/text/index.html>

⁴ Not including stored nuclear warheads in the actual nuclear stockpile. There is nothing in the treaty that would oblige the signatories to decommission those warheads withdrawn from operational service.

⁵ "Russian nuclear forces 2010", *Bulletin of the Atomic Scientists*, January/February 2010

⁶ Such capabilities could potentially be deployed, for example, against elements of the proposed US ballistic missile defence architecture in Eastern Europe. The Russian Chief of Strategic Missile Command has repeatedly stated that such a system would be a potential target for Russian nuclear weapons. Further information on the configuration of Russia's nuclear forces is also available in Library Research Paper, RP 09/35, *Russia's Military Posture*, 24 April 2009

⁷ "Nuclear notebook: Russian nuclear forces 2009", *Bulletin of the Atomic Scientists*, May/June 2009

⁸ *ibid*

⁹ *ibid*

¹⁰ "Russia seen under pressure to disclose arsenal details", *Global Security Newswire*, 5 May 2010

¹¹ Russia announced a halt to highly enriched uranium production in 1989 and the cessation of plutonium production for weapons in 1994.

¹² International Panel on Fissile Materials, *Global Fissile Material Report 2009*. The report did acknowledge, in the case of plutonium production, however, a margin of error of approximately 20%.

Russia's position on its use of nuclear weapons has evolved over the years but was recently made clear following the publication of the new Russian *National Security Strategy* in 2009 and its new Military Doctrine in February 2010. The *National Security Strategy* reportedly stipulated:

the possibility of the employment of nuclear weapons depending on the conditions of the situation and the probable enemy's intentions. The conduct of a nuclear strike against an aggressor, including a preemptive strike, is not ruled out in critical situations for national security.¹³

Despite concerns that the 2010 Military Doctrine would lower the nuclear threshold and provide a greater potential role for nuclear weapons in 'local conflicts', such as the 2008 conflict with Georgia,¹⁴ the new doctrine did in fact retain much of the language of the previous doctrine published in 2000. The 2010 doctrine states:

Nuclear weapons will remain an important factor for preventing the outbreak of nuclear military conflicts and military conflicts involving the use of conventional means of attack (a large-scale war or regional war).

In the event of the outbreak of a military conflict involving the utilization of conventional means of attack (a large-scale war or regional war) and imperilling the very existence of the state, the possession of nuclear weapons may lead to such a military conflict developing into a nuclear military conflict.¹⁵

The doctrine therefore advocates maintaining "strategic stability and the nuclear deterrence potential at an adequate level".¹⁶ Commentators have suggested that the new doctrine devotes less time to the nuclear component of the Russian armed forces, and places considerably more emphasis on conventional capabilities.¹⁷ However, in tandem with the published Military Doctrine was a second document entitled *Foundations of State Policy in the Area of Nuclear Deterrence to 2020*. While undoubtedly providing detail on all aspects of Russian nuclear policy, capabilities and priorities, the contents of that document remain confidential. It is also worth noting that the Russian Military Doctrine also identified NATO as one of the main external threats to Russia,¹⁸ a posture that many have regarded as potentially complicating for any future negotiations on further cuts to US and Russian nuclear arsenals.

In comparison to Russia, the United States has 5,113 warheads in its nuclear stockpile which it publicly disclosed at the beginning of May 2010.¹⁹ Of those 2,700 are thought to be operational warheads (2,200 strategic warheads and 500 non-strategic warheads); while the remaining 2,413 warheads are held either in reserve or in inactive stockpiles, some of which will be dismantled in the coming years.²⁰ Like Russia, the American nuclear deterrent operates as a triad of sea, air and land-based systems including the Minuteman ICBM and

¹³ "Russian nuclear forces 2010", *Bulletin of the Atomic Scientists*, January/February 2010

¹⁴ This had been suggested by the Secretary of the Security Council and reported main author of the new doctrine, Nikolai Patrushev, in October 2009.

¹⁵ BBC Monitoring published an English translation of the Russian Military Doctrine on 9 February 2010. The original Russian version is available at: http://news.kremlin.ru/ref_notes/461

¹⁶ *ibid*

¹⁷ Nikolai Sokov, "The new, 2010 Russian military doctrine: the nuclear angle", James Martin Center for Nonproliferation Studies, 5 February 2010

¹⁸ *The Military Doctrine of the Russian Federation*, 5 February 2010. English translation provided by BBC Monitoring Former Soviet Union.

¹⁹ <http://www.defense.gov/news/d20100503stockpile.pdf>

²⁰ Further information on the configuration of the US nuclear arsenal is set out in "Nuclear notebook: US nuclear forces, 2009", *Bulletin of the Atomic Scientists*, March/April 2009: <http://www.thebulletin.org/files/065002008.pdf>

the sea-launched Trident D5. As a result of initiatives to reduce the US nuclear stockpile that have been introduced since 2004, the US has reached the upper limit of operationally deployed strategic warheads as provided for by SORT. It had been anticipated that by 2012 the total US stockpile would reduce even further to approximately 4,600 warheads, including those provided for under SORT.²¹ However, on the basis of previous Department of Energy figures,²² the rate of dismantlement has been estimated at only 300-350 warheads per year. The *Bulletin of the Atomic Scientists* subsequently argued that “the dismantlement of the backlog of retired nuclear weapons from all announced reductions will take through 2022 to complete”.²³ Once the START successor treaty enters force (see section 2.1), that backlog is likely to increase as further reductions to meet the 1,550 operationally deployed strategic warhead limit within seven years, is achieved.

Like Russia, the US no longer produces fissile material for weapons purposes, although it does retain a stockpile of fissile material.²⁴ One 2009 estimate suggested that the current US stockpile is in the region of 38 metric tons of plutonium and 250 metric tons of HEU for weapons production.²⁵

Following the publication of the 2010 *Nuclear Posture Review* (see section 2.2) the US retains the right to first use of nuclear weapons, although it has pledged not to use or threaten the use of nuclear weapons against non-nuclear weapon states that are party to the NPT and in compliance with their nuclear non-proliferation obligations. In addition, the use of nuclear weapons against nuclear weapon states and non-compliant states will only be considered in extreme circumstances to defend the US's vital interests, or its allies and partners. There also remains a narrow range of contingencies in which US nuclear weapons may still play a role in deterring a conventional or chemical/biological weapons attack by such states.

Like the UK and France, American nuclear assets contribute to the NATO nuclear umbrella;²⁶ while in Asia and the Middle East the US has maintained extended deterrence through a series of bilateral arrangements, a forward military presence and security guarantees.²⁷

²¹ “Nuclear notebook: US nuclear forces, 2009”, *Bulletin of the Atomic Scientists*, March/April 2009

²² <http://www.defense.gov/news/d20100503stockpile.pdf>

²³ “Nuclear notebook: US nuclear forces, 2009”, *Bulletin of the Atomic Scientists*, March/April 2009. This expected timeframe for dismantling retired nuclear warheads was also reiterated in the 2010 *Nuclear Posture Review* (p.38).

²⁴ The US halted the production of HEU for weapons in 1964 and ceased plutonium processing for weapons in 1992.

²⁵ International Panel on Fissile Materials, *Global Fissile Material Report 2009*

²⁶ NATO's nuclear posture is currently set out in the [Alliance's Strategic Concept](#) agreed at the Washington Summit in 1999. That strategic concept, including NATO's nuclear position, is currently under review. On 17 May 2010 the Group of Experts convened to examine that concept published their [analysis and recommendations](#) which are expected to be taken forward at the NATO Heads of State and Government summit in November 2010. On the issues of nuclear weapons that report states “As long as nuclear weapons exist, NATO should continue to maintain secure and reliable nuclear forces, with widely shared responsibility for deployment and operational support, at the minimum level required by the prevailing security environment. Any change in this policy, including in the geographic distribution of NATO nuclear deployments in Europe, should be made, as with other decisions, by the Alliance as a whole”.

²⁷ The concept of extended deterrence is an important one, particularly for countries such as Japan which has chosen to forego the option of developing its own nuclear capability in return for the protection provided by the US nuclear umbrella. A number of analysts have suggested that abandoning extended deterrence could encourage proliferation as several states could seek to develop their own nuclear weapons capability as an alternative. It is also worth noting that under the concept of extended deterrence, many of the non-nuclear weapon states are in fact indirect beneficiaries of nuclear weapons and therefore the security guarantee inferred by a nuclear capability is not concentrated solely in the hands of a few countries.

United Kingdom

The UK adopts a posture of minimal nuclear deterrence, maintaining that its arsenal is the “the minimum necessary to provide for our security for the foreseeable future”.²⁸ The UK’s nuclear deterrent is therefore based solely on the Trident weapons system, which is deployed aboard the Vanguard-class submarine and has both a strategic and sub-strategic capability.²⁹ Each platform carries a maximum of 48 nuclear warheads from an overall operationally available stockpile of fewer than 160 warheads.³⁰ As a result the UK is the only recognised nuclear weapon state that has reduced to a single deterrent system. The UK ceased production of fissile material for weapons production in 1995. It does however retain a fissile material stockpile of 3.2 metric tons of plutonium and 22 metric tons of HEU.³¹

The UK does not have a policy of ‘no-first use’, deeming such a posture to be incompatible with NATO’s doctrine of deterrence. However, the 1998 *Strategic Defence Review* did place limitations on the use of British nuclear weapons, including in relation to the nuclear-free zones of Latin America, the South Pacific and Africa.³² The SDR stated:

We will not use nuclear weapons against a non-nuclear weapon state not in material breach of its nuclear non-proliferation obligations, unless it attacks us, our Allies or a state to which we have a security commitment, in association or alliance with a nuclear weapon state.³³

In the Trident White Paper of December 2006 the MOD reiterated its position on first use, stating that “we will not rule in or out the first use of nuclear weapons”.³⁴ However, that document also stated that “the threshold for the legitimate use of nuclear weapons is clearly a high one. We would only consider using nuclear weapons in self defence (including the defence of our NATO allies)”.³⁵ In May 2010 the new Conservative/Liberal Democrat Coalition government announced that the UK’s declaratory policy would, however, be re-examined as part of a new forthcoming Strategic Defence and Security Review.³⁶

A history of the evolution of the UK’s nuclear deterrent is available in Library Research Paper RP06/53, [The Future of the British Nuclear Deterrent](#).

France

France first tested a nuclear weapon in 1960, eight years after the UK and four years before China. The last French tests took place in 1996, just prior to the conclusion of the *Comprehensive Nuclear Test Ban Treaty* (CTBT).³⁷

²⁸ Ministry of Defence, *Strategic Defence Review*, CM 3999, 1998

²⁹ This sub-strategic capability is noted in the 1998 Strategic Defence Review and was discussed in the 18 March 2006 evidence session of the Defence Select Committee. It has also been acknowledged by experts in the field including Jeremy Stocker in his paper *The United Kingdom and Nuclear Deterrence*, Adelphi Paper 386, 2007.

³⁰ The Strategic Defence Review in 1998 reduced the UK’s nuclear stockpile to fewer than 200 warheads. The further reduction to less than 160 warheads was announced in the December 2006 Trident White Paper (Cm 6994, Session 2006-07). On the basis of that decision the upper limit on the number of the UK’s operationally available warheads has been reduced by nearly half since 1997.

³¹ “Arms control and proliferation profile: the United Kingdom”, *Arms Control Association*

³² To date the UK has not, however, ratified the protocol to the treaties establishing the Southeast Asia NWFZ or the Central Asian NWFZ.

³³ “Deterrence, arms control and proliferation”, *Strategic Defence Review Supporting Essays*

³⁴ Ministry of Defence, *The Future of the United Kingdom’s Nuclear Deterrent*, Cm 6994, p.18

³⁵ Ministry of Defence, *The Future of the United Kingdom’s Nuclear Deterrent*, Cm 6994, p.14

³⁶ For a discussion of declaratory policy see Malcolm Chalmers, *Nuclear narratives: reflections on declaratory policy*, RUSI Whitehall Report 1-10, 2010

³⁷ France signed and ratified the *Comprehensive Test Ban Treaty* in 1998

Since the end of the Cold War France has scaled back its nuclear arsenal, with a reduction in both its overall holdings but also the withdrawal of several weapons systems. Despite this, and in contrast to the British deterrent, the current French nuclear capability retains both submarine-launched and air-launched elements.³⁸ The bulk of the French deterrent is maritime-based: the Navy has responsibility for around 80% of the arsenal through its fleet of three Triomphant-class ballistic missile submarines (SSBN) which are capable of carrying up to 16 M-45 SLBM; and a single squadron of nuclear-armed Super Étendard aircraft³⁹ deployed aboard its aircraft carrier, the *Charles de Gaulle*. The French Air Force also has three squadrons assigned to the nuclear role, comprising Mirage 2000N/ Rafale F3 aircraft equipped with the ASMP and the newer ASMP-A nuclear-armed cruise missile respectively. A fourth SSBN is expected to enter operational service in mid-2010 and will be equipped with the new M-51 SLBM which will provide greater range, accuracy and operational flexibility than the M-45.⁴⁰

In February 1996 France announced that it had halted the production of fissile material for weapons purposes and that it would dismantle the production facilities dedicated to its weapons programme. Like the other nuclear weapon states, France retains a stockpile of fissile material, estimated to be approximately 30 metric tons of HEU and 5 metric tons of plutonium.⁴¹

Like the UK, France also reserves the right to use nuclear weapons first in a conflict. It has, however, also pledged not to use nuclear weapons against non-nuclear weapon states party to the NPT.

In March 2008 President Nicholas Sarkozy delivered a speech on French nuclear policy in which he announced a planned reduction of the French nuclear arsenal to fewer than 300 warheads,⁴² and several disarmament measures including the disbandment of one of France's land-based squadrons of nuclear-armed aircraft. However, he also stated that the French nuclear deterrent remained a "life insurance" in the face of new threats and that French nuclear forces "by their very existence are a key element in its security".⁴³ That position was reiterated in the *French White Paper on Defence and National Security*, published in June 2008, which also emphasised the importance of retaining complete independence over its nuclear forces. It also clearly stated that French nuclear policy would "remain one of strict sufficiency", with France seeking to maintain its nuclear arsenal at the lowest possible level compatible with the strategic context; while at the same time being committed in the longer term to a nuclear disarmament action plan, including universal ratification of the CTBT, an immediate moratorium on the production of fissile materials, negotiation of a *Fissile Material Cut-off Treaty* (FMCT) and consultation on a treaty prohibiting short and medium-range ground-to-ground missiles.⁴⁴ Those disarmament proposals were subsequently reiterated in a working paper submitted to the preparatory committee to the 2010 NPT Review Conference.⁴⁵

China

In 1955 the Chinese leadership initiated a nuclear weapons programme, partly in response to concerns about US nuclear threats during the Korean War. Nine years later, China became

³⁸ France's land-based ballistic missile capabilities were withdrawn in 1996.

³⁹ In 2010 these aircraft are expected to be replaced by the Rafale Mk3 equipped with the ASMP-A.

⁴⁰ The M-51 is reported, for example, to be capable of deploying up to six warheads of variable yields; while it will also be possible to detonate the warheads at high altitude, generating an electro-magnetic pulse.

⁴¹ "Arms control and proliferation profile: France", *Arms Control Association*

⁴² Compared to an estimated stockpile of 350 which President Chirac announced in 2006

⁴³ "France to reduce nuclear arsenal", *Agence France Presse*, 21 March 2008

⁴⁴ *White Paper on Defence and National Security*, June 2008

⁴⁵ *Nuclear disarmament: France's practical commitment*, NPT/CONF.2010/PC.III/WP.36

the last of the five NPT recognised states to successfully test an atomic device. China then tested its first thermonuclear device in June 1967. Observers commented on the short time-span (32 months) between the two tests, which was substantially less than the other nuclear powers.⁴⁶

Precise information on the extent of China's nuclear arsenal is difficult to obtain, due to a lack of transparency and often contradictory or exaggerated claims. China's deterrent is based on the nuclear triad principle, although the majority of Chinese warheads are currently believed to be intended for strategic purposes and delivered by ground-based ballistic missiles.⁴⁷ The Chinese stockpile is thought to be relatively small, with an estimated 176 active warheads and a further 70 or so held in reserve, making a total stockpile of around 240.⁴⁸ Previous estimates of the Chinese arsenal had placed the overall figure at around 400, but that figure has been revised downwards in recent years. In any event, China is believed to have sufficient stocks of fissile material to produce a much larger arsenal⁴⁹ and in its 2008 assessment of Chinese nuclear forces, the *Bulletin of the Atomic Scientists* argued that "of the five original nuclear weapons states, China alone is believed to be increasing its nuclear arsenal".⁵⁰ The modernisation of China's nuclear capabilities is examined in greater detail in section 2.5.

Despite the expansion of the Chinese nuclear arsenal, successive Chinese leaders have consistently maintained a policy of 'no first use' for China. The Nuclear Threat Initiative commented in December 2005:

Beijing often points to its NFU policy as proof that China—in apparent contrast to the United States and Russia—is a "peace-loving" nation that is "pursuing a foreign policy of peace." Affectation and propaganda aside, "no-first-use" was both conditioned by necessity—a small nuclear arsenal—and by policy, since China's nuclear weapons were not meant to go beyond countervalue (i.e., city-busting) minimum deterrence. China's NFU policy has therefore been governed less by altruism than by other limiting factors.⁵¹

There have been signs that China's policy of no-first use may be under re-consideration, after Major General Zhu Chenghu, a Dean at China's National Defense University, commented in July 2005 that the policy had really only applied to non-nuclear weapon states.⁵² Yet, some analysts have doubted that this implies a change in official policy noting the reiteration of the 'no first use' policy in both the 2006 and 2008 Chinese defence white papers, the latter of which stated that "China remains committed to the policy of no first use of nuclear weapons, pursues a self-defensive nuclear strategy, and will never enter into a nuclear arms race with any other country".⁵³ Many have also concluded that China would have little to gain from abandoning the policy:

⁴⁶ By point of comparison, 86 months passed between the United States' first atomic test and its first hydrogen bomb test, for the Soviet Union it was 75 months, for the UK 66 months, and for France 105 months (*Nuclear Threat Initiative China Profile: Nuclear Overview*, September 2009)

⁴⁷ Further detail on the configuration of China's nuclear forces is available in Library Research Paper RP08/15, *China's Military Posture*, 12 February 2008

⁴⁸ "Chinese nuclear forces 2008", *Bulletin of the Atomic Scientists*, July/August 2008

⁴⁹ *Nuclear Threat Initiative China Profile: Nuclear Overview*, updated September 2009. While China is understood to have halted fissile material production, it has never formally declared that position.

⁵⁰ "Chinese nuclear forces 2008", *Bulletin of the Atomic Scientists*, July/August 2008

⁵¹ 'Going Beyond the Stir: The Strategic Realities of China's No-First-Use Policy', *NTI Issue Brief*, December 2005

⁵² Danny Gittings, "General Zhu Goes Ballistic," *Wall Street Journal*, 18 July 2005

⁵³ Information office of the State Council of the People's Republic of China, *China's National Defense in 2008*, January 2009

The NFU policy has served China well by assuring strategic stability, assisting in a relatively more efficient allocation of limited resources, and allowing Beijing to take the high moral ground on nuclear weapons use. Despite speculation about a shift in China's nuclear doctrine, a careful analysis of official Chinese positions and recent trends in Chinese nuclear weapons modernization would suggest Major General Zhu Chenghu's remarks do not provide any new clues to China's nuclear doctrine, nor do they indicate a move towards building a more offense-capable and war-fighting nuclear posture. A look at the history of China's no-first-use policy, nuclear program, and doctrine, along with its current military planning and modernization, indicate that a move away from the NFU policy is not likely in the near-to-mid-term. Even in the long-term, China's resources and planning will likely be considered better spent on other priorities, and not the costly expansion of its nuclear arsenal.⁵⁴

De Facto Nuclear Weapon States

The NPT defines a nuclear weapon state as one that manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967. Those countries which have developed a nuclear capability since then are therefore considered *de facto* nuclear weapon states. Despite having conducted two nuclear tests in 2006 and 2009 North Korea is not recognised by the international community as a nuclear weapons state. It is considered potentially nuclear capable, however, and has therefore been included for the purposes of this paper.

India and Pakistan

India and Pakistan both conducted a series of publicised nuclear tests in May 1998 which established their status as self-declared nuclear weapon states. Successive Indian governments had previously maintained a policy of ambiguity on the country's nuclear status after what appeared to be a partially successful nuclear test in 1974. Pakistan's nuclear programme began in the early 1970s, following the 1971 war with India that led to East Pakistan becoming Bangladesh, although it was not until the late 1980s that the US concluded that Pakistan had acquired the capability to build a primitive nuclear device.

Neither country is party to the NPT or the CTBT. Both countries have consistently declined to join the NPT as a non-nuclear weapon state, arguing that it cements in place an unfair distinction between the five recognised nuclear weapon states and the remainder that have to forego such a capability. India also only supports the CTBT within the context of general nuclear disarmament; while Pakistan has linked its signature of the treaty to that of India. Both countries declared a moratorium on nuclear testing in 1998, however, which they have since maintained.

India has consistently asserted that it maintains a credible minimum deterrent, and is currently estimated to have an arsenal of up to 100 warheads, although there is some debate as to how many of those warheads are fully assembled, and how many are fully operational. Other assessments have thus placed India's nuclear arsenal at between 40 and 90 warheads; with only 50% being fully operational.⁵⁵ Indian government sources claim the country has developed a range of fission warheads and more powerful, two-stage thermonuclear devices, although some observers have again expressed doubts about the reliability of the latter.⁵⁶ India currently has a number of combat aircraft (the Mirage 2000 and possibly the Su-30 Mk1) which are capable of delivering a nuclear payload. India is also

⁵⁴ 'Going Beyond the Stir: The Strategic Realities of China's No-First-Use Policy', *NTI Issue Brief*, December 2005

⁵⁵ "Nuclear Notebook: Indian Nuclear Forces 2008", *Bulletin of the Atomic Scientists*, November/December 2008

⁵⁶ Nuclear Threat Initiative, [India Nuclear Overview](#), updated April 2007

developing a submarine-based capability and a ballistic missile programme, although to date its ballistic missile inventory is limited to short and intermediate-range missiles.⁵⁷

In 2003 the Indian government announced that it would not use nuclear weapons against states that do not possess such capability, although it has reserved the right to use nuclear weapons in response to any WMD attack, including a biological or chemical weapons attack.⁵⁸ In early 2010 the Indian Foreign Secretary, Nirupama Rao, joined calls for the establishment of a global ‘no first use’ policy as part of its overall support for global nuclear disarmament, an initiative described by the government as one which “harmonizes with our long-held positions”.⁵⁹

Controversially, in 2008 the US and India announced that they had agreed a civilian nuclear trade cooperation deal that would allow India to import key nuclear technologies from the countries of the Nuclear Suppliers Group,⁶⁰ in return for concluding a Comprehensive Safeguards Agreement with the IAEA which would subject its civilian nuclear facilities to IAEA inspection.⁶¹ It also committed to continuing its moratorium on nuclear testing, instituting effective export control systems consistent with the NSG and refraining from transferring enrichment and reprocessing technologies to states that do not already have them.⁶² That agreement ultimately transformed into an agreement of the Nuclear Suppliers Group in September 2008 which exempted India from some of its nuclear export rules. The agreement was reached despite the fact that India is not party to the NPT, a move several analysts have regarded as undermining a fundamental principle of the treaty, which is to deny nuclear technologies to countries that have not signed up to the treaty, and instead placed the diplomatic and commercial interests of NSG countries ahead of their nonproliferation responsibilities. Mark Hibbs of the Carnegie Endowment for International Peace has, for example, argued that the deal has “damaged the nonproliferation regime and has exacerbated nuclear tensions in South Asia”.⁶³ George Perkovich labelled the deal “selective non-enforcement” of the international non-proliferation rules.⁶⁴

That deal is still to be fully implemented, although significant progress was made in early 2010 after the US government officially certified that India had placed a specified number of nuclear reactors under IAEA safeguards⁶⁵ and the US and India concluded an agreement over the reprocessing of spent nuclear fuel; an agreement which some analysts suggested “removes one of the final hurdles to nuclear trade between the two countries”.⁶⁶ However full implementation of the agreement will not be achieved until nuclear liability protection for US companies is established under Indian law.⁶⁷ Both France and Russia have subsequently

⁵⁷ Further information on the configuration of India’s nuclear forces and its developing ballistic missile programme is available in Library research Paper RP07/41, *A Political Introduction to India, 2 May 2007*. The modernisation of India’s nuclear capabilities is also examined in section 2.5.

⁵⁸ “Arms Control and proliferation Profile: India”, *Arms Control Association*

⁵⁹ “India calls for global “no first use” nuke policy”, *Global Security Newswire*, 24 February 2010

⁶⁰ Further information on the Nuclear Suppliers Group is available in Library Standard Note SN/IA/1404, *Arms Control and Weapons of Mass Destruction*

⁶¹ India’s military nuclear facilities are however, excluded from the safeguards agreement and therefore the inspections regime.

⁶² Further detail on the US-India deal, and associated issues, is available in a report from the Congressional research Service entitled *US Nuclear Cooperation with India: Issues for Congress* (RL 33016)

⁶³ Mark Hibbs, “Moving forward on the US-India nuclear deal”, *Carnegie Endowment for International Peace*, 5 April 2010

⁶⁴ George Perkovich, “Global implications of the US-India deal”, *Daedalus*, Winter 2010

⁶⁵ [Presidential Determination No.2010-04](#), 3 February 2010

⁶⁶ Mark Hibbs, “Moving forward on the US-India nuclear deal”, *Carnegie Endowment for International Peace*, 5 April 2010

⁶⁷ Legislation has reportedly been approved by the Indian Cabinet, although it has yet to pass through Parliament.

concluded civilian nuclear cooperation agreements with India; while the UK followed suit in February 2010.⁶⁸

Although the US had originally called for a halt to the production of fissile material for weapons production as part of the civil nuclear cooperation deal, the Indian government refused to link the two issues together. India is therefore currently estimated to hold approximately 700kg of plutonium for weapons production, although that total is increasing annually.⁶⁹ A number of analysts have subsequently expressed concern that if India succeeds in securing foreign nuclear fuel shipments it would free up domestic resources, such as uranium, that are currently divided between the civilian and military sectors, therefore increasing, by default, the production of fissile material available for weapons.⁷⁰ George Perkovich has argued:

Many factors will determine India's future actions, of course, but it is possible that the nuclear deal will make India less, rather than more likely to join the CTBT and end fissile material production for weapons. The nuclear deal has encouraged India to develop new plutonium separation capabilities for military purposes [...]

To the extent that the nuclear deal gives India access to foreign-supplied fuel for civilian reactors, India could use its heretofore scarce domestic supplies of reactor fuel to increase production of plutonium in military reactors – a potential already noted by Pakistan.⁷¹

Pakistan is generally thought to have a nuclear weapons inventory of between 70 and 90 nuclear warheads. US officials believe the Pakistani nuclear programme originally received material and technical assistance from China, although key information on uranium enrichment was also obtained during the mid-1970s by Abdul Qadeer Khan, a Pakistani scientist who became a leading figure in Pakistan's illicit nuclear weapons establishment.⁷² Pakistan's ability to deliver a nuclear weapon is focused almost entirely on a small short to medium-range ballistic missile capability, although it has been noted that some of Pakistan's air force assets could be tasked with a nuclear role if necessary and that a number of F16 aircraft purchased from the US could have been modified for this purpose.⁷³

Pakistan's strategic nuclear doctrine remains officially undeclared, although the guiding principle appears to be that of minimum credible deterrence, intended to primarily offset the conventional superiority of India and its own nuclear assets. It has pledged to retain a general position of 'no first use', although the government has also not ruled out first-use against a nuclear-armed aggressor.

Pakistan also continues its production of fissile material for weapons and is in the process of augmenting its weapons production facilities,⁷⁴ which has led many analysts to conclude that both quantitative and qualitative improvements in Islamabad's nuclear arsenal are

⁶⁸ <http://www.fco.gov.uk/en/news/latest-news/?view=PressR&id=21754949>. Government policy on nuclear-related exports to India was set out in a Written Ministerial Statement on 10 November 2008 (column 35WS)

⁶⁹ The International Panel on Fissile Materials, for example, states that India continues to produce weapons plutonium in its two production reactors at a combined rate of about 30kg per year (*Global Fissile Material Report 2009*)

⁷⁰ "Nuclear Notebook: Indian Nuclear Forces 2008", *Bulletin of the Atomic Scientists*, November/December 2008

⁷¹ George Perkovich, "Global implications of the US-India deal", *Daedalus*, Winter 2010

⁷² "Nuclear notebook: Pakistani nuclear forces, 2009", *Bulletin of the Atomic Scientists*, September/October 2009

⁷³ Further information on Pakistan's nuclear capability is available in Library Research paper RP07/68, *Pakistan's Political and Security Challenges*, 13 September 2007

⁷⁴ Pakistan is currently constructing two new plutonium production reactors and a second chemical separation facility ("Nuclear notebook: Pakistani nuclear forces, 2009", *Bulletin of the Atomic Scientists*, September/October 2009)

inevitable.⁷⁵ Indeed, expressing concern that any US-India nuclear cooperation agreement could tilt the strategic balance between India and Pakistan in favour of the former, in May 2009 a Foreign Ministry spokesman suggested that despite the government's continued opposition to an arms race in South Asia, Pakistan may need to increase its nuclear arsenal in response to expansion by India.⁷⁶ In February 2010 the Pakistani government also used those concerns to reiterate that the country would not join the NPT, even if India agreed to do so. Foreign Ministry Spokesman, Abdul Basit, reportedly commented:

We cannot sign the treaty. We cannot give up nuclear weapons. If you have a conventional imbalance between Pakistan and India, then obviously our reliance on nuclear deterrence increases correspondingly. At one point in time we were ready to sign the treaty, provided it was also done by India. That is the position that we took, but it has become outdated.⁷⁷

At present Pakistan's stockpile of HEU is estimated to be in the region of 2.1 metric tons, although its annual production rate is estimated at 150kg; while its stockpile of plutonium is 100kg and its annual production rate is 10-12kg per year.⁷⁸

Pakistan has for the last few years urged the US to establish a similar agreement with it to the civilian nuclear cooperation deal concluded with India. In March 2010 the Pakistani government resumed pressure for negotiations to which the US has been relatively non-committal in response, with several lawmakers calling any deal "premature" and "complicated".⁷⁹ Of particular concern has been Pakistan's proliferation legacy, the safety of Pakistan's nuclear assets and the ability of those weapons to fall into the hands of terrorists or other non-governmental actors. As a report from the US Congressional Research Service in December 2009 noted "the main security challenges for Pakistan's nuclear arsenal are keeping the integrity of the command structure, ensuring physical security and preventing illicit proliferation from insiders".⁸⁰ In the absence of a US deal, however, China announced in early 2010 that it had agreed to finance the construction of two new civilian nuclear reactors in Pakistan, which has prompted calls from the US for all nations to respect their non-proliferation commitments.⁸¹ Many analysts have argued that the US would be unlikely to openly oppose the deal, a move that Mark Hibbs has suggested would "signal [that] the United States under Obama was prepared to brush off an important nuclear non-proliferation norm on grounds of political expediency", much like the US arguably did with India in 2008, and that "since NSG states are awaiting leadership from the United States on how to eventually respond to China's challenge to the rules, tacit US acquiescence would seriously damage the NSG's credibility as a rule maker for nuclear trade".⁸²

Israel

Israel is not a State Party to the NPT and successive Israeli governments have maintained a policy of official ambiguity on the issue. Its official declaratory policy states that "Israel will not

⁷⁵ Bruce Riedel of the Brookings Institution has asserted that Pakistan in fact possesses "the fastest growing arsenal in the world" ([Interview with the Council on Foreign Relations](#), 11 May 2010)

⁷⁶ Paul Kerr, *Pakistan's Nuclear Weapons: Proliferation and Security Issues*, 9 December 2009

⁷⁷ "Pakistan rules out joining non-proliferation treaty", *Global Security Newswire*, 23 February 2010

⁷⁸ International Panel on Fissile Materials, *Global Fissile Material Report 2009*

⁷⁹ "Pakistan presses case for US nuclear deal", *Arms Control Today*, April 2010

⁸⁰ Paul Kerr, *Pakistan's Nuclear Weapons: Proliferation and Security Issues*, 9 December 2009

⁸¹ Mark Hibbs, "Pakistan deal signals China's growing nuclear assertiveness", *Carnegie Endowment for International Peace*, 27 April 2010. China has previously constructed two civilian nuclear reactors in Pakistan, although this was prior to China's entry into the NSG in 2004 which prohibits nuclear related exports to countries that do not have comprehensive IAEA safeguards in place. However, should any NSG party object, the NSG would have no recourse to prevent the deal as its guidelines are not legally binding.

⁸² Mark Hibbs, "Pakistan deal signals China's growing nuclear assertiveness", *Carnegie Endowment for International Peace*, 27 April 2010

be the first country to introduce nuclear weapons in the Middle East⁸³ and the country has never demonstrated its capability through a nuclear test,⁸⁴ therefore making clarification of Israel's stockpile difficult. It is generally assumed, however, that Israel possesses a highly developed nuclear arsenal of between 100 and 200 strategic and possibly non-strategic nuclear weapons, making it nearly equal in size to the British nuclear arsenal. Over the last few decades Israel has acquired several aircraft types capable of delivering a nuclear weapon, including US-sourced F-16 and F-15 fast jet aircraft. Israel has also pursued the indigenous development of the Jericho and Jericho II ground-launched ballistic missiles,⁸⁵ the latter of which is now believed, after a series of improvements, to have a range of 1,400-1,800km. In 1999 Israel also took receipt of the first of several diesel-powered submarines from Germany (the Dolphin-class) which in 2002 former Pentagon officials reportedly suggested were being armed with cruise missiles capable of carrying nuclear warheads.⁸⁶

On 24 May 2010 several newspapers reported the discovery of secret government papers that reveal Israel offered to sell nuclear warheads to the apartheid regime in South Africa in the mid-1970s. Many analysts have suggested these papers provide the first official documentary evidence of the state's possession of nuclear weapons.⁸⁷

How much fissile material Israel has produced is also unknown. As the Arms Control Association has noted "it is assumed by some analysts that Israel has a uranium-enrichment program, although there is not enough evidence to support a credible estimate of how much highly enriched uranium Israel might have produced".⁸⁸ In its *Global Fissile Material Report 2009* the International Panel on Fissile Materials concluded:

We continue to assign to Israel an inventory of 100kg of HEU, which may have been acquired covertly from the United States before 1966. Israel may also have produced enriched uranium with laser or centrifuge technology, but information on this program is very limited and it may have ended.⁸⁹

That report also suggested that Israel could be capable of producing plutonium at a rate of 15-18kg per year and have a current stockpile of 600-740kg for weapons production.

In April 2010, and just prior to the NPT review conference to which Israel is not a party, the country reaffirmed its policy of deliberate ambiguity regarding its nuclear operations with the Israeli Deputy Foreign Minister, Danny Ayalon, stating that "this policy will continue and no pressure from any country will make it change".⁹⁰ The Israeli Defence Minister, Ehud Barak, also indicated that the international community should not expect Israel to join the NPT anytime soon.⁹¹

North Korea

North Korea renounced the NPT in January 2003. Attempts to estimate of its current nuclear capability are riddled with uncertainty. According to one recent analysis:

North Korea has conducted three reprocessing campaigns since 2003. The reprocessed plutonium, combined with the roughly 2 to 10 kilograms North Korea may

⁸³ "Nuclear notebook: Israeli nuclear forces, 2002", *Bulletin of the Atomic Scientists*, September/October 2002

⁸⁴ Although some believe that Israel conducted secret atmospheric nuclear tests in the late 1970s (ibid)

⁸⁵ The Jericho missile was originally obtained from France in the early 1960s until France imposed an embargo on new military equipment exports to Israel after which time it began producing the missile independently.

⁸⁶ "Nuclear notebook: Israeli nuclear forces, 2002", *Bulletin of the Atomic Scientists*, September/October 2002

⁸⁷ "Revealed: how Israel offered to sell South Africa nuclear weapons", *The Guardian*, 24 May 2010

⁸⁸ *Arms control and Proliferation Profile: Israel*, Arms Control Association

⁸⁹ International Panel on Fissile Materials, *Global Fissile Material Report 2009*, p.14

⁹⁰ "Israel to keep nuclear policy of deliberate ambiguity", *Global Security Newswire*, 7 April 2010

⁹¹ "Israel still not prepared to join NPT", *Global Security Newswire*, 15 April 2010

have produced before 1994, yields an estimated plutonium production of 40 to 60 kilograms, of which 24 to 42 kilograms are available for weapons today.

North Korea also conducted two nuclear tests of plutonium devices, the first in October 2006 and the second in May 2009. The first was only partially successful; its explosion yield was estimated as slightly below 1 kiloton (compared to roughly 21 kilotons for the bomb at Nagasaki). The second was more successful, with an estimated yield of 2 to 4 kilotons. We know nothing about North Korea's nuclear design capabilities. I believe the test results indicate that North Korea can build a Nagasaki-like simple plutonium bomb with a yield of 20 or so kilotons, and most likely possesses a nuclear arsenal of four to eight such primitive weapons today. Based on the experience of other nuclear countries, North Korea appears a long way from developing both a missile and a warhead to launch a nuclear weapon to great distances. Fielding a nuclear weapon on its shorter-range No-Dong missiles would take less time, but it may require another nuclear test.⁹²

Other experts have talked in terms of North Korea having up to 12 nuclear weapons;⁹³ while it has also developed a short to medium-range ballistic missile capability and is understood to be working on an ICBM capability. However, international concerns about North Korea's nuclear programme centre as much on its potential role as a 'proliferator' as on its own offensive capability.

International negotiations designed to end North Korea's nuclear weapons programme have been taking place for 18 years. Since 2003, following its renunciation of the NPT in January of that year, the main forum has been the Six-Party Talks, involving the two Koreas, the US, China, Japan and Russia. Their course has been extremely chequered. Negotiations have been interspersed by periodic crises and analysts remain divided about whether the North Korean regime under Kim Jong-Il is really serious about reaching a deal, given that a nuclear capability may be viewed as its best defence against those advocating 'regime change'. Others believe that North Korea would be willing to denuclearise if the price was right.

While the Six-Party Talks have ebbed and flowed, North Korea has progressively raised the stakes. In July 2006 North Korea test fired seven ballistic missiles. This led to the imposition of targeted UN sanctions. In October 2006, North Korea conducted its first nuclear weapons test, provoking virtually unanimous international condemnation and the imposition of additional UN sanctions. The Six-Party Talks stalled. There was considerable debate about whether the test was successful or not.

However, in December 2006 North Korea returned to the Six-Party Talks. During 2007 significant progress was made and steps, verified by the IAEA, were taken to shut down the Yongbyon nuclear facility. However, talks again stalled. As a result, moves to disable the facility were delayed. In May 2009, amidst reports of divisions at leadership level following a stroke suffered by Kim Jong-Il in August 2008, the regime conducted a second nuclear weapons test, which most analysts declared to have been more successful, confirming its status as a nuclear weapon state. In June 2009 the UN Security Council agreed Resolution 1874 (2009), extending and deepening UN sanctions against North Korea. Having denied it for many years, North Korea also admitted that it had a uranium enrichment programme.

North Korea threatened that there would be dire consequences if such a resolution was passed. North Korea promptly began efforts to reactivate its nuclear facility and announced

⁹² S. Hecker, "[Lessons learned from the North Korean nuclear crises](#)", *Daedalus*, Winter 2010, p. 47

⁹³ P. Hayes and M. Hamel-Green, "[The path not taken, the way still open: Denuclearising the Korean peninsula and Northeast Asia](#)" *Nautilus.org*, Special report 10-001, 5 January 2010

not only that it would begin uranium enrichment but that it was in the final stages of doing so, appearing to confirm that, as many suspected, it has long had such a programme.⁹⁴

However, there have also been periodic efforts to resume negotiations since mid 2009, with China taking its now customary role as the main interlocutor between North Korea and the US. Pyongyang has not made any substantive concessions on the nuclear issue and has appeared much more interested in direct bilateral negotiations with the US in pursuit of a peace agreement that would end the state of hostilities between the two countries that has prevailed since the Korean War than in a return to the Six-Party Talks process.⁹⁵ In recent months, the prospects for a return to negotiations have been set back again by the sinking of a South Korean naval vessel by North Korea. The vessel was on the South Korean side of the disputed maritime boundary between the two countries.

In 1953, following the armistice that ended the Korean War, the US and South Korea agreed a Mutual Security Treaty, under which the US pledged to come to South Korea's defence in the event of a future military attack. South Korea remains under the protection of the US 'nuclear umbrella'. In 1961 China and North Korea agreed a Friendship Treaty under which China pledges to support North Korea if it comes under attack. Neither Treaty explicitly rules out the use of nuclear weapons by the US or China in defence of its ally. China and North Korea have regularly called on the US to declare a 'no first use' policy in the Korean peninsula on the use of nuclear weapons. North Korea has not declared a 'no first use' policy.

In 1992, the year in which the US withdrew its tactical and battlefield nuclear weapons from South Korea, North and South Korea issued a *Joint Declaration on the Denuclearisation of the Korean Peninsula* under which both agreed not to produce their own nuclear weapons. In October 2007, at one of the high points in the Six-Party Talks process, the two Koreas also signed a *Peace Declaration*. It reaffirmed the commitment of the two countries to the goals of the 1992 Declaration.

Aspirant Countries – Iran, Syria and Burma?

On 24 May 2009, the Chairman of the US Joint Chiefs of Staff, Admiral Mike Mullen, said that Iran was one to three years away from being able to make a nuclear weapon. On 14 April 2010, however, General James Cartwright, the Vice-Chairman of the Joint Chiefs of Staff, said at a Senate hearing that it would probably take Iran from three to five years to produce one. This assessment was not accepted by the Republican Senator John McCain, however, who said to General Cartwright, "Every report I've seen, it's a year to 18 months. That's why I'm somewhat astonished to hear you say it could be two to three to five years".⁹⁶

Discrepancies over estimates of the time it would take Iran to develop a nuclear weapon arise partly from different assumptions about the end point. With enough fissile material, it has been argued that Iran could have a crude bomb possibly within a year, although this might still not be practical as a weapon. A weapons programme also needs to be 'survivable' in the face of enemy attack and there has been speculation that Israel would attempt to destroy any facilities that Iran possesses, much like it did with Iraq in the 1980s and Syria in 2007. If Iran is to become a credible nuclear weapons state, it would need to work hard on the survivability of its weapons.⁹⁷

⁹⁴ P. Hayes and M. Hamel-Green, "[The path not taken, the way still open: Denuclearising the Korean peninsula and Northeast Asia](#)" *Nautilus.org*, Special report 10-001, 5 January 2010

⁹⁵ "North Korea presses direct nuclear talks with US", *Reuters*, 3 March 2010

⁹⁶ 'White House says Iran nuclear threat years away', *Financial Times*, 25 April 2010

⁹⁷ Iran's nuclear programme is examined in greater detail in Library Research Paper RP09/92, *The Islamic Republic of Iran: An Introduction*, 11 December 2009

In order to provide a credible delivery capability for any nuclear weapon, Iran has also concentrated significant effort in the last few years on developing longer-range versions of its Shahab 3 medium-range ballistic missile that would potentially be capable of reaching the United States;⁹⁸ and the development of solid, as opposed to liquid-fuelled, missile variants which are capable of being launched immediately, are more durable and have greater range and accuracy. A solid-fuelled missile could, in theory, reach a greater distance over Europe than currently achievable by the Shahab, which is also capable of reaching Israel and the Arabian Peninsula. The indigenous development of solid-fuelled missiles is therefore generally regarded as a major technological advancement for Iran. As an article in *Jane's Defence Weekly* noted in February 2009 "no country has ever developed medium-range ballistic missiles without the intention of fitting these with nuclear warheads and it seems unlikely that Iran will be the exception".⁹⁹ As such, Iran is also believed to be working on modifying the Shahab-3 to deliver a nuclear warhead, although miniaturising a nuclear warhead to deploy on a ballistic missile is recognised as a particular technical difficulty. However, comprehensive assessments of Iran's missile programme have proven difficult without access to reliable information and as such experts have generally held mixed views on the extent and capability of Iran's missile inventory, much of which has been historically reliant on technical assistance from other countries.¹⁰⁰

According to the IAEA Director General's report released in May 2010, Iran had accumulated an estimated 2,427 kg of low-enriched uranium (LEU) since February 2007.¹⁰¹ Earlier this year, Iran had also announced that it had begun to produce more highly enriched uranium (about 20%), suitable for the Tehran medical research reactor, which has nearly run out of fuel. Observers have suggested, however, that Iran lacks the technology to use the 20% enriched uranium for medical research and expressed fears that the move was a first step towards producing weapons-grade uranium.¹⁰²

In an attempt to allay concerns over Iran's suspected nuclear weapons programme, on 17 May 2010 Iran, Brazil, and Turkey announced an agreement to ship some of Iran's LEU to Turkey. Under the deal, Iran would exchange 1,200kg of its stockpile of LEU for 120kg of fuel for the Tehran research reactor. It is a very similar deal to that proposed between Iran and the five permanent members of the Security Council (P5) plus Germany in October 2009, although Brazil and Turkey have extracted some concessions from Iran, notably ending the insistence that the fuel swap would have to take place on Iranian territory. In 2009, the Iranian Government originally agreed to transfer 1,200 kg of low enriched uranium but, before the deal collapsed, reduced the proposed amount to 400 kg. In the May 2010 proposal, the figure of 1,200kg was re-instated. The deal would not, however, mean that Iran would stop enriching uranium, or enter into wider negotiations on its nuclear programme.

⁹⁸ Lieutenant General Ronald L. Burgess, 'Iran's military power', Statement before the Committee on Armed Services, United States Senate 14 April 2010

⁹⁹ "Iran could still extend an 'unclenched fist', *Jane's Defence Weekly*, 11 February 2009

¹⁰⁰ For more information about Iran's ballistic missile programme, see Library Standard Note SN/IA/4264, *Iran's Conventional Military Capabilities* and International Institute for Strategic Studies, *Iran's ballistic missile capabilities: a net assessment*, May 2010

¹⁰¹ IAEA, *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions 1737 (2006), 1747 (2007), 1803 (2008) and 1835 (2008) in the Islamic Republic of Iran: Report by the Director General*, 31 May 2010

¹⁰² Enriched uranium is uranium which has had its percentage of the isotope U-235 increased through the process of isotope separation. Enriched uranium is a critical component of civil nuclear power generation and nuclear weapons. Low enriched uranium has a concentration of U-235 which is lower than 20%. Highly enriched uranium has a composition that is greater than 20% of U-235, although weapons-grade HEU requires a concentration of at least 85% or more. It takes about 1,000 kg of LEU to make enough highly enriched uranium to make a bomb. For more detail on the process of enriching uranium, see the World Nuclear Association web page [Uranium Enrichment](#)

The permanent members of the Security Council did not welcome the proposal, suggesting that, with a new round of UN sanctions imminent, it was another delaying tactic on the part of Iran. Western analysts also pointed out that transferring 1,200kg of LEU under the October 2009 deal would have meant that Iran no longer had enough LEU to make the ingredients for a bomb. Iran's stockpile has grown sufficiently since then to mean that transferring that quantity of LEU into Turkish control would now still leave Iran with enough LEU to make a weapon.

Experts thought that the deal with Turkey and Brazil would be a political victory for Iran and would set back negotiations on sanctions. On 18 May, however, it was announced that a Security Council deal on sanctions had been reached despite earlier resistance by China, and ambivalence from Russia. That resolution was adopted by the UN Security Council on 9 June 2010.¹⁰³ Brazil and Turkey voted against the resolution, while Lebanon abstained. The agreement includes tougher sanctions on Iranian financial institutions, the national shipping line and some named individuals, especially those connected to the Iranian Revolutionary Guards (an increasingly powerful body in Iran, which is responsible for the military aspects of the nuclear programme and dominates large portions of the Iranian economy). It also implemented a binding ban on countries allowing Iranians to invest in nuclear projects (there had been rumours of joint ventures with countries such as Zimbabwe and Venezuela) and an expanded arms embargo. The resolution also requested that the UN Secretary General create a panel of experts to monitor implementation of the sanctions. The sanctions were not regarded as tough as the US, the UK and France had originally hoped for however, with no oil embargo imposed on the country and no crippling economic sanctions instituted.¹⁰⁴

Following the adoption of UNSCR 1929, the US Secretary of State, Hillary Clinton, commented:

This resolution sends an unambiguous signal to Iran that the international community holds it accountable for its actions. The measures in this resolution go well beyond the pre-existing sanctions on Iran. That said, we have worked hard to minimize their impact on the Iranian people. They target instead elements within the Iranian government, with the aim of changing the leadership's calculations.¹⁰⁵

The countries of the P5, plus Germany, also issued a statement highlighting that:

The adoption of UNSCR 1929, while reflecting the international community's concern about the Iranian nuclear program and reconfirming the need for Iran to comply with the UN Security Council and IAEA Board of Governors requirements, keeps the door open for continued engagement between P5+1 and Iran.

The aim of our efforts is to achieve a comprehensive and long-term settlement which would restore international confidence in the peaceful nature of Iran's nuclear program, while respecting Iran's legitimate rights to the peaceful use of nuclear energy. We are resolute in continuing our work for this purpose.¹⁰⁶

Syria, also a party to the NPT, has also been under investigation by the IAEA in response to concerns within the international community that it had been developing a secret nuclear weapons programme. Allegations of collaboration with North Korea and assistance through the AQ Khan network led to Israel bombing a suspected nuclear reactor on Syrian territory in

¹⁰³ [UN Security Council Resolution 1929](#) available from the US State Department

¹⁰⁴ Further information on Iran's suspected nuclear programme and the imposition of sanctions is available in Library Standard Note SN/IA/5275, *Iran's nuclear programme, and sanctions*

¹⁰⁵ US Department of State, *Adoption of UN Security Council Resolution 1929 on Iran*, 9 June 2010

¹⁰⁶ US Department of State, *Statement by Foreign Ministers of P5+1 on the Adoption of UNSCR 1929 on Iran*, 9 June 2010

September 2007. Both Syria and North Korea have refuted the allegations and in 2007 the then Head of the IAEA, Dr Mohammed El Baradei, also reported that “no country has provided any hard evidence that would implicate Syria in the black market set up by Abdul Qadeer Khan”.¹⁰⁷ The West continues to view Syria as a strong candidate for nuclear proliferation however, believing that the existence of a small civilian nuclear capability leaves Syria’s ability to pursue a military programme within reach.¹⁰⁸ A report by the IAEA Director General, published on 31 May 2010, fuelled those concerns after it revealed that Syria was blocking IAEA access to a number of military sites, including the site bombed by Israel in 2007 and that Syria had revealed some details of past nuclear experiments to UN inspectors which should have been previously reported under its safeguards agreement. The IAEA has subsequently called for Syria to adopt the IAEA Additional Protocol as a matter of urgency.¹⁰⁹

At the beginning of June 2010 allegations that Burma (Myanmar) is also seeking to develop a nuclear weapons capability once again came to the fore after an opposition group, the Democratic Voice of Burma, circulated a report based on the claims of a former Major in the Burmese Army who has since defected. Long considered to be a nuclear proliferation risk,¹¹⁰ Burma is accused in that report of trying to develop a uranium enrichment programme and build a reactor to produce plutonium. The report also asserts that North Korea has been assisting the Burmese military in the development of a ballistic missile programme.¹¹¹ The Director General of the IAEA subsequently announced that the agency would investigate those claims and “if necessary, seek clarification from Myanmar”.¹¹² Burma is a State Party of both the NPT (since 1992) and the Treaty of Bangkok (since 1996) which established a nuclear-weapons free zone in South Asia.

Non-Nuclear Weapon States

More than 180 states have signed the NPT as non-nuclear weapon states and renounced the development of nuclear weapons. Several of these had developed advanced capabilities, but subsequently renounced these unilaterally. South Africa, Brazil and Argentina gave up advanced programmes during the 1990s and entered into the NPT regime as non-nuclear weapon states. Of the three, South Africa had made the greater progress, having successfully produced a small arsenal of around six weapons by the late 1980s. Others, such as Taiwan, pursued covert nuclear weapons programmes during the 1960s and 1970s, but halted their efforts under international pressure.

The dissolution of the Soviet Union in late 1991 left Soviet nuclear weapons stationed on the territory of four newly independent republics - Russia, Kazakhstan, Ukraine and Belarus. In May 1992 a protocol (the Lisbon protocol) was signed under which all four states became parties to the *Strategic Arms Reduction Treaty* (START I), with Russia as the sole recognised nuclear weapon state. The protocol required Kazakhstan, Ukraine and Belarus to accede to the NPT as non-nuclear weapon states. The process of removing or destroying all nuclear weapons and delivery systems on their territory was completed by February 2000. At the nuclear security summit in April 2010 Ukraine also committed to removing all remaining highly enriched uranium (HEU) from its territory by 2012.

¹⁰⁷ *Is Syria a candidate for nuclear proliferation?*, Monterey Institute for International Studies, March 2008

¹⁰⁸ *ibid*

¹⁰⁹ IAEA, *Implementation of the NPT Safeguards Agreement in the Syrian Arab Republic: Report by the Director General*, 31 May 2010

¹¹⁰ Rumours of Burma’s interest in developing nuclear weapons date back to 2001 when it tried to purchase a reactor from Russia. In 2005-2006 concerns were also raised within the UN that Burma had been attempting to purchase nuclear weapons technology from North Korea. See “Fears rise of Myanmar nuclear plans”, *Jane’s Defence Weekly*, 9 June 2010 and *Burma: a nuclear wannabe*, Institute for Science and International Security, January 2010

¹¹¹ Democratic Voice of Burma, *Burma’s Nuclear Ambitions*

¹¹² “IAEA chief says looking into Myanmar nuclear report”, *Reuters*, 7 June 2010

In December 2003 Libya also revealed it had been running an illicit nuclear weapons programme but said it would henceforth renounce all weapons of mass destruction. It said it had acquired nuclear warhead plans and equipment for uranium enrichment from an international black market network run by AQ Khan in violation of its NPT obligations. The IAEA was invited to verify the elimination of Libya's nuclear capability, concluding that advanced technology had been obtained, but that the lack of an effective scientific base meant the programme had been in its very initial stages.

As outlined in section 1.2, over the last 40 years a series of treaties have also emerged that declare certain geographical regions of the world to be nuclear weapon free zones.

1.2 Nuclear Arms Control Regime

In an attempt to reduce the dangers posed by existing nuclear arsenals and prevent the further proliferation of nuclear weapons technology, the current international nuclear arms control architecture has evolved, broadly speaking, into three main strands:¹¹³

- **Disarmament.** The first strand includes treaties and agreements that seek to bring about the gradual disarmament of the five recognised nuclear powers. Given the overwhelming nuclear superiority of the Soviet Union/Russia and the United States, the focus has largely been on bilateral treaties between these two countries aimed at reducing the size of their arsenals. Those bilateral talks began during the late 1960s, as concern mounted over the rapid expansion in the number of warheads and delivery systems. Over the decades that followed a series of arms control regimes emerged including the Strategic Arms Limitations Talks (SALT I and II), the *Intermediate Nuclear Forces Treaty* (INF), the *Strategic Arms Reduction Treaties* (START I and II) and the *Moscow Treaty on Strategic Offensive Reductions* (SORT) (see above for brief summary). A series of Presidential Nuclear Initiatives were also concluded between the US and Russia in 1991 which sought to limit and reduce nuclear weapons, most notably both countries' tactical nuclear weapons. However, the PNI were not established on a treaty basis and the lack of transparency with regard to the implementation the PNI has made any assessment of their success relatively difficult. While the US reportedly completed its proposed reductions and withdrawals in 1992, Russia has released very little information to substantiate its PNI activities and as such the US State Department has questioned its PNI record.¹¹⁴

At a multilateral level, the Conference on Disarmament (CD) was established in 1979 as the single multilateral disarmament negotiating forum of the international community. Although not formally a UN organisation, it is mandated and financed by the UN, its terms of reference include practically all issues related to arms control and disarmament and it reports to the UN General Assembly annually. It is also required to consider any recommendations from the UN General Assembly. The NPT and the *Comprehensive Nuclear Test Ban Treaty* are among those treaties negotiated by the Conference, although in the last ten years it has achieved little. The conference conducts proceedings on the basis of consensus and divisions of opinion among its member states have effectively hamstrung the organisation. The negotiation of a *Fissile Material Cut-Off Treaty*, for example, has faltered within the Conference on Disarmament on this basis (see section 4.1).

- **Restrictions on the development of new weaponry.** The second strand has sought to restrict the development of new weapons systems by the nuclear powers,

¹¹³ It should be noted that the distinction between the three is not entirely clear cut, and a degree of overlap exists between these categories.

¹¹⁴ Further information on the Presidential Nuclear Initiatives is available from the [Arms Control Association](#) and the [Nuclear Threat Initiative](#).

by establishing bans on the testing of nuclear warheads (*Partial Test Ban Treaty*, the *Threshold Test Ban Treaty* and the *Comprehensive Test Ban Treaty*), a proposed ban on the production of fissile material (*Fissile Material Cut-off Treaty*) and restrictions on the deployment of missile defence shields (*Anti-Ballistic Missile Treaty*). However, the CTBT has yet to enter into force as both China and the US have so far signed, but not ratified the treaty. Efforts to restrict the development of new weaponry were also considered to have been dealt a potential blow after the US unilaterally withdrew from the ABM Treaty in 2002 to enable the testing and deployment of a new US missile defence system.

- **Non-proliferation.** The third strand seeks to limit or halt the proliferation of nuclear weapons technology and know-how, by imposing export restrictions on nuclear-related technologies and monitoring the development of civilian nuclear facilities. The most prolific of the treaties and agreements concluded in this area, and considered the cornerstone of the international nuclear non-proliferation regime, has been the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT) (examined below). However concerns over the incomplete membership of the NPT and emerging loopholes in the international non-proliferation regime in the 1970s led to the formation of two linked groups of nuclear supplier states: the Zangger Committee and the Nuclear Suppliers Group, which established guidelines on export controls and the exchange of information.

Other non-proliferation initiatives have also emerged over the last 10 years as states have sought to address what they have increasingly come to regard as one of the greatest threats to security. Those measures have included the Global Partnership against the Spread of Weapons and Materials of Mass Destruction which was established at the G8 summit in 2002;¹¹⁵ the Proliferation Security Initiative (PSI) which was launched by the US in 2003;¹¹⁶ and UN Security Council Resolution 1540 on nuclear security which was passed in 2004.¹¹⁷ In 2003 the EU also published its *Strategy against Proliferation of Weapons of Mass Destruction*.

In an attempt to pre-empt the spread of nuclear weapons technology, a series of treaties have also emerged over the last 40 years that declared certain regions of the world to be nuclear-free zones. There are five NWFZ at present including Latin America and the Caribbean,¹¹⁸ South Pacific,¹¹⁹ Africa¹²⁰ and South East Asia.¹²¹ More recently a treaty establishing a nuclear-free zone in Central Asia was established in 2006 and entered into force in March 2009.¹²² Countries within those zones have committed to not manufacture, acquire, test or possess nuclear weapons. Within these zones countries may, however, use nuclear energy for peaceful purposes. Each treaty contains a protocol for the five NPT-recognised nuclear weapon states to sign and ratify that provide negative security assurances to the NWFZ by which they

¹¹⁵ This initiative was originally established for a period of ten years and had a budget of £20bn. Initially the programme focused on Russia and the former Soviet States. The UK's Global Threat Reduction Programme, which has a current annual budget of £36m (Cabinet Office, *The Road to 2010*, Cm 7675, July 2009) delivers the UK's contribution to that initiative.

¹¹⁶ Established to prevent the trafficking, primarily by sea, of WMD, delivery systems and related materials to and from states and non-state actors of proliferation concern

¹¹⁷ UNSCR 1540 is examined in greater detail in section 2.3

¹¹⁸ *Treaty of Tlatelolco 1967*

¹¹⁹ *Treaty of Rarotonga 1985*

¹²⁰ The *Treaty of Pelindaba 1996* has yet to enter into force

¹²¹ *Treaty of Bangkok 1995*

¹²² *Central Asian Nuclear-Weapon-Free Zone Treaty 2006*

will not use or threaten to use nuclear weapons against those countries.¹²³ However, signature and ratification of these treaty protocols by the nuclear weapon states varies. None of the five nuclear weapon states have for example signed and ratified the protocol to the treaty establishing a NWFZ in South East Asia or Central Asia.¹²⁴ A number of analysts have also argued that Antarctica should also be included as a NWFZ as the *Antarctic Treaty 1959* specifically bans the deployment of nuclear weapons in the region; while Mongolia also has self-declared nuclear weapons free status which was recognised by the adoption of UN General Assembly Resolution 55/33S in 2000.

Further detail on the treaties, agreements and initiatives that have been established as part of the nuclear arms control regime over the last few decades is available in Library Standard Note SN/IA/1404, Arms Control and Weapons of Mass Destruction.

Treaty on the Non-Proliferation of Nuclear Weapons

The cornerstone of the international disarmament and non-proliferation agenda has been the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT) which was signed in 1968 and entered into force in 1970. The treaty has near universality with 189 States Parties. India, Pakistan, and Israel are all outside of the NPT framework and are regarded as de facto nuclear weapons states. North Korea renounced the treaty in 2003 and some disagreement remains as to North Korea's status,¹²⁵ with a number of countries arguing that the correct withdrawal procedures were not followed and that the country is therefore still bound by its provisions and needs to be brought back into compliance.¹²⁶

The objective of the treaty is to prevent the spread of nuclear weapons and weapons-related technology, further the goal of nuclear disarmament, and promote cooperation in the peaceful uses of nuclear energy. Significantly, the treaty represents the only binding commitment in a multilateral treaty to the goal of disarmament by the recognised nuclear weapon states. At the heart of the treaty is an implicit bargain between the five recognised nuclear weapon states and the other, non-nuclear weapon states. Under the terms of the treaty, the non-nuclear weapon states are able to access peaceful nuclear technology but pledge to forego the acquisition of nuclear weapons. A safeguards system under the auspices of the International Atomic Energy Agency (IAEA)¹²⁷ is used to verify compliance and to prevent the diversion of fissile material for use in a weapons programme (see below). In return, the five recognised nuclear weapon states are permitted to possess nuclear weapons, but only if they commit themselves to the principles of nuclear arms control and eventual disarmament. This was embodied in Article VI of the NPT:

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and

¹²³ Positive security assurances, in contrast, are pledges to come to the assistance of states that are threatened by nuclear attack.

¹²⁴ A list of signatories to both the treaties and the protocols is available from the [Arms Control Association](#) and the [United Nations Office for Disarmament Affairs](#).

¹²⁵ In announcing its intention to withdraw from the NPT in 2003, North Korea backdated its mandatory three month withdrawal notification to 1993 when it first threatened to withdraw from the treaty.

¹²⁶ The British Government in its document *the Road to 2010*, for example, discusses North Korea obligations as a State Party to the NPT, while the [Final Report of the Preparatory Committee for the 2010 Review Conference](#) acknowledges the uncertainty over North Korea's status (p.48).

¹²⁷ The IAEA was established as a specialised agency of the United Nations in 1957. It has three main responsibilities: to act as the world's nuclear inspectorate and verify that safeguarded material and activities are not diverted to weapons programmes; to help countries upgrade their nuclear safety and security protocols and help countries exploit peaceful applications of nuclear science and technology. While it is not party to the NPT, it is entrusted with key roles and responsibilities under it.

to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control.¹²⁸

However, dissatisfaction among many non-nuclear weapon states at the perceived lack of progress made in achieving the aims of Article VI prompted debate at the NPT Review and Extension Conference in May 1995.¹²⁹ An indefinite extension to the treaty was subsequently agreed on the condition that the nuclear weapon states “reaffirm their commitment, as stated in article VI, to pursue in good faith negotiations on effective measures to nuclear disarmament”.¹³⁰ The conference also reaffirmed the intention to conduct a review of the treaty every five years. The nuclear weapon states also agreed a programme of action which included the completion of negotiations on a *Comprehensive Test Ban Treaty* by 1996, a ban on the production of fissile material for nuclear weapons, and above all “the determined pursuit... of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goals of eliminating those weapons”.¹³¹

Since 1996 efforts to reach a consensus on how to achieve global nuclear disarmament and strengthen non-proliferation have achieved mixed success. Initial movement towards fulfilling the work programme set by the 1995 Review Conference was sporadic. The adoption of the *Comprehensive Test Ban Treaty* in 1996 was seen as a significant step forward by proponents of nuclear disarmament, but the treaty will not enter into force until it has been ratified by the US and China. Negotiations on a *Fissile Material Cut-off Treaty* stalled in the UN Conference on Disarmament and there are few signs that a break-through is imminent.

Subsequent calls for negotiations to begin on a convention on banning all nuclear weapons as opposed to focusing on partial disarmament measures were also met with resistance, largely from the nuclear weapon states. In December 1998 the UN General Assembly voted on a resolution entitled ‘Towards a nuclear-weapon-free world: the need for a new agenda’, which was sponsored by the New Agenda Coalition. That resolution received the backing of 114 countries with 18 opposed and 38 abstentions, including China.¹³² The United Kingdom, along with the United States, Russia and France, voted against, arguing that “effective measures” towards nuclear disarmament could be better achieved by means of bilateral *Strategic Arms Reduction Treaty* (START) negotiations between the US and Russia rather than by trying to achieve a universal ban on nuclear weapons.

Similar disputes have surfaced at the UN General Assembly First Committee on Disarmament and International Security. In December 1996 Malaysia sponsored a resolution in the First Committee, citing the July 1996 advisory opinion of the International Court of Justice (ICJ) (see below), which recommended progress towards general nuclear disarmament as the best way out of the dispute over the legality of nuclear weapons. The resolution called for the immediate opening of multilateral negotiations with a view to achieving comprehensive nuclear disarmament. It was passed by 115 votes to 22, with 32 abstentions.¹³³ Four of the five acknowledged nuclear weapon states voted against this resolution (Britain, France, Russia and the US). Follow-up resolutions in 1997 and 1998 received 116 and 123 votes in favour respectively.¹³⁴

¹²⁸ The full text of the NPT is available at <http://www.state.gov/www/global/arms/treaties/npt1.html>

¹²⁹ The treaty initially entered into force for a 25-year period.

¹³⁰ ‘Principles and Objectives for Nuclear Non-Proliferation and Disarmament’, *Decision Paper from the NPT Review and Extension Conference*, 17 April - 12 May 1995

¹³¹ ‘Principles and Objectives for Nuclear Non-Proliferation and Disarmament’, *Decision Paper from the NPT Review and Extension Conference*, 17 April - 12 May 1995

¹³² A/RES/53/77 Y

¹³³ ‘First Committee Gives Little Hope of Resolving Disarmament Deadlock’, *Disarmament Diplomacy*, Issue 20

¹³⁴ *Disarmament Diplomacy*, Issue Number 36, April 1999, p.7

The sixth NPT Review Conference took place in New York between 24 April and 19 May 2000. Given the disputes in the UN General Assembly and at the Conference on Disarmament, and the sporadic progress elsewhere, there was considerable pessimism prior to the conference over the prospects for a successful conclusion. Furthermore, little of substance had resulted from the three Preparatory Committee meetings, which had been set up to improve the review process and to produce detailed recommendations for the Review Conference to consider. In the event, though, the Review Conference was widely perceived to be a success. A key element that emerged was an unequivocal undertaking by the nuclear weapon states to pursue the complete elimination of nuclear weapons; while a 13-step work plan was also agreed to reduce the size and operational status of both strategic and non-strategic nuclear stockpiles, and to increase transparency.¹³⁵ The Conference also called for further progress on the *Comprehensive Test Ban Treaty*, the proposed ban on the production of fissile material, and a third START treaty to be negotiated.

The Final Document issued by the conference referred to:

6. An unequivocal undertaking by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenals leading to nuclear disarmament to which all States parties are committed under Article VI.¹³⁶

This undertaking, which was considered a minimum condition by the non-nuclear weapon states, was welcomed by the Mexican ambassador, Antonio De Icaza, who said it meant that “what had always been implicit has now become explicit and this act both reinforces and revitalises the Treaty”.¹³⁷

However, several areas of debate and ambiguity remained, and the conference participants avoided a number of potentially divisive issues, such as the US plans to deploy a ballistic missile defence system,¹³⁸ and the question of no-first use of nuclear weapons. Furthermore, some observers expressed concern over the lack of target dates or timetables for implementation of the work programme, a point that was highlighted by the then British Secretary of State for Defence, Geoff Hoon, who when asked if he thought the outcome of the conference marked a major step towards global disarmament, stated:

... what we've agreed there, together with the United States, is that in principle we would like to see the end of nuclear weapons. I think every sensible person around the world agrees to that but there's no specific timetable agreed and obviously it is dependent on every other nuclear weapons state agreeing the same and taking appropriate action.¹³⁹

Rebecca Johnson, the Director of the Acronym Institute for Disarmament Diplomacy offered a cautionary note, however:

The NPT review conference gives political underpinning to the ICJ advisory opinion and provides a much stronger tool for the non-nuclear-weapon states and civil society to use, if they can continue to employ effective strategies and tactics. But, like Article

¹³⁵ [2000 NPT Review Conference Final Document](#) taken from the June 2000 edition of *Arms Control Today*

¹³⁶ *ibid*

¹³⁷ Rebecca Johnson, 'The 2000 NPT Review Conference: A Delicate, Hard-Won Compromise', *Disarmament Diplomacy*, No.46, May 2000

¹³⁸ See Library Research Paper 03/28, [Ballistic Missile Defence](#), 26 March 2003, for more detail.

¹³⁹ BBC 'Breakfast with Frost', 22 May 2000

VI for much of the 1970s and 1980s, the words adopted in 2000 will mean nothing without political will and pressure to get the steps implemented.¹⁴⁰

Indeed, those words seemed fully justified when the NPT Review Conference in 2005 failed to reach a consensus on a practical way forward on disarmament and non-proliferation. Despite extensive work in three preparatory sessions ahead of the Review Conference, no recommendations or commitments of substance were agreed. Although the Conference foundered at the outset due to procedural wranglings and the inability to agree an agenda and work programme until late on in the conference proceedings, the overarching failure of the Conference has been attributed among commentators to the political manoeuvrings by a small number of states that had an interest in keeping their nuclear options open in the future, and a lack of leadership by the nuclear weapon states.¹⁴¹ The President of the Review Conference at the time, Ambassador Sergio Duarte, noted:

At the Conference it soon became clear that some would not accept any result unless their national concerns were fully represented in the final outcome of the discussions, to the detriment or exclusion of other parties' views. Delegations were so entrenched in their positions, opinions were so strongly held and mistrust so pervasive, that mutual accusations frequently replaced serious discussion, and at the end of the day no common ground could be found [...] it became clear that wider questions would have to be resolved before any meaningful results could be achieved.¹⁴²

Although some observers regarded the lack of progress neither a success nor a failure as it largely left the existing situation in place, the majority position was one of concern that the failure to achieve even minimal progress pointed toward a worrying trend that would in the longer term weaken the multilateral disarmament and non-proliferation regime. Then UN Secretary General, Kofi Annan, deemed the conference "a missed opportunity" while Ambassador Duarte commented:

International efforts to achieve enhanced security for all seem to be now in serious jeopardy [...] I believe that it is more constructive to see the failure of the Conference as a warning signal that may encourage responsible governments, both in nuclear and non-nuclear States, to search for realistic, multilaterally acceptable ways to face the hard choices of our time.¹⁴³

The perceived success/failure of the Review Conference process aside, a major loophole in the NPT regime, with the potential to undermine its credibility and resilience in the longer term, is the presence of three de facto nuclear powers outside of its provisions: namely India, Pakistan and Israel. While these states have been encouraged by the international community to act as responsible nuclear powers the fact remains that they are not party to the NPT's provisions and as such are not party to any commitments to disarmament or non-proliferation that the NPT states may establish.

¹⁴⁰ Rebecca Johnson, 'The 2000 NPT Review Conference: A Delicate, Hard-Won Compromise', *Disarmament Diplomacy*, No.46, May 2000

¹⁴¹ For detail on the negotiations at the 2005 review conference, and in particular the differing negotiating positions of some of the key players see "Politics and protection: why the 2005 NPT review conference failed", *Disarmament Diplomacy*, Autumn 2005 and the [British American Security Information Council](#).

¹⁴² Sergio Duarte, "A president's assessment of the 2005 NPT review conference", *Disarmament Diplomacy*, winter 2005

¹⁴³ *ibid*

As Rebecca Johnson has noted:

Having never been party to the NPT, these states cannot be accused of violating it. Yet they are free-riders on the regime, deriving security benefits from the fact that rivals and neighbours are kept in check by the NPT and its associated instruments.¹⁴⁴

Michael Krepon and Samuel Black, writing in *Arms Control Today* have also argued:

The pattern of nuclear-tinged threats over the past two decades has changed markedly from the Cold War. The most harrowing crises since the Cold War ended have involved outliers to the NPT. India and Pakistan have experienced four crises since 1990 in which veiled or blunt nuclear threats have been exchanged, and North Korea periodically engages in nuclear bluster when it wishes to raise temperatures on the Korean peninsula. Verbal threats in periods of heightened tension in South and East Asia have been complemented by the flight testing or movement of nuclear-capable missiles. The record is clear: states that seek political utility from nuclear weapons during periods of heightened tension now reside primarily outside the NPT.¹⁴⁵

The undetermined status of North Korea with respect to the NPT's obligations is also seen as an issue. Not only is it a potentially nuclear capable state which considers itself to be outside of the treaty's obligations (regardless of the ongoing debate about its actual status), but that very act of withdrawal has raised the issue of the NPT's ability to robustly address issues of non-compliance and the capacity of a state to withdraw from the treaty without any consequences. Rebecca Johnson has commented:

NPT states and international lawyers may be in disagreement about whether North Korea has legally accomplished its withdrawal and is no longer a party to the NPT, or whether it is still bound by its treaty obligations and needs to be brought back into compliance; what is incontestable is that both the UN Security Council and the NPT have proved incapable of addressing this issue intelligently.¹⁴⁶

Recognising this latter issue as a potential problem, in 2003 former Director General of the IAEA, Dr Mohamed El Baradei, called for membership of the NPT to be regarded as a peremptory norm of international law, thereby placing obstacles in the way of any state that wished to withdraw from the NPT framework and that a price would have to be paid for non-compliance.¹⁴⁷

This concern has also been reflected in the debate over Iran's nuclear programme which as Krepon and Black observed "casts a long shadow over the NPT regime".¹⁴⁸ The bigger question of whether the goal of "global zero" can ever be achieved without the inclusion of Pakistan, India, Israel and North Korea in the either the NPT itself or party to the disarmament commitments that states agree is one worth posing.

IAEA Comprehensive Safeguards Agreement

Under the NPT the transfer by a nuclear weapon state, to any recipient whatsoever, of any nuclear weapon or nuclear explosive device, as well as the provision of assistance to any

¹⁴⁴ Rebecca Johnson, "Politics and protection: why the 2005 NPT review conference failed", *Disarmament Diplomacy*, autumn 2005

¹⁴⁵ Michael Krepon and Samuel Black, "Good news and bad news on the NPT", *Arms Control Today*, March 2010

¹⁴⁶ Rebecca Johnson, "Politics and protection: why the 2005 NPT review conference failed", *Disarmament Diplomacy*, Autumn 2005

¹⁴⁷ Dr Mohamed El Baradei, "Towards a safer world", *The Economist*, 16 October 2003

¹⁴⁸ Michael Krepon and Samuel Black, "Good news and bad news on the NPT", *Arms Control Today*, March 2010. Iran's nuclear programme is examined in greater detail in Library Research Paper RP09/92, [The Islamic Republic of Iran: An Introduction](#), 11 December 2009

non-nuclear weapon state, is prohibited. Article III also stipulates that NPT non-nuclear weapon states conclude safeguards agreements with the IAEA in order to prevent the diversion of nuclear energy from peaceful uses to the manufacture or development of nuclear weapons. Although not required to do so under the NPT, all five declared nuclear weapon states subsequently concluded voluntary safeguard agreements with the IAEA.¹⁴⁹ While these follow the basic structure of the standard model agreement they are based on fundamentally different safeguards undertakings which, in effect, recognise that the nuclear weapon states continue to have nuclear activities outside the scope of IAEA safeguards and thus limit IAEA activities to all or part of the nuclear weapon state's civil nuclear activities.

The IAEA safeguards system functions as a confidence-building measure, an early warning mechanism and the trigger that sets in motion other responses by the international community if and when the need arises. A central purpose of the safeguards system is to prevent the diversion of fissile material for use in weapons and therefore under the safeguards agreement a state has an obligation to declare to the IAEA all nuclear materials and facilities under the agreement, update this information as necessary and submit its facilities to inspection and monitoring by the IAEA in order for it to verify its reports of declared nuclear material and activities.¹⁵⁰

During the early 1990s, however, the failure of the international community to detect the development of clandestine nuclear weapons programmes in Iraq and North Korea prompted a re-evaluation of the effectiveness of the original IAEA safeguards system. Both states were parties to the NPT and had the status of non-nuclear weapon states. Critics argued that the system failed to recognise that the real danger of proliferation lay in clandestine enrichment or reprocessing plants that lay outside the safeguard system, rather than from small amounts of material going missing from safeguarded plants.

Between 1992 and 1993 the Board of the IAEA approved a number of steps to tighten the existing safeguards system, including the introduction of a voluntary reporting scheme on transfers of nuclear material and equipment. However, it quickly became apparent that further measures were required to strengthen the ability of the IAEA to detect undeclared nuclear activities in the non-nuclear weapon states. A strengthened safeguards regime, as set out in a new Additional Protocol to the Safeguards Agreements, was therefore approved by the IAEA Board of Governors in May 1997.

Essentially, the Protocol is intended to provide the IAEA with a more comprehensive picture of a state's nuclear-related activities, thereby enabling it to look for inconsistencies or anomalies that could be indicative of clandestine activities. The Protocol places a legal obligation on States Parties to provide a full report on all their production and holdings of nuclear source material, on their activities involving the reprocessing of nuclear material, and on key facilities involved directly in the current or planned nuclear fuel cycle. The Protocol also provides increased access (often at short notice) for inspectors to ensure that undeclared activities are not concealed at declared nuclear sites and to check for inconsistencies between the information available to the IAEA and the declarations made to the agency by States Parties. It also provides greater surveillance and monitoring powers to the IAEA.¹⁵¹

¹⁴⁹ The UK Safeguards Agreement, covering all of the UK's nuclear activities for civil purposes, was signed on 6 September 1976 and entered into force on 14 August 1978 (Cm 6730)

¹⁵⁰ Typical activities by IAEA inspectors may include auditing a facility's accounting and operating records and comparing them to the State's accounting reports submitted to the agency; verifying the nuclear material inventory and any changes that have been made; taking environmental samples; and applying containment and surveillance measures such as the installation of surveillance equipment.

¹⁵¹ [IAEA Safeguards Overview: Comprehensive Safeguards Agreement and Additional Protocols](#)

The Additional Protocol between the United Kingdom, the European Atomic Energy Community (EURATOM) and IAEA, was agreed by the EU Council of Ministers on 8 June 1998, approved by the Board of Governors of the IAEA on 11 June, and signed, along with the Protocols involving the other Member States of the European Union, in Vienna on 22 September 1998.¹⁵² The UK Additional Protocol entered into force on 30 April 2004.¹⁵³

As of May 2010 there are eighteen states that are party to the NPT which have not concluded Comprehensive Safeguards Agreements with the IAEA.¹⁵⁴ However, the number of states that have not ratified the Additional Protocol is much higher with only 100 out of the 189 States Parties to the NPT having brought the Additional Protocol into force thus far.¹⁵⁵

1996 Ruling of the International Court of Justice

In 1996 the International Court of Justice issued a non-binding advisory opinion to the UN General Assembly on the legality within international law of the threat or use of nuclear weapons. The Court rejected the view that the Genocide Convention of 1948 necessarily outlaws the use of nuclear weapons: this would only be so if the use had been guided by an *intent* to destroy a particular population group.¹⁵⁶ It also considered the implications of a variety of international agreements relating to environmental protection and found that respect for the environment was indeed a prime consideration in deciding the necessity and proportionality of any military act, but did not agree that the agreements were intended to constitute a complete ban on the use of nuclear weapons in self-defence.¹⁵⁷

Having thus cleared the ground, the Court decided that it must look specifically at the international law of armed conflict and, in particular, the UN Charter. It found that the Charter rules on the use of force in self-defence were not specific to particular weapon systems, but applied equally to any use of force that was not specifically unlawful. It discussed the concept of nuclear deterrence in relation to the Charter and, in a rather convoluted paragraph, found that in some, but not all circumstances a deterrent posture could be regarded as a threat in contravention of the Charter. By implication the action threatened as a deterrent would have to be proportionate, necessary and inherently defensive in order to be lawful.¹⁵⁸

In looking more specifically at the laws of armed conflict the Court proceeded from the assumption that in general "the illegality of the use of certain weapons as such does not result from the absence of authorization but, on the contrary, is formulated in terms of prohibition", ie in order to demonstrate the illegality of nuclear weapons it would be necessary to find an applicable prohibition, rather than the absence of a specific legal base. The Court reviewed a large and growing body of international treaties banning other weapons of mass destruction, limiting nuclear weapons and testing, and banning nuclear weapons completely in certain geographical areas and concluded that these could be taken collectively to foreshadow a future general prohibition of nuclear weapons, but do not constitute such a prohibition.¹⁵⁹ The Court also examined the large corpus of UN General Assembly resolutions in favour of nuclear disarmament, but found that these were non-binding and insufficiently consensual to constitute an expression of customary international law.

¹⁵² Cm 4282

¹⁵³ The *Nuclear Safeguards Act 2000* implements the Additional protocol in UK legislation; while the *Nuclear Safeguards (Notifications) Regulations 2004* implement certain provisions of that Act.

¹⁵⁴ http://www.iaea.org/Publications/Factsheets/English/nptstatus_overview.html

¹⁵⁵ Correct as of 13 May 2010: http://www.iaea.org/NewsCenter/images/ap_map.pdf

¹⁵⁶ Advisory Opinion, General List No.95, 8 July 1996, p14

¹⁵⁷ Advisory Opinion, General List No.95, 8 July 1996, p14-16

¹⁵⁸ Advisory Opinion, General List No.95, 8 July 1996, p19

¹⁵⁹ Advisory Opinion, General List No.95, 8 July 1996, p.24

Additional Protocol I of the 1977 Geneva Convention presented the Court with potentially one of the greatest sources of difficulty and uncertainty about the law on nuclear weapons. This is because the protocol contains in Article 51.4-5 a prohibition on "indiscriminate" attacks, including those which employ a method or means of combat which cannot be directed at a specific military objective or those which employ a method or means of combat the effects of which cannot be limited.¹⁶⁰ The protocol did not refer specifically to nuclear weapons and the specific problems of nuclear weapons were not discussed at the diplomatic conference of 1974-77 which preceded adoption of the text. Some states made clear that they regarded the protocol as definitely not applicable to nuclear weapons and made reservations to this effect.

The Court eventually concluded that the threat or use would "generally be contrary to the rules of international law applicable in armed conflict, and in particular the principles and rules of humanitarian law", but added that it could not conclude definitively whether the threat or use "would be lawful or unlawful in an extreme circumstance of self-defence, in which the very survival of a state would be at stake." However, it did conclude unanimously that:

There exists an obligation to pursue in good faith and *bring to a conclusion* negotiations leading to nuclear disarmament in all its aspects under strict and effective international control [emphasis added].¹⁶¹

That ruling has subsequently been widely cited by advocates of disarmament.¹⁶²

2 Towards Nuclear Disarmament?

In the last few years the issue of multilateral nuclear disarmament has moved back up the international agenda as support for the vision of a nuclear weapons free world has gained ground. In January 2007, a cross-party group of senior US statesmen not previously associated with anti-nuclear positions - former Secretaries of State Henry Kissinger and George Shultz, former Secretary of Defense Bill Perry and former Senator Sam Nunn - launched an initiative to this end and called for US leadership in taking it forward.¹⁶³ Former UK Foreign and Defence Secretaries Lords Hurd, Owen and Robertson and Sir Malcolm Rifkind aligned themselves with the initiative,¹⁶⁴ along with a number of former German statesmen including former Chancellor Helmut Schmidt, former President Richard von Weizsäcker, and former Foreign Minister Hans-Dietrich Genscher.¹⁶⁵ A separate campaign for 'Global Zero: a World Without Nuclear Weapons', launched in December 2008, has also secured significant support from figures including ex-heads of state, prime ministers, foreign ministers and national security advisers.¹⁶⁶

In the spirit of furthering that debate, in October 2008 the UN Secretary General, Ban Ki Moon, also set out a five-point proposal for progressing the disarmament and non-proliferation regime. As a starting point he called upon all States Parties to the NPT, in

¹⁶⁰ A. Roberts & R Guelff (eds), *Documents on the Laws of War*, second edition, 1989, p.416

¹⁶¹ ICJ case summary, 'Legality of the Threat or Use of Nuclear Weapons', Advisory Opinion of 8 July 1996, 2(F), <http://www.icj-cij.org/icjwww/idecisions/isummaries/iunanaummary960708.htm>

¹⁶² Further detail on the ruling, and the reactions to it, is available in Library Research Paper, RP96/90 *Defence Update*, 8 October 1996. For a more recent examination of nuclear weapons and international law see the [keynote address](#) of Sergio Duarte, UN High Representative for Disarmament Affairs, at Fordham University in February 2010.

¹⁶³ "A World Free of Nuclear Weapons", *Wall Street Journal*, 4 January 2007 and "Toward a Nuclear-free World", *Wall Street Journal*, 15 January 2008

¹⁶⁴ "Start worrying and learn to ditch the bomb", *The Times*, 30 June 2008

¹⁶⁵ "Toward a nuclear-free world: a German view", *International Herald Tribune*, 9 January 2009

¹⁶⁶ Further information is available at: www.globalzero.org

particular the nuclear weapon states, to fulfil their obligations and undertake negotiations on effective measures leading to disarmament. That objective, he argued, could be achieved by agreement on a framework of separate, yet mutually reinforcing, instruments or through the long standing proposal to negotiate a nuclear weapons convention, supported by a strong verification regime. Secondly, he suggested that the nuclear weapon states unambiguously offer security assurances to all non-nuclear weapon states and that the non-NPT nuclear states should freeze their own capabilities and establish their own disarmament commitments. He also called for new efforts to bring the CTBT into force, immediate negotiations on the FMCT to begin and for all NPT States Parties to conclude their safeguard agreements with the IAEA, including the Additional Protocol. Noting that “the lack of an authoritative estimate of the total number of nuclear weapons testifies to the need for greater transparency”, the Secretary General suggested as a fourth measure that the nuclear powers could expand the amount of information that they publish on the size of their respective nuclear arsenals, stockpiles of fissile material and specific disarmament objectives. Finally he also called for greater complementary efforts in the elimination of other types of WMD, new efforts against WMD terrorism and limits on the production and trade in conventional arms.¹⁶⁷

Arguably the largest impetus has come from the new US administration under President Obama. In sharp contrast to his predecessor¹⁶⁸ Obama has wholeheartedly embraced the multilateral arms control agenda and has pledged to reclaim global leadership in this area, in particular in relation to nuclear disarmament and non-proliferation.¹⁶⁹ The desire of the US administration to ‘reset’ relations with Russia has also undoubtedly contributed to the development of a political environment conducive to achieving progress.

A defining moment came in April 2009 when President Obama indicated during a speech in Prague that the US would be committed to “seeking the peace and security of a world without nuclear weapons”, although he acknowledged that: “This goal will not be reached quickly - perhaps not in my lifetime. It will take patience and persistence”. He went on to comment that:

Just as we stood for freedom in the 20th century, we must stand together for the right of people everywhere to live free from fear in the 21st. And as a nuclear power – as the only nuclear power to have used a nuclear weapon – the United States has a moral responsibility to act. We cannot succeed in this endeavour alone, but we can lead it.¹⁷⁰

As part of that vision, he outlined the US’s commitment to reducing its nuclear arsenal, reducing the role of nuclear weapons, achieving a global ban on nuclear testing, establishing a treaty ending the production of fissile material for use in nuclear weapons and strengthening the NPT as a basis for co-operation. Recognising nuclear terrorism as the greatest threat to global security, President Obama also announced a new international effort to secure all vulnerable nuclear material within four years.

¹⁶⁷ Address to the East-West Institute, *the United Nations and Security in a Nuclear-Weapon-Free World*, 24 October 2008

¹⁶⁸ Although START successor treaty negotiations were begun under President George W Bush, on the whole the Bush administration largely rejected multilateral arms control, the most notable decision being withdrawal from the ABM Treaty in 2002 (although initial negotiations on revising or withdrawing from the ABM had been instituted in 1999 under President Clinton).

¹⁶⁹ The Obama administration has also made progress on conventional multilateral arms control. In October 2009 the US stated that it would back talks on an international arms trade treaty, which had been opposed by the Bush administration. The Obama administration also announced in 2009 that it would conduct a comprehensive review of US landmine policy. That review has received widespread support from within the US Congress (see [“Arms experts welcome Congressional support for mine ban treaty”](#), Arms Control Association, 8 May 2010)

¹⁷⁰ [Remarks of President Obama in Prague](#), 5 April 2009

To disarmament advocates Obama's Prague speech has thus come to be regarded as a unique opportunity if the vision of 'global zero' is ever to be realised. Indeed, one year on from Prague, significant progress has undoubtedly been made.

Desmond Bowen, writing in *Survival* in February 2010 observed: "Today there is new momentum behind the goal of zero, which is advocated by an increasing number of national and international politicians and statesmen, and has been reinforced by UN Security Council Resolution 1887".¹⁷¹ That [resolution](#) was adopted at a summit-level meeting of the UN Security Council, chaired by President Obama, in September 2009. Coming only six months after the Prague speech, the resolution set down a firm commitment on the part of the UN Security Council to the vision of a nuclear free world and the establishment of a broad framework of action. In line with previous statements by the US, the UK (see section 2.4) and the G8,¹⁷² among others, that framework of action was not considered ground breaking in its content,¹⁷³ but it was considered crucial as a demonstration of political will on this issue.

Yet, the perennial question remains: how far will states advance the disarmament agenda without requisite and far reaching non-proliferation commitments from all actors, including those states not party to the NPT or those in contravention of its obligations? Achieving disarmament and stemming non-proliferation while an increasing number of states also exercise their right to develop or expand their civilian nuclear programmes in response to concerns over climate change and energy security (what has been referred to as the 'nuclear renaissance'),¹⁷⁴ also presents an added layer of complexity.

As a series of first steps,¹⁷⁵ which have arguably allowed the US to set the moral tone: a new successor treaty to START has been agreed, although awaits ratification; efforts to address nuclear security have culminated in an agreement to secure vulnerable nuclear materials within four years and in April 2010 the US published its new *Nuclear Posture Review*. The following section examines those initiatives. However, it also looks at the issue of nuclear modernisation, and examines the argument that the various upgrade and replacement programmes being pursued by the nuclear powers, NPT-recognised or not, effectively neutralise the perception that practical progress toward disarmament is actually being made.

2.1 START Successor Treaty

While still in office, ex-Presidents Bush and Putin committed themselves to the negotiation of a "legally binding post-START arrangement",¹⁷⁶ although talks only got underway after a change of administration in both countries. At their first meeting in London in April 2009, Presidents Obama and Medvedev announced that they were opening negotiations on "new and verifiable reductions" in their strategic offensive nuclear arsenals, beginning with a "new, legally-binding treaty" to replace START I which would be agreed by the end of 2009 when START I was due to expire.¹⁷⁷ Those talks got underway in May 2009.

¹⁷¹ Desmond Bowen, "Deterrence and disarmament in the UK", *Survival*, February-March 2010

¹⁷² [G8 Statement on Non-proliferation](#), 8 July 2009

¹⁷³ Addressing previously declared policies such as the need to strengthen the NPT; pursue disarmament; ratify the *Comprehensive Test Ban Treaty*; negotiate a *Fissile Material Cut-off Treaty* and address the threat of nuclear terrorism.

¹⁷⁴ For a discussion of the issues relating to the increasing use of nuclear energy versus non-proliferation and nuclear security see [The Nuclear renaissance: nuclear weapons proliferation and terrorism](#), Institute for Public Policy Research, March 2009 and "Nuclear renaissance – security challenges of atomic power", *Jane's Intelligence Review*, 16 October 2009

¹⁷⁵ A period that many commentators have referred to as Obama's "nuclear spring" (see for example "Obama secures 47-nation pact at nuclear summit", *The Washington Post*, 14 April 2010)

¹⁷⁶ "US-Russia Strategic Framework Declaration", *Sochi*, 6 April 2008

¹⁷⁷ Joint Statement by President Dmitry Medvedev of the Russian Federation and President Barack Obama of the United States of America, 1 April 2009

At the US-Russia summit in Moscow in early July, Presidents Obama and Medvedev announced that they had signed a “joint understanding” to reduce their numbers of strategic nuclear warheads to between 1,500 and 1,675 each.¹⁷⁸ The two sides also pledged at that summit to reduce their respective nuclear delivery systems (ICBMs, sea-launched ballistic missiles and heavy bombers) to between 500 and 1,100 each. The new limits would be achieved within seven years of the treaty coming into force; while the new treaty would have a verification regime which drew on its START predecessor. However subsequent negotiations established revised limits on the maximum number of nuclear delivery vehicles proposed under the new treaty to between 700 and 800 each in order to balance out the current disparity between Russian and American delivery systems. Russia had argued that a maximum limit of 1,100 gave significant advantage to the US as a large number of Soviet-era Russian delivery systems are due to be decommissioned in the next seven years. Revisions to the monitoring and verification regime also resulted in Russia reportedly winning a concession over the presence of a US team at a Russian ICBM manufacturing facility at Votkinsk, capable of monitoring Russia’s mobile ground-based missile capability.¹⁷⁹

Despite predictions that a new agreement would be reached before the START I treaty expired in December 2009, negotiations became mired in technical issues over compliance, and in particular access to unencrypted technical data from nuclear capable missile tests, and toward the latter end of negotiations, over disagreements regarding the US’s revised missile defence plans in Eastern Europe. At the end of December 2009 the Russian government reportedly stated that the US should provide specific information about the land and sea-based missile defences that it intended to deploy in the region. On 9 February 2010 the Head of the Russian General Staff, General Nikolai Makarov, commented that the new treaty “must take into account the link between defensive and offensive strategic weapons”.¹⁸⁰ The US consistently refused to link negotiations on the treaty with its missile defence plans, however, and refuted General Makarov’s suggestions by commenting that “the START agreement will in no way affect our deployment of missile defence assets in Europe”.¹⁸¹

Several commentators expressed concern that a failure to conclude a START successor treaty by the end of April 2010 could cast a shadow over the NPT Review Conference in May by undermining the credibility of any global commitment towards achieving widespread disarmament. Former US Ambassador to Russia, James Collins, argued that prolonged START discussions “make it harder for us [the US] to make the case that other people need to work with us to strengthen the treaty” and that “a failure to get a START agreement would be a very serious blow to any idea that there is a credible commitment to zero nuclear weapons”.¹⁸² Agreement was, however, reached on 26 March 2010, with Presidents Obama and Medvedev signing the new treaty on 8 April 2010.

Under the terms of that treaty, its protocols and technical annexes, the US and Russia have now committed to the following disarmament measures:

- A limit of 1,550 strategic operationally deployable warheads, which represents a 30% reduction on the maximum limit of deployed strategic warheads agreed under SORT. Warheads on deployed ICBMs and SLBMs count toward this limit, while each

¹⁷⁸ According to the *Bulletin of Atomic Scientists*, the US currently has 2,200 operational strategic warheads, and Russia has 2,600.

¹⁷⁹ Under START I Russia did not have the right to a similar presence in the US.

¹⁸⁰ “US rules out missile defense link to treaty”, *Washington Times*, 12 February 2010

¹⁸¹ *ibid*

¹⁸² “START talks seen casting shadow on NPT review conference”, *Global Security Newswire*, 7 January 2010

deployed heavy bomber equipped for nuclear armaments will count as one warhead towards this limit.¹⁸³

- A combined limit of 800 deployed and non-deployed ICBM launchers, SLBM launchers and heavy bombers equipped for nuclear armaments. Non-deployed systems will also include those assigned to testing and training.
- A separate limit of 700 deployed ICBMs, deployed SLBMs and deployed heavy bombers equipped for nuclear armaments; which represents a limit less than half of that established under the original START treaty.¹⁸⁴ This implies a reserve of 100 non-deployed launchers and heavy bombers as provided for under the combined limit.
- The treaty establishes a verification regime that combines various elements of the original START verification regime and measures that are tailored to the current treaty. Verification measures under the new treaty will include on-site inspections of both deployed and non-deployed systems; exhibitions to demonstrate the technical characteristics of new systems; six-month data exchanges and notifications relating to strategic offensive arms and facilities covered by the treaty; and provisions to facilitate the use of national technical means for treaty monitoring. The treaty also provides for the exchange of telemetry between both States Parties on up to five missile launches a year as part of measures to enhance transparency, despite an acknowledgement that telemetry is no longer required in order to monitor compliance.¹⁸⁵
- Under the treaty each party has the ability to choose its own force structure and composition, within the overall set limits.

A full copy of the treaty, its protocol and annexes are available online from the [US Department of State](#).

Those reductions will be achieved within seven years of the treaty entering into force. Presuming ratification is achieved in either 2010 or 2011 at the latest, strategic reductions will therefore have to take place by 2017-2018. The treaty will remain in force for 10 years, unless superseded by a subsequent agreement, and may be extended for no more than five years. The treaty also contains an option to withdraw with three months notice if either state decides that extraordinary events related to the treaty have jeopardised its national interests. The *Strategic Offensive Reductions Treaty* (SORT) will also terminate upon the entry into force of this new treaty.

While acknowledging the importance of the agreement as part of his administration's commitment to 're-set' US-Russian relations, President Obama also recognised:

With this agreement, the United States and Russia – the two largest nuclear powers in the world – also send a clear signal that we intend to lead. By upholding our own commitments under the Nuclear Non-Proliferation Treaty, we strengthen our global

¹⁸³ START I adopted a 'type attribution' counting rule whereby each ballistic missile type was assigned a number of warheads, regardless of the number it actually carried. This is similar to the approach being adopted for heavy bombers while ballistic missiles will be subject to an 'actual load' counting rule, supported by on-site inspections.

¹⁸⁴ The strategic offensive reductions Treaty (SORT) did not address the issue of nuclear delivery systems.

¹⁸⁵ [Key Facts about the New START Treaty](#), 26 March 2010 and [Announcement of the New START Treaty](#), 26 March 2010

efforts to stop the spread of these weapons, and to ensure that other nations meet their own responsibilities.¹⁸⁶

Despite previous reported disagreements during the negotiation stage over the US's revised missile defence plans, the new START treaty does not contain any provisions which limit the testing, development or deployment of any missile defence programmes. Nor does it constrain the testing, development and deployment of any current or planned long-range strike capabilities. However, in a unilateral statement made following the signing of the treaty, the Russian Foreign Minister, Sergei Lavrov, indicated that Russia would have the right to abandon the START treaty if a qualitative and quantitative build up of the US strategic anti-missile defence system began to significantly affect Russia's strategic nuclear capability.¹⁸⁷ The US government, in response, played down the Russian statement, commenting that "there is nothing particularly novel about this kind of unilateral statement. In the long history of arms control agreements between the United States and Russia (and before that the Soviet Union) dating back to the Nixon Administration, the two countries have frequently issued such statements at the end of a long treaty negotiation". It went on to conclude that "the Russian statement does no more than give the United States fair notice that it may decide to pull out of the new START treaty if Russia believes our missile defence system affects strategic stability. We believe it doesn't and the President has made clear that he is committed to continuing to develop and deploy that system".¹⁸⁸

On the surface, the 30% cut in warhead numbers announced by Obama and Medvedev appears significant. However, some analysts have argued that they are less dramatic when compared to the commitments already made by the two sides in the 2002 SORT Treaty which required the US and Russia to cut their nuclear arsenals to between 2,200 and 1,700 by 2012 – potentially just 150 more than the maximum allowed under the new agreement. Questions over the 'counting rules' applied to the new treaty with respect to delivery systems have also been raised. The intention to count a heavy bomber, which may be capable of carrying multiple nuclear-armed bombs or missiles, as one single warhead has led many to conclude that in practice each side could actually maintain an operationally deployable stockpile of more than the 1,550 limit.¹⁸⁹ However, in the *Nuclear Posture Review*, the US administration defended this approach commenting that "this counting rule was adopted in recognition of the facts that heavy bombers do not pose a first-strike threat to either side and that on a day-to-day basis few or no bombers are loaded with nuclear weapons".¹⁹⁰ A number of commentators have also noted that there are no limits on the number of warheads, bombers and missiles that either side may keep in storage;¹⁹¹ while others have pointed to the increasing obsolescence of some of Russia's nuclear capabilities, arguing that the cuts suggested under the new treaty therefore amount to little more than unilateral concessions by the United States.¹⁹² The limitations that have been placed on the number of nuclear delivery vehicles, for example, have been regarded as modest and significantly in Russia's favour given that Russia only possesses just over 800 deployed nuclear delivery systems; while the United States has 1,188.¹⁹³

¹⁸⁶ [Remarks by the President on the Announcement of New START Treaty](#), 26 March 2010

¹⁸⁷ "Russia may quit treaty if US pushes missile defence: Lavrov", *Agence France Presse*, 6 April 2010

¹⁸⁸ "A new START in Prague", White House Blog, 8 April 2010

¹⁸⁹ "Nuclear milestone on a long, long road", *BBC News Online*, 8 April 2010

¹⁹⁰ *United States Nuclear Posture Review Report*, April 2010, p.21. The counting rule adopted for heavy bombers was also used for this type of delivery vehicle in START I.

¹⁹¹ See "Barack Obama's nuclear reset: mutual destruction is still assured but it's a START", *NATO Watch Briefing Paper No.8*, April 2010 and "New START provides for significant arms cuts", *Strategic Comments*, April 2010

¹⁹² "Son of START", *Armed Forces Journal*, October 2009

¹⁹³ United States Bureau of verification, Compliance and Implementation, *START Aggregate Numbers of Strategic Offensive Arms*, 1 October 2009

Daryl Kimball, Executive Director of the Arms Control Association, agreed that the planned cuts are “modest” but highlighted that the US-Russian agreement is “vitaly important” because it maintains “a system for verification and regulation of the world’s two largest arsenals”.¹⁹⁴ A *BBC News Online* article also argued:

Numbers here are not hugely important though in the sense that these arsenals are still far in excess of what might be needed to deter each other or, for that matter, any other potential nuclear competitor.

This agreement really is a starting benchmark; a formal treaty that sets the scene for much more significant reductions in the future.¹⁹⁵

However, that article also acknowledged that “while cutting arsenals it also signifies, for some, the dilemma of maintaining deterrence as vital to national security”;¹⁹⁶ an approach many have argued needs to change if the possibility of ‘global zero’ is ever to be truly realised. Indeed, while announcing the conclusion of the new START agreement, US Defense Secretary, Robert Gates, continued to reiterate the importance of the US nuclear deterrent going forward:

America’s nuclear arsenal remains an important pillar of the US defense posture, both to deter potential adversaries and to reassure more than two dozen allies and partners who rely on our nuclear umbrella for their security.¹⁹⁷

The extent of the US and Russian nuclear modernisation programmes¹⁹⁸ has also led many to question whether the cuts envisaged under new START treaty are anything more than a political statement as planned upgrades to existing capabilities, including more flexible delivery systems, would still allow both states to achieve exactly the same nuclear objectives in the future even with a smaller nuclear arsenal.

Both the US Senate and Russian Parliament are now required to ratify the treaty. The US administration presented the START successor treaty, its protocols and annexes to the US Congress for ratification on 13 May 2010. Hearings in the Senate Foreign Relations Committee have already begun, with US Secretary of State, Hillary Clinton giving evidence on 18 May.¹⁹⁹ It has been suggested that the Committee could vote on the treaty in time for the Senate to take it up before Congress adjourns for the summer.²⁰⁰ While the treaty could be passed to the Floor of the Senate, it remains unclear, however, as to whether the treaty would be adopted much before the autumn due to a heavy domestic legislative agenda. President Obama has indicated that he wished to see ratification achieved before the mid-term elections in November 2010. The START successor treaty was submitted to the Russian Parliament for ratification on 28 May 2010.

While hailing the treaty’s signature as diplomatically important for the global disarmament agenda, a number of commentators have cautioned, however, that the passage of the treaty through both legislatures will not be easy. The issue of US missile defence is considered likely to be an issue for both legislatures, albeit for different reasons. The Speaker of the Russian lower house reportedly stated in mid-March that it would not “ratify it [the treaty] if the questions of the link between strategic offensive weapons and missile defence are not

¹⁹⁴ “U.S. and Russia to Reduce Arsenals”, *Washington Post*, 7 July 2009

¹⁹⁵ “Nuclear milestone on a long, long road”, *BBC News Online*, 8 April 2010

¹⁹⁶ *ibid*

¹⁹⁷ [Announcement of the new START Treaty](#), 26 March 2010

¹⁹⁸ See section 2.5

¹⁹⁹ The Secretary of State’s opening statement is available from the [US State Department](#)

²⁰⁰ “Senate begins hearings on new START”, *Arms Control Today*, June 2010

examined”.²⁰¹ Whereas several Republican members of the US Senate have indicated that they would only support the treaty as long as it does not undermine the US missile defence plans.

A number of US Senators have also expressed concern over the impact that the treaty may have on the US’s deterrent posture more generally and have called for commitments from the US government to ensure the future of the US’s nuclear modernisation programmes. Senator Joseph Lieberman, for example, has asserted that he would be “hesitant to vote for this treaty unless we have a commitment from the administration that they’re prepared to modernize our nuclear stockpile”,²⁰² while an article in the *Wall Street Journal* in January 2010 succinctly noted that “without modernization, it’s unlikely that senators will vote for the significant [...] reductions in US delivery vehicles”, concluding that “Senators shouldn’t begin to consider a smaller arsenal until the Obama administration takes the steps necessary to ensure that our remaining weapons will work if we need them”.²⁰³ A number of analysts have suggested, however, that the ‘modernisation card’ could be used to greater effect within the US Senate when the Obama administration seeks ratification of the *Comprehensive Test Ban Treaty*, later in either 2010 or 2011.

Senator Lamar Alexander has also suggested that “there’s not a chance the treaty will be approved this year”, noting that it took the START I treaty over 18 months to gain Senate approval and that mid-term elections in November 2010 and various domestic political issues could feasibly delay the process.²⁰⁴ The Senate has a long history of bipartisanship with respect to strategic arms control treaties, however,²⁰⁵ a trend which Senate Foreign Relations Committee Chairman, John Kerry, has suggested is likely to continue. In a statement Mr Kerry commented: “I am confident we will renew that spirit of cooperation and bipartisan tradition on arms control and national security to approve ratification of this vital treaty. This is too important to delay”.²⁰⁶ Senator Richard Lugar, Ranking Republican member of the Committee has also argued that:

a U.S. choice to deliberately forego a strategic nuclear arms control regime with Russia would be an extremely precarious strategy. Distancing ourselves from nuclear engagement with Russia would greatly reduce our knowledge of what is happening in Russia, hinder our ability to consult with Moscow in a timely manner on nuclear and national security issues, further strain our own defense resources, weaken our non-proliferation diplomacy worldwide, and, potentially, heighten arms competition.²⁰⁷

John Isaacs, Executive Director of the Center for Arms Control and Non-Proliferation, also pointed out that “a potential clincher for a 2010 vote: the longer the treaty is in limbo, the longer the means of verifying Russia’s enormous nuclear arsenal remain suspended”.²⁰⁸

2.2 US Nuclear Posture Review

The long-awaited US *Nuclear Posture Review* (NPR)²⁰⁹ has been viewed as a crucial test of the sincerity of President Obama’s disarmament agenda and his long term vision of a world without nuclear weapons. A key question for analysts was how the NPR would resolve the

²⁰¹ “Russia parliament could block US nuclear treaty: speaker”, *Agence France Presse*, 16 March 2010

²⁰² “Republican Senator: no START treaty passage this year”, *Agence France Presse*, 11 April 2010

²⁰³ “A false nuclear start”, *The Wall Street Journal*, 5 January 2010

²⁰⁴ *ibid*

²⁰⁵ The Senate approved SORT following a vote of 95-0 in 2003; while START I was approved in 1992 with a vote of 93-6 (see “START follow-on: the senate calculus”, *Bulletin of the Atomic Scientists*, 29 March 2010)

²⁰⁶ *Chairman Kerry calls for timely START ratification*, 8 April 2010

²⁰⁷ *Opening Statement of Senator Richard Lugar for Hearing on the new START Treaty*, 18 May 2010

²⁰⁸ “START follow-on: the senate calculus”, *Bulletin of the Atomic Scientists*, 29 March 2010

²⁰⁹ The nuclear posture review is congressionally mandated and conducted by every President upon taking office. Previous NPR were conducted in 2001 under George W Bush and in 1994 under President Bill Clinton.

paradox of supporting, and advancing, President Obama's agenda while at the same time justifying the continued existence of the US nuclear deterrent as essential to US national security interests. In order to achieve a politically, and militarily, acceptable balance many suggested, therefore, that the NPR should consider the following key issues: a change in the role of nuclear weapons to solely a core deterrence mission, thereby enabling further disarmament measures; the withdrawal of US tactical nuclear weapons in Europe; a change in the alert status at which US nuclear weapons are held; and a moratorium on future nuclear modernisation plans.²¹⁰ As Daryl Kimball of the Arms Control Association noted in January 2010:

Obama's NPR is a crucial test of his commitment to reducing nuclear dangers. If it fails to significantly reduce the role of nuclear weapons in US security strategy, the global effort to stem the proliferation of nuclear weapons and prevent their use will falter.²¹¹

The NPR was subsequently published in early April 2010, shortly after agreement was reached on the START successor treaty. Recognising that the nuclear environment has radically altered since the end of the Cold War and that US nuclear priorities have changed thus, the NPR sets out a revision of US nuclear deterrence policy, strategy and force structure for the next five to ten years. Announcing the release of the NPR, President Obama commented:

The Nuclear Posture review... recognizes that the greatest threat to US and global security is no longer a nuclear exchange between nations, but nuclear terrorism by violent extremists and nuclear proliferation to an increasing number of states. Moreover, it recognizes that our national security and that of our allies and partners can be increasingly defended by America's unsurpassed conventional military capabilities and strong missile defenses.

As a result, we are taking specific and concrete steps to reduce the role of nuclear weapons while preserving our military superiority, deterring aggression and safeguarding the security of the American people.²¹²

Focused around five key objectives that give primacy to nuclear proliferation and nuclear terrorism, the NPR therefore made the following commitments and recommendations:

Preventing nuclear proliferation and nuclear terrorism – The NPR placed, for the first time, proliferation and nuclear terrorism at the top of the US nuclear agenda. It therefore set out a number of specific steps to strengthen the non-proliferation regime and accelerate efforts to secure nuclear materials worldwide within four years; while at the same time renewing the US's commitment to hold fully accountable any state, terrorist group or other non-state actors that support or enable terrorist efforts to obtain or use WMD, whether by facilitating, financing or providing expertise or safe haven for such efforts. Key initiatives in support of this objective included:

- Strengthening IAEA safeguards and enforcing compliance with them. The IAEA must be given additional financial resources and verification authority and all countries should adhere to the IAEA Additional Protocol. Consequences for non-compliance or withdrawal from the NPT must be established.

²¹⁰ See for example "Obama's big nuclear test", *Arms Control Today*, January/February 2010; "Experts voice concern over US nuclear policy review", *Global Security Newswire*, 17 February 2010; "Towards a new US nuclear posture", *Disarmament Diplomacy*, Spring 2009 and *Obama's nuclear posture review*, British American Security Information Council, 25 June 2009

²¹¹ "Obama's big nuclear test", *Arms Control Today*, January/February 2010

²¹² [Statement by President Barack Obama on the release of the Nuclear Posture Review](#), 6 April 2010

- Accelerating the Global Threat Reduction Initiative to remove and secure high priority vulnerable nuclear material around the world, convert additional research reactors to operate on fuel that cannot be used in nuclear weapons, and complete the repatriation of US and Russian-origin HEU from around the world.
- Increasing the funding of US Department of Energy non-proliferation programmes by 25% to \$2.7bn in fiscal year 2011.
- Enhancing national and international capabilities to detect and interdict smuggled nuclear materials. Specifically national and multilateral export and border controls must be strengthened, financial and other tools must be used to disrupt illicit proliferation networks and tighter restrictions placed on the transfer of dual-use enrichment and reprocessing technologies. The US supports the development of a UNSCR 1540 ‘trust fund’ to assist countries in meeting their obligations under that resolution. The 77-country Global Initiative to Combat Nuclear Terrorism should also be made a durable international institution.
- Pursuing ratification of the CTBT and negotiation of a *Fissile Material Cut-Off Treaty*.
- Developing a new framework for international nuclear energy cooperation, which the US is pursuing with the international community through the Global Nuclear Energy Partnership. To reduce incentives to pursue indigenous nuclear fuel facilities, this framework should include international fuel banks, multilateral fuel assurances, agreements by suppliers to take back spent fuel and spent fuel repositories.

Reducing the role of nuclear weapons – The fundamental role of US nuclear weapons in deterring a nuclear attack on the United States, its allies and partners, will continue as long as nuclear weapons exist. However, the NPR acknowledged that further steps toward reducing the role of nuclear weapons in US national security and military strategy, are feasible. Therefore, the NPR committed the US to the following:

- Not using or threatening to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations. This statement effectively offers negative security assurances to the NPT non-nuclear weapon states while at the same time leaving the US’s options open with regard to Iran and North Korea. States subject to those assurances would however face the prospect of a significant conventional military response if chemical or biological weapons were used against the US or its allies and partners. The US also reserves the right to adjust its assurances if the biological threat grows and the US’s ability to meet that threat by conventional means does not grow in tandem. In revising those negative security assurances the NPR seeks to “underscore the security benefits of adhering to and fully complying with the NPT and persuade non-nuclear weapon states party to the treaty to work with the US and other interested parties to adopt effective measures to strengthen the non-proliferation regime”.²¹³
- The US will only consider the use of nuclear weapons against nuclear weapon states and non-compliant states in extreme circumstances to defend its vital interests, or its allies and partners. There also remains a narrow range of contingencies in which US nuclear weapons may still play a role in deterring a conventional or chemical/biological attack by such states.

²¹³ US Nuclear Posture Review, April 2010, executive summary

- At the same time the US will continue to strengthen conventional capabilities²¹⁴ and reduce the role of nuclear weapons in deterring non-nuclear attacks, with the objective of making deterrence of a nuclear attack on the US, its allies or partners, the sole purpose of such weapons.

While still retaining a ‘first use’ policy, reducing the potential role of nuclear weapons is a significant shift away from the language of the previous NPR in 2001 which advocated the use of nuclear weapons to deter a wide range of threats, including WMD and large-scale conventional military forces, even against non-nuclear weapon states.

Maintaining strategic deterrence and stability at reduced nuclear force levels – The NPR committed to the following disarmament measures:

- Supporting the disarmament measures agreed under the START successor treaty and reiterates that a nuclear posture based on the nuclear triad will be retained within the context of those treaty provisions in order to “maintain strategic stability at reasonable cost, while hedging against potential technical problems or vulnerabilities”.²¹⁵ Some ability to ‘upload’ non-deployed nuclear weapons on existing delivery vehicles should be retained, however, as a hedge against technical or geopolitical surprise. Preference would be given to uploading the capacity of bombers and strategic submarines.
- All ICBMs will be reduced to carry a single warhead.
- The US will pursue further disarmament measures with Russia, including initiatives to address non-strategic and non-deployed weapons as well as strategic weapons. A review of post-START arms control objectives will now be undertaken, through which the US will also consult with allies and partners over its approach.
- Recognising that the US’s relationship with Russia has altered dramatically since the end of the Cold War and that the US and China are becoming increasingly interdependent, the NPR commits the US to pursuing high level bilateral dialogue with both countries aimed at promoting more stable and transparent strategic relationships. Of note are the continuing modernisation programmes of both Russian and Chinese nuclear forces, and in China’s case a lack of transparency surrounding its programmes and the strategy and doctrine that guides them, therefore raising questions about China’s future strategic intentions.
- The current alert posture of US strategic forces (heavy bombers off full-time alert, nearly all ICBM on alert and a significant number of SSBN at sea at any given time) should be maintained for the present. Measures to further diminish the possibility of nuclear launches resulting from accidents, unauthorised actions or misperceptions should be continued and the time available to the President to consider authorising the use of nuclear weapons should be maximised. Therefore the US will continue the practice of ‘open-ocean targeting’ of all ICBMs and SLBMs;²¹⁶ strengthening the US command and control system to maximise Presidential decision time and exploring new modes of ICBM basing that enhance survivability and further reduce any incentives for prompt launch.

²¹⁴ Including the [US Conventional Prompt Global Strike](#) programme. An analysis of the programme is due to conclude in summer 2010 with investment recommendations to be reflected in the administration’s budget submission for fiscal year 2012.

²¹⁵ *US Nuclear Posture Review Report*, April 2010, p.21

²¹⁶ Whereby, in the unlikely event of an unauthorised or accidental launch, the missile would land in the open ocean.

Strengthening regional deterrence and reassurance of US allies and partners – The NPR adopted the following recommendations:

- The US will pursue a comprehensive approach to broaden regional security architectures, including through missile defence and improved conventional forces, such as long-range strike capabilities. Although as long as regional nuclear threats to US forces, allies and partners remain, deterrence will require a nuclear component.
- The US will retain the capability to forward deploy US nuclear weapons on US tactical fighter aircraft and heavy bombers. It will also proceed with the full scope life extension of the B-61 bomb to ensure its functionality with the F-35 Joint Strike Fighter. However, the NPR also commits to close consultations with allies and partners to ensure the credibility and effectiveness of the extended nuclear deterrent, recognising that the lack of such assurances could lead to a decision by one or more non-nuclear states to seek nuclear deterrents of their own. With respect to the basing of US tactical nuclear weapons in Europe,²¹⁷ the NPR confirmed that “the role of nuclear weapons in defending Alliance members will be discussed this year in connection with NATO’s revision of its Strategic Concept. Any changes in NATO’s nuclear posture should only be taken after a thorough review within – and decision by – the Alliance”.²¹⁸ The Administration is also pursuing strategic dialogue with its allies and partners in East Asia and the Middle East to determine how best to cooperatively strengthen regional security and reassure them that US extended deterrence remains credible and effective.
- The nuclear-armed sea-launched Tomahawk cruise missile will be retired from the overall mix of nuclear capabilities as the deterrence and assurance roles of the missile can be adequately substituted by other means.

Sustaining a safe, secure and effective nuclear arsenal – Under the NPR the US will sustain a safe, secure and effective nuclear arsenal as long as nuclear weapons exist, which will include the modernisation of the nuclear weapons infrastructure, the scientific and engineering base and the life extension of the warheads in the current US nuclear arsenal. The administration argues within the NPR that increased investment to guarantee the nuclear stockpile will facilitate further nuclear reductions by allowing the US to hedge against future threats without the need for a large non-deployed stockpile, while also enhancing the ability to stem nuclear proliferation and nuclear terrorism. The NPR reiterates the administration’s rejection of the development of new nuclear weapons. In order to do so the NPR commits to the following:

- The US will not conduct nuclear testing and will seek ratification and entry into force of the CTBT.
- The US will not develop new nuclear warheads and life extension programs (LEP) will use only nuclear components based on previously tested designs and will not support new military missions or provide new military capabilities. This recommendation is in sharp contrast to the previous NPR of the Bush administration which fully supported

²¹⁷ A number of commentators have argued that the deployment of US nuclear weapons on European soil constitutes a violation of articles I and II of the NPT which prohibits the transfer of nuclear weapons to non-nuclear states (see Geoff Simons, *Nuclear Nightmares*, Legacy Publishing 2009, p.xxii). In response, however, the US would argue that because the weapons in question remain in US custody, the nuclear sharing arrangements in Europe do not violate Article I of the NPT.

²¹⁸ *Nuclear Posture Review Report*, April 2010, executive summary. Further information on NATO’s review of its Strategic Concept, which is due to conclude in November 2010 at the NATO Heads of State and Government Summit, is available in the May 2010 [analysis and recommendations](#) report of the Group of Experts

- The Administration will study options for ensuring the safety, security and reliability of nuclear warheads on a case-by-case basis, consistent with the congressionally-mandated Stockpile Management Plan (SMP).²²⁰ The full range of LEP approaches will be considered including refurbishment of existing warheads, re-use of nuclear components from different warheads and the replacement of nuclear components. The latter would only be undertaken if critical SMP goals could not otherwise be met and if specifically authorised by the President and approved by Congress. On that basis, the NPR recommends fully funding the ongoing LEP for the W-76 submarine-based warhead and the LEP study and follow-on activities for the B-61 bomb; while initiating a study of LEP options for the W-78 ICBM warhead, including the possibility of using the resulting warhead on SLBMs in order to reduce the number of warhead types.
- The US will retain the smallest possible nuclear stockpile consistent with its need to deter adversaries, reassure allies and hedge against technical or geopolitical surprise.
- The US will consider reductions in non-deployed nuclear warheads, as well as acceleration of the pace of nuclear warhead dismantlement, as it implements a new stockpile stewardship and management plan consistent with the START successor treaty.

While the NPR focuses primarily on the next five to ten years, many of the commitments and recommendations set down by the US administration are considered longer term projects that will “be the work of multiple administrations and Congresses, and will require sustained bipartisan consensus”.²²¹ In looking toward an aspiration of ‘global zero’ the NPR concludes:

The conditions that would ultimately permit the United States and others to give up their nuclear weapons without risking greater international instability and insecurity are very demanding. Among those conditions are success in halting the proliferation of nuclear weapons, much greater transparency into the programs and capabilities of key countries of concern, verification methods and technologies capable of detecting violations of disarmament obligations, enforcement measures strong and credible enough to deter such violations, and ultimately the resolution of regional disputes that can motivate rival states to acquire and maintain nuclear weapons. Clearly, such conditions do not exist today.

But we can – and must – work actively to create those conditions.²²²

Although the declaratory language, tone and content of the NPR has been largely welcomed as a move away from the ambiguity of the previous NPR under the Bush administration, the document has been widely regarded as a compromise piece, borne out of several months of internal disagreement,²²³ and for some critics was not as bold in its recommendations and

²¹⁹ Further information on the Reliable Replacement Warhead programme is available from the [US Congressional Research Service](#).

²²⁰ The SMP is the means through which US nuclear warheads have been maintained and certified as safe and reliable and has extended the lives of warheads by refurbishing them to nearly original specifications.

²²¹ *Nuclear Posture Review Report*, April 2010, Foreword by Secretary Robert Gates

²²² *Nuclear Posture Review Report*, April 2010, executive summary

²²³ The NPR was initially due to be published at the end of 2009 but was delayed due to reported differences of opinion between various officials in the administration and the Pentagon over key issues such as the rejection of developing new capabilities.

conclusions as they might have wished. The rejection of some of the sweeping changes advocated by leading arms control figures, such as the adoption of a 'no first use' policy and the retention of nuclear weapons solely as a deterrent against nuclear attack on the US and its allies, has been met with a sense of disappointment. Dr Ian Davis, Director of NATO Watch, commented:

This pursuit of incremental improvements on unsatisfactory circumstances also best describes the first fully unclassified US nuclear weapons strategy document [...]

It certainly does not embody an ideal future – notions of deterrence remain central and the shift towards conventional strategic weapons and missile defences are likely to prove problematic further down the nuclear zero path – but among the limited options available to President Obama today, it represents another step in the right direction.²²⁴

Paul Ingram, Executive Director of BASIC, writing in an article in *The Guardian* in April 2010 agreed with this assessment:

To reach agreement on more intrusive anti-proliferation measures [at the NPT review conference] required clear signals that the United States – and other nuclear weapon states – were prepared genuinely to start the process of giving up their attachment to the benefits of possessing nuclear weapons.

Does the NPR do it? The simple answer is no – while the document talks of reducing the role of US nuclear weapons, deterrence remains central, and there's little convincing commitment to the deep shifts unnecessary for disarmament. But it does take a step in the right direction, keeps choices open and acknowledges the need for further movement [...]

It was always going to be a challenge to square the circle of an unshakable commitment to deterrence, assurance of allies and strategic dominance, and a desire to see disarmament.²²⁵

Daryl Kimball also called the NPR "transitional rather than transformational" and suggested that "Obama and his team must do more to change outdated Cold War thinking and reduce the US reliance on nuclear weapons that are more of a liability than a useful military asset in the 21st century".²²⁶

Reaction within the US Congress has also been mixed. While the Democrats have welcomed the balanced approach taken in the NPR, various Republicans have rejected key elements of the report, including its approach to the development/maintenance of future nuclear capabilities. In a Joint statement the House Armed Services Committee Chairman, Ike Skelton, and Strategic Forces subcommittee Chairman, Jim Langevin, commented:

Following the path first outlined by President Obama in his speech in Prague last year, the NPR responsibly reduces the role of nuclear weapons in our national security strategy and opens the door to stronger action against rogue states and those who would fail to protect nuclear technology and materials [...]

²²⁴ Dr Ian Davis, "Barack Obama's nuclear reset: mutual destruction is still assured but it's a START", *NATO Watch Briefing Paper No.8*, April 2010

²²⁵ Paul Ingram, "Obama's nuclear posture is a step in the right direction, but not disarmament", *The Guardian*, 6 April 2010

²²⁶ Daryl Kimball, "Obama's NPR: Transitional, not Transformational", *Arms Control Today*, May 2010

The NPR sets a framework to protect our security today and to deter future threats. The NPR is grounded in the strength of our nuclear deterrent, and we are pleased that the NPR retains a nuclear 'triad'...²²⁷

Democrat Chair of the Senate Foreign Relations Committee, John Kerry, supported this view stating that “the result of President Obama’s steely-eyed thinking in his Nuclear Posture Review is a substantive statement that maintains our nuclear deterrence while addressing the new security challenges we face. Finally, America’s nuclear policy reflects post-Cold War reality”.²²⁸ However, the Ranking Republican member of the House Armed Services Strategic Forces Subcommittee, Michael Turner, argued that “by unilaterally taking a nuclear response off the table, we are decreasing our options without getting anything in return and diminishing our ability to defend our nation from attack”.²²⁹ Opinion within the Senate has been viewed as crucial for informing subsequent Senate consideration of the START successor treaty in 2010 and the CTBT at an, as of yet, undetermined date. During a hearing of the Senate Committee on Armed Services in April 2010, Ranking Republican Senator John McCain argued that the “NPR seems to limit, inappropriately, the ability of our nuclear complex to ensure the highest level of safety, security, and reliability”. He also questioned the decision to change the US’ longstanding declaratory policy of calculated ambiguity and concluded that “To be sure, conventional weapons can augment or support our deterrence posture, but they are no substitute for nuclear weapons”.²³⁰

However, as George Perkovich of the Carnegie Endowment for International Peace has observed:

It’s very important to realize that this is the best posture that the President and his administration thought could get the 67 votes in the US Senate needed to ratify the START treaty.

On the one hand, you could have a posture review which says lovely things opposed to nuclear weapons that the disarmament community would applaud, but would in turn reduce the chances you could actually get a real treaty to reduce nuclear weapons ratified in the Senate.

So the administration decided to have a posture that is conceived in terms of what we need to do to get votes in the Senate to actually implement reductions that can lead toward the future that disarmament advocates might want, even if our language now may disappoint them.²³¹

2.3 Nuclear Security Summit – April 2010

Background

The protection of nuclear material is not a new concept²³² and the IAEA has, for many years, played a key role in promoting this issue.²³³ Indeed the end of the Cold War brought with it

²²⁷ [Skelton-Langevin Statement on Nuclear Posture Review](#), 6 April 2010

²²⁸ [Press Release by Chairman Kerry](#), 6 April 2010

²²⁹ [Mckeon, Turner welcome the release of the Nuclear Posture Review](#), 6 April 2010

²³⁰ US Senate Committee on Armed Services, [Hearing to receive testimony on the nuclear posture review](#), 28 April 2010

²³¹ George Perkovich, “Nuclear weapons and national security – a new strategy”, *Carnegie Endowment for International Peace*, 7 April 2010

²³² In 1987, for example, the *Convention on the Physical Protection of Nuclear Materials* entered into force. It established legally binding measures related to the prevention, detection and punishment of offences related to nuclear material in international transit and in [May 2010 had 143 States Parties](#). In 2005 States Parties to the Convention adopted, by consensus, an Amendment to the Convention making it legally binding to protect nuclear facilities and material in domestic use, storage and transport. However, that Amendment has not yet entered into force requiring two thirds of the States Parties to the Convention to ratify it. The amendment is considered particularly important in reducing vulnerability to nuclear terrorism.

serious concerns over the security of nuclear material in the former Soviet states and the potential for theft or diversion into the nuclear black market.²³⁴ The notion of terrorists obtaining and using WMD became more prolific in the aftermath of 9/11, however, with the widely held belief that al-Qaeda “and possibly other terrorist or criminal groups, are seeking nuclear weapons – as well as the material and expertise needed to make them”²³⁵ and the view that deterrence as a concept is irrelevant to such groups.²³⁶ Indeed Osama bin Laden has been quoted as describing the goal of obtaining nuclear weapons as “a religious duty”.²³⁷ However, not every commentator subscribes to the view that nuclear terrorism has become an increasing threat. As Robin Frost has argued “neither al-Qaeda nor any of the organisations linked to it has ever used WMD, and the evidence that they have the will or technical capacity to do so is limited and unconvincing”.²³⁸ Despite this view he does acknowledge, however, that “at the same time, there are good reasons for concern about the state of nuclear security worldwide, and nothing should be read as suggesting that there is any cause for complacency. Far from it: serious efforts are required to improve the situation. Radioactive materials, and potential targets of nuclear terrorism such as reactor complexes, must be better protected”.²³⁹ The security of Pakistan’s nuclear arsenal, in particular, is widely acknowledged among experts as the most pressing concern.

In 2004 the UN Security Council passed [Resolution 1540](#) on the non-proliferation of WMD, which acknowledged the concern posed by the threat of nuclear terrorism and the illicit trafficking of WMD materials and their means of delivery. That resolution established legally binding obligations on states to put in place effective measures to physically protect and secure such materials and prohibit the manufacture and acquisition of such materials by non-state actors, in particular for the purposes of terrorism. The UNSCR 1540 Committee was subsequently established to support coordination of those efforts and report on progress to the Security Council. Under UNSCR 1810, adopted in 2008, the mandate of the Committee has been extended until April 2011 when it is next expected to report to the Security Council.²⁴⁰

Although the onus for implementation of UNSCR 1540 has largely been at the national level,²⁴¹ several initiatives and agreements on nuclear security have developed as part of the broader non-proliferation agenda and have received widespread support. Those initiatives have included the US-led Global Threat Reduction Initiative,²⁴² an Amendment to the *Convention on the Physical Protection of Nuclear Materials* in 2005,²⁴³ the 2005 *International*

²³³ Further information on the IAEA’s work in this area is available from the [IAEA](#) website.

²³⁴ The US [Cooperative Threat Reduction Programme](#), often referred to as the Nunn-Lugar Agreement, was established in 1991 to address the security and dismantling of nuclear weapons, materials and delivery systems in the former Soviet Union.

²³⁵ US State Department, *Key facts about the nuclear summit*, April 2010. See also the [Annual Threat Assessment of the US Intelligence Community for the Senate Select Committee on Intelligence](#), February 2010

²³⁶ Some academics have argued however, that deterrence would continue to have relevance in situations of state sponsored nuclear terrorism (see for example, Defence Select Committee, *The Future of the UK’s Strategic Nuclear Deterrent*, HC 986, Session 2005-06, p.24 and ev.43)

²³⁷ “New impetus for nuclear security”, *Strategic Comments*, December 2009

²³⁸ Robin Frost, “Nuclear terrorism after 9/11”, *IJSS Adelphi Paper 378*, 2005, p.10. See also “The Jihadist CBRN threat”, *Stratfor Global Intelligence*, 10 February 2010

²³⁹ *ibid*, p.7 For a discussion of deterrence in relation to terrorism see also Jeffrey Knopf, “The fourth wave in deterrence research”, *Contemporary Security Policy*, April 2010

²⁴⁰ Further information on the 1540 Committee is available at: <http://www.un.org/sc/1540/>

²⁴¹ Further information on national implementation of the obligations of UNSCR 1540 is available at: <http://www.un.org/sc/1540/1540matrix.shtml>

²⁴² In close co-operation with the IAEA this initiative has focused on assisting states in the conversion of research reactors from the use of highly enriched uranium to low enriched uranium which cannot be used for weapons purposes and is therefore considered to be ‘proliferation resistant’.

²⁴³ Although this Amendment has yet to be ratified by two thirds of the Convention’s States Parties and therefore has not yet entered force.

Convention for the Suppression of Acts of Nuclear Terrorism,²⁴⁴ and the US-Russia led Global Initiative to Combat Nuclear Terrorism in 2006.²⁴⁵ Yet, many have argued that the measures do not go far enough or have proved ineffective due to the broad and overlapping institutional framework for addressing this issue that has been created. As an article in *Strategic Comments* noted:

Global efforts to prevent such eventualities [nuclear terrorism] are often found wanting. Bilateral cooperative threat reduction activities have enjoyed some substantial successes [...] but the overlapping treaties, conventions and mechanisms that comprise the emergent nuclear security framework tend either to be legally binding but ineffective, or inclusive, nebulous and voluntary.²⁴⁶

In December 2008 the Congressionally-mandated Commission on the Prevention of WMD Proliferation and Terrorism published its final report which highlighted:

The Commission believes that unless the world community acts decisively and with great urgency, it is more likely than not that a weapon of mass destruction will be used in a terrorist attack somewhere in the world by the end of 2013.²⁴⁷

According to the International Panel on Fissile Materials there is a current stockpile of 1,600 tons of HEU and 500 tons of separated plutonium globally,²⁴⁸ estimated to be the equivalent of 60,000 nuclear weapons apiece.²⁴⁹ Significantly, between July 2007 and June 2008 the IAEA reported that it had received almost 250 reports that small quantities of radiological or nuclear material had either gone missing or had been stolen and that some of this material had not been recovered.²⁵⁰ Nuclear terrorism and the safeguarding of vulnerable material was consequently one of the central themes of President Obama's speech in Prague in April 2009 and UN Security Council Resolution 1887. In April 2010 the US *Nuclear Posture Review* labelled nuclear terrorism as one of the greatest threats to US and global security; while the UK, under the then premiership of Gordon Brown, called for nuclear security to become the fourth pillar of the NPT.²⁵¹

Summit Outcomes

A 47-nation nuclear security summit, which included non-NPT states India, Pakistan and Israel, was convened in Washington in April 2010, just days after the signing of the START successor treaty and the publication of the NPR. At the heart of the summit debate was President Obama's call for states to adopt a common approach and implement measures to

²⁴⁴ Adopted by the UN General Assembly in April 2005, the Convention is considered a key part of global efforts to prevent terrorist from gaining access to WMD. It provides for a definition of acts of nuclear terrorism, makes legal provision for alleged offenders and calls for States to co-operate in preventing terrorist attacks through the sharing of information and co-operation in criminal investigations and extradition proceedings. The Convention also requires any seized nuclear or radiological material to be held in accordance with IAEA safeguards. As of [6 June 2010 the Convention had 67 States Parties](#).

²⁴⁵ Designed to enhance international cooperation to combat the global threat of nuclear terrorism through the adoption of a core set of principles to prevent, manage and respond to attacks involving nuclear or radiological materials, including the control of nuclear materials and detecting and suppressing illicit trafficking. It has more than 75 partner nations, including India and China, although partner nations are not required to take part in all of the initiatives activities.

²⁴⁶ "New impetus for nuclear security", *Strategic Comments*, December 2009. See also chapter four of *Keeping the Lid On: Nuclear Security and the Washington Summit*, British American Security Information Council, 7 April 2010

²⁴⁷ [World at Risk: The Report of the Commission on the Prevention of WMD Proliferation and Terrorism](#), December 2008

²⁴⁸ International Panel on Fissile Materials, *Global Fissile Material Report 2009*

²⁴⁹ "The April 2010 nuclear security summit: one more step toward the mountaintop", Nuclear Threat Initiative Issue Brief, 20 April 2010

²⁵⁰ Cabinet Office, *The Road to 2010*, Cm7675, July 2009

²⁵¹ This is examined in section 2.4

secure all vulnerable nuclear material within four years. However, it was acknowledged that efforts to implement stronger nuclear security practices should complement the fundamental premise set down in the NPT of the right of states to develop and utilise nuclear energy for peaceful purposes: a right that is expected to be exercised on a much greater scale as part of the so-called 'nuclear renaissance'.

At the conclusion of the Summit, participating states issued a joint Communiqué in support of the general principles of nuclear security, each state's fundamental responsibility toward meeting them and the key role of the IAEA within the nuclear security framework. Specifically, that Communiqué recognised the need for all participating states to fully implement existing nuclear security commitments, including accession to a number of key international agreements, in addition to adopting new measures and adequately resourcing the IAEA. Those new initiatives were set down in a four year work plan which the summit concluded would provide "guidance for national and international action including through cooperation within the context of relevant international fora and organizations".²⁵² That agreed work plan does not constitute a legally binding commitment, but instead:

constitutes a political commitment by the Participating States to carry out, on a voluntary basis, applicable portions of this Work Plan, consistent with respective national laws and international obligations, in all aspects of the storage, use, transportation and disposal of nuclear materials and in preventing non-state actors from obtaining the information required to use such material for malicious purposes.²⁵³

That work plan therefore sets out the following key commitments, for action within four years:

- **Implementing existing international agreements** – The work plan called for States Parties to the *International Convention for the Suppression of Acts of Nuclear Terrorism* and the *Convention on the Physical Protection of Nuclear Material* to work to achieve universality of both Conventions as soon as possible. It also called for States Parties to accelerate ratification and the early implementation of the 2005 Amendment to the *Convention on the Physical Protection of Nuclear Material*, and until such time as that Amendment enters into force, to act in accordance with its purposes. The work plan also noted the need to fully implement UN Security Council Resolution 1540 and called specifically on participating states to support the 1540 Committee, including consideration for the establishment of a voluntary fund. States were also encouraged to provide assistance to those states that request it.
- **Role of the IAEA** – Recognising the key role of the IAEA in supporting national efforts to enhance nuclear security through its Nuclear Security Programme, the work plan encouraged all of the IAEA Member States to implement the recommendations and guidance set out in its Nuclear Security Series of documents and to assist others in doing so when requested.
- **Framework of nuclear security initiatives** – Noting the myriad of bilateral, regional, multilateral initiatives and other non-governmental activities that exist, the work plan called for participating states to work together to ensure that nuclear security cooperation mechanisms and initiatives are complementary, reinforcing, consistent with related IAEA activities and appropriately matched to those states requesting assistance. Specifically, the intention of the members of the G8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction to undertake additional programming to enhance nuclear security was welcomed. The US and Canada called for an additional \$10bn to extend the project for ten years and on 25

²⁵² [Communiqué of the Washington Nuclear Security Summit](#), 13 April 2010

²⁵³ [Work Plan of the Washington Nuclear Security Summit](#), 13 April 2010

May the Canadian Ambassador to the United States suggested that a decision to extend the initiative beyond 2012 could be taken during the G8 summit at the end of June 2010.²⁵⁴

- **Management of nuclear materials** – Recognising the right of states to develop and use nuclear energy for peaceful purposes and the responsibility of each state for the use and management of all nuclear materials and facilities under its jurisdiction, the work plan stipulated a number of measures for participating states to consider. They included consideration, where appropriate, of the consolidation of national sites where nuclear material is held; the safe transport of nuclear materials, both domestically and internationally; the safe, secure and timely removal and disposition of nuclear materials from facilities no longer using them; the conversion, where appropriate, of HEU fuelled research reactors, and other nuclear facilities using HEU, to use LEU where it is technically and economically feasible; and collaboration on new technologies that require neither HEU fuels for reactor operation nor HEU targets for producing medical or other isotopes, and encouragement of the use of LEU and other proliferation-resistant technologies and fuels in various commercial applications such as isotope production.
- **Domestic regulation** – The work plan committed participating states to establish and maintain effective nuclear security regulations, including the periodic review and adjustment of the regulations as appropriate; undertake to build regulatory capacity and ensure sufficiently trained and vetted professional nuclear security staff and adequate resources, taking into account current needs and future expansion of their respective nuclear programmes; and the review and enforcement of compliance with national nuclear security regulations as a matter of priority.
- **Role of the nuclear industry** – The work plan agreed that participating states would work, in guiding the nuclear industry, to promote and sustain a strong nuclear security culture and a commitment to implementing robust security practices, including regular exercises and performance testing of nuclear security features, consistent with national regulations and the exchange of best practice.
- **Information sharing and capacity building** – The work plan also committed states to promoting cooperation among relevant stakeholders for capacity building in this sector; and improving national criminal laws, as required, to ensure they have adequate authority to prosecute all types of cases of illicit nuclear trafficking and nuclear terrorism and commit to prosecuting these crimes to the full extent of the law. Participating states were also encouraged to develop and apply mechanisms to expand the sharing of information on issues, challenges, risks and solutions related to nuclear security, trafficking and terrorism in a comprehensive and timely manner and explore ways to work together to develop national capacities for nuclear forensics, such as the creation of national libraries and an international directory of contacts, to facilitate cooperation, including relevant IAEA activities in this area.

In support of the Joint Communiqué and four year work plan, a number of national commitments were agreed at the Summit as a demonstration of initial political support for the broader agenda. Most notable among those commitments²⁵⁵ were: an undertaking by Ukraine to eliminate its holdings of HEU by shipping the material to another nation for safekeeping by 2012; the commitment by both Kazakhstan and Mexico to convert a HEU

²⁵⁴ A number of analysts have questioned, however, whether extension of the mandate will be more than political rhetoric given the current economic crisis (See "Canadian Ambassador predicts G8 non-proliferation program will be extended", *Global Security Newswire*, 25 May 2010)

²⁵⁵ A full list of those national commitments is available from the [White House website](#)

research reactor and eliminate all remaining HEU; and the conclusion of an updated agreement between the US and Russia for the disposal of at least 34 metric tons of plutonium from retired warheads, an agreement that both countries have been trying to conclude since 2008.²⁵⁶ Russia also committed to ending all plutonium production.²⁵⁷

President Obama welcomed the achievements of the Summit, commenting that “today is a testament of what is possible when nations come together in a spirit of partnership to embrace our shared responsibility and confront a shared challenge”.²⁵⁸ However, he went on to acknowledge that “this can’t be a fleeting moment. Securing nuclear materials must be a serious and sustained global effort”.²⁵⁹

While deemed a political success, the practical achievements of the summit have come under considerable scrutiny. As an article in *Strategic Comments* in April 2010 noted, many of the initial national commitments, referred to as “house gifts” by the US administration, had either already occurred or had been in preparation for some time and as such were not considered completely original commitments. Several experts have also questioned the feasibility of completing ‘locking down’ all nuclear materials given that there is no uniform standard and no international authority for monitoring compliance. The political will of participating states to keep their nuclear pledges a key priority over the next few years is also uncertain, particularly in those areas which require domestic legislation. Other acknowledged challenges are largely economic. The IAEA’s nuclear security budget is currently limited, being largely based upon voluntary contributions; the conversion of hundreds of existing civilian research reactors around the world from HEU to LEU would be both technically complex and expensive; while assistance to other states through initiatives like the G8 Global Partnership will require considerable funding, which in the current economic climate may prove politically difficult to secure in the longer term.

Several observers, including Republican Senator Jon Kyl, have also disagreed with the focus of the summit on securing vulnerable materials and have argued in contrast that the international community should focus more on the threat posed by countries like Iran. Senator Kyl commented:

The summit [...] should have been an opportunity to develop a consensus to deal with the greatest threat to our security: an Iran with a nuclear weapons capability.

The summit’s purported accomplishment is a nonbinding communiqué that largely restates current policy, and makes no meaningful progress in dealing with nuclear terrorism threats or the ticking clock represented by Iran’s nuclear weapons program.²⁶⁰

A meeting of national representatives are now expected to convene in December 2010 to evaluate initial progress against the summit goals. Participating nations also committed to hold a further nuclear security summit in South Korea in 2012 as a means of maintaining momentum on this key issue. As the article in *Strategic Comments* succinctly concluded:

The effectiveness of the April summit will ultimately be judged on its ability to kick-start a longer-term process of heightened international cooperation and rigorous

²⁵⁶ The *Plutonium Management and Disposition Agreement* was originally agreed in 2000 but never fully implemented.

²⁵⁷ Russia’s previous commitment in 1994 was only for the cessation of plutonium production for its weapons programme.

²⁵⁸ White House, [Press Conference by the President](#), 13 April 2010

²⁵⁹ *ibid*

²⁶⁰ [Kyl Statement on Nuclear Security Summit](#), 13 April 2010

implementation of international agreements on a national level, rather than on its immediate results.²⁶¹

2.4 UK Position

The UK has been a strong advocate of multilateral disarmament and since the end of the Cold War has undertaken several disarmament measures which have resulted in reducing the explosive power of the British nuclear arsenal by 75% and the UK becoming the only nuclear weapon state recognised under the NPT to have reduced its deterrent capability to a single system.²⁶² Under the Labour Government this commitment to multilateral disarmament was frequently reiterated by both the then Prime Minister, Gordon Brown and the then Foreign Secretary, David Miliband and in 2009 the Government published two documents which set out the UK's position and thinking with regard to achieving that long term aim: the February 2009 FCO policy information paper entitled *Lifting the Nuclear Shadow: Creating the Conditions for Abolishing Nuclear Weapons*; followed in July 2009 by the Cabinet Office document *The Road to 2010*.²⁶³

The FCO policy paper concluded that “an assertive and co-operative strategy” must be agreed by the entire international community if the goal of a nuclear weapons-free world is to be achieved. Specifically the paper suggested that three main sets of conditions need to be put in place before a state of global zero can even be considered, all of which broadly reflect the three pillars of the NPT: a watertight non-proliferation regime (which still exploits the benefits of nuclear energy); arsenals need to be reduced and an international legal framework which progressively tightens constraints on nuclear weapons needs to be constructed, while the technical, political and institutional challenges of moving to global zero without destabilising international security need to be addressed. Recognising the challenge of achieving those conditions, the document went on to set out what was considered attainable toward that larger goal over the immediate period ahead:

1. Stopping further proliferation and securing agreement among all NPT states that the way forward must include tougher measures to prevent proliferation and tighten security, and the implementation of such measures, including practical help to those states which need it.
2. Working with the IAEA to help states that want to develop a civil nuclear energy industry to do so in ways which are secure and minimise the proliferation risk.
3. Completing US-Russian negotiations and agreement on substantial reductions in their nuclear arsenals, complemented by the efforts of the other nuclear weapon states to keep their own forces to an absolute minimum.
4. Bringing the CTBT into force, banning all nuclear weapons test explosions and thereby constraining the development of nuclear weapons.
5. Starting negotiations, without preconditions, and subsequently making progress on a *Fissile Material Cut-Off Treaty*.
6. Starting discussions on the political, military and technical issues which will need to be resolved if global zero is to be achieved.

²⁶¹ International Institute for Strategic Studies, “Nuclear summit strengthens security measures”, *Strategic Comments*, 15 April 2010

²⁶² *Working paper on disarmament submitted by the UK to the first session of the NPT Preparatory Committee*, 9 May 2007

²⁶³ This was accompanied by a Written Ministerial Statement in Parliament (HC Deb 16 July 2009, c78-9WS)

While *Lifting the Nuclear Shadow* set out the Labour government's disarmament vision, *The Road to 2010* went one step further and set out the Labour government's practical agenda for action on the three pillars of the NPT (proliferation, disarmament and peaceful nuclear use) in the run-up to the nuclear security conference in Washington in April and the NPT Review Conference in May 2010. Specifically *The Road to 2010* identified the need to address:

- **Non-proliferation and disarmament:**
 - Increasing transparency with regard to nuclear weapons holdings and posture including by those states which are not signatories to the NPT.
 - Dealing robustly with states that are in contravention of their NPT obligations and encouraging those states which are not party to the NPT to sign and ratify it.
 - Ratification of the *Comprehensive Test Ban Treaty*, which is regarded as a key milestone in the disarmament process.
 - Taking forward the work that will enable negotiations on a *Fissile Material Cut-Off Treaty* to begin. The UK has indicated that verification measures for the FMCT could be undertaken through its Nuclear Centre of Excellence.
 - Strengthening the Proliferation Security Initiative.
 - Establishing a Middle East WMD free zone.
 - Developing new measures for tackling the financing of proliferation. The *Counter Terrorism Act 2008*, for example, gave the Government new powers to respond when the development of nuclear weapons overseas poses a risk to the UK. The UK is also taking the lead through the Financial Action Task Force to address how proliferation finance safeguards could be brought into the system of internationally agreed standards against illicit financing.
 - Implementing effective export controls in accordance with UN Security Council Resolution 1540 and universal adoption of the IAEA Additional Protocols.
 - Establishing confidence building measures that would allow states to contemplate moving towards 'global zero', including moves to reduce the relevance of nuclear weapons in each nations defence plans, establishing new structures to manage international crises and renewed dialogue on conventional arms control so the reduction of nuclear weapons does not prompt a conventional arms race.
- **Nuclear energy:**
 - Assisting states to utilise their rights under the NPT to peaceful uses of nuclear energy – through Nuclear Cooperation Agreements, the UK provides assistance to prospective civil nuclear states and provides substantial funding through the IAEA Technical Cooperation Fund.
 - Persuading all states to sign up to the IAEA Additional Protocol.
 - Examining multilateral approaches to the nuclear fuel cycle, including the establishment of an international fuel bank which would allow countries developing new nuclear programmes to reliably access the fuel and related services they need to generate power without the need to invest in enrichment

and re-processing infrastructure thereby increasing the proliferation risk. Exploring this option on a regional basis and within the framework of the IAEA is regarded by the UK as a crucial approach. The UK would also establish a Nuclear Centre of Excellence to enable the UK to be at the forefront of international efforts to improve access to the peaceful use of nuclear energy while preventing nuclear proliferation.²⁶⁴ As noted above, it is also envisaged that the centre may play a role in the future in developing the verification mechanisms needed to support a future *Fissile Material Cut-off Treaty*.

The Cabinet Office document also argued that strengthened action on nuclear security should be added to the NPT regime as a ‘fourth pillar’, and that attention should be devoted to the international governance of the non-proliferation regime, including reform of the IAEA if the grand bargain at the heart of the NPT is to be renewed. With respect to nuclear security, and as part of the 2010 process, the UK outlined its intention to, among other things, extend its offer of assistance to any country that wants to secure stocks of vulnerable nuclear material, and work with other countries toward the ratification of the *Amendment to the Convention on the Physical Protection of Nuclear Material*. With a view to reform of the IAEA, the document outlined the UK’s intention, in the short term, to work with the new Director General of the IAEA and international partners to develop robust plans for organisational reform of the agency; while also hosting a meeting of the main financial donors to discuss future funding and staffing issues. In the medium to longer term the *Road to 2010* proposed that the NPT review conference agree specific measures to develop the key role that the IAEA needs to play in fissile material security, verification and non-compliance and how nuclear energy can assist in delivering sustainable energy development. Support for the IAEA from the UN Security Council was also considered vital, particularly with regard to action over non-compliance and notices of withdrawal by any state from the NPT. The Government rejected calls for a nuclear weapons convention to be established, however, arguing that:

The Government believes that a Nuclear Weapons Convention may at some stage in the future form the legal underpinning of a world free from nuclear weapons. However, the global political and security environment in such a world is likely to be very different from current realities. It is impossible to predict how such a world might look. In addition, we believe that a new conference or body to discuss such a convention today would risk undermining the NPT. Therefore at this stage we believe it would be premature and counter-productive to begin negotiations on a Nuclear Weapons Convention. We also believe that such negotiations would be unlikely to make political headway in the current global political climate. We remain firmly committed to the NPT as the best vehicle for creating the conditions for a world free from nuclear weapons.²⁶⁵

However, the Government made it clear that its support for global disarmament should not be mistaken for a commitment toward unilateral disarmament and that it would be premature and potentially counter-productive to focus efforts solely on an outright ban of nuclear weapons when many of the other conditions necessary to enable a ban to be credible and enduring have yet to be put in place. In his foreword to *Lifting the Nuclear Shadow* the then Prime Minister commented:

Some suggest that the UK should give a lead by destroying all our own nuclear weapons. But our serious commitment to global nuclear disarmament should not be confused with unilateral disarmament. In our recent White Paper we explained in detail

²⁶⁴ The Centre will bring together academia, industry and government and will be overseen by a group chaired by the Government’s Chief scientific Advisor and include the Technology Strategy Board. The Government intend to commit £20m over the first five years.

²⁶⁵ Foreign Affairs Committee, *Global Security: Non-Proliferation, Response of the Secretary of State for Foreign and Commonwealth Affairs*, Cm7692, Session 2008-09

why in the current security environment it was necessary to maintain our nuclear deterrent. Furthermore, if the UK were to dismantle all our nuclear weapons, it is highly unlikely that others would do the same. Nor do we believe it would have any positive effect on current proliferators like Iran.

That report went on to state:

Clearly, no country can do it all alone [...] Making progress will require building a broad coalition including states, international organisations, businesses, and non-governmental organisations. While the nuclear weapon states have a special responsibility to give a lead, eliminating nuclear weapons needs to be a co-operative project with the active engagement of the entire international community to create the political and security conditions which will be necessary [...]

We need to make a clean break from current perceptions that in this field everything is a zero sum game and instead work to establish virtuous circles in which progress on non-proliferation, disarmament and political and security conditions reinforce each other, enabling breakthroughs in areas which for many years have seemed intractable.²⁶⁶

The Road to 2010 also argued that the decision to renew Trident is fully compatible with the UK's NPT obligations, because failing to renew the system would effectively set the UK on the path to unilateral nuclear disarmament, which is not required by the Treaty.²⁶⁷ In its working paper submitted to the NPT preparatory committee in 2007 the Government also argued that the replacement of Trident equated to retention and not modernisation of its deterrent.²⁶⁸ That report also noted the UK's belief that "it is clear to us that considerable bilateral progress [between the US and Russia] will have to be made in reducing the large nuclear arsenals before it will be helpful and useful to include the small fraction of the global stockpile that belongs to us".²⁶⁹ Indeed, many commentators view the UK's nuclear deterrent as a potential bargaining chip in the wider debate on global zero.²⁷⁰

At the meeting of the UN General Assembly in mid-September 2009 the then Prime Minister also announced that the UK would be prepared to consider cutting the size of the UK's deterrent fleet from four to three submarines as part of any global agreement to reduce nuclear arms. In his speech to the Assembly he stated:

If we are serious about the ambition of a nuclear free world we will need statesmanship, not brinkmanship [...]

All nuclear weapons states must play their part in reducing nuclear weapons as part of an agreement by non nuclear states to renounce them. This is exactly what the Non Proliferation Treaty intended. In line with maintaining our nuclear deterrent I have asked our national security committee to report to me on the potential future reduction of our nuclear weapon submarines from four to three.²⁷¹

²⁶⁶ Foreign and Commonwealth Office, *Lifting the nuclear shadow: creating the conditions for abolishing nuclear weapons*, February 2009

²⁶⁷ Cabinet Office, *The Road to 2010: Addressing the nuclear question in the twenty first century*, July 2009, para 5.38

²⁶⁸ *Working paper on disarmament submitted by the UK to the first session of the NPT Preparatory Committee*, 9 May 2007

²⁶⁹ *ibid*

²⁷⁰ See for example Desmond Bowen, "Deterrence and disarmament in the UK", *Survival*, February-March 2010 and "Chinese and British perspectives on the road to the NPT 2010", *RUSI Workshop Report*, November 2009

²⁷¹ A copy of the Prime Minister's speech is available online at: <http://www.number10.gov.uk/Page20719>

An MOD statement on 23 September 2009 clarified that “the PM’s aim is that from the mid 2020s we should meet our minimum deterrent requirements with three next generation nuclear-armed submarines, unless analysis demonstrates that this would be impossible”.²⁷²

The renewal of Trident is examined in greater detail in section 2.5 and in Library Standard Note SN/IA/5150, *Future of the British nuclear deterrent: a progress report*.

At the end of March 2010 the Government published an information pack entitled *Nuclear 2010* which set out the UK’s objectives for the NPT Review Conference, and largely reiterated those proposals initially set out in the *Road to 2010*.

In its most recent report on *Global Security: UK-US Relations*, the Foreign Affairs Select Committee stated:

We conclude that the goal of a nuclear weapons-free world is gathering more serious international political support than at any time since the end of the Cold War. We conclude that the Government’s leadership on multilateral nuclear disarmament is to be commended.²⁷³

Nuclear Policy under the new Coalition Government

In its *Programme for Government* published on 20 May 2010, the new Conservative/Liberal Democrat Coalition Government stated:

We will maintain Britain’s nuclear deterrent, and have agreed that the renewal of Trident should be scrutinised to ensure value for money. Liberal Democrats will continue to make the case for alternatives. We will immediately play a strong role in the Nuclear Non-Proliferation Treaty Review Conference, and press for continued progress on multilateral disarmament.²⁷⁴

Building on the policies of the previous Labour government in this area, in the Queens Speech debate on Foreign Affairs on 26 May 2010 the Foreign Secretary, William Hague, went on to outline in further detail the new Government’s intentions with respect to its nuclear policy:

The conference to review the nuclear non-proliferation treaty, which I just mentioned, began during our election campaign and has entered its final week in New York. In opposition, my party promised decisive UK leadership in this effort if elected, and the coalition agreement pledged an immediate and strong UK role at the conference. So I am pleased to announce today that, for the first time, the Government will make public the maximum number of nuclear warheads that the United Kingdom will hold in its stockpile-in future, our overall stockpile will not exceed 225 nuclear warheads. This is a significant step forward on previous policy, which was to publish only the number of warheads classed as "operationally available", the maximum number of which will remain at 160. We believe that the time is now right to be more open about the nuclear weapons that we hold. We judge that that will further assist in building the climate of trust between nuclear and non-nuclear weapons states, which has been lacking in recent years, and will contribute to efforts to reduce the number of nuclear weapons worldwide. I can assure the House that this disclosure poses no threat to the security of the United Kingdom. Together with similar announcements made by the United States and France, it helps to set standards of transparency that all states with nuclear programmes should follow.

²⁷² Ministry of Defence, Defence in the Media, 23 September 2009

²⁷³ Foreign Affairs Committee, *Global Security: UK-US relations*, HC 114, Session 2009-2010

²⁷⁴ *The Coalition: Our Programme for Government*, 20 May 2010

I can also announce that the Government will re-examine the UK's declaratory policy as part of the strategic defence and security review. The purpose of our nuclear weapons is to deter attack, and the UK has long been clear that it would consider using them only in extreme circumstances of self-defence, including the defence of our NATO allies. This country has been deliberately ambiguous over the precise circumstances of use, although we have offered some assurances to non-nuclear weapons states. We have decided that the time is right to look again at our policy—the US has done the same in its recent nuclear posture review—to ensure that it is fully appropriate to the political and security context in 2010 and beyond. The Under-Secretary of State for Foreign and Commonwealth Affairs, my hon. Friend the Member for North East Bedfordshire (Alistair Burt), is, as I speak, attending the review. He will repeat these announcements there and will meet other delegations to help promote a positive outcome of the conference. These concrete actions show how seriously we take our obligations to strengthen the non-proliferation treaty and to move towards the long-term goal of a world without nuclear weapons while ensuring that we maintain our credible minimum nuclear deterrent.²⁷⁵

In response to that statement, and the declaration regarding the UK's nuclear stockpile in particular, the Head of the Campaign for Nuclear Disarmament, Kate Hudson, commented:

Publishing this number is a welcome step that can help build trust between states and open the way for disarmament. But Britain's commitment under the NPT is not to be transparent, but to disarm. [It] gives us a baseline against which further disarmament can be measured, but it is the reduction and then elimination of the UK and other countries' nuclear weapons that will deliver real security.²⁷⁶

2.5 Nuclear Modernisation/Renewal

Despite the initiatives and policy re-evaluations that have taken place over the last year, the fact also remains that all of the nuclear weapon states (recognised under the NPT or not) are in the process of either replacing or modernising their nuclear capabilities. Many have argued that the intention to move forward with such programmes undermines the grand bargain at the heart of the NPT and indeed the very credibility of current political overtures on this subject. A number of nuclear weapon states, including the UK, have argued in response that Article VI of the NPT does not establish any timetable for nuclear disarmament and does not prohibit maintenance or updating of existing capabilities.²⁷⁷ Indeed, modernisation has also been viewed as necessary in order to guarantee the effectiveness and safety of existing stockpiles, and in the US in particular this argument has been portrayed as essential if further disarmament measures are to be agreed.

The motivations behind each state's modernisation programmes are arguably remarkably similar. Modernisation efforts have largely been justified on the basis on future uncertainties in the global security environment, regional security concerns and the modernisation efforts of other nuclear weapon states themselves. North Korea/Iranian issues aside, US modernisation efforts are, in part, arguably driven by the modernisation programmes of Russia and China, which the US views as strategic competitors.²⁷⁸ The continued upgrade, and expansion, of these countries nuclear capabilities, will undoubtedly influence the strategic calculus of the US over how far it is prepared to advance disarmament of its own nuclear arsenal, and the timeframe in which it does so. An article published by the Hudson Institute in March 2010 noted this dilemma:

²⁷⁵ HC Deb 26 May 2010, c181-182

²⁷⁶ "UK offers nuke numbers", *Global Security Newswire*, 26 May 2010

²⁷⁷ *The Future of the United Kingdom's Nuclear Deterrent*, Cm 6994, December 2006

²⁷⁸ In the 2010 *Nuclear Posture Review*, the US noted the lack of transparency over China's modernisation programmes and its longer term strategic intentions (see section 2.2).

One doesn't hear the disarmament community talking about the braking effect of foreign modernization and nuclear weapons proliferation upon US disarmament [...]

It is quite clear, however, that US strategists have noticed the challenge. If there is to be any meaningful hope of deep US-Russian arms reductions after [the] post-START deal [...] some answer will have to be found to handling this tension.

One answer to the problem of this braking effect might be somehow to constrain Russian and Chinese nuclear work [...] an alternative approach is to take affirmative US steps to more obviously level the potential future playing field by moving America back into the modernization business, as a means to safeguard against technological surprise and to permit reductions to continue.²⁷⁹

This leads on to a larger, and possibly unanswerable question, that goes straight to the heart of the disarmament debate - at what point can confidence in the intentions of states to either disarm or renounce a nuclear weapons capability, and the ability of the international system to monitor and verify those intentions, be deemed high enough that a state can take the final step towards the abolition of its own nuclear weapons? This issue is examined in greater detail in section 4 on the prospects for achieving 'global zero'.

US Nuclear Modernisation

Under the Obama administration, the US's approach to nuclear modernisation has altered. In an effort to support the broader disarmament and non-proliferation agenda, and give credibility to US intentions to lead that initiative, modernisation of the US nuclear arsenal has evolved from the development of new capabilities under the Bush administration²⁸⁰ to a strategy focused largely on stockpile stewardship and infrastructure modernisation.

As outlined above, under the 2010 *Nuclear Posture Review* the US committed to not develop new nuclear weapons; while life extension programmes (LEP) to ensure the safety and continued effectiveness of the nuclear arsenal would only use nuclear components based on previously tested designs and any replacement of nuclear components would have to be authorised by the President and approved by Congress. The NPR went on to recommend that the ongoing LEP for the W-76 submarine-based warhead and the LEP study and follow-on activities for the B-61 bomb should be fully funded, and that a study of LEP options for the W-78 ICBM warhead, including the possibility of using the resulting warhead on SLBMs in order to reduce the number of warhead types should be initiated.

The President's budget request for the National Nuclear Security Administration for FY2011²⁸¹ set out further detail on the level of spending required to sustain the US nuclear complex. In total the President's budget included more than \$7bn for weapons activities and associated infrastructure development, an increase of 10% from FY2010 funding. Specifically, that request increased funding for stockpile management activities by 25%, including all those recommendations of the NPR related to warhead development and life extension programmes; increased funding for science, technology and engineering by 10% in order to ensure the ability to assess and certify the stockpile without the need for underground nuclear testing; and recapitalisation of the physical nuclear weapons infrastructure, including major long term construction projects, to replace ageing facilities that house essential capabilities for plutonium and uranium.²⁸²

²⁷⁹ "Post-START numbers and nuclear modernization", Hudson Institute, 30 March 2010

²⁸⁰ Such as the Reliable Replacement Warhead programme

²⁸¹ Presented as part of the FY2011 budget submission for the [US Department of Energy](#)

²⁸² US Department of State, [Investments in the Nuclear Complex Fact Sheet](#), April 2010

That budget request will now be subject to Congressional consideration; with the possibility remaining that Congress could cut the level of funding for individual projects. Under a longer term plan, investment in stockpile stewardship and infrastructure is expected to increase significantly over the next few years:

Projections for Weapons Stockpile and Infrastructure Costs

	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
\$bn, Current prices	6.4	7.0	7.0	7.1	7.4	7.7	8.4	8.9	9.0	8.7	8.8

Source: Bureau of International Information Programs, U.S. Department of State

In his foreword to the NPR, Robert Gates commented:

These investments, and the NPR's strategy for warhead life extension, represent a credible modernization plan necessary to sustain the nuclear infrastructure and support our nation's deterrent. They will also enable further arms reductions by allowing us to hedge against future threats without the need for a large non-deployed stockpile.²⁸³

However, some commentators have argued that President Obama's modernisation plans, while watered down compared with his predecessors, are still in contravention of his political commitments to disarmament. As Greg Mello commented in the February 2010 edition of the *Bulletin of the Atomic Scientists*:

Building thousands of significantly upgraded bombs (a process already underway) with new requests to develop and produce more types of upgraded bombs and the factories to make them isn't disarmament. It's the modernization of the country's nuclear weapons complex, along with its arsenal, for the long run.²⁸⁴

Others have claimed that the restriction on the development of new nuclear warheads does not actually preclude enhancement of the US nuclear arsenal as those imitations relate to the stewardship of the nuclear stockpile, and do not relate to the development of US nuclear delivery systems. The essence of a nuclear deterrent relies, after all, on the ability to deliver a nuclear weapon. Indeed, the commitment to development of a next-generation SSBN and continued modernisation of the strategic bomber force, including the investment of more than \$1bn over the next five years to support upgrades to the B-2 stealth bomber, was outlined in the 2010 *Nuclear Posture Review*.²⁸⁵ The administration's budget request for the Department of Defense in FY2011 also contained funding proposals for the development of a new air-launched cruise missile (ALCM), which would be nuclear-capable, and replace the AGM-86B ALCM which is due for retirement by 2030.²⁸⁶ Hans Kristensen, Director of the Federation of American Scientists' Nuclear Information Project, has argued that funding for a future cruise missile would "fly in the face of the President's pledge [...] we're telling the world we're not going to produce new nuclear weapons and in the first budget of the administration there is a new nuclear weapon".²⁸⁷

Kingston Reif, in an article for the *Bulletin of the Atomic Scientists* in December 2009, argued that the idea that the US is the only country not modernising its nuclear weapons capabilities is a myth. As evidence for his claim he pointed to the fact that both the US submarine-launched Trident II D5, and land-based long-range Minuteman III missiles are undergoing a

²⁸³ *Nuclear Posture Review Report*, April 2010

²⁸⁴ "The Obama disarmament paradox: a rebuttal", *Bulletin of the Atomic Scientists*, 24 February 2010

²⁸⁵ *US Nuclear Posture Review*, April 2010, p.23-24

²⁸⁶ http://www.dtic.mil/descriptivesum/Y2011/AirForce/0101122F_PB_2011.pdf

²⁸⁷ "Pentagon eyes more than \$800 million for new nuclear cruise missile", *Global Security Newswire*, 9 March 2010

life extension programme; while Washington also has plans to develop a new class of ballistic missile submarine to replace the Ohio-class (the SSBN-X), for which the Obama administration requested \$700m of research and development funding in FY2010. He also noted the air force's plans to procure a next-generation strategic bomber aircraft and rightly predicted that a funding request would emerge in the Department of Defense's FY2011 budget.²⁸⁸ He therefore concluded that "these plans [...] belie the notion that the United States is the only nation that isn't producing new weaponry" and argued that "what matters far more... is whether a country has a reliable, credible deterrent".²⁸⁹ The F-35 Joint Strike Fighter which is currently being procured would also be nuclear-capable.

That assessment is also supported by the Nuclear Threat Initiative²⁹⁰ and the Arms Control Association which noted in a May 2010 briefing that:

in reality, there is a robust modernization plan already underway. The United States is in the process of upgrading all of its strategic delivery systems, the warheads they carry, and the production complex for the next 20-30 years or more [...]

Lingering concerns that the United States does not have a plan to maintain and modernize its nuclear forces are based on myth, not reality.²⁹¹

What has also been noted is the possibility that a future President, one more conservative than President Obama, could take advantage of the investments that are currently being made in the US nuclear complex and possibly reverse all of the disarmament achievements that are potentially set to define the Obama Presidency.

Russian Nuclear Modernisation

Since the end of the Cold War, Russia has indicated a preference to rely on its nuclear arsenal and ICBM capabilities as a means of power projection and, some have argued, as a means of making up for the increasing obsolescence and inferiority of its conventional arsenal. However, many of those ICBM capabilities are Soviet-era weapons systems and are due to be decommissioned between 2012 and 2015.

Over the last few years various programmes of wholesale modernisation of the Russian military have been announced in an attempt to rebuild a cohesive military out of the old Soviet structures. As part of those programmes the modernisation of capabilities and in particular the strategic nuclear deterrent has consistently been identified as a priority.

During a February 2007 speech to the Russian Duma the then Russian Defence Minister, Sergei Ivanov announced that between 2007 and 2015 the Russian government intended to spend approximately 5 trillion roubles (US\$190 billion) on a weapons modernisation programme that would replace 45% of its entire arsenal, with Russia's ballistic missile programme earmarked as one of the biggest beneficiaries of this ambitious modernisation programme. In his speech Mr Ivanov outlined that the military would receive 17 new Topol-M ICBM during the course of 2007, compared to a previous average of four per annum.²⁹² In May 2007 Russia also test launched a new ICBM, the RS-24 which is an improved version of

²⁸⁸ http://comptroller.defense.gov/defbudget/fy2011/fy2011_r1.pdf

²⁸⁹ Kingston Reif, "Nuclear weapons: the modernization myth", *Bulletin of the Atomic Scientists*, 8 December 2009

²⁹⁰ "Nuclear stockpile modernization: issues and background", Nuclear Threat Initiative Issue Brief, 15 February 2010

²⁹¹ "Nuclear weapons, modernization myths and realities", *Arms Control Today*, 12 May 2010. The ACA also provides a chart of US modernisation programmes, including costs and timeframes at: <http://www.armscontrol.org/print/4021>

²⁹² The Topol-M has a payload of around 1,200 kg and a range of 10,500km.

the Topol-M with a multiple independently targetable re-entry vehicle (MIRV) capability²⁹³ deploying up to 10 warheads, which will replace the ageing RS-18 and RS-20 systems. Further modifications to that system in order to enhance its flight and penetration characteristics, including a stealth capability and anti-detection countermeasures, have also been proposed in response to the US plans to deploy elements of its ballistic missile shield in Eastern Europe. In December 2007 a spokesman for Strategic Missile Command suggested that Russia was also developing a new ICBM, more advanced than the Topol-M, for possible deployment by 2017.²⁹⁴ A number of commentators have speculated, however, that this could be the RS-24. During a speech in December 2009, recognising the 50th anniversary of the Russian Strategic Missile Force, the Head of that force, General Andrei Shvaichenko, commented:

To successfully accomplish the set tasks, the RSMF will continue to have silo-based missile systems, which can provide an immediate response and mobile systems featuring high survivability. By the end of 2016, the missile systems with extended service life will constitute no more than 20% of the total, while the share of new missiles will be about 80%.²⁹⁵

Other priorities have included modernisation of the other elements of Russia's nuclear triad, including the upgrade of the Delta IV SSBN to deploy the Sineva SLBM²⁹⁶ and the procurement of a fleet of eight Borei-class strategic deterrent submarines equipped with a new generation of SLBM, codenamed the Bulava.²⁹⁷ The first ship of this class was launched in February 2008 and is currently expected to enter service by the end of 2010 upon the completion of sea trials, although concerns still remain over the operational capabilities of the missile. The Bulava had been earmarked to enter service in 2009 although a series of testing failures since 2008 have left the eventual in-service date of this missile currently open to question and raised the possibility that the first ship of the Borei-class will go to sea without its main armament.²⁹⁸ The Delta IV-class SSBNs which are currently in service are not expected to be decommissioned, however, until well into the 2020s. As such, the delay to the Borei-class is not considered detrimental to Russia's sea-based nuclear posture as of yet, although it has raised questions as to the technical capabilities and overall condition of Russia's military-industrial complex.²⁹⁹ In 2009 the Deputy Chief of the Russian Naval General Staff, Vice Admiral Oleg Burtsev, reportedly stated that the deployment of tactical nuclear weapons on its submarines would "play a key role in the future".³⁰⁰

The modernisation of Russia's fleet of Tu-160 and Tu-95 long-range strategic bombers by 2015, including giving the Tu-160 the ability to deploy conventional precision guided munitions and dumb bombs, has been identified; while plans for an eventual fleet of 30 Tu-160 'Blackjack' aircraft by 2030 have also been reported. Assembly of three additional Tu-160 aircraft is currently underway; while plans to procure a new strategic bomber between

²⁹³ MIRV capability allows the deployment of multiple warheads on one missile which are then capable of simultaneously engaging multiple targets. Developing multiple warhead technology allows for a far greater nuclear force, by default.

²⁹⁴ 'Russian nuclear forces, 2008', Nuclear Notebook, *Bulletin of the Atomic Scientists*, May/June 2008

²⁹⁵ "Russia outlines nuclear deterrent plans", *Jane's Defence Weekly*, 16 December 2009

²⁹⁶ The Sineva is an improved version of the SS-N-23 missile.

²⁹⁷ Each SSBN is intended to be equipped with 16 Bulava sea-launched ballistic missiles each with an operational range of 8-9,000km and capable of carrying six warheads apiece. The Bulava is a submarine-launched version of the ground-launched Topol-M.

²⁹⁸ The resumption of testing of the missile in June 2010 has now reportedly been delayed until November 2010 making the likelihood of the submarine deploying without its new armament even greater ("Russia rules out further Bulava missile tests until November", *RIA Novosti*, 24 May 2010)

²⁹⁹ See "Russia's Bulava SLBM fails again", *Jane's Defence Weekly*, 9 January 2009 and "Bulava controversy fed by designer's memoirs", *Jane's Missiles and Rockets*, 7 April 2010

³⁰⁰ "Russia could focus on tactical nuclear weapons for subs", *RIA Novosti*, 23 March 2009

2025 and 2030, were also announced in July 2007,³⁰¹ and reiterated again by Prime Minister Vladimir Putin in March 2010.³⁰² The Head of Russian long-range aviation, General Anatoly Zhikharev, has suggested that the new strategic bomber would “replace all existing strategic aircraft used to deliver Russia’s missiles and bombs”.³⁰³ However, it is thought that due to setbacks and concerns over funding, that aircraft is unlikely to appear, even as a prototype, much before 2020.³⁰⁴

Despite these plans to extensively increase the means of nuclear delivery, an estimate of the actual nuclear stockpile conducted by the *Bulletin of the Atomic Scientists* has suggested that by 2015 Russia will possess 20% fewer strategic nuclear warheads than at present.³⁰⁵ Yet it has also been noted with concern that if Russia continues on its current modernisation trajectory, it may result in a situation where Russia’s strategic arsenal starts growing purely on the basis of its ability to deliver a nuclear capability, and that any opportunity to cut back on weapons development would be much harder once these programmes gain momentum.³⁰⁶

UK Trident Replacement Programme

In December 2006 the British Government published a White Paper on replacing the UK’s strategic nuclear deterrent beyond the mid-2020s. The strategic assessment set out in that paper acknowledged that it would not be possible to accurately predict the global security environment over the next 20 to 50 years and that the emergence of a direct nuclear threat to the UK’s strategic interests at some point in the future, from either an existing nuclear weapon state or a new nuclear weapon state, cannot be ruled out. On that basis the paper recommended that the UK’s nuclear deterrent be retained.

In doing so the White Paper concluded that renewing the UK’s minimum nuclear deterrent would be fully consistent with its international obligations, mainly under the NPT; that retaining a submarine-based system would provide the most effective deterrent; that the UK would participate in the current US service-life extension programme for the Trident II D5 missile, which will be deployed aboard the new submarines until the early 2040s; and that the outright procurement costs of a successor system would be in the region of £15-20 billion (2006-07 prices). In-service through-life costs were expected to be approximately 5-6% of the overall defence budget.³⁰⁷ A decision on the possible replacement of the warhead was expected to be taken during the post-2010 Parliament.

While proposing that the UK commit to nuclear replacement, the White Paper did also acknowledge that the UK would continue to press for multilateral negotiations towards mutual, balanced and verifiable reductions by all nuclear weapon states. To demonstrate the Government’s commitment to a minimum capability, the UK stockpile of operationally available warheads would be reduced from fewer than the 200 set out in the 1998 Strategic Defence Review, to fewer than 160, representing a 20% reduction. Indeed, in its working paper submission to the first session of the NPT Preparatory Committee in May 2007 the Government reiterated its belief that:

³⁰¹ “Russia envisages new long-range bomber”, *Jane’s Defence Weekly*, 1 July 2007

³⁰² “Putin calls for new strategic bombers”, *Global Security Newswire*, 2 March 2010

³⁰³ “Russia to develop new strategic bomber”, *Global Security Newswire*, 23 December 2009 and “Russia reveals stealth bomber plans”, *Jane’s Defence Weekly*, 30 December 2009

³⁰⁴ “A resurgent Russia is flattering to deceive”, *Jane’s Defence Weekly*, 10 December 2008

³⁰⁵ That assessment makes clear however, that such estimates are fraught with uncertainty and could be affected by developments such as the conclusion of a new arms control treaty (“Russian Nuclear Forces”, *Bulletin of the Atomic Scientists*, May/June 2008)

³⁰⁶ See Pavel Podvig, “Russia’s new arms development” *Bulletin of the Atomic Scientists*, 16 January 2009

³⁰⁷ The main points of the White Paper are set out in Library Standard Note, SN/IA/4199, *In brief: the trident white paper*, 8 March 2007

Building new submarines for our existing trident D5 missile system does not reverse or undermine any [previous] positive disarmament steps. Any suggestion that the United Kingdom is further developing its nuclear weapons is a misunderstanding. The United Kingdom is retaining *not* modernising its deterrent. There is *no* change in the capabilities of the system, *no* move to produce more useable weapons and *no* change in nuclear posture or doctrine.³⁰⁸

A debate and vote in the House of Commons on the general principle of whether the UK should retain a strategic nuclear deterrent beyond the life of the current system was subsequently held on 14 March 2007, with support for the Government's motion approved by 409 to 161 votes³⁰⁹ Since the debate in March 2007 there has been no further debate on the replacement of the nuclear deterrent, or any of its associated issues, on the Floor of the House.

Critics have long argued that the replacement of Trident contravenes the UK's obligations under the NPT, promotes the wrong attitude toward long term disarmament and, in light of the current pressures on the UK defence budget, is expensive and unnecessary and that funds would be better spent on improving the UK's conventional military and counter terrorism capabilities. In a letter to *The Times* in January 2009,³¹⁰ and again in April 2010, a number of retired senior military officers, including the former Chief of the Defence Staff, Field Marshal Lord Bramall, suggested that the replacement of Trident would be a waste of money in the current strategic climate and that those funds would be much better spent on the UK's conventional forces. That April 2010 letter stated:

It is to be welcomed that all the leading political parties are committed to conducting a comprehensive strategic defence review after the election. This clearly must follow a detailed evaluation of the threats that this country faces today and in the future.

However, it is of deep concern that the question of the Trident replacement programme is at present excluded from this process. With an estimated lifetime cost of more than £80 billion, replacing Trident will be one of the most expensive weapons programmes this country has seen. Going ahead will clearly have long-term consequences for the military and the defence equipment budget that need to be carefully examined.

Given the present economic climate, in which the defence budget faces the prospect of worrying cuts, and that we have already an estimated hole in the defence equipment budget of some £35 billion, it is crucial that a review is fully costed and looks critically at all significant planned defence spending [...]

Should the review determine that there is still a need for a nuclear deterrent, a number of options may be more affordable than a like-for-like replacement of the Trident system, which has been described as a "Rolls-Royce" solution. The state of the public finances requires each of these options to be carefully evaluated, alongside like-for-like replacement and disarmament.³¹¹

Hugh Beach, writing in the February 2009 edition of *RUSI Journal*, also argued that the Government's commitment to maintain the nuclear deterrent without impacting on the conventional needs of the armed forces is "over the longer term... clearly undeliverable". He

³⁰⁸ [Working paper on disarmament submitted by the UK to the first session of the NPT Preparatory Committee](#), 9 May 2007

³⁰⁹ A copy of that debate is available in Hansard:
<http://www.publications.parliament.uk/pa/cm200607/cmhansrd/cm070314/debtext/70314-0004.htm#07031475000005>

³¹⁰ "UK does not need a nuclear deterrent: Letters to the Editor", *The Times*, 16 January 2009

³¹¹ http://www.timesonline.co.uk/tol/comment/columnists/guest_contributors/article7103196.ece

went on to note that “in no other area of military provision is the justification of a general insurance against the unforeseen accepted”.³¹²

Dr Nick Ritchie of the University of Bradford in his report *Trident: Stepping Down the Nuclear Ladder* also suggested that, given the current economic climate, the government should consider pursuing other cost-saving options involving a reduction in both the size and operational status of the nuclear deterrent.³¹³ He noted:

there is a genuine opportunity for the government to demonstrate international leadership with its own nuclear arsenal without recourse to unilateral nuclear disarmament that remains politically unacceptable at the present time. This includes opportunities to reduce the procurement and operational costs of the Trident replacement programme at a time of serious and growing pressure on the defence budget, to develop robust nuclear disarmament verification measures of international significance, and to reinforce the renewed global momentum towards a world free of nuclear weapons.

He went on to argue:

The UK has entered a period of deep recession. The government’s budget delivered in April 2009 suggested that the national debt will increase substantially over the next five years with little prospect of any major increase in public spending for the next two parliaments.

The UK defence budget is already under severe pressure. It cannot afford all of the large military projects currently in the pipeline or in the planning stages [...] The additional financial pressure from the current economic downturn also comes at a time when there is substantial concern that the government is underfunding operational missions leaving UK troops deployed abroad with insufficient and ineffective materiel and support [...]

Something will have to give and the economic, political and military wisdom of pursuing a like-for-like Trident replacement will face increasing scrutiny.³¹⁴

Yet advocates of maintaining the UK’s strategic nuclear deterrent have continued to argue that the UK must retain the ultimate security guarantee in an increasingly uncertain world. As former Secretary of State for Defence, John Hutton, stated in July 2009: “we should never forget that the first business of Government is national security. Everything else is secondary”.³¹⁵

This is a longstanding view that has been shared by Dr Julian Lewis MP. Writing in the February 2009 edition of *RUSI Journal*, Dr Lewis argued:

Future military threats and conflicts will be no more predictable than those which engulfed us throughout the twentieth century. This is the overriding justification for preserving armed forces in peacetime as a national insurance policy. No-one knows which enemies might confront us during the next thirty to fifty years, but it is highly

³¹² Hugh Beach, “Trident: white elephant or black hole?”, *RUSI Journal*, February 2009

³¹³ In February 2010, for example, the French government was reported to have submitted proposals to the UK for the creation of a joint UK-French nuclear deterrent as part of proposals for greater procurement collaboration between the two countries in the current economic climate. The pooling of nuclear sovereignty envisaged in these proposals have, however, been widely reported as politically unacceptable to the UK (see “France seeks UK collaboration”, *Jane’s Defence Weekly*, 24 February 2010)

³¹⁴ Dr Nick Ritchie, *Trident: Stepping down the Nuclear Ladder*, University of Bradford, May 2009

³¹⁵ John Hutton, “As long as others have nuclear weapons that can be aimed at us, we must never give up the ultimate deterrent”, *The Mail on Sunday*, 5 July 2009

probable that at least some of them will be armed with weapons of mass destruction [...]

Strategic nuclear deterrence is largely irrelevant to the current counter-insurgency campaigns which are stretching the British army to the limit; we are fighting wars on a peacetime defence budget. As a result some senior Army officers are suggesting that we must choose between fighting what is called *the war* of the present, rather than insuring against the possibility of a *war* of a different kind in the indefinite future.

This choice is unacceptable, and the underlying message – that the era of high intensity state-on-state warfare is gone for good – is a dangerous fallacy. Every right thinking individual hopes that such warfare will never return; but to rely on this in the face of past experience would be foolhardy in the extreme.³¹⁶

Sash Tusa, writing in *The Times* in June 2009, has also commented:

Cancel trident's replacement and we join the second rank of European countries, on a par with Italy or Spain economically and militarily (to say nothing of abandoning our obligations under the Non-proliferation treaty to protect European countries that lack such weapons).³¹⁷

The domestic debate about financial pressures within the defence budget aside, the current discussions regarding multilateral disarmament have presented the UK with an opportunity to show leadership and commitment to this agenda. As outlined in section 2.4, former Prime Minister Gordon Brown had indicated in March 2009 that the UK would consider cutting the UK's nuclear stockpile and reducing the deterrent submarine fleet to three boats, as part of any broader collective commitment to disarmament reached by the nuclear weapon states.³¹⁸ The new British Government under Prime Minister David Cameron has also made it clear that it wishes to seize upon this opportunity for leadership. While committed to the retention of Trident,³¹⁹ the new Government has also opted for greater transparency about the UK's nuclear programme by formally announcing in May 2010 that the UK's nuclear stockpile will not exceed 225 warheads and that the number of operationally available warheads will remain at 160.³²⁰ A review of the UK's declaratory policy will also now be undertaken as part of the wider Strategic Defence and Security Review. Those announcements came in the final week of the NPT Review Conference and as the new Foreign Secretary, William Hague, noted, were intended to "further assist in building the climate of trust between nuclear and non-nuclear weapon states, which has been lacking in recent years, and will contribute to efforts to reduce the number of nuclear weapons worldwide".³²¹ Paul Ingram, Executive Director of BASIC, commented:

The announced review of declaratory policy is very welcome. It will also give the new government the chance to visit for its own satisfaction the reasons why Britain is

³¹⁶ Julian Lewis, "Soldiers against the bomb?", *RUSI Journal*, February 2009

³¹⁷ "Without trident, the second division awaits", *The Times*, 22 June 2009

³¹⁸ The option of reducing the deterrent fleet is not a new initiative. In its December 2006 White Paper the government made clear that a three-boat solution was under consideration and that a decision on the number of submarines would be made when more information on their detailed design became available. Whether the UK could retain a continuous-at-sea deterrent posture with only three boats has been questioned by experts.

³¹⁹ As outlined above, under the Coalition's programme for government, Liberal Democrat opposition to the replacement of Trident will be dropped, although the programme will be scrutinised for value for money while the Lib Dems will also be able to continue making the case for alternatives.

³²⁰ Previous Government policy had been to only declare the maximum number of operationally available warheads.

³²¹ HC Deb 26 May 2010, c181

continuing to deploy nuclear weapons, and to contribute to the global disarmament agenda by reducing the salience of its nuclear weapons in its defence posture.³²²

Several analysts have concurred that the review may well recommend that the UK bring its declaratory policy into line with the US *Nuclear Posture Review* in order to harmonise UK and US nuclear policy and avoid any potential confusion within NATO.³²³ It will also be for the new government to determine whether parliamentary scrutiny of the programme going forward will also be subject to further debate and votes in the House, as several commentators have called for and whether technical proposals put forward under Labour, such as the reduction to a three-boat class, will now be pursued. As outlined above, the decision on whether to replace or refurbish the UK's nuclear warhead will also be required within the lifetime of the current Parliament.

Further detail on the replacement of the UK's nuclear deterrent is available, and will be maintained, in Library Standard Note, SN/IA/5150, [Future of the British nuclear deterrent: a progress report](#).³²⁴

China

In recent years, US intelligence has consistently predicted a significant expansion of China's nuclear capability, with some observers arguing that China will be forced to take such a step to ensure that the credibility of its nuclear deterrent is not undermined by the development of US ballistic missile defence capabilities.³²⁵ Indeed analysts have estimated, on the basis of US Department of Defense figures, that Beijing has been increasing its nuclear capacity at a rate of about 25% per year since 2006.³²⁶

The focus of its modernisation plans has undoubtedly been China's strategic missile force, in particular the deployment of the latest generation of ICBMs (the DF-31 and DF-31A) and the JL-2 sea-launched ballistic missile.³²⁷ Both have been lauded for the considerable technological advancements they have introduced to China's long-range nuclear capability, giving China's leaders greater flexibility and options for strategic strike than previously. The DF-31 is the army's first land-mobile³²⁸ solid-fuelled ICBM which is subsequently more reliable, flexible, quicker to launch and more survivable. The DF-31A ICBM also has substantial advantages over its predecessor.³²⁹ It will have an increased range of 12,000km, thereby bringing the entire continental US within range; MIRV capability with the possible deployment of up to three payloads; and penetration and decoy aids to complicate missile defence efforts.³³⁰

With the JL-2, that reliability has been translated into China's submarine-based nuclear deterrent, a major operational improvement over the unreliable and operationally contested Xia-class submarine equipped with the JL-1. Prior to the deployment of the Jin-class, a number of analysts had questioned the credibility of China's submarine-based deterrent. The Federation of American Scientists for example, asserted that the Xia-class SSBN had never conducted a deterrent patrol, therefore placing in doubt its operational status.³³¹ Others also argued that no nuclear-armed JL-1 ballistic missiles were ever deployed aboard the Xia-

³²² BASIC Press Release, 26 May 2010

³²³ "NPT Day 23: amid confusion, UNSG calls for success", Acronym Institute Blog, 27 May 2010

³²⁴ A suggested reading list is also available in Library Standard Note SN/IA/4207, [The Future of the British Nuclear Deterrent: Suggested Reading](#)

³²⁵ See Library Research Paper 03/28, [Ballistic Missile Defence](#), for background on this issue.

³²⁶ [Federation of American Scientists Strategic Security Blog](#)

³²⁷ The JL-2 is based on the DF-31.

³²⁸ Most of the China's ICBM force is silo-based. The DF-21/CSS-5 IRBM is already a road-mobile capability.

³²⁹ The DF-31A is believed to have replaced the cancelled DF-41 programme.

³³⁰ "US experts warn on China's ICBM moves", *Jane's Defence Weekly*, 19 July 2006

³³¹ "Two more Chinese SSBN spotted", *Federation of American Scientists*, October 2007

class. The Jin-class is therefore regarded as the first reliable submarine-based nuclear strike force to be deployed by China. Whether the JL-2 would be capable of striking the continental US has however, been questioned.³³² The Pentagon has estimated that five boats of the Jin-class will eventually be constructed, although other observers have suggested that the final class could total six vessels.³³³

Chinese modernisation efforts are continuing. Along with enhancements to the technical proficiency of its existing capabilities, the Pentagon has also noted that China is not only continuing in the development of its next generation missile capabilities, but is also focusing on improved survivability and command, control and targeting systems for its overall ballistic missile architecture.³³⁴

China's air-launched nuclear forces have also been the focus of modernisation in recent years. China has recently developed the YJ-63 air-launched land-attack cruise missile for deployment on the H-6 bomber which some analysts have considered could feasibly be converted to deploy a nuclear warhead.³³⁵ With a range of 400-500km, the YJ-63 is considered a major advancement of China's aerial strategic nuclear deterrent.

The Nuclear Threat Initiative has speculated that "China's nuclear modernisation program may be geared toward developing the capacity to move from a strategy of minimum deterrence to one of limited deterrence",³³⁶ and for three primary reasons:

First, China may simply wish – as it claims – to update its aging weapons systems and replace them with more modern systems. Second, China may be seeking a new fleet of ballistic missiles to increase the survivability of its nuclear deterrent. As other countries (particularly the United States) continue to increase their military capabilities, China may feel more vulnerable. From Desert Storm through the 2003 war in Iraq, the United States has continuously demonstrated its ability to use conventional forces to destroy fixed targets with tremendous accuracy. U.S. efforts to develop a ballistic missile defense system also threaten the deterrence capability of China's aging nuclear forces. China's leaders may fear that their older, immobile nuclear forces are vulnerable or ineffective as a deterrent, and should be replaced by newer, road-mobile nuclear forces and ICBMs such as the DF-31 and DF-31A missiles. Finally, China's efforts to increase its nuclear capabilities may indicate an important, yet undeclared, shift toward a more assertive nuclear policy. Proponents of this explanation argue that "More Chinese missiles might signal a possible shift from a retaliatory counter value posture to an offensive counterforce posture, particularly if accompanied by necessary improvements in accuracy. According to Paul Godwin, reaching a threshold number of weapons may allow China to wage limited nuclear war, since Beijing would hold enough forces in reserve to deter an aggressor from escalating a nuclear exchange."³³⁷

An article in *Jane's Defence Weekly* in May 2009 commented:

These estimates suggest that within 10 years' time China may have a much larger total missile force (although not as large as Russia or the US) and it will utilise a range of modern technologies to ensure the effective retaliatory purpose of China's long-range

³³² See "China's Jin-class is relatively noisy, says US intelligence", *Jane's Missiles and Rockets*, 1 February 2010

³³³ See "Red alert – China modernises its nuclear missile force", *Jane's Defence Weekly*, 14 May 2009

³³⁴ US Department of Defense, *Annual Report to Congress: Military Power of the People's Republic of China*, 2007. See also "Red alert – China modernises its nuclear missile force", *Jane's Intelligence review*, 14 May 2009

³³⁵ 'Chinese Nuclear Forces 2006', *NRDC Nuclear Notebook* published in *Bulletin of the Atomic Scientists*, May/June 2006, Vol.62, No.3

³³⁶ *Nuclear Threat Initiative: China Profile*, updated September 2009

³³⁷ *Nuclear Threat Initiative: China Profile*, updated September 2009

nuclear missile forces. This expansion of nuclear warheads runs against the current nuclear reduction talks being pursued by the US and Russia, but Beijing is unlikely to enter into any such negotiations. For China, its nuclear forces remain small enough to justify the continued rejection of appeals to join nuclear arms reduction talks that it considers binding and verifiable on nuclear missile reduction pacts. China's consistent opening position on issue of nuclear disarmament has been that it is up to the established nuclear powers to first eliminate their nuclear weapons.

This is unlikely to affect the current round of US-Russia nuclear reduction talks [...] however, with one of Russia's neighbours expanding its nuclear arsenal [...] the PLA's strategic missile forces could hinder longer-term attempts to reduce nuclear stockpiles.³³⁸

In its 2009 annual report to Congress on the *Military Power of the People's Republic of China* the Pentagon also concluded:

While there is no evidence that China's doctrine of "no first use" has changed, the fielding of these forces [the DF-31 and DF-31A], along with a projected new class of nuclear-powered ballistic missile submarine/submarine-launched ballistic missile in 2009-2010 enabling a credible sea-based deterrent, will give China's leaders greater flexibility and options for strategic strike than previously available.³³⁹

Other commentators have, however, questioned the assumption that China is expanding its arsenal in a significant fashion. They argue that the cost of expansion would be prohibitive and that the deployment of new systems would be offset by the need to retire older generation warheads, resulting, at most, in a moderate rise in the overall arsenal.³⁴⁰

France

Over the last few years, France has also sought to modernise its nuclear arsenal, through the deployment of a new class of SSBN³⁴¹ and the upgrade of its nuclear-armed missile capabilities. France is also in the process of developing a new, more robust,³⁴² nuclear warhead, the Tête Nucléaire Oceanique (TNO) and its air-launched equivalent the Tête Nucléaire Aero-Portée (TNA). The concept for the TNA and TNO was tested during France's 1995-1996 final nuclear testing campaign and as such represents the new generation of French nuclear weapons in a test-ban context.

The fourth and final SSBN of the Triomphant-class is due to enter operational service in mid-late 2010 and will be deployed with the new M-51 sea-launched ballistic missile (SLBM). In comparison to the current M-45, which it will incrementally replace during refit of the existing SSBNs between 2010 and 2017, the M-51 will provide greater range, accuracy and operational flexibility having an approximate range of around 6,000 km when carrying a full payload of up to 6 warheads of variable yields and penetration aids, although that range would reportedly increase to 8,000km if only a single warhead is carried.³⁴³ Initially the M-51 will carry the same payload as the M-45, in the form of the TN75 warhead, although that will

³³⁸ "Red alert – China modernises its nuclear missile force", *Jane's Defence Weekly*, 14 May 2009

³³⁹ http://www.defense.gov/pubs/pdfs/China_Military_Power_Report_2009.pdf

³⁴⁰ See 'Chinese Nuclear Forces 2006', *NRDC Nuclear Notebook* published in *Bulletin of the Atomic Scientists*, May/June 2006, Vol.62, No.3

³⁴¹ The first of class entered service in 1997, the second in 1999, and the third in 2005, while the fourth SSBN of the class is due to enter service in mid-2010.

³⁴² Robust warheads are less sensitive, for example, to the ageing of components.

³⁴³ Bruno Tertrais, "Nuclear policy: France stands alone", *Bulletin of the Atomic Scientists*, July/August 2004

be replaced with the new TNO warhead on upgraded M-51.2 missiles from 2015.³⁴⁴ The French Navy is expected to purchase 50 M-51 missiles up to 2014.

From 2009 the Rafale F3 began taking over the nuclear strike mission from the Mirage 2000N, a process that is ongoing. The Rafale F3 is equipped with an upgraded version of the supersonic ASMP medium-range air-launched missile, the ASMP-A. The ASMP-A has improved manoeuvrability, enhanced accuracy and an increased range of 500km. It is also equipped with the new TNA warhead. Until their withdrawal from service, the remaining Mirage 2000N will also be equipped with the ASMP-A. That missile will also equip the Rafale Mk3 which will replace the carrier-based Super Étendard aircraft from 2010. The French air force is expected to begin the decommissioning of the ASMP from 2011.

The extent of French nuclear modernisation over the last few years prompted US Senator Saxby Chambliss, a member of the Senate Armed Services Committee, to argue in April 2010 that both France and the UK surpassed the United States in terms of nuclear modernisation and that consequently the US had “a lot of catching up to do”.³⁴⁵

India and Pakistan

India has openly acknowledged its intention to develop and deploy a nuclear capability based upon the triad principle over the longer term.

While its air-launched capability continues to represent its main strike capability, India has made significant progress toward developing both a submarine-based capability and a more credible ballistic missile programme beyond its current inventory of short to medium-range missiles. Reports have also surfaced that India is seeking to develop a nuclear capable cruise missile. While the initial development of a nuclear capability was undertaken with neighbouring Pakistan in mind, the development of a sea-based deterrent and a long-range ballistic missile capability is part of India’s long-standing goal to establish a credible deterrent against regional rival China.

The main developmental effort in terms of improving India’s ballistic missile capability lies with the Agni II, road-mobile ballistic missile which has a range of 2,000km and is currently undergoing further operational testing after two test flights in 2009 ended unsuccessfully;³⁴⁶ and the solid-fuelled, mobile Agni III missile. With a range of approximately 3,000-3,500km, the Agni III would provide India with the ability to strike targets as far off as Shanghai. Although initial flight tests in 2006 failed, subsequent testing of the missile in 2007 and 2008 proved successful. A further test in February 2010 was reported to be part of “pre-induction trials” and will now lead to the introduction of the missile. However, it is expected that the missile will not achieve full operational capability for a further two years following additional tests.³⁴⁷

The success of the Agni III flight tests are now expected to pave the way for the development of an ICBM capability, the Agni V, which the Indian Defence Research and Development Organisation (DRDO) first mooted in 2008.³⁴⁸ According to a number of reports it is expected that the Agni V would have a range in excess of 5,000km and MIRV capability. However, some analysts have questioned India’s ability to develop such a capability given its technological complexity and expense; while it has also been argued that introducing a MIRV

³⁴⁴ Memorandum from Bruno Tertrais to the Defence Select Committee, SND 43, as part of the Committee’s inquiry on *The Future of the UK’s Strategic Nuclear Deterrent: The Strategic Context*,

<http://www.parliament.the-stationery-office.co.uk/pa/cm200506/cmselect/cmdfence/uc986-iii/ucm102.htm>

³⁴⁵ “Senator says France, UK surpass Us in nuke modernization”, *Global Security Newswire*, 16 April 2010

³⁴⁶ “India successfully tests Agni 2”, *Jane’s Defence Weekly*, 20 May 2010

³⁴⁷ “India’s Agni III demonstrates 3,500km range”, *Jane’s Defence Weekly*, 12 February 2010

³⁴⁸ “Indian Nuclear Forces 2008”, *Bulletin of the Atomic Scientists*, November/December 2008

capability into its nuclear arsenal would raise questions over the credibility of India's doctrine of minimum deterrence.³⁴⁹ In February 2010 the DRDO announced its intention to test the first prototype of the Agni V within 12 months.³⁵⁰ Indian defence officials also have suggested that India's nuclear missile force will consist entirely of Agni III and Agni V missiles carrying enhanced warheads by 2015-2020.³⁵¹

India is also developing two naval systems for the sea-based element of its nuclear triad: a navalised variant of the Prithvi II missile (the Dhanush), which has a range of 350km and the Sagarika which is expected to have a range of 300km, although some analysts have placed its estimated range at 700km. As a surface-launched ballistic missile, the military utility of the Dhanush has been criticised, however, due to its limited range. Any vessel deploying the missile would need to be relatively close to enemy shores in order to reach land targets, therefore making it highly vulnerable to detection and counterstrike. In contrast, the Sagarika will be a submarine-based missile although it remains unclear which platform it would be deployed from as India currently has no SSBN capability. The Advanced Technology Vessel programme has been under development for two decades and in February 2010 the Head of the programme, Vice Admiral Darma, was reported to have confirmed that the submarine would enter service, possibly by the end of 2011, with the missile aboard.³⁵²

It has also been suggested that India is in the process of developing an intermediate-range land-attack cruise missile, the Nirbhay, which could be nuclear capable and deployable from land, sea and air. In February 2010 the DRDO suggested that it was "ready to begin building systems, but was not yet ready to begin the integration stage".³⁵³

As outlined above, the conclusion of the US-India civil nuclear cooperation deal has also raised concerns over the potential impact on India's nuclear weapons development programme, in particular India's ability to divert more of its domestic resources into the military programme while its civilian nuclear energy programme is supported by nuclear fuel imports. To date, India has refused to halt its production of fissile material for weapons production.

In turn, the modernisation of Pakistan's nuclear arsenal has been, and continues to be, driven by the nuclear expansion of India. Following the example of other nations, Pakistan is seeking to improve its weapon designs, moving beyond first-generation capabilities reliant on HEU to plutonium-based designs. Central to that effort has been the construction of the Khushab plutonium production reactor which was completed in 1998 and the ongoing build of two further heavy water reactors at the site, which will more than triple Pakistan's plutonium production. In anticipation of increased capacity, Pakistan has also been expanding its reprocessing capabilities, which analysts have argued suggests Pakistan is preparing to increase and enhance its nuclear forces. As the *Bulletin of the Atomic Scientists* has noted:

Absent a full-scale thermonuclear test, it is premature to suggest that Pakistan is producing two-stage thermonuclear weapons, but the types of facilities under construction suggest that Pakistan has decided to supplement and perhaps replace its heavy uranium-based weapons with smaller, lighter plutonium-based designs that could be delivered further by ballistic missiles than its current warheads and that could be used in cruise missiles.³⁵⁴

³⁴⁹ "Indian Nuclear Forces 2008", *Bulletin of the Atomic Scientists*, November/December 2008

³⁵⁰ "India to fly Agni-V ballistic missile within a year", *Jane's Missile and Rockets*, 1 March 2010

³⁵¹ "Indian Nuclear Forces 2008", *Bulletin of the Atomic Scientists*, November/December 2008

³⁵² "Indian subs to carry ballistic missiles, official confirms", *Global Security Newswire*, 17 February 2010

³⁵³ "India to fly Agni-V ballistic missile within a year", *Jane's Missile and Rockets*, 1 March 2010

³⁵⁴ "Nuclear Notebook: Pakistani Nuclear Forces 2009", *Bulletin of the Atomic Scientists*, September/October 2009

Since 1998 Pakistan and India have embarked upon a tit-for-tat testing programme of their ballistic missile capabilities. In an effort to keep technological pace with India, Pakistan is also therefore actively pursuing programmes to increase the effectiveness of its current ballistic missile inventory, while at the same time develop longer range ballistic missiles than its current possesses. Much of the developmental focus has been on the Shaheen II ballistic missile and a third-generation Ghauri missile. The Shaheen II, originally unveiled in 2002, is road-mobile and reported to have a range of 2,500km. The Pakistani army conducted two operational readiness tests of the missile in 2008 which, according to the Pakistani Ministry of Defence “validated the operational readiness of a strategic missile group equipped with the Shaheen II missile”.³⁵⁵ A new variant of the Ghauri missile could provide Pakistan with a ballistic missile capable of hitting targets at a possible range of 3,000km, although it is understood that the missile has yet to be tested and some have argued that the programme may well have been abandoned in favour the Shaheen II given the similarities in capability.³⁵⁶

In the last few years Pakistan’s attempts to develop nuclear capable cruise missile capabilities in addition to its ballistic missile inventory have also been noted. Since 2005 Pakistan has been testing a short-range missile, codenamed ‘Babur’, which has a range of 700km and is capable of carrying either conventional or nuclear warheads. There have also been reports that a submarine-launched version of the missile is under development, although it is yet to materialise. In August 2007 Pakistan also began initial testing of its newest Ra’ad cruise missile. Although limited to a range of approximately 350km, the missile is capable of being launched from an airborne platform such as the Mirage, and could possibly be deployed on the new JF-17 aircraft which is being jointly developed by China and Pakistan. An initial batch of JF-17 aircraft was delivered to Pakistan for flight testing in 2007 and a first squadron of operational JF-17s entered service in February 2010.³⁵⁷

3 Achievements of the NPT Review Conference 2010

The NPT Review Conference was held from 3-28 May 2010. Given the political context within which the Review Conference was being held, the majority of observers expressed a sense of optimism about its prospects and the hope that a consensual Final Declaration on how to move the disarmament and non-proliferation agenda forward could be successfully reached. Going into the Conference extensive work in the three sessions of the NPT Preparatory Committee in May 2007, April-May 2008 and May 2009 respectively had already resulted, for the first time in 15 years, in a provisional agenda, draft rules of procedure and a President-elect and other officers being agreed prior to the onset of the main conference.³⁵⁸

Going into the Conference, several key issues were identified by analysts and commentators as crucial for strengthening the NPT regime and ensuring its credibility in the longer term. Among them were commitments to reinvigorate the 13-step disarmament plan originally agreed in 2000 and in particular the commitment to ratify the CTBT; establish an FMCT; and secure firm commitments on the part of the recognised nuclear weapon states to further disarmament. Other key issues for consideration were the strengthening of the safeguards system by pushing for universal adoption of the IAEA Safeguards Agreement and Additional Protocol as the verification standard; addressing the issue of non-compliance; and promoting the peaceful use of nuclear energy without increasing the proliferation risks, possibly through the adoption of multilateral approaches to the nuclear fuel cycle. Implementation of a 1995

³⁵⁵ “Hatf-6 IRBM enters operational service”, *Jane’s Missiles & Rockets*, 1 May 2008

³⁵⁶ “Pakistan’s missile tests highlight growing South Asia nuclear arms race”, Centre for Nonproliferation Studies, April 2007

³⁵⁷ “France’s export watchdog vetoes sale of JF-17 equipment to Pakistan”, *Jane’s Defence Weekly*, 8 April 2010

³⁵⁸ Set out in detail in the [Final Report of the Preparatory Committee](#), which was adopted on 15 May 2009

resolution that called for steps toward the establishment of a Middle East nuclear weapons free zone was also highlighted as an issue likely to prompt intense debate.³⁵⁹

3.1 Key Points of the Final Declaration

Despite concerns that the Review Conference could be derailed by the continuing debate over Iran and the circulation of further draft sanctions against the country during the latter stages of the conference, a consensual Final Declaration was agreed on 28 May 2010.³⁶⁰

Recognising the importance of the NPT to the international non-proliferation and disarmament regime, the Conference called for every aspect of the treaty to be implemented, and compliance with all of its provisions to be met by States Parties. As such, that final document set out the following key recommendations and commitments:

- **Disarmament** – The five nuclear weapon states reaffirmed “their unequivocal undertaking to accomplish, in accordance with the principle of irreversibility, the total elimination of their nuclear arsenals leading to nuclear disarmament”. They committed “to undertake further efforts to reduce and ultimately eliminate all types of nuclear weapons, deployed and non-deployed, including through unilateral, bilateral, regional and multilateral mechanisms”. The practical steps agreed at the 2000 Review Conference would continue to have validity, and it was agreed that “the final phase of the nuclear disarmament process and other related measures should be pursued within an agreed legal framework”. Despite current political overtures, the reluctance of the nuclear weapon states to agree a timeframe for doing so was widely noted, highlighting the longstanding tension between the nuclear ‘haves’ and the nuclear ‘have nots’.³⁶¹ As Rebecca Johnson noted, “faced with the determination of the non-nuclear countries... [they] realised the importance of acknowledging...that a nuclear weapons convention or other negotiated framework would be worth considering as a viable disarmament approach. This did not mean that they were willing to commence negotiations, but that they would be prepared to explore the idea of multilateral disarmament negotiations leading to such a treaty”.³⁶²

The Conference also noted the need for further progress in diminishing the role of nuclear weapons in security policies and urged all nuclear weapon states to follow the recent examples of the US and UK in revealing the number of nuclear weapons in their respective national inventories in order to promote transparency. It also welcomed efforts toward the development of the disarmament verification capabilities that would be required to provide assurance of compliance in the longer term.

The Conference also called on the nuclear weapon states to report on progress at the next Preparatory Committee in 2014, while the 2015 Review Conference would take stock and consider future steps. In addition, all states agreed that “the Conference on Disarmament should immediately establish a subsidiary body to deal with nuclear disarmament, within the context of an agreed, comprehensive and balanced programme of work”.

³⁵⁹ Detail on the issues expected to be debated at the conference, and the prospects for agreement, is available in Library Standard Note SN/IA/5441, *Prospects for the 2010 NPT Review Conference*, 8 April 2010

³⁶⁰ 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Final Document*, (NPT/CONF.2010/50 (Vol.1))

³⁶¹ A number of countries had proposed establishing a roadmap toward the abolition of nuclear weapons by 2025, which the nuclear weapon states rejected. See UN Department of Public information, *NPT Review Conference Coverage*, DC/3243, 28 May 2010

³⁶² Rebecca Johnson, “NPT: the gulf between the nuclear haves and have-nots”, *Disarmament Diplomacy*, 26 May 2010

- **Comprehensive Test Ban Treaty** – The Conference called on all states to refrain from any action which would defeat the object and purpose of the CTBT, in particular regarding the development of new types of nuclear weapons. All nuclear weapon states also agreed to undertake to “ratify the CTBT with all expediency”. Until the CTBT enters force, all states committed to maintain the moratoria on nuclear weapon test explosions. It was agreed that progress towards the urgent entry into force of the CTBT would be reported at the 2011 Conference on Facilitating the Entry into Force of the CTBT. In addition, the CTBT Organisation Preparatory Commission was encouraged to fully develop the CTBT verification regime.
- **Fissile Material Cut-Off Treaty** – While welcoming the adoption of a Programme of Work in the Conference on Disarmament in 2009 the Conference expressed concern that after more than a decade the Conference on Disarmament had been unable to commence negotiations and therefore urged it to begin work as soon as possible. The UN Secretary General was invited to convene a high-level meeting in September 2010 in support of the Conference on Disarmament in this respect. In the meantime the nuclear weapon states were encouraged to declare to the IAEA all fissile material designated as no longer required for military purposes and to place such material as soon as practicable under the IAEA or other relevant international verification. The Conference welcomed the declared moratoria by *some* nuclear weapon states on the production of fissile material for nuclear weapons,³⁶³ and encouraged all States Parties that had not yet done so to initiate a process towards the dismantling or conversion for peaceful uses of facilities for the production of fissile material for weapons purposes.

A previous draft of the final document had contained a provision that would allow the UN General Assembly to examine how negotiations on an FMCT could be pursued if discussions within the CD had not commenced before the end of the 2011 session.³⁶⁴ That provision was conspicuously absent from the final version however.

- **Nuclear capable states outside the NPT** – The Conference urged India and Pakistan to accede to the NPT as non-nuclear weapon states and to place all their nuclear facilities under comprehensive IAEA safeguards without conditions, and promptly. The Conference also urged both countries to strengthen their non-proliferation export control measures over technologies, material and equipment that can be used for the production of nuclear weapons and their delivery systems.
- **Nuclear energy** – The Conference reiterated the inalienable right of all States Parties to develop nuclear energy for peaceful purposes, the role of the IAEA in this regard and called on States Parties to “make every effort and take practical steps to ensure that the IAEA’s resources for technical cooperation activities are sufficient, assured and predictable” and “recalls that the financing of Technical Cooperation should be in line with the concept of shared responsibility...”. Specifically, all states were encouraged to make additional contributions to the initiative to raise \$100m over the next five years as extra-budgetary contributions to IAEA activities.

The document also acknowledged that each state had the right to define its national energy policy and that each may pursue different ways to achieve their energy security and climate protection goals. In doing so, however, the importance of managing spent fuel and radioactive waste in a sustainable manner was also acknowledged and nuclear fuel suppliers were encouraged to work with and assist recipient states in the safe and secure management of that spent fuel. The

³⁶³ China has never officially declared its moratorium on fissile material production.

³⁶⁴ <http://www.reachingcriticalwill.org/legal/npt/revcon2010/FinalDeclaration-Draft1.pdf>

Conference confirmed that the use of nuclear energy should also be accompanied by commitments to, and ongoing implementation of, safeguards as well as appropriate and effective levels of safety and security in accordance with IAEA standards.

The Conference also encouraged states “to further develop a new generation of proliferation-resistant nuclear reactors”. It also noted the adoption by the IAEA of the Resolution to establish a reserve of LEU in Russia for the use of IAEA member states and underlined the importance of further discussions, under the auspices of the IAEA or other regional fora, to create further voluntary multilateral mechanisms for the assurance of nuclear fuel supply, as well as possible schemes for dealing with the ‘back-end’ of the nuclear fuel cycle.

The document also stated that preferential treatment for assistance should also be given to non-nuclear weapon states that are party to the NPT.

- **Security assurances** – The Conference stressed the importance of the signature and ratification by the nuclear weapon states of the relevant protocols to the treaties that establish nuclear weapons free zones and called on the nuclear weapons states to bring into effect the security assurances provided by the NWFZ treaties and their protocols. It also underscored the importance of establishing nuclear weapons free zones where they do not exist, in particular in the Middle East.³⁶⁵ All States Parties agreed that the Conference on Disarmament should “immediately begin discussion of effective international arrangements to assure non-nuclear weapon states against the use or threat of use of nuclear weapons [...] not excluding an internationally legally binding instrument”. The UN Secretary General was invited to convene a high-level meeting in September 2010 in support of the work of the Conference on Disarmament.
- **Resolution on a Middle East WMD free zone** – Although originally established in 1995, States Parties reaffirmed that the Resolution remains valid until its goals and objectives are achieved. As part of that objective, the Review Conference called on all states in the Middle East that have not yet done so to accede to the NPT as non-nuclear weapon states and for all states in the region to take relevant steps and confidence building measures to contribute to the realisation of this objective and called upon all states to refrain from any measures that would preclude this. Recognising the importance of a process in order to achieve full implementation of the 1995 Resolution, states agreed that a conference would be convened in 2012 to be attended by all states of the Middle East on the establishment of a Middle East zone free of nuclear weapons and all other weapons of mass destruction. This conference would have the full support and engagement of the nuclear weapon states and would take as its terms of reference the 1995 Resolution on the Middle East. A Facilitator would be appointed by the UN Secretary General to support implementation of the resolution by conducting consultations with states in the region and undertaking preparations for the convening of the 2012 conference. That individual would also assist in the implementation of any follow-on steps agreed at that conference and would report to the 2015 Review Conference and its Preparatory Committees.
- **Verification and safeguards** – The Conference agreed that the IAEA remains the competent authority responsible for verifying and assuring compliance by states and nothing should be done to undermine its authority. The Conference recognised, for the first time, that the measures set down in the Comprehensive Safeguards Agreement and Additional Protocol represented “the enhanced verification standard”,

³⁶⁵ As part of the broader initiative to establish a WMD free zone in the Middle East.

that the Additional Protocol represented a significant confidence building measure and therefore called on all States Parties which have not yet done so, to conclude and bring into force both Comprehensive Safeguards Agreements and the Additional Protocol. Any new supply arrangements for the transfer of fissile material and related equipment to non nuclear weapon states should require, as a precondition, acceptance of the comprehensive IAEA safeguards.

The Conference also called for the wider application of safeguards to peaceful nuclear facilities in the nuclear weapon states, taking into account the availability of IAEA resources, and stressed that comprehensive safeguards and the Additional Protocol should be universally applied once the complete elimination of nuclear weapons has been achieved. IAEA safeguards should also be assessed and evaluated regularly and any decisions adopted by the IAEA to strengthen and improve IAEA safeguards should be supported and implemented. The Conference also called on all States Parties to ensure that the IAEA has all political, technical and financial support.

- **Non-compliance** – The Conference emphasised that responses to concerns over compliance should be pursued by diplomatic means, while condemning the nuclear test explosions carried out by North Korea in 2006 and 2009 and firmly stated that the country “cannot have the status of a nuclear-weapon-state”. It also called on those states which are non-compliant with the treaty to “move promptly to full compliance with their obligations”; while “strongly urging” North Korea to “fulfil the commitments under the Six-Party Talks, including the complete and verifiable abandonment of all nuclear weapons and existing nuclear programmes” and return to the NPT and its adherence to the IAEA safeguards agreement.
- **Nuclear security** – The Conference noted the paramount importance of effective physical protection of all nuclear material and the need for strengthened international cooperation in this regard. Therefore it welcomed the adoption of the Amendment to the *Convention on the Physical Protection of Nuclear Material* in 2005 and urged all states to become party to the Convention and ratify the amendment so that it may enter into force as soon as possible. It encouraged all states to become party to the *International Convention for the Suppression of Acts of Nuclear Terrorism* and various other conventions related to nuclear safety and fuel and waste management. It also noted the role of the IAEA in establishing comprehensive nuclear security guidelines, related conventions on best practice and in assisting Member States in their efforts to enhance nuclear security and called on all States Parties to apply those recommendations. The Conference urged all states to take the appropriate national, regional and international steps to enhance and foster a safety culture and welcomed the intensification of national measures and international cooperation in this regard.
- **Strengthening the NPT** – Recognising that continuity throughout the review cycle is a key element for strengthening implementation of the treaty States Parties agreed that past and incumbent Chairs would be available for consultation by the incoming Chair of the Review Conference; and that a dedicated Staff Officer to support the review cycle should be established within the UN Office for Disarmament Affairs, who would be funded by voluntary contributions from States Parties. The mandate of this officer will be reviewed at the next review conference. It was also agreed that further consideration of measures to strengthen the review cycle would be taken at the new Review Conference. To increase confidence and improve transparency, all States Parties should submit regular reports on the implementation of the action points agreed at the Review Conference. The Secretary General was invited to establish a publicly-accessible repository which shall include the information provided by the nuclear weapon states.

The need for institutional reform was widely acknowledged by States Parties prior to the Review Conference. While not establishing as extensive an institutional framework as some states had suggested, including the establishment of a Standing Secretariat, the agreed measures have been welcomed as an initial step toward reform that could pave the way for further initiatives at the Review Conference in 2015.

The Conference also reaffirmed the urgency and importance of achieving universality of the treaty and called on Israel, India and Pakistan to accede to the NPT without delay and without conditions and bring into force the required Comprehensive Safeguards Agreements and Additional Protocol.

- **Withdrawal** – For the first time in a final document, the Conference recognised that withdrawing parties remain responsible for violations committed while Party to the treaty, and agreed that nuclear supplying states can consider incorporating dismantling and/or return clauses in any arrangements or contracts with other States Parties in the event of a withdrawal, in accordance with international law and national legislation.

The conclusion of an agreement to progress the 1995 Resolution on a WMD free zone in the Middle East has been considered by analysts as the key to achieving, for the first time in a decade, an overall consensual final document. Without progress on this issue many had expressed concern that the Arab states would reject compromise measures in other areas, in particular those areas favoured by the nuclear weapon states, and ultimately impose a situation of stalemate at the Review Conference. In particular, compromise was expected to be required in relation to disarmament and the imposition of specific timelines for the nuclear weapon states to progress their disarmament efforts. While [earlier drafts](#) of the disarmament committee's report set down the intention of nuclear weapon states to meet in 2011 in order to consider opportunities for expediting the disarmament process, followed by an international meeting in 2014 to establish a timeline for disarmament; that language was removed in the [Draft Final Declaration](#) which instead made reference to the establishment of "an agreed legal framework, which a majority of States Parties believe should include specified timelines". The reluctance of the nuclear weapon states, reportedly led by Russia and France,³⁶⁶ to commit to a more specified timeframe for disarmament resulted only in a commitment to report back on progress at the 2014 Preparatory Committee, thereby once again prompting criticism from the non-nuclear weapon states that those possessing nuclear weapons were undermining the 'grand bargain' and not doing enough to move the process forward.³⁶⁷

Compromise on both of these issues, in addition to agreement on key areas such as ratification of the CTBT, establishing the Comprehensive Safeguards Agreement and the Additional Protocol as the verification standard, nuclear security, and multilateral approaches to the nuclear fuel cycle, has allowed the majority of observers to hail the conference a success and a demonstration of the international community's commitment to making progress in this area. After the adoption of the final document, the UN Secretary General, Ban Ki Moon, issued a statement welcoming the "successful outcome", suggesting that "a strong spirit of compromise and cooperation has delivered a significant agreement to build a

³⁶⁶ Rebecca Johnson, "NPT: the gulf between the nuclear haves and have-nots", *Disarmament Diplomacy*, 26 May 2010

³⁶⁷ Further discussion on the positions of the P5 is also available in "NPT Day 21: Push back by nuclear addicts", *Acronym Institute Blog*, 24 May 2010

safer and more secure world".³⁶⁸ US Under Secretary for Arms Control and International Security, Ellen Tauscher, stated:

The Final Document this Conference adopted today advances president Obama's vision. It reflects our collective commitment to uphold and strengthen this cornerstone of the international non-proliferation regime. It also demonstrates our unified resolve to strengthen the treaty's three pillars [...] with the inclusion of recommendations for follow-on actions [...]

However, the hard work is only now beginning. All of us are now charged to carry out the commitments made at this Conference. We look forward to working with our fellow Parties in other appropriate venues, including the International Atomic energy Agency and the Conference on Disarmament, to ensure that the legacy of this Review Conference is one in which all of us can take pride.³⁶⁹

However, she also went on to express regret that Israel had been singled out in the Final Document, a decision which the US suggested sent a negative political signal and could "seriously jeopardize" the success of the conference on the Middle East scheduled for 2012.³⁷⁰ In contrast, the final document did not mention Iran's suspected nuclear activities, an absence that US National Security Adviser, General James Jones, labelled as "deplorable".³⁷¹ Many observers noted, however, that mention of Iran in the final document could have derailed any agreement, an outcome that the US, given its commitment to leadership on this issue, was unwilling to contemplate.

In contrast, Egyptian Foreign Minister, Ahmed Gheit, expressed his country's satisfaction with the outcome of the Conference and in particular "an action plan to render the Middle East free of nuclear weapons and calls on Israel to sign the NPT". He concluded that the final document was a "balanced deal and a step toward a nuclear weapons-free world".³⁷² The Israeli Government, however, issued a statement which called the conference document "deeply flawed and hypocritical" and argued that it "ignores the realities of the Middle East and the real threats facing the region and the entire world".³⁷³

The British Government also welcomed the adoption of a final document. Ambassador for Multilateral Arms Control and Disarmament, John Duncan, stated:

not only do we have an agreed outcome, but an unprecedented agreement across all three pillars for focused and concrete action as well as under the new action plan for the Middle East Zone Free of Weapons of Mass Destruction.

The UK like others has accepted a number of detailed commitments today under the four action plans, but perhaps the most important is to our continuing commitment to engage in building the confidence that must underpin international security, to reach across the traditional UN divisions in a spirit of partnership and shared common interest.³⁷⁴

Rebecca Johnson also called adoption of the final document "a small but significant step towards strengthening global security and laying the groundwork for a transformative,

³⁶⁸ [Statement by the UN Secretary General](#), 28 May 2010

³⁶⁹ [United States closing statement at the 2010 NPT Review Conference](#), 28 May 2010

³⁷⁰ *ibid*

³⁷¹ "At nuclear conference, US expects little, gains little", *The Washington Post*, 31 May 2010

³⁷² "Egypt welcomes NPT review conference final document", *CRI English*, 30 May 2010

³⁷³ "Israel rejects call to join anti-nuclear treaty", *Reuters*, 29 May 2010

³⁷⁴ [UK Statement at the conclusion of the 2010 non-proliferation treaty review conference](#), 28 May 2010

comprehensive approach to build a world free of nuclear weapons”.³⁷⁵ Deepti Choubey of the Carnegie Endowment for International Peace also considered the Conference an “incremental success” stating that “for the first time, there are specific measurable actions that states are asked to take in support of the three pillars of the NPT... these actions were drafted in a way to serve as a scorecard for measuring progress and ensuring that there would be accountability at future meetings. Transforming the lofty goals of the NPT debates into tangible action is real progress”.³⁷⁶

However, the failure of the Review Conference to agree measures in a number of key areas has prompted more lukewarm responses from several other commentators who concluded that the perceived success of the Conference was based entirely on the fact that it didn’t end in complete failure.³⁷⁷ Despite extensive debate in the main committee on disarmament on non-strategic weapons, the final document made no specific reference to their abolition following reported pressure from Russia, leaving the commitment to reduce these weapons couched in generic language relating to disarmament more broadly.³⁷⁸ Chinese opposition to the inclusion of an all encompassing commitment to maintain an official moratorium on the production of fissile material is also reported to have resulted in the final text being altered to only make reference to the declared moratoria of “some countries”. The inability to agree harsher penalties for those states that contravene their NPT obligations and then withdraw from the treaty has also been criticised given the longstanding debate over North Korea and Iran.

4 Prospects for Zero

A school of thought exists which argues that the abolition of nuclear weapons is a futile aspiration given that they cannot be ‘uninvented’. The academic Colin Gray is one such advocate of that perspective and has argued that “nuclear abolition is as hopeless of achievement as it is frequently well intentioned”.³⁷⁹ Bruno Tertrais has also supported this view, commenting recently in *The Washington Quarterly* that “the intellectual and political movement in favour of abolition suffers from unconvincing rationales, inherent contradictions and unrealistic expectations. A nuclear weapons free world is an illogical goal”.³⁸⁰

In Prague in April 2009 President Obama stated however:

Some argue that the spread of these weapons cannot be checked – that we are destined to live in a world where more nations and more people possess the ultimate tools of destruction. This fatalism is a deadly adversary. For if we believe that the spread of nuclear weapons is inevitable, then we are admitting to ourselves that the use of nuclear weapons is inevitable.³⁸¹

Over the course of 2009 and 2010 there has undoubtedly been some progress towards nuclear disarmament. The convergence of political will on this issue and the willingness of states to compromise in recognition of the broader objective has seen progress in cutting

³⁷⁵ “NPT Day 24: Future hope or failure?”, *Acronym Institute Blog*, 28 May 2010

³⁷⁶ Deepti Choubey, “Understanding the 2010 NPT review conference”, Carnegie Endowment for International Peace, 3 June 2010

³⁷⁷ “At nuclear conference, US expects little, gains little”, *The Washington Post*, 31 May 2010

³⁷⁸ A summary of those proposals put forward for discussion in that committee is provided in the NPT Review Conference blog of the Acronym Institute: “[NPT Day 18: Updates, downgrading HEU and non-strategic weapons](#)”

³⁷⁹ Colin Gray, *The Second Nuclear Age*, Lynne Reiner Publishers, 1999

³⁸⁰ Bruno Tertrais, “The illogic of zero”, *The Washington Quarterly*, April 2010

³⁸¹ [Remarks of President Obama in Prague](#), 5 April 2009

nuclear arsenals, greater transparency, support for international agreements that will curtail future weapons production and moves to increase access to nuclear technology for peaceful purposes while at the same time strengthening non-proliferation measures and efforts to combat nuclear terrorism.

Going forward, however, the prospect of realising President Obama's vision of a world without nuclear weapons will ultimately be determined by three things: evolving threat perceptions among states (both inside and outside of the NPT framework); continued political will and how the international community responds to both the actions of Iran and North Korea, and how it seeks to embrace the non-NPT nuclear capable states in any future multilateral arms control framework. Arguably threat perception will be the main driving force, but all three issues will have a bearing on each other, and like the three pillars of the NPT regime, will require careful balancing if real irreversible progress is ever to be achieved.

It is widely acknowledged that much will depend upon the intentions of the nuclear capable states outside of the NPT and aspirant countries such as Iran. While such countries choose to pursue a nuclear weapons capability, the nuclear weapon states are unlikely to pursue disarmament in any meaningful way other than the adoption of largely symbolic measures, primarily between the US and Russia, that will have minimal impact on their own nuclear capabilities in the longer term. Indeed all of the nuclear weapon states have justified the retention or modernisation of their respective nuclear arsenals on the basis of an unknown future security environment. However, the evidence thus far would suggest that until countries such as Iran, Pakistan, India, and Israel perceive a radical change in their own security environments, they are unlikely to forego what they also see as the ultimate guarantor of security or engage in any meaningful way to advance the multilateral arms control framework should it run counter to their long term national interests. In the Middle East, for example, the perception that Israel retains a relatively sizeable nuclear arsenal has been suggested as the motivation behind both Iran's, and potentially Syria's, suspected pursuit of a nuclear weapons programme. In turn, the emergence of a nuclear Iran is considered likely to have a 'ripple effect' across the region. In recent years UAE, Egypt, Jordan, Morocco, Saudi Arabia, Tunisia, and Turkey have all announced their intention to pursue civil nuclear programmes, prompting concern that a secondary goal of these programmes is to provide a base for the development of a weapons capabilities, should they one day prove necessary. Subsequently some observers have suggested that, given the unstable and sometimes hostile relations between Iran and its Arab, largely Sunni Muslim neighbours,³⁸² if Iran did acquire the capacity to produce nuclear weapons it would be the single biggest catalyst towards starting a regional nuclear arms race.³⁸³ In Asia, both Pakistan and India have thus far refused to join the NPT and advance other arms control measures such as the FMCT for fear that it would disadvantage their abilities to modernise and thereby keep relative strategic parity with both each other and in India's case, also with China.

The importance of establishing the right international conditions to allow states to progress beyond their mutual distrust of each other and pursue real disarmament measures, without also prompting a conventional arms race,³⁸⁴ cannot therefore be overstated. Arguably a confidence-building agenda should be the first priority going forward, including broader

³⁸² For detail on the Iran's regional relations, see the Standard Note *Iran's relations with the Gulf States*, January 2008

³⁸³ This is examined in greater detail in "Chain reaction: How the US – UAE deal could set off a Middle East arms race", *Foreign Policy*, 7 May 2009 and "Nuclear Disorder", *Foreign Affairs*, January/February 2010

³⁸⁴ George Perkovich has noted that "clearly there is tension between the need to reduce and balance out major powers' conventional capabilities to facilitate nuclear abolition and the need for conventional capabilities to be able to respond to potential violations" (*Abolishing Nuclear Weapons*, Adelphi Paper 396, 2008, p.30)

diplomatic efforts to resolve regional security disputes,³⁸⁵ and in relation to nuclear weapons specifically, complete transparency and the development of an international verification and compliance system that is robust, to the point of virtual perfection, which would instil those states in possession of a nuclear capability with the confidence to finally move toward zero, and indeed stay there. As Bruno Tertrais has noted: “in all likelihood, the abolition of nuclear weapons will only take place when the appropriate security and or political conditions are met, or when substitutes exist. No country will voluntarily give up its nuclear arsenal if it believes that it will automatically lead to a lessening of its security or status”.³⁸⁶ Yet, some doubt such a system of verification and compliance is achievable. As Jeremy Stocker has observed:

One reason, though not the only one, for believing that a nuclear-free world may be impossible to achieve is the problem of verification. No system of verification is likely to prove faultless, and there will always be temptations for a state to cheat. Nuclear possession in an otherwise nuclear-free world would give the state in question unique leverage, as the United States found in 1945. Even without wanting to cheat as such, the prudent state will always assume that others might do so, and will want to hedge against that possibility.³⁸⁷

For the present, the political will to advance such aims has been demonstrated. However, sustaining that political will over an extensive period will be one of the international community’s main challenges. As President Obama highlighted in Prague, the abolition of nuclear weapons is unlikely to be realised in his own lifetime and will require consensus over a considerable period of time. Yet, looking at the outcome of the 2010 NPT Review Conference, commentators have already noted with concern the relative unwillingness of the nuclear weapon states to commit to a timetabled process for disarmament discussions. As George Perkovich has observed in relation to recent disarmament initiatives led by President Obama:

The result is a President ready to lead a long term campaign to remove the existential threats posed by nuclear weapons, but as yet lacking sufficient followers to make it happen.³⁸⁸

As the states with over 90% of the world’s nuclear weapons, the perceptions and political will of the US and Russia in particular, will be key. Yet, as Perkovich notes, a reticence on the part of Beijing, Paris and Moscow to embrace the concept of total abolition remains.³⁸⁹

How long the political will of the non-nuclear weapon states will be retained is also open to question. Non-nuclear weapon states have long criticised the hypocrisy of the grand bargain at the heart of the NPT. More recently they have also pointed to the US-India civil nuclear cooperation deal as an example of the ‘rewards’ a state can expect to achieve from developing a nuclear capability and not being party to the NPT. As Perkovich observes “the leaders of Brazil, South Africa, Indonesia, Malaysia and other influential non-nuclear weapon states have not embraced Mr Obama’s logic that step-by-step progress on disarmament needs to be reciprocated by step-by-step progress in strengthening the non-proliferation

³⁸⁵ Bruno Tertrais has noted that the political challenges of a world without nuclear weapons would include solving most of the core issues that have dominated international politics since the 1950s including Palestine, Kashmir, Taiwan and the division of the Korean Peninsula (See “The illogic of zero”, *The Washington Quarterly*, April 2010)

³⁸⁶ Bruno Tertrais, “In their hands”, *The World Today*, November 2009

³⁸⁷ Jeremy Stocker, *The United Kingdom and Nuclear Deterrence*, Adelphi Paper 386, 2007

³⁸⁸ George Perkovich, “After Prague, what’s next for arms control?”, *The International Herald Tribune*, 7 April 2010

³⁸⁹ George Perkovich, *Abolishing Nuclear Weapons*, Adelphi Paper 396, 2008

regime”.³⁹⁰ A turning point could be the 2012 Middle East conference, which many non-nuclear weapon states accepted in return for compromises over issues such as faster disarmament measures by the nuclear weapon states. But if that conference fails to materialise, or achieves nothing of significance, the willingness of those states to engage in pushing the disarmament/non-proliferation agenda any further forward could feasibly be put in jeopardy. Indeed Israel has already indicated that it will not participate³⁹¹ and subsequently many of the non-nuclear weapon states are likely to look to the US to resolve this issue.

Thus, the determination of an international statesman such as President Obama to push this agenda forward will be crucial. But that in itself begs the question of what the future may hold were the US to elect a more conservative President, with markedly different attitudes toward multilateral arms control and disarmament. This could happen as early as the end of 2012.

4.1 The Next 10 to 15 Years?

The long term prospects for global zero, inevitably, are highly uncertain. It is more realistic, some have therefore argued, to focus on what could be achieved in the short to medium term, and which one day could build confidence and subsequently lay the groundwork for future initiatives toward achieving this aim, should the political will exist and the strategic circumstances of the international order allow. The International Commission on Nuclear Non-proliferation and Disarmament has argued, for example, that the “most productive way forward is a two-phase process – ‘minimization’ from now to 2025 and ‘elimination’ beyond 2025”.³⁹²

As outlined above, the NPT Review Conference agreed various measures, which many consider achievable in the short term. The most notable among them are ratification of the CTBT and the institution of negotiations on a *Fissile Material Cut-Off Treaty* in the Conference on Disarmament. However, there are several other issues, which the NPT Review Conference either did not address in its final document or merely alluded to, which several analysts have argued could and should be pursued in the next few years as they will prove crucial to the longer term objective of global zero, namely: discussions on a treaty to reduce tactical nuclear weapons, the examination of a possible global convention on nuclear weapons and reform of the IAEA in order to support the longer term objective of a verification and monitoring system robust enough to instil confidence in the international community that a move towards total abolition of nuclear weapons could be enforced.

Comprehensive Test Ban Treaty (CTBT)

Ratifying the CTBT has been a stated goal since the NPT Review Conference in 1995 and is widely viewed as a crucial building block for establishing a cap on the capacity of existing nuclear weapon states and aspirant countries to develop new weapons. To date the CTBT still awaits ratification by nine Annex 2³⁹³ countries for the treaty to enter force. As nuclear weapon states, the United States and China have been generally regarded as the main stumbling block to achieving that aim, with the US Senate controversially refusing to ratify the treaty in 1999. However, Iran, Israel, India, Pakistan and North Korea are also Annex 2 countries that are yet to sign the treaty.³⁹⁴ At the NPT Review Conference, States Parties agreed to seek entry into force of the CTBT as a matter of urgency and in the interim

³⁹⁰ George Perkovich, “After Prague, what’s next for arms control?”, *The International Herald Tribune*, 7 April 2010

³⁹¹ “Israel won’t join in ‘flawed’ Mideast nuclear talks, *Bloomberg Business Week*, 30 May 2010

³⁹² *Report of the International Commission on Nuclear Non-proliferation and Disarmament*, Information Sheet No.3, 2009

³⁹³ Annex 2 countries refer to those whose signature and ratification is required for the treaty to enter force. Those states were identified in 1996 when the treaty was established as those with nuclear reactors.

³⁹⁴ The remaining Annex 2 countries are Indonesia and Egypt: http://www.ctbto.org/the-treaty/status-of-signature-and-ratification/?states=4®ion=63&no_cache=1&submit.x=29&submit.y=6

maintain a testing moratorium. While the US, China and Iran are clearly committed to try and achieve that objective as NPT States Parties, no timeframe for doing so has been established. Progress will merely be reported at the Conference on Facilitating the Entry into Force of the CTBT in 2011.

As outlined above, President Obama has already committed to seeking ratification of the CTBT. At the time of writing, the US administration had not indicated, however, when the CTBT would be presented to Congress. Several commentators have noted the potential difficulties that the Senate may pose in agreeing to the treaty shortly after its deliberation of the START successor treaty, which is currently before the Senate Foreign Relations Committee (see section 2.1). On 6 May 2010, the US National Security Council's Nonproliferation Director, Jon Wolfsthal, stated "while I'm optimistic that we will gain ratification, we don't have a time line right now [...] we also know that we have the immediate priority of ratifying the new START treaty".³⁹⁵ US Under Secretary for Arms Control, Ellen Tauscher, is reported to have commented that the treaty would be submitted to the Senate "when the political conditions are right".³⁹⁶ Paul Meyer, writing in *Arms Control Today*, has suggested, however, that "in light of those [domestic] demands and the priority that will be afforded to the ratification of New START, it would appear that the aggressive pursuit of CTBT ratification that the President promised in Prague is not going to occur anytime soon".³⁹⁷

If the US does ratify the treaty then China is widely expected to follow suit, although Rebecca Johnson has argued that "if China [...] were willing to move ahead with its ratification and not wait for the United States, this would give positive momentum to efforts to convince the US Senate to ratify the treaty. Chinese ratification would demonstrate its international status as a leader, not a follower".³⁹⁸ Iran is considered to be more problematic, however. While supporting the treaty in principle, ratification is likely to be linked to ratification of the CTBT by its neighbours in the Middle East, especially Israel. The Report of the International Commission on Nuclear Non-Proliferation and Disarmament has also suggested that "much will depend on how the current Iran issue is resolved, but movement on a wider regional peace front may also be a precondition".³⁹⁹ An article in the *Bulletin of the Atomic Scientists* in March/April 2010 has argued, within that broader context, that Iran could ratify the CTBT as "an easy way to assuage Western concerns [about its nuclear programme] and demonstrate its peaceful intentions" or that it "would constitute a relatively simple step to avert sanctions, or at least delay them". The article concluded therefore that gaining ratification by Iran may be easier than many analysts believe.⁴⁰⁰

Crucially, Israel, Pakistan, India and now North Korea are outside of the NPT and therefore not subject to the agreements reached at the NPT Review Conference. How the international community engages these countries will be crucial going forward and some analysts have suggested that engaging their participation in the CTBT process should be made a priority. India has already suggested that it only supports the CTBT within the context of broader progress toward disarmament by the nuclear weapon states, while Pakistan has linked its ratification of the treaty to that of India. Israel is likely to await progress by Iran;⁴⁰¹ while the possibility of North Korea ratifying the treaty will be reliant upon the progress of six party talks

³⁹⁵ "White House not rushing forward on test ban treaty", *Global Security Newswire*, 6 May 2010

³⁹⁶ *ibid*

³⁹⁷ Paul Meyer, "Prague one year later: from words to deeds?", *Arms Control Today*, May 2010

³⁹⁸ Rebecca Johnson, "Unfinished business: lessons from the CTBT negotiations", *Disarmament Diplomacy*, Summer 2009

³⁹⁹ *Report of the International Commission on Nuclear Non-Proliferation and Disarmament*, Information Sheet No.15: the Comprehensive Nuclear Test-Ban Treaty, November 2009.

⁴⁰⁰ "Boosting the CTBT's prospects in the Middle East", *Bulletin of the Atomic Scientists*, March/April 2010

⁴⁰¹ For further detail on the Israeli position on the CTBT see "Boosting the CTBT's prospects in the Middle East", *Bulletin of the Atomic Scientists*, March/April 2010

on its nuclear weapons programme which are currently stalled. US ratification of the CTBT is viewed by some as a potential ‘circuit breaker’ and likely to have an immediate impact on the other ‘hold-out’ states. The International Commission on Nuclear Non-proliferation and Disarmament has argued:

What the non-nuclear armed states have long argued for – along with those like India and Pakistan reluctant to accept formal NPT and other treaty disciplines – is an evident sense of seriousness on the part of the inner core of nuclear weapon states that they really do want to move toward a nuclear weapon free world, and US ratification of the CTBT would provide real evidence of that.⁴⁰²

Horowitz and Golan-Vilella, writing in the *Bulletin of the Atomic Scientists*, agree with this assessment:

Washington’s ratification will force the remaining outliers to reconsider their positions and will likely result in more ratifications [...] to be sure, none of this will happen immediately. When making its decision, each state will take its time and attempt to extract concessions in exchange for its own ratification. Nevertheless, progress on the treaty is a strong possibility.⁴⁰³

Others have argued however, that US ratification would have practically no effect in terms of convincing other hold-out nations to follow suit.⁴⁰⁴

Fissile Material Cut-Off Treaty (FMCT)

According to the 2009 report of the International Panel on Fissile Materials:

Put simply, ending the threat from nuclear weapons will involve securing, safeguarding and eliminating the current worldwide stockpile of about 1600 tons of highly enriched uranium and 500 tons of separated plutonium. Large steps in that direction also will be required to support the deep cuts in nuclear arsenals that will be part of the nearer term nuclear disarmament process.⁴⁰⁵

For the longer term that report also acknowledged:

As the number of weapons declines, the importance of materials increases, especially if governments are taking the new goal of zero weapons seriously. In such a world, the immediate fear of nuclear war wanes, and the fear of the return of nuclear weapons takes its place.⁴⁰⁶

As such, the negotiation of a *Fissile Material Cut-Off Treaty* has been a longstanding disarmament goal. The treaty has been regarded as crucial to providing a quantitative cap on the development of nuclear weapons alongside the qualitative cap that would be imposed by ratification of the CTBT. However prior to 2009, progress on achieving that aim within the Conference on Disarmament, the body which had been charged with negotiating a treaty, had been minimal. Operating on the basis of consensus, and with an annual mandate, Conference discussions had stalled over the inability over the 65 Member States to agree a work plan. A breakthrough was achieved in May 2009 however, after the Conference agreed

⁴⁰² *Report of the International Commission on Nuclear Non-Proliferation and Disarmament*, Information Sheet No.15: the Comprehensive Nuclear Test-Ban Treaty, November 2009. See also *Now more than ever: the case for the comprehensive nuclear test ban treaty*, Arms Control Association, February 2010

⁴⁰³ “Boosting the CTBT’s prospects in the Middle East”, *Bulletin of the Atomic Scientists*, March/April 2010

⁴⁰⁴ See the [speech by Stephen Rademaker](#), former US Assistant Secretary of State, at the Center for Strategic and International Studies, 13 May 2009

⁴⁰⁵ International Panel on Fissile Materials, *Global Fissile Material Report 2009*, p.4

⁴⁰⁶ International Panel on Fissile Materials, *Global Fissile Material Report 2009*, foreword

a work plan that not only opened the door to the negotiation of an FMCT but also established agreements to enter into substantive discussions on nuclear disarmament, the prevention of an arms race in outer space and negative security assurances. It had been hoped that the agreement would hail a brand new chapter for the ill-fated FMCT thus far.

Yet, as Paul Meyer writing for the Arms Control Association in September 2009 noted: “In the CD, the adoption of a program of work is a necessary but, unfortunately, not a sufficient condition for success. Consensus around a work program can unravel rapidly. Events since May 29 have confirmed earlier suspicions that not all CD member states are unequivocally committed to getting FMCT negotiations under way”.⁴⁰⁷

One of the main stumbling blocks to negotiation of an FMCT has been Pakistan, who Meyer notes has been “probably the most vocal CD member in expressing its reservations regarding the proposed work program and the initiation of negotiations of an FMCT”.⁴⁰⁸ In the June 2009 plenary session of the Conference, Pakistan called for progress to be achieved on all four core issues agreed under the work plan in tandem with each other, an argument that was also supported by Iran. As Meyer concluded: “to the extent that states insist on equal treatment of the four issues in the working groups, progress on an FMCT could be held hostage to progress on the other three issues”.⁴⁰⁹ Indeed, Pakistan has continued to maintain that position which led to US calls in January 2010 for the country to refrain from blocking the talks after Pakistan refused to agree an agenda for the CD for 2010. Like Pakistan’s position on the CTBT, its reluctance to pursue a FMCT has been regarded as a desire to avoid any constraints on its nuclear weapons programme in order that it retains strategic parity with India.⁴¹⁰

China, the only nuclear weapon state recognised under the NPT expanding its nuclear arsenal, has also historically expressed opposition to the negotiation of a treaty and at the Conference’s June 2009 plenary adopted a position that was noted as “clearly opposed [to] the President’s operational proposal to get down to work”.⁴¹¹ Meyer has argued that:

For China, the motivation in letting the FMCT melon linger on the vine likely reflects a strategic calculation that Beijing may require a resumption of fissile material production for reinforcing its nuclear deterrent forces in light of possible future moves by the United States (expansion of ballistic missile defences) or India (increase in its longer-range ballistic missile forces). This perceived need for a strategic ‘hedge’ may explain why China, alone among the recognised nuclear weapon states, has declined to commit officially to a cessation of fissile material production for nuclear weapons purposes.⁴¹²

Bruno Tertrais, writing in *The World Today* in November 2009 concluded:

The negotiation of a fissile material cut-off treaty, an important non-proliferation and disarmament measure, will be long and extraordinarily hard. None of the four Asian

⁴⁰⁷ Paul Meyer, “Breakthrough and breakdown at the Conference on Disarmament: Assessing the prospects for an FMCT”, *Arms Control Today*, September 2009

⁴⁰⁸ *ibid*

⁴⁰⁹ *ibid*

⁴¹⁰ For further discussion see “Playing the nuclear game: Pakistan and the Fissile Material Cut-off Treaty”, *Arms Control Today*, April 2010

⁴¹¹ *ibid*

⁴¹² Paul Meyer, “Breakthrough and breakdown at the Conference on Disarmament: Assessing the prospects for an FMCT”, *Arms Control Today*, September 2009

nuclear-capable countries – China, India, Pakistan and North Korea, which are all expanding their arsenals – is interested in stopping production now.⁴¹³

Procedural wrangling aside, major substantive issues also divide the member states of the Conference on Disarmament, including whether the treaty should prohibit only future production or deal with legacy stockpiles as well, thereby making the treaty a nuclear disarmament, as well as a non-proliferation measure. The nuclear weapon states have rejected such a move, while a number of non-nuclear weapon states, including Iran, have supported the inclusion of legacy material in any FMCT. This is a position which Pakistan has also now expressed its support for, reflecting concerns that the 2008 US-India civil nuclear cooperation deal will allow India to increase its stockpile of fissile material for weapons purposes by diverting domestic fissile material resources solely into its military programme. At the January 2010 meeting of the Conference on Disarmament Pakistan's Ambassador, Zamir Akram, stated that "if we are going to negotiate a treaty which only bans future production, then that asymmetry or imbalance between us will be frozen forever. It presents us with a clear and present danger".⁴¹⁴

The creation of a robust verification regime for an FMCT has also been regarded as a potential sticking point, as it would require, at the very least, international monitoring of all reprocessing and enrichment plants, and universal adherence to the IAEA Comprehensive Safeguards Agreement and the Additional Protocol, which remains to be ratified by a significant number of IAEA Member States. Experts have argued that any treaty should also encompass civilian stocks of fissile material if the goal of an FMCT is not to be undermined by the ability of states to stockpile HEU for use in civilian reactors or naval propulsion that could, in a moment of crisis, be diverted into a weapons programme.⁴¹⁵

At the NPT Review Conference States Parties agreed that the UN Secretary General be invited to convene a high level meeting in support of this treaty in September 2010. Until Pakistan perceives a radical shift in its regional security environment, however, and in particular its relationship with India, making any substantial progress either within the Conference on Disarmament or at that September meeting is considered unlikely. A number of analysts have suggested that one option for moving discussions forward would be to launch negotiations under the auspices of the NPT, in light of the absence from that forum of those states which have stalled progress so far. However, adopting such an approach would arguably be futile as it would fail to accommodate the non-NPT states, including Pakistan. If a credible FMCT and disarmament more generally, is ever to be achieved, embracing those countries in an international arms control framework, and encouraging them to be responsible nuclear states, will be crucial. As a briefing by the Nuclear Threat Initiative (NTI) acknowledged, "extending verification to India, Pakistan, and Israel, in particular, bringing them at least the first step toward participation in the international non-proliferation regime, is seen by many as a crucial purpose of a cut-off agreement. Unless all or most of these states participated, a fissile cut-off would have little value".⁴¹⁶

An alternative option, put forward by the NTI, would therefore be for a key non-nuclear weapon state such as Canada or Australia, to consider launching negotiations on the treaty outside of the Conference on Disarmament and the NPT, much like Canada successfully did for the ban on anti-personnel landmines in 1998.⁴¹⁷ Indeed an initial draft of the final document of the 2010 NPT Review Conference had contained a proposal for the UN General Assembly to explore possible options should discussions within the Conference on

⁴¹³ Bruno Terrais, "In their hands", *The World Today*, November 2009

⁴¹⁴ "US asks Pakistan to stop blocking nuclear talks", *Associated Press*, 26 January 2010

⁴¹⁵ "Fissile material ban should include civilian HEU, experts say", *Global Security Newswire*, 30 March 2010

⁴¹⁶ "Ending further production", *Nuclear Threat Initiative*

⁴¹⁷ "Ending further production", *Nuclear Threat Initiative*

Disarmament fail to bear fruit by the end of 2011. That proposal was removed from the final document, however; a move that some have interpreted as an effort to keep the FMCT issue bogged down in the Conference on Disarmament.

Non-Strategic Nuclear Weapons

Organisations and commentators committed to the concept of 'global zero' have long argued that a treaty limiting the numbers of non-strategic nuclear weapons held by the US and Russia (500 and 2,000⁴¹⁸ warheads respectively), and potentially the other nuclear states, should be concluded as a matter of urgency, and indeed would be a valuable way of maintaining momentum in the disarmament agenda.⁴¹⁹ Many have argued that the military utility of such weapons has become increasingly obsolete as virtually every conceivable military scenario would involve the use of alternative capabilities in order to achieve its goals, whether they are conventional assets or at the extreme, strategic nuclear weapons. Others have argued that vast stockpiles of non-strategic nuclear weapons increase the possibility of proliferation and nuclear terrorism, and on that basis alone efforts should be made to withdraw such weapons from foreign territory and reduce warhead numbers. As a first step towards the reduction and elimination of such weapons, a number of states prior to the NPT Review Conference (primarily Finland, Sweden, Lithuania, Switzerland, Ukraine and Austria) called on the US and Russia to codify the 1991 Presidential Nuclear Initiatives on non-strategic nuclear weapons.

Both the US and Russia have stated their willingness to address this issue,⁴²⁰ although little concrete progress toward establishing a treaty has been made thus far. Domestic political perceptions aside, it has been suggested that the lack of political appetite for pursuing this initiative has largely been because any verification regime would be much more complicated than that established for START and SORT, as the verification of strategic systems has generally been based on the monitoring of delivery vehicles, while tactical nuclear weapons utilise dual-purpose vehicles such as the Tomahawk cruise missile. On that basis any verification and monitoring regime would have to be far more intrusive and undertaken at nuclear weapons storage sites which has been viewed as highly controversial. Russia has also historically been reluctant to advance this particular agenda given the disparity between its conventional military forces and those of the US and NATO. The US decision to place some of its ballistic missile defence architecture in Eastern Europe and pursue conventional global strike capabilities, as part of its nuclear posture review, is also likely to complicate Russian decision making on this issue.

It had been hoped that the issue of non-strategic nuclear weapons would be addressed in the 2010 US *Nuclear Posture Review*, in particular the basing of tactical nuclear weapons in

⁴¹⁸ Despite the size of Russia's stockpile of tactical nuclear warheads it has been estimated that only a few hundred are actually in operational condition ("Don't stop with START", *Carnegie Endowment for International Peace*, 3 December 2009)

⁴¹⁹ There is some debate as to what constitutes a non-strategic nuclear weapon, which a number of analysts generically refer to as 'tactical' nuclear weapons. The Weapons of Mass Destruction Commission has, however, defined them as "all land-based nuclear-equipped delivery vehicles with the range of up to 500km, all sea-based weapons with a range of up to 800km and all sea-launched cruise missiles regardless of range, and all air-based weapons with a range of up to 600km. Delivery vehicles can also vary by type – nuclear mines, howitzers, missiles, gravity bombs etc. They can carry warheads with a broad variety of yields" (Source: Weapons of Mass Destruction Commission, *Practical Measures to Reduce the Risks Presented by Non-Strategic Nuclear Weapons*). Land-based missiles with an intermediate range of between 500km and 5,500km are discounted from this definition due to their inclusion in the *Intermediate Nuclear Forces Treaty 1987*.

⁴²⁰ Some progress on reducing the numbers of tactical nuclear weapons was made in the early 1990s when the US and Russia, under the Presidential Nuclear initiatives (PNI) agreed to reduce numbers and store the larger part of their respective arsenals in central storage. However the US has questioned Russia's commitment to the PNI suggesting that a lack of transparency by the Russian government had made verification of withdrawal extremely difficult.

Europe. However, as outlined above, that document did not go as far as some had hoped. While it did announce the US's intention to retire its sea-launched nuclear-armed Tomahawk cruise missiles, it did not specifically propose establishing a treaty on non-strategic nuclear weapons reductions or announce that it would withdraw such weapons from Europe. Instead the NPR stated that the US would pursue further disarmament measures with Russia, including initiatives to address non-strategic and non-deployed weapons as well as strategic weapons, and that any changes in NATO's nuclear posture should only be taken after a thorough review within – and decision by – the Alliance as part of its ongoing review of its Strategic Concept. The US administration also confirmed that a review of post-START arms control objectives would now be undertaken, through which the US would also consult with allies and partners over its approach.

At the reported insistence of Russia, the final document of the NPT Review Conference also made no specific reference to reductions in non-strategic weapons, couching any commitment in more generic language that only obliged the nuclear weapon states to “undertake further efforts to reduce and ultimately eliminate all types of nuclear weapons, deployed and non-deployed, including through unilateral, bilateral, regional and multilateral mechanisms”.⁴²¹

Within the Obama administration there are two emerging schools of thought on non-strategic weapons: those, such as Ivo Daalder the US Permanent Representative to NATO, who have publicly expressed support for withdrawing the 200 or so tactical nuclear weapons remaining in Europe and those, largely within the Pentagon, who have advocated a more cautious approach and argued that US extended nuclear deterrence should not be weakened in any way.⁴²² In turn, a number of Russian analysts have suggested that before Russia considers a commitment on reducing numbers, the US should unilaterally withdraw all of its tactical nuclear weapons from Europe.⁴²³

This debate has undoubtedly received fresh impetus from the current debate on global disarmament and the motivation of both the US and Russia to conclude a new START treaty. On 2 February 2010, the Swedish Foreign Minister, Carl Bildt and the Polish Foreign Minister, Radek Sikorski, submitted an opinion to *The New York Times* in which they expressed support for the adoption of an arms control regime on tactical nuclear weapons. That opinion stated:

With some exceptions, tactical nuclear weapons were designed for outdated, large-scale war on the European continent. Their use would have brought destruction to Europe on a scale beyond comprehension and would in all probability have lead also to the destruction of Russia and the United States in a strategic nuclear duel.

One thing is absolutely clear: the time has come to cover sub-strategic nuclear weapons with an arms control regime, which would look like the one that was established long ago for strategic arms.

We will face security challenges in the Europe of today and tomorrow, but from whichever angle you look, there is no role for the use of nuclear weapons in resolving these challenges.⁴²⁴

⁴²¹ 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Final Document*, (NPT/CONF.2010/50 (Vol.1))

⁴²² See “Reducing tactical nuclear weapons in Europe”, *Survival*, February-March 2010

⁴²³ “Arms control pact could be signed soon in Prague, Kremlin suggests”, *Global Security Newswire*, 4 February 2010

⁴²⁴ “Next, the tactical nukes”, *The New York Times*, 2 February 2010

That wider debate has also been used as the basis for calls by various European governments, most prominently Belgium and Germany,⁴²⁵ for the US to remove all remaining US nuclear weapons from European soil.⁴²⁶ Other commentators have also called for Russian tactical nuclear weapons to be withdrawn from those areas of Russian territory in close proximity to Europe, and particularly those areas that share a border with European Union Member States, for example Kaliningrad.⁴²⁷ A joint proposal from Belgium, Germany, Norway, the Netherlands and Luxembourg (also known as 'The Five') on the removal of US nuclear weapons from Europe is being considered within the broader ongoing discussions on the revision of NATO's Strategic Concept. In its analysis and recommendations report, presented in May 2010, the Group of Experts convened to debate the Strategic Concept, concluded on the issue of NATO's nuclear posture that:

As long as nuclear weapons exist, NATO should continue to maintain secure and reliable nuclear forces, with widely shared responsibility for deployment and operational support, at the minimum level required by the prevailing security environment. Any change in this policy, including in the geographic distribution of NATO nuclear deployments in Europe, should be made, as with other major decisions, by the Alliance as a whole.

The Strategic Concept should also affirm NATO's full support for efforts to prevent the proliferation of nuclear weapons, ensure that nuclear materials are handled in a safe and secure manner, and make progress towards a world free from the fear of nuclear war. In this spirit, the Alliance has dramatically curtailed the types and numbers of sub-strategic nuclear forces in Europe and should welcome consultations with Russia in pursuit of increased transparency and further mutual reductions.⁴²⁸

That report will now inform the drafting of a new Strategic Concept which is expected to be submitted to the NATO Heads of State and Government Summit in November 2010.

Many analysts have regarded the review of NATO's Strategic Concept as a 'window of opportunity' and a chance for NATO allies to support President Obama in his disarmament agenda.⁴²⁹ NATO allies differ greatly, however, in their positions on this issue which could prove divisive in efforts to achieve a consensual position in November. While 'The Five' are pushing for US tactical nuclear weapons to be withdrawn, the newer (and former Soviet states) within NATO, in addition to Turkey, have expressed concern over the removal of such weapons from NATO soil while Russia deploys an extensive non-strategic nuclear force just over their borders.⁴³⁰ While the US and UK are committed to the vision of 'global zero' they are also unlikely to push for the withdrawal of US tactical nuclear weapons without significant reciprocal, and verifiable, measures being committed to by Russia. Indeed, at a NATO meeting in April 2010 US Secretary of State, Hillary Clinton indicated that Washington was

⁴²⁵ See for example, "German nuclear stance stirs debate", *Arms Control Today*, December 2009

⁴²⁶ The US has approximately 200 tactical nuclear weapons in Belgium, Germany, Italy, the Netherlands and Turkey. It is worth noting, however, that the concept of extended nuclear deterrence within the Alliance is not in question.

⁴²⁷ "Next, the tactical nukes", *The New York Times*, 2 February 2010

⁴²⁸ *NATO 2020: Assured Security; Dynamic Engagement: Analysis and Recommendations of the Group of Experts on a New Strategic Concept for NATO*, 17 May 2010

⁴²⁹ "The 2010 NPT review conference: looking to a future without nuclear weapons?", *European Security Review*, February 2010

⁴³⁰ "US ties removal of European nukes to Russian arms cuts", *Global Security Newswire*, 23 April 2010

not against reducing the number of forward-deployed tactical nuclear weapons, but that “such a move would be dependent upon similar action by Moscow”.⁴³¹

Indeed, critics of the proposal to withdraw remaining US nuclear weapons from Europe have argued that such a move would send a detrimental political message regarding the US’s commitment to European security. In a report for the Centre for European Reform in February 2010 George Robertson, Franklin Miller and Kori Schake stated:

Since the 1950s, NATO countries have shared responsibility for the stationing and potential use of nuclear weapons [...] solidarity among NATO countries rests on the principle that all allies share the burden of defending NATO, and that defence still requires nuclear weapons.

For Germany to want to remain under the nuclear umbrella while exporting to others the obligation of maintaining it is irresponsible. Moreover, the pressure created by Germany’s unilateral announcement will be unhelpful to other countries, especially Turkey and the new member states. Denied the protection of NATO’s nuclear weapons in Europe, Turkey would have additional reasons to worry about Iran’s nuclear programme – and perhaps to develop nuclear weapons of its own. Newer NATO members in Central Europe, who see in the nuclear weapons a symbol of US commitment to defend them, would be left feeling vulnerable. They are likely to respond by demanding that NATO move its forces and bases, now heavily concentrated in Germany, closer to Russian borders.⁴³²

Moreover, that report went on to conclude that:

We believe that the proposal could be turned to advantage if NATO collectively negotiated with Moscow asymmetric but multilateral reductions to Russian and allied tactical nuclear arsenals. Such an approach would reaffirm NATO solidarity and the value of nuclear deterrence in preventing aggression, and thus advance the allies security. It would set a positive example of western commitment to disarmament in advance of the 2010 review conference on the nuclear Non-Proliferation Treaty.⁴³³

Yet, as the British American Security Information Council has argued, “retaining nuclear weapons for symbolic value undermines long term non-proliferation efforts by enticing currently non-nuclear weapons states – states which may actually face more urgent strategic threats – to pursue nuclear arsenals”.⁴³⁴ Daryl Kimball of the Arms Control Association has also argued:

It would be a conservative and naive recommendation that fails to recognize that the forward-deployed tactical nukes are irrelevant for the defence of NATO and an obstacle to reducing the nuclear arsenals of others, including Russia.⁴³⁵

⁴³¹ “US ties removal of European nukes to Russian arms cuts”, *Global Security Newswire*, 23 April 2010 For further discussion on NATO’s nuclear posture and the deployment of non-strategic nuclear weapons in Europe see Malcolm Chalmers and Simon Lunn, “NATO’s tactical nuclear dilemma”, *RUSI Occasional Paper*, March 2010; *Considering NATO’s tactical Nuclear Weapons after the US Nuclear Posture Review*, BASIC, 7 April 2010; “Reducing tactical Nuclear Weapons in Europe”, *Survival*, February/March 2010; Hugh Beach, “The end of nuclear sharing?”, *RUSI Journal*, December 2009 and “Going nuclear: NATO’s new strategic concept”, *The World Today*, December 2009

⁴³² Miller, Robertson and Schake, “Germany opens Pandora’s box”, *Centre for European Reform*, February 2010

⁴³³ Miller, Robertson and Schake, “Germany opens Pandora’s box”, *Centre for European Reform*, February 2010

⁴³⁴ “Mind the gap: healing the NATO rift over US tactical nuclear weapons in Europe”, *BASIC*, January 2010

⁴³⁵ “NATO experts group say US nukes should stay in Europe”, *The Guardian*, 29 March 2010

On the issue of linking the US withdrawal of its forward deployed weapons to Russian reductions, he also went on to note that “linking removal of these militarily irrelevant weapons to Russian action on tactical nuclear reductions is naive and a recipe for inaction”.⁴³⁶

A Global Convention on Nuclear Weapons

Since the mid-1990s the idea of establishing a global convention on nuclear weapons has been consistently touted as a means of pushing the nuclear weapon states to fulfil their Article VI obligations under the NPT. As outlined in section 1.2 those calls have consistently been met with resistance by the nuclear weapon states. Since 1998 resolutions calling for negotiations on a nuclear weapons convention to begin in the Conference on Disarmament have been adopted almost annually within the UN General Assembly⁴³⁷ and in 2007 Costa Rica and Malaysia also submitted a revised model text for debate within the CD.⁴³⁸

More recently, the idea of establishing a nuclear weapons convention has once again come to the fore and has been widely acknowledged as a potentially effective means for engaging those nuclear capable states outside of the NPT in an international arms control framework.⁴³⁹ As part of his ‘five point’ proposal for achieving effective disarmament, the UN Secretary General Ban Ki Moon suggested in October 2008 that all States Parties to the NPT should undertake disarmament negotiations which could be achieved through the long standing proposal to negotiate a nuclear weapons convention, supported by a strong verification regime. In January 2009 the UN General Assembly once again adopted a resolution supporting the establishment of a nuclear weapons convention and called for the Conference on Disarmament to begin negotiations.⁴⁴⁰ That resolution received the backing of 121 states including China; with 50 states voting against, including the UK, US and France; while 11 countries, including Russia, abstained.⁴⁴¹ The suggestion for establishing a nuclear weapons convention was subsequently put forward, in a proposal submitted by Costa Rica and Malaysia, to the NPT Review Conference in 2010.

Rebecca Johnson, UK Director of the Acronym Institute, has been a longstanding advocate of establishing a nuclear weapons convention:

While the current nuclear weapons non-proliferation regime should be supported and strengthened, the existing treaty [...] does not have the right mix of obligations and powers to bring about a world free of nuclear weapons.

Achieving that goal requires a universal nuclear weapons abolition treaty [...] the 2010 disarmament talks should aim to transform the Cold War non-proliferation regime into a nuclear abolition regime for security in the 21st century and beyond [...] In 2010, generalized concerns and exhortations will not suffice. If that is all that the conference can achieve, then the ink will barely be dry before cracks in the non-proliferation regime begin to reappear and widen.⁴⁴²

⁴³⁶ “US ties removal of European nukes to Russian arms cuts”, *Global Security Newswire*, 23 April 2010

⁴³⁷ For example [A/RES/61/97](#) (December 2006) and [A/RES/62/51](#) (December 2007)

⁴³⁸ http://www.2020visioncampaign.org/filestorage/337/File/1/A_62_650_CostaRica.pdf

⁴³⁹ This view is not shared however by the International Commission on Nuclear Non-proliferation and Disarmament which argued that “the need for the three [India, Pakistan and Israel] to become integrated into the global nuclear order to the greatest extent possible is too urgent and important to wait upon that process” (Report of the International Commission on Nuclear Non-proliferation and Disarmament, *Information Sheet No. 13*). The Commission did however support the concept of establishing a nuclear weapons convention and called for detailed work on such a proposal to begin (International commission on Nuclear Non-proliferation and Disarmament, *Eliminating Nuclear threats*, 2009)

⁴⁴⁰ [A/RES/63/75](#)

⁴⁴¹ http://www.undemocracy.com/A-63-PV.61/page_33

⁴⁴² Rebecca Johnson, “A world free of nuclear weapons”, *eJournal USA*, February 2010

The Weapons of Mass Destruction Commission has also supported this view suggesting that “a nuclear disarmament treaty is achievable and can be reached through careful, sensible and practical measures. Benchmarks should be set; definitions agreed; timetables drawn up and agreed upon; and transparency requirements agreed... it is time to move from the present stalemate and revive discussion and negotiations about such steps”.⁴⁴³

Indeed, the Final Document of NPT Review Conference specifically agreed that:

All States need to make special efforts to establish the necessary framework to achieve and maintain a world without nuclear weapons. The Conference notes the Five-Point proposal for nuclear disarmament of the Secretary General of the United Nations, which proposes *inter alia* consideration of negotiations on a nuclear weapons convention, or agreement on a framework of separate mutually reinforcing instruments, backed by a strong system of verification.⁴⁴⁴

However, no timeframe for undertaking these discussions was agreed in the final text. Should these discussions be taken forward in the Conference on Disarmament, then it has been considered highly likely that any progress toward establishing a convention will suffer the same fate as the FMCT, due to the need for agreement by consensus. Indeed the British Government, under then Prime Minister Gordon Brown, made clear in 2009 that it rejected current calls for a nuclear weapons convention to be established, arguing that:

The Government believes that a Nuclear Weapons Convention may at some stage in the future form the legal underpinning of a world free from nuclear weapons. However, the global political and security environment in such a world is likely to be very different from current realities. It is impossible to predict how such a world might look. In addition, we believe that a new conference or body to discuss such a convention today would risk undermining the NPT. Therefore at this stage we believe it would be premature and counter-productive to begin negotiations on a Nuclear Weapons Convention. We also believe that such negotiations would be unlikely to make political headway in the current global political climate. We remain firmly committed to the NPT as the best vehicle for creating the conditions for a world free from nuclear weapons.⁴⁴⁵

If the vote on the UN General Assembly Resolution in January 2009 can be taken as an indicator, the US and France are also likely to oppose any progress on this issue.⁴⁴⁶

IAEA Reform

While the IAEA is not party to the NPT, it is entrusted with key roles and responsibilities under it, in particular in relation to monitoring, verification and compliance, nuclear security protocols and helping countries exploit peaceful applications of nuclear science and technology. As such, nearly every proposal for furthering the disarmament and non-proliferation agenda that has been voiced in the last year or so relies upon the ability of the IAEA to continue working effectively. This will be particularly pertinent to measures related to nuclear security and verification and compliance.⁴⁴⁷ With the world on the brink of a ‘nuclear renaissance’, the IAEA also has a key role to play in assisting states to develop peaceful uses of nuclear power, while at the same time acknowledging and complying with their non-

⁴⁴³ Weapons of Mass Destruction Commission, *Weapons of Terror*, 2006, p.109

⁴⁴⁴ 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Final Document*, (NPT/CONF.2010/50 (Vol.1))

⁴⁴⁵ Foreign Affairs Committee, *Global Security: Non-Proliferation, Response of the Secretary of State for Foreign and Commonwealth Affairs*, Cm7692, Session 2008-09

⁴⁴⁶ A summary of selected government positions at the NPT review conference on the proposal to establish a nuclear weapons convention has been collated by the [International Campaign to Abolish Nuclear Weapons](#)

⁴⁴⁷ For a detailed examination of the challenges of verifying any move toward a world without nuclear weapons, see George Perkovich, *Abolishing Nuclear Weapons*, Adelphi Paper 396, 2008

proliferation and security obligations. The organisation will also be at the forefront of multilateral efforts to ‘internationalise’ the nuclear fuel cycle with the establishment of nuclear fuel banks. Indeed, the Final Document of the NPT Review Conference did acknowledge the key role of the IAEA and suggested that “IAEA safeguards should also be assessed and evaluated regularly and any decisions adopted by the IAEA to strengthen and improve IAEA safeguards should be supported and implemented”, and that all States Parties should “ensure that the IAEA has all political, technical and financial support”. However, it stopped short of making any specific recommendations for reform.

Yet, as Gregory Schulte, writing in *Strategic Forum* in March 2010 noted:

The agency must be strengthened if it is to succeed in a world straddling renewed aspirations of nuclear disarmament and real risks of nuclear danger.

Strengthening the IAEA will require new investments by Member States – investments in political will, financial resources and legal authority. It will require a new consensus on the agency’s important role in non-proliferation. And it will also require that the agency concentrate on its technical mission without succumbing to political considerations. The IAEA is the world’s nuclear watchdog, not the world’s nuclear negotiator.⁴⁴⁸

Specifically, it has been widely recognised that the authority of the IAEA must be strengthened with the universal adoption of Comprehensive Safeguards Agreements and the Additional Protocol, which allow IAEA inspectors to conduct more intrusive inspections. It has also been recognised that the IAEA must adopt a more refined and strengthened approach to the notification of non-compliance both internally, and to the UN Security Council. As Council on Foreign Relations Senior Fellow Paul Lettow has recently argued in his report *Strengthening the Nuclear Nonproliferation Regime*:

The United States should seek expanded inspections authorities and funds for the International Atomic Energy Agency and spur the IAEA to make full use of its existing authorities and technologies, while encouraging it to revise its outdated operational goals.

To bolster the IAEA Board of Governor’s ability and will to find countries in noncompliance with their non-proliferation objectives, the United States must encourage the board to set out and follow strict and objective guidelines for making that determination.

To help promote effective and expeditious enforcement of the rules of the regime – a critical weakness in the last two decades – the United States should ask the UN Security Council to set out a generic series of punitive steps that would presumptively apply to any state in breach of its non-proliferation obligations.⁴⁴⁹

The International Commission on Nuclear Non-proliferation and Disarmament has also recommended that:

The Additional Protocol and its annexes should be updated and strengthened to make clear the IAEA’s right to investigate possible weaponization activity, and by adding specific reference to dual-use items, reporting on export denials, shorter notice periods and the right to interview specific individuals [...]

⁴⁴⁸ Gregory Schulte, “Strengthening the IAEA: How the Nuclear Watchdog can regain its bark”, *Strategic Forum*, March 2010

⁴⁴⁹ Reported in “Nonproliferation system seen facing severe strain”, *Global Security Newswire*, 14 April 2010

The IAEA should make full use of the authority already available to it, including special inspections, and states should be prepared to strengthen its authority as deficiencies are identified.

The IAEA should be given a one-off injection of funds to refurbish the Safeguards Analytical laboratory a significant increase in its regular budget support, without a “zero real growth” constraint, and sufficient security of future funding to enable effective medium to long term planning.

Several analysts have also called for the promotion of nuclear security to be acknowledged as a core task of the IAEA and for a regular source of funding from the IAEA’s mainstream budget to be attributed to that work, as opposed to the current situation whereby nuclear security work is funded by voluntary contributions.

These measures have been viewed as possible short term ‘quick wins’ and measures that will lay the groundwork for much more complex and demanding work that is likely to be demanded from the IAEA going forward. As Desmond Bowen has noted “it must also be remembered that as and when the world approaches the zero threshold, the vulnerability of those who disarm in relation to any cheat that secretly retains a capability increases enormously. Hence there is a need for trust and, ineluctably, an intrusive verification regime to underpin that trust”.⁴⁵⁰

In the longer term, therefore, a strengthened, fully resourced and effective IAEA will be vital in delivering the level of confidence needed within the international community to persuade the nuclear weapon states to take that final step toward nuclear abolition and to persuade the non-nuclear weapon or aspirant states that their security is enhanced without possession of such capabilities. And once a state of ‘global zero’ has been realised, the IAEA will have an even more fundamental role in ensuring that the world stays that way.

⁴⁵⁰ Desmond Bowen, “Deterrence and disarmament in the UK”, *Survival*, February-March 2010

5 List of Abbreviations

ABM – Anti-Ballistic Missile Treaty

AP – Additional Protocol

CBW – Chemical and biological weapons

CD – Conference on Disarmament

CTBT – Comprehensive Test Ban Treaty

FMCT – Fissile Material Cut-Off Treaty

HEU – Highly enriched uranium

IAEA – International Atomic Energy Authority

ICBM – Intercontinental ballistic missile

ICJ – International Court of Justice

INF – Intermediate Nuclear Forces

LEP – Life extension programme

LEU – Low enriched uranium

NATO – North Atlantic Treaty Organisation

NPT – Non Proliferation Treaty

NWFZ – Nuclear weapons free zone

PSI – Proliferation Security Initiative

SALT – Strategic Arms Limitation Treaty

SLBM – Sea-launched ballistic missile

SMP – Stockpile Management Programme

SORT – Strategic Offensive Reduction Treaty

START – Strategic Arms Reduction Treaty

UNSCR – United Nations Security Council Resolution

WMD – Weapons of Mass Destruction