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Nuclear Weapons: Disarmament and Non-Proliferation Regimes

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Summary

There are nine nuclear powers in the world: the five nuclear weapon states recognised under the Nuclear Non-Proliferation Treaty (the US, Russia, UK, France and China); three de facto nuclear weapon states that have developed a nuclear capability outside of that treaty framework (Israel, Pakistan and India), and North Korea, which despite not being recognised by the international community as a nuclear weapons state, is considered potentially nuclear capable. In addition, there are those states which have been, or are, suspected of harbouring nuclear intentions, most notably Iran and Syria.

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. The distinction between these three categories is not entirely clear cut, and a degree of overlap exists between them:

- **Disarmament** - the first strand includes treaties, agreements and other mechanisms that seek to bring about the gradual disarmament of the five NPT-recognised nuclear powers.
- **Restrictions on the development of new weaponry** – the second strand seeks to restrict the development of new nuclear weapons systems.
- **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 civilian nuclear facilities.

**Disarmament regimes**

Given the overwhelming nuclear superiority of 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. The New START agreement, which was concluded in 2010, and the Intermediate Nuclear Forces Treaty 1987 remain in force.

In 2007 the five NPT nuclear states also established the P5 Dialogue in order to examine what transparency and confidence building measures they could jointly pursue. The hope was that co-operation between the nuclear weapon states would gradually generate momentum towards disarmament.

At the international level, the Nuclear Non-Proliferation Treaty 1968 represents the only binding commitment in a multilateral treaty to the goal of disarmament by the recognised nuclear weapon states.

The Conference on Disarmament (CD) was also established in 1979 as the single multilateral disarmament negotiating forum of the international community. Its success has been mixed, however, and little has been achieved within the organisation in the last fifteen years.
This general feeling of inertia is one that has been felt throughout the disarmament community over the last few decades. While bilateral efforts between the US and Russia have achieved some progress, those successes have been hard fought and any further progress has now been complicated by the deterioration in diplomatic relations between the two countries.

Progress within the P5 Dialogue has been slow with critics arguing that nothing of any substance has emerged from the process thus far. This frustration has also been evident within the framework of the NPT which failed to reach a consensus agreement at its latest Review Conference in 2015. Many opponents have also pointed to the modernisation plans of the nuclear weapon states as evidence that their disarmament obligations are not being taken seriously.1

In addition, advancing the disarmament agenda has also been undermined by the existence of the de facto nuclear states outside of the majority of these fora. Israel, India, Pakistan and North Korea are not part of the NPT nor are they contributors to the P5 Dialogue. While they are all members of the Conference on Disarmament, they have also done little to progress initiatives within that forum. Negotiations on a fissile material cut-off treaty have, for example, failed thus far because of Pakistan’s ongoing objection to the current wording of the draft text.

As a result of this perceived stagnation there has been an increasing focus in the last few years by the non-nuclear weapon states, and other stakeholders, on the humanitarian consequences of nuclear weapons. Intended to bring new pressure to bear on the disarmament agenda, this renewed focus led to the emergence in 2014 of the Humanitarian Impact of Nuclear Weapons Initiative and in 2015 to the revival of the UN-mandated Open Ended Working Group on Disarmament. Both fora are seeking to achieve progress on some form of legally binding instrument that would outlaw nuclear weapons.

**Restrictions on the development of new weaponry**

In addition to those treaties and agreements aimed at promoting and implementing nuclear disarmament measures, a number of bilateral and multilateral treaties have also been concluded that seek to inhibit the development of new weaponry. These include bans on the testing of nuclear warheads, a proposed ban on the production of fissile material and restrictions on the deployment of missile defence shields.

However, the Comprehensive Test Ban Treaty (CTBT) has yet to enter into force and efforts to begin negotiations on a fissile material cut-off treaty have also stalled within the Conference on Disarmament. Efforts to restrict the development of new weaponry were also considered to have been dealt a blow after the US unilaterally withdrew from the

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1 The modernisation programmes of the nuclear weapon states is discussed in Library briefing paper CBP7566, *Nuclear weapons – country comparisons*, 2016
Anti-Ballistic Missile (ABM) Treaty in 2002, to enable the testing and deployment of a new US missile defence system.

**Non-proliferation regimes**

The majority of regimes relating to non-proliferation are multilateral agreements or treaties. The most prolific of those, and considered the cornerstone of the international nuclear non-proliferation regime, has been the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT). 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 15 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; the Proliferation Security Initiative (PSI) which was launched by the US in 2003; and UN Security Council Resolution 1540 on nuclear security which was passed in 2004. Nuclear security has also risen up the agenda since 2010 with a series of high-level conferences aimed at addressing concerns over nuclear terrorism and the safeguarding of vulnerable materials.
1. Background

The Nuclear Non-Proliferation Treaty (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. As such, there are five internationally recognised nuclear weapon states: the United States, Russia, the United Kingdom, China and France. Countries which have developed a nuclear capability since that date are considered de facto nuclear weapon states (Israel, Pakistan and India). Despite having conducted nuclear tests in 2006, 2009, 2013 and 2016 North Korea is not recognised by the international community as a nuclear weapons state. It is considered potentially nuclear capable, however. In addition, there are those states which have been, or are, suspected of harbouring nuclear intentions, most notably Iran and Syria.

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This paper is intended as an introduction of each of these arms control regimes. It is also part of a Library briefing series on nuclear weapons:

- CBP7353, *Replacing the UK’s nuclear deterrent*
- CBP7542, *Defence nuclear convoys*
- CBP7566, *Nuclear weapons – country comparisons*
- CBP4079, *The French nuclear deterrent*
- SN03147, *UK-USA Mutual Defence Agreement*, October 2014

A paper entitled *Obama’s nuclear legacy*, is expected to be published in early 2017.
2. Disarmament regimes

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Progress within the P5 Dialogue has been slow with critics arguing that nothing of any substance has emerged from the process thus far. This frustration has also been evident within the framework of the NPT which failed to reach a consensus agreement at its latest Review Conference in 2015. Many opponents have also pointed to the modernisation plans of the nuclear weapon states as evidence that their disarmament obligations are not being taken seriously.²

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2.1 US-Soviet/Russia bilateral agreements

Bilateral talks aimed at restricting the nuclear arsenals of the Soviet Union and the United States 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, a number of which remain in force today.

Strategic Arms Limitation Talks (SALT I and II)

The first round of Strategic Arms Limitations Talks (SALT) took place between November 1969 and May 1972. At the conclusion of the talks the Soviet Union and the United States signed a treaty restricting the construction of Anti-Ballistic Missile defences (the ABM Treaty – see below) and an Interim Agreement limiting strategic offensive arms. The latter agreement froze at existing levels the number of intercontinental and submarine-launched ballistic missile launchers (ICBMs and SLBMs), including those that were either operational or under construction. The levels were set at 1,710 for the United States and 2,347 for the Soviet Union.

Under SALT II, the Soviet Union and the US sought to replace the Interim Agreement with a longer-term treaty that would provide broad limits on strategic offensive weapons systems. Negotiations began in 1972, but it was not until June 1979 that agreement was reached and the treaty was signed. The provisions stipulated a limit of 2,400 ICBMs, SLBMs, and heavy bombers for both sides, to be reached within six months after the treaty entered into force. A further reduction to 2,250 was to take place by 1981. In addition, the two parties agreed a sub-limit of 1,320 on strategic ballistic missiles and heavy bombers equipped with multiple-warhead ballistic missiles or multiple cruise missiles. There was also agreement that each side could build and deploy only one new type of ICBM.

The Soviet invasion of Afghanistan in late 1979 jeopardised the treaty’s ratification by the US Senate, although both sides undertook to abide by the treaty’s provisions. This situation lasted until 1984 when President Reagan accused the Soviet Union of violating its political commitment to respect the treaty.

Talks on possible reductions in strategic nuclear arms had recommenced in 1982, but were interrupted by disagreements over the deployment by NATO of intermediate-range nuclear-armed missiles in Western Europe and over US plans to develop a ballistic missile defence system, known as the Strategic Defence Initiative (SDI). The latter part of the 1980s, however, witnessed a marked decrease in tension between the two
superpowers, following the rise to power of Soviet leader Mikhail Gorbachev in 1985.

**Intermediate Range Nuclear Forces Treaty (INF)**

In December 1987 the Soviet Union and the US signed a **Treaty on Intermediate-Range Nuclear Forces** (INF) under which both sides agreed to eliminate all nuclear-armed ground-launched ballistic and cruise missiles with ranges between 500 and 5,500km. Specifically it focused on intermediate-range missiles of between 1,000 and 5,500km and shorter-range missiles of between 500 and 1,000km, namely the US Pershing II, BGM-109G and Pershing IA and the Soviet RSD-10, RS-12, RS-14 (also known as the SS-20, SS-4 and SS-5 respectively) and the OTR-22 and OTR-23 (also known as the SS-12 and SS-23).

In addition to the missiles themselves, the treaty also committed both parties to eliminate fixed or mobile land-based transporter/launcher mechanisms for such missiles and any other associated support structures and support equipment including missile/launcher production, repair and storage facilities.

Updated data on the elimination of all missiles, launchers and facilities was to be provided 30 days after entry into force of the treaty and at 6 month intervals thereafter. The treaty also provided for an extensive on-site inspection regime, both within the territory of the State Parties and within the territories of basing countries to determine numbers of assets and their elimination. That inspections regime was given a 13 year timeframe, and an annual quota on inspections was set down. The treaty as a whole, however, had an unlimited duration.

To promote the objectives and implementation of the provisions of this treaty a Special Verification Commission was established; while the exchange of data and notifications were to be undertaken through the already established Nuclear Risk Reduction Centres.

The INF treaty was considered an important departure from the previous SALT process, as it sought to physically reduce nuclear capabilities, rather than merely establish ceilings that could not be exceeded. The treaty entered into force in June 1988 and within three years both countries had met their obligations under the treaty. The system of verification was subsequently wound up in 2001, although the Special Verification Commission has remained as a forum to discuss and resolve any implementation and compliance issues and to consider additional steps to improve the effectiveness of the treaty.

The treaty has remained in force since then, although in 2014 the US accused Russia of being in violation of the INF following reported testing of a new ground-launched cruise missile with a range of between 500km and 5,500km.³ This has, however, been disputed by the Russian government which has refused to be drawn into discussions with the US

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³ “Russia breaches INF treaty, US says”, *Arms Control Today*, 2014
on this issue. In its national report to the NPT Review Conference in April 2015 the Russian government stated:

> The Treaty is still in force. It remains an important factor of maintaining international security and strategic stability. The Russian Federation remains committed to the Treaty and fully complies with its obligations.\(^4\)

In turn, Russia has also accused the US of violating the INF Treaty with the fielding of its ballistic missile defence system in Europe, which they have argued is capable of launching Tomahawk cruise missiles. Russia has also suggested that the US’ deployment of unmanned combat aerial vehicles (UCAV) is a breach of the treaty’s provisions. In response the US administration has stated that “all of Russia’s claims past and present, are categorically unfounded. The United States has been and remains in compliance with all of its obligations under the INF Treaty. These Russian claims are meant to divert attention from its own violation”.\(^5\)

Amid suggestions that the US had mistaken the testing of the new missile for a sea-based cruise missile that would be permitted under the treaty, in evidence to the House Armed Services Subcommittee on Strategic Forces in December 2015 US administration officials stated:

> There has been some speculation about which missile the United States is referring to and whether we have mistaken its testing for a treaty-compliant sea-based cruise missile… The evidence is conclusive. Russia has tested this ground-based system well into the ranges covered by the INF Treaty. We are talking about a real system and not a potential capability.\(^6\)

Commentators have argued that this current impasse poses a significant challenge to the nuclear disarmament regime. Writing in *Arms Control Today* in February 2016, Richard Fieldhouse suggested that:

> Without visible progress toward a resolution, it seems likely that any future US president, particularly a Republican president, will feel a need to take additional steps to respond to Russia’s INF Treaty violation. Such moves could increase the risk of a nuclear confrontation of a type that has not been seen since the Cold War ended.\(^7\)

**Strategic Arms Reduction Treaty (START I)**

During 1985 and 1986 the Soviet leadership put forward a series of ambitious proposals for a 50% reduction in strategic arms and the complete abolition of nuclear weapons by 2000. The US rejected the latter proposal as too ambitious, although progress was made on dramatic cuts in strategic arsenals. To aid the process, a series of confidence building and verification measures were put in place to help reduce tension and avoid potential misunderstandings. These measures included the establishment of a communications centre and an

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\(^4\) National Report submitted by the Russian Federation, April 2015  
\(^6\) ibid  
\(^7\) ibid
agreement to give prior notification of all test launches of ICBMs and SLBMs.

After almost ten years of negotiations, the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms (Strategic Arms Reduction Treaty or START I) was signed on 31 July 1991. Under the treaty, both sides undertook to cut their active stockpiles of strategic nuclear warheads to 6,000 each by 2001. At the time, the Soviet Union had around 11,000 strategic warheads and the US around 13,000. Both sides also undertook to reduce the number of strategic nuclear delivery vehicles (ICBMs, SLBMs and heavy bombers) to 1,600. A comprehensive monitoring and verification regime was put in place to ensure compliance.

Within five months of the treaty's signing, the Soviet Union was dissolved, leaving nuclear weapons on the territory of four of the newly independent former Soviet republics – Russia, Kazakhstan, Ukraine and Belarus. In May 1992 the Lisbon protocol was signed under which all four states became parties to the START treaty, although Russia was to remain the only nuclear weapon state. The process of ratification, coupled with the requirement that Kazakhstan, Ukraine and Belarus accede to the Non-Proliferation Treaty as non-nuclear weapon states delayed the treaty's entry into force until 5 December 1994. The process of removing or destroying all nuclear weapons and delivery systems on the territory of Kazakhstan, Ukraine and Belarus was completed by February 2000.

Despite disputes over alleged US treaty violations during 2000 and 2001, the requisite reductions were completed before the deadline for compliance of 5 December 2001.8

The provisions of START I, including its inspection provisions, remained in force under Article II of the Strategic Offensive Reductions Treaty which was concluded in 2002 (see below), although that treaty subsequently expired on 5 December 2009.

Presidential Nuclear Initiatives (PNI) on tactical nuclear weapons
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. Under the PNI, the US committed to withdraw to the US all ground-launched short-range weapons deployed overseas and destroy them along with existing US stockpiles of the same weaponry, and cease deployment of tactical nuclear weapons on surface ships, attack submarines and land-based naval aircraft. Implicitly, however, the US reserved the right to redeploy arms in a crisis. Reciprocal Soviet measures included a commitment to eliminate all nuclear artillery munitions, nuclear

8 See Philipp C Bleek, “U.S., Russia Complete START I Reductions”, Arms Control Today, January/February 2002
warheads for tactical missiles and nuclear mines; remove all tactical nuclear weapons from surface ships and multi-role submarines and separate nuclear warheads from air defence missiles. A number of those warheads were to be destroyed, although the majority were to be placed in storage. In 1992 President Yeltsin took those commitments one step further and set out Russia’s intention to eliminate a third of its sea-based tactical nuclear weapons and half of its ground-launched nuclear missile warheads; and halve its airborne tactical nuclear stockpile. Pending reciprocal US action, the remaining half would be taken out of service and placed in storage.

However, the PNI were not established on a treaty basis, were non-verifiable, and the lack of transparency with regard to the implementation of the PNI made any assessment of their success relatively difficult. While the US reportedly completed its proposed reductions and withdrawals in 1992 and its elimination process in 2003, Russia has released very little information to substantiate its PNI activities and as such the US State Department has questioned its PNI record.

Nevertheless, the Nuclear Threat Initiative has estimated that, if the PNI have been fully implemented, it has “led to perhaps 17,000 TNWs [tactical nuclear weapons] being withdrawn from service, the deepest reductions in nuclear arsenals to date”.9

At present the US and Russia are thought to possess approximately 500 and 2,00010 non-strategic nuclear warheads respectively.

**Strategic Arms Reduction Treaty II (START II)**

On 3 January 1993 the US and the Russian Federation signed a second treaty (START II) that provided for further reductions in their strategic nuclear arsenals. These 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).

The original deadline for implementation of December 2000 was extended to December 2007 under a 1997 protocol, due to delays in the ratification process. The US Senate ratified the treaty in 1996, but opposition in the Russian parliament delayed ratification until April 2000. The Duma added a caveat to its approval allowing the Russian president to abrogate all arms control treaties if the US pulled out of the ABM Treaty (see below) and deployed a national missile defence system.

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 ABM Treaty. The move was seen as essentially symbolic, however, given that START II had been effectively

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9 “Presidential Nuclear Initiatives: an alternative paradigm for arms control”, *Nuclear Threat Initiative*, March 2004
10 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)
superseded by the SORT treaty (see below), which had been signed a few weeks earlier.11

During the 1990s there was much discussion of a possible START III treaty. Both Moscow and Washington put forward draft proposals, and preliminary negotiations commenced in August 2000. Initial indications suggested the Russian Government was seeking a reduction in the number of warheads to around 1,500, due to a pressing need to reduce military expenditure and phase out obsolete weapons systems. According to the Stockholm International Peace Research Institute (SIPRI), chronic investment shortfalls meant that, by 2010, Russian nuclear force levels were set to decline well below the limits set by the START II treaty.12 US officials reportedly favoured a higher figure of around 2,000 to 2,500 warheads.

However, developments in the US-Russian bilateral relationship and the US pursuit of missile defence meant the next phase of treaty reductions did not lead to a START III treaty. Instead, the focus shifted away from the intricate checks and balances of the START regime towards a looser framework of mutual reductions under SORT.

**Moscow Treaty on Strategic Offensive Reductions (SORT)**

In 2001 the incoming US administration of George W Bush indicated its intention to pursue a twin track approach in bilateral negotiations with Russia on nuclear arms reductions. The administration stressed its commitment to developing a national ballistic missile defence system, while at the same pursuing with Russia the possibility of further mutual reductions in nuclear stockpiles.

At a three-day presidential summit in November 2001 Presidents Bush and Putin pledged to implement deep unilateral cuts in their strategic nuclear arsenals: Mr Bush said he would cut the US stockpile from around 6,000 warheads to between 1,700 and 2,200 operationally deployable warheads. Mr Putin said Russia would make cuts of a similar magnitude, involving a two-thirds reduction in the number of its warheads.

On 24 May 2002 Mr Bush and Mr Putin signed the *Treaty on Strategic Offensive Reductions* (SORT or Moscow Treaty) at a ceremony in the Kremlin. The treaty codified the reductions announced by the two Presidents in late 2001. It stipulated that by 31 December 2012 the number of operationally deployable strategic nuclear warheads deployed by the two sides would not exceed 1,700-2,200 each, considerably less than that which had been envisaged under START II.

However, under the terms of the treaty, surplus warheads withdrawn from deployment could be placed in storage and would not have to be destroyed. Moscow had sought to ensure that surplus warheads would

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11 See Wade Boese, “*Russia Declares Itself No Longer Bound by START II*”, *Arms Control Today*, July/August 2002
12 *SIPRI Yearbook 2000*, p.457
be dismantled, but Washington declined, insisting it needed to retain some of the withdrawn warheads as a hedge against future eventualities. US officials indicated that some warheads would be dismantled, with others placed in storage or used as spares. The treaty also did not place further limitations on the number of nuclear delivery vehicles held by each side; while the verification and inspection provisions for SORT were based on those set down in the previous START I treaty. A Bilateral Implementation Commission was also established which would meet at least twice a year to discuss issues related to the treaty.

The Bush administration was anxious to avoid prolonged and tortuous negotiations with Moscow over a new treaty. Administration officials had argued that the new relationship with Russia rendered such an approach redundant and called for a looser framework that reflected the new spirit of partnership. However, Moscow insisted that the reductions agreed by the two sides be formalised in a legally binding treaty to ensure that they were irreversible. There was widespread speculation that Washington agreed to a treaty so as to mollify Russian objections to its plans for a ballistic missile defence system and for withdrawal from the ABM Treaty.

The treaty entered into force on 1 June 2003, following ratification by both parties. SORT expired when the New START treaty entered into force.

New START
While still in office, Presidents George W. Bush and Putin committed themselves to the negotiation of a “legally binding post-START arrangement”, 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. Those talks got underway in May 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. 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

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14 Joint Statement by President Dmitry Medvedev of the Russian Federation and President Barack Obama of the United States of America, 1 April 2009
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 were 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.\(^\text{15}\)

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. The US consistently refused to link negotiations on the treaty with its missile defence plans, however, commenting that “the START agreement will in no way affect our deployment of missile defence assets in Europe”.\(^\text{16}\) Agreement on the successor treaty was 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 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 deployed heavy bomber equipped for nuclear armaments will count as one warhead towards this limit.\(^\text{17}\)

- 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.\(^\text{18}\) 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

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\(^{15}\) Under START I Russia did not have the right to a similar presence in the US

\(^{16}\) “US rules out missile defense link to treaty”, Washington Times, 12 February 2010

\(^{17}\) 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.

\(^{18}\) The strategic offensive reductions Treaty (SORT) did not address the issue of nuclear delivery systems.
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.\(^\text{19}\)

- Under the treaty each party has the ability to choose its own force structure and composition, within the overall set limits.

Those reductions are to be achieved within seven years of the treaty entering into force (by 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) was to be terminated 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 efforts to stop the spread of these weapons, and to ensure that other nations meet their own responsibilities.\(^\text{20}\)

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 then 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.\(^\text{21}\) 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

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19  Key Facts about the New START Treaty, 26 March 2010 and Announcement of the New START Treaty, 26 March 2010
20  Remarks by the President on the Announcement of New START Treaty, 26 March 2010
21  “Russia may quit treaty if US pushes missile defence: Lavrov”, Agence France Presse, 6 April 2010
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”.

On the surface, the 30% cut in warhead numbers announced by Obama and Medvedev appeared significant. However, some analysts argued that they were 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 were also raised. The intention to count a heavy bomber, which may be capable of carrying multiple nuclear-armed bombs or missiles, as one single warhead led many to conclude that in practice each side could actually maintain an operationally deployable stockpile of more than the 1,550 limit. 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 on a day-to-day basis few or no bombers are loaded with nuclear weapons”. A number of commentators also noted that there are no limits on the number of warheads, bombers and missiles that either side may keep in storage; 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. 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.

Daryl Kimball, Executive Director of the Arms Control Association, agreed that the planned cuts were “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”. 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.

However, the extent of the US and Russia’s current nuclear modernisation programmes has 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.

Despite concerns over the potential for the treaty to undermine US missile defence plans, and calls for commitments from the US government to ensure the future of the US’s nuclear modernisation programmes, the US Senate ratified the new treaty on 22 December 2010 (by 71 to 26 votes); just over a year after the START I treaty expired. On the final day of debate Senators proposed two amendments to the resolution of ratification that reiterated that the Preamble to the treaty is non-binding and affirms US disagreement with the Russian unilateral statement on missile defence; and called for more rapid funding for modernisation of the US nuclear weapons complex.

The Russian State Duma approved ratification of the treaty on 25 January 2011; while the Russian Federation Council approved ratification on 26 January. Both houses of the Russian parliament adopted supplementary statements to their respective ratification bills stating that Russia could withdraw from the agreement if the scale of the US missile defence system was a perceived threat to Russian security. Like the US amendments, those supplementary statements are non-binding and do not require amendment of the treaty. Russian

28 “U.S. and Russia to Reduce Arsenals”, Washington Post, 7 July 2009
29 “Nuclear milestone on a long, long road”, BBC News Online, 8 April 2010
30 The modernisation programmes of both countries are outlined in Library briefing paper CBP7566, Nuclear weapons – country comparisons.
31 Senator Joseph Lieberman, for example, 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” (”Republican Senator: no START treaty passage this year”, Agence France Presse, 11 April 2010). 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” (“A false nuclear start”, The Wall Street Journal, 5 January 2010)
32 The START successor treaty, its protocols and annexes were presented to the US Congress for ratification on 13 May 2010. The Senate Foreign Relations Committee approved ratification of the treaty on 16 September 2010 by 14 to 4 votes.
President Dmitry Medvedev subsequently signed new legislation ratifying the treaty on 28 January 2011.33

Instruments of ratification were exchanged between the US and Russia on 5 February 2011 signifying the treaty’s official entry into force. The Parties have the right to resume on-site inspections 60 days after this date. The treaty will remain in force for 10 years (2021), unless both parties agree a five-year extension.34

New START data exchanged between the US and Russia in March 2016 showed that the US possessed 1,481 deployed strategic nuclear warheads (below the ceiling agreed in New START); while Russia possessed 1,735 deployed strategic nuclear warheads.35 The number of deployed Russian strategic nuclear warheads represents an increase on previous figures exchanged under New START. In March 2015, for example, Russia had 1,582 strategic warheads deployed; while in September 2015 that number had rose to 1,648.36 Indeed this trend has been evident since March 2014. However, as Greg Thielmann of the Arms Control Association has noted:

> In the broadest sense, there is no change in the fundamentals underlying nuclear force trends since New START was signed in 2010. Both sides are modernising their nuclear arsenals, and are hovering around the core treaty limitation on deployed warheads. But the modernisation chronologies for the two countries are different. Russia is saddled with the need to catch up from the lean years of the 1990s. The only way it can avoid a dip in deployed warheads is to repeatedly extend the service lives of missiles and submarines, whether or not it makes financial or technical sense […]

Russian President Vladimir Putin has so far decided for political reasons to keep the warhead count high […]

> In light of the shelf life of these system and the time required to fully modernise them, there is good reason to believe Moscow and Washington will conform to the New START ceilings by February 2018…37

In its national report to the 2015 NPT Review Conference Russia also made the point that “In the last five years, the number of deployed delivery vehicles has reduced from 800 to 515, and the number of warheads—from 3900 to 1882 units, i.e. it has been halved”.38

33 The treaty was presented to the Russian Parliament for ratification on 28 May 2010. The Defense committee of the Duma subsequently endorsed ratification of the treaty in early July.
34 A timeframe for implementation of the treaty’s obligations was provided in a US State Department Fact Sheet: New START Treaty.
35 Data as of 1 March 2016.
36 US State Department Factsheet, October 2015 and “Nuclear weapons: who has what at a glance”, Arms Control Association, October 2015
38 National Report submitted by the Russian Federation, April 2015
Future cuts?
With the entry into force of the START Successor Treaty, attention subsequently shifted toward possible negotiations between the US and Russia on further disarmament measures, including dialogue over the potential reduction of both countries' non-strategic/tactical nuclear weapons. In 2013 President Obama called for negotiations with Russia on a further one-third cut in strategic forces, an offer which the US State Department has continued to make. Russia has yet to engage in discussions on this issue and has made clear that it will not negotiate further non-strategic arms reductions unless the US withdraws its non-strategic nuclear forces that are currently based in Europe.

The likelihood of progress in this area is regarded as minimal. Political developments in the last few years, such as the crisis over Russian actions in Crimea and Eastern Ukraine, and the recent spat over Russia’s alleged violation of the INF treaty, have left strategic relations between Russia and the West arguably at their lowest since the Cold War. The prospects for further US and Russian strategic nuclear reductions under the START treaties, or any other new bilateral initiative, in the immediate future, are thus considered negligible.

Box 1: Suggested reading
- Arms control and proliferation: a catalog of treaties and agreement, Congressional Research Service, RL33865, 13 April 2016
- Towards Nuclear Zero, International Institute for Strategic Studies, April 2010

2.2 Nuclear Non-Proliferation Treaty 1968
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 190 States Parties (191 if North Korea is included). 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,39 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.40

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39 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.

40 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
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) (see below) is used to verify compliance and to prevent the diversion of fissile material for use in a weapons programme. 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. The NPT was never intended to allow for the possession of nuclear weapons indefinitely. 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 to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control.  

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. Initially agreed for a period of 25 years, an indefinite extension to the treaty was subsequently agreed at that Review Conference 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”. The conference also reaffirmed the intention to conduct a review of the treaty every five years.

**NPT Review Conferences**

The aim of the conference is to assess the implementation of the treaty’s provisions and to agree further measures to strengthen it. Three Preparatory Committees are held in the intervening period in order to assess progress against each article of the NPT and facilitate discussion among States, with a view to making detailed recommendations for consideration at the next Review Conference.

The success of the Review Conferences process has been mixed. With near universality, achieving consensus between the nuclear and the non-nuclear weapon states has been difficult.

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Preparatory Committee for the 2010 Review Conference acknowledges the uncertainty over North Korea’s status (p.48).

41 The full text of the NPT is available at [http://www.state.gov/www/global/arms/treaties/npt1.html](http://www.state.gov/www/global/arms/treaties/npt1.html)

42 ‘Principles and Objectives for Nuclear Non-Proliferation and Disarmament’, Decision Paper from the NPT Review and Extension Conference, 17 April - 12 May 1995
non-nuclear weapon states on how to achieve global nuclear disarmament and strengthen non-proliferation has been problematic. The question of whether the nuclear weapon states have sufficiently fulfilled the requirements of Article VI on nuclear disarmament has proved particularly contentious.


The 2010 NPT Review Conference was regarded as a particular success as it agreed a 64-point action plan covering all three pillars of the NPT, along with measures relating to the Middle East. With respect to nuclear disarmament, the most notable achievement was the reaffirmation by the five nuclear weapon states of “their unequivocal undertaking to accomplish, in accordance with the principle of irreversibility, the total elimination of their nuclear arsenals leading to nuclear disarmament”.43


Since 2010, progress on implementing the 64-point action plan has, however, been regarded as sporadic at best. Despite the optimism generated by the 2010 review conference, criticisms have continued to be levelled at the nuclear weapon states over their efforts to advance the disarmament agenda and achieve practical reductions in their nuclear capabilities. The extensive modernisation plans of each of the nuclear weapon states in particular has been taken as evidence that their disarmament obligations are not being taken seriously.44

Indeed, despite extensive work in the Preparatory Committee,45 no common set of recommendations for the 2015 review conference were subsequently adopted at the final session of that Committee. At issue was a lack of consensus on the pace of disarmament by nuclear weapon states and process for beginning negotiations on the establishment of a WMD free zone in the Middle East.46

The subsequent Review Conference in 2015 failed to agree a final document due to the lack of consensus over the Middle East issue.47 As Austria, on behalf of 49 States, commented in a closing statement to the conference:

The exchanges of views that we have witnessed during this review cycle demonstrate that there is a wide divide that presents itself in many fundamental aspects of what nuclear disarmament should

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43 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, Final Document
44 Further detail on the modernisation plans of each nuclear weapon state is set out in Library Briefing Paper CBP07566, Nuclear weapons: country comparisons
45 Final Report of the Preparatory Committee to the 2015 NPT Review
46 “Stage set for 2015 NPT review conference”, Arms Control Today, 2 June 2014
47 See “Is there a future for the NPT?”, Arms Control Today, July/August 2015
mean. There is a reality gap, a credibility gap, a confidence gap and a moral gap.

Beatrice Fihn, writing in *Arms Control Today* in July 2015, summed up the view of many that:

The failure to agree on an outcome document, coupled with the lack of implementation of the “action plan” that was a key part of the agreed outcome from the 2010 review conference, has seriously undermined the belief that the NPT can be a credible path toward disarmament. Throughout the four weeks, it was made clear that the nuclear-weapon states are not interested in making any new commitments to disarmament.48

She went on to comment:

Although a failure to achieve a consensus document does not in itself threaten the NPT, it might reduce the faith many governments, international organizations, and civil society organizations have in the treaty’s review process as an effective way of making progress on nuclear disarmament. It is time to pursue the objectives of the NPT in other settings.49

Not everyone shares this view, however. In an article for *Survival* in February 2016 William Potter argued:

The conference’s main outcome – its failure to secure an agreed final document – in itself was neither unusual nor necessarily indicative of a regime in dire straits. The NPT review process has faltered in the past but recovered, and its smooth functioning should not be equated with the viability of the treaty itself, or the health of the broader set of non-proliferation arrangements and institutions, of which the review process is but one component.50

He went on to suggest that judging the success of a review conference on whether it produces a final document ignores the “possible benefits of conference deliberations that fall short of consensus but contribute to disarmament and non-proliferation outside of the NPT review process”.51

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**Box 2: NPT Review Conference: suggested reading**

- “NPT review: failure underlines challenges ahead”, *Strategic Comments*, June 2015
- *Decline or transformation: nuclear disarmament and security beyond the NPT review process*, Acronym Institute, 2012

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48 Beatrice Fihn, “A new humanitarian era: prohibiting the unacceptable”, *Arms Control Today*, July/August 2015
49 ibid
51 ibid
IAEA Comprehensive Safeguards Agreement

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.

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 non-nuclear weapon state, is prohibited. Article III also stipulates that NPT non-nuclear weapon states conclude safeguards agreements with the International Atomic Energy Agency 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. 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.

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

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52 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)

53 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.
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.54

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 1998.55 The UK Additional Protocol entered into force on 30 April 2004.56

As of April 2015 there were twelve states that are party to the NPT which have not concluded Comprehensive Safeguards Agreements with the IAEA.57 However, the number of states that have not ratified the Additional Protocol is much higher with only 127 out of the 190 States Parties to the NPT having brought the Additional Protocol into force thus far.58

54 IAEA Safeguards Overview: Comprehensive Safeguards Agreement and Additional Protocols
55 Cm 4282
56 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.
57 Status of the NPT Comprehensive Safeguards Agreement
58 Status of the Additional Protocol.


2.3 Disarmament forums

P5 Dialogue

In 2009 the UK convened the P5 Dialogue which would act as a forum for discussion among the five NPT-recognised nuclear weapon states. The intention was to examine what transparency and confidence building measures could be jointly pursued within the nuclear weapons context as a means of preventing stagnation. The hope was that cooperation between the declared nuclear weapon states would gradually generate momentum towards disarmament.

Its first high level conference took place in 2009. However, recognising that open-ended, and largely unstructured, dialogue would be insufficient to meet demands for progress, at the 2010 NPT Review Conference the nuclear weapon states agreed to accelerate efforts to undertake collaborative projects as part of their disarmament commitments.

However, progress over the last five years has largely been confined to establishing frameworks for dialogue, agreeing improvements in verification and monitoring, and agreement on key nuclear terms. For some the pace of progress has not been fast enough, with many critics arguing that nothing of any substance has emerged from the process thus far. As Andrea Berger noted in a RUSI Occasional Paper in July 2014:

[There has] been a noticeable shift in the tone around the ‘P5 process’; it has gone from cautiously optimistic at the time of the P5’s first conference in London to largely antagonistic. Assertions that the P5 actively hinders efforts to strengthen the NPT, by behaving in an opaque ‘cartel’-like fashion, are not commonplace.59

Yet, as several commentators have pointed out, the mere fact that China and Russia have demonstrated a willingness to engage in dialogue and reach agreement on nuclear terms should not be dismissed, given the political sensitivity that surrounds this issue. Indeed, after the sixth P5 Dialogue conference in London in February 2015, the P5 pointed to “the achievement of P5 consensus on a common reporting framework and the Glossary of Key Nuclear Terms” as having “contributed towards the implementation of the [NPT] 2010 Action Plan”.60 In an effort to engage with the wider disarmament community the P5 also invited, for the first time, a number of non-nuclear weapon states to participate in a briefing and discussion session as part of the conference.61

Going forward, that Conference concluded:

The P5 reaffirmed that a step-by-step approach to nuclear disarmament that promotes international stability, peace and

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60 Joint Statement from the Nuclear-Weapon States at the London P5 Conference, 6 February 2015
61 ibid
undiminished and increased security for all remains the only realistic and practical route to achieving a world without nuclear weapons [...]

The P5 stressed that addressing further prospects for nuclear disarmament would require taking into account all factors that could affect global strategic stability. In doing so they stressed the importance of engaging in frank and constructive dialogue to that end [...]

The NWS looked forward to continuing their dialogue in order to make progress on NPT obligations.62

However, there are some commentators who view the future of the P5 Dialogue with a degree of scepticism. As an article in *Arms Control Today* in October 2014 noted “identifying new projects that all five nuclear weapon states would find palatable is difficult… although the P5 process remains active, it has not been able to isolate itself from the wider cooling of relations among the nuclear weapon states”.63

In response to allegations that the P5 process is in danger of stagnating, at a plenary session of the Conference on Disarmament in May 2016 the French Ambassador sought to demonstrate that concrete outputs have been achieved by the process and that further areas of collaboration were underway. She stated:

> Over the past six years, the P5 has met on a regular basis to discuss issues related to nuclear disarmament and to promote concrete deliverables in this field. Six capital-level conferences have been held, each time with an increasingly developed agenda and a more robust discussion with the wider disarmament community, including by meeting with non-nuclear weapon States and exchanging with civil society. Each conference has built on the last and helps lay the groundwork for additional steps. The P5 has also worked to implement the 2010 NPT Action Plan, in particular to further enhance transparency and increase mutual confidence. In this regard, a common reporting framework has been developed under France’s leadership and has been used to produce national reports in 2014, which have increased the P5 transparency. A first edition of a Glossary of Key Nuclear Terms has also been completed under China’s leadership, which enhances the mutual understanding and will aid the P5 in pursuing its disarmament goals. This edition was released during the ninth NPT Review Conference earlier last year and a side event was held to present this work.

> After the Review Conference of the NPT last year, my country assumed the coordinating role in July 2015. Since then, we have endeavored to give a new momentum to the process in gathering the group on a more frequent basis so as to deepen our work together. As part of our transparency efforts, we organized a side-event on the P5 Process in October last year in New York, the first ever side-event of this kind held by our five countries on the margins of the UNGA First Committee.

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62 Joint Statement from the Nuclear-Weapon States at the London P5 Conference, 6 February 2015

63 “The art of the possible: the future of the P5 process of nuclear weapons”, *Arms Control Today*, October 2014
She went on to state:

France believes that it is in P5 countries best interest to intensify their efforts to increase dialogue and interaction, in order to further develop the disarmament agenda.

We would in particular see merits in updating and expanding the P5 glossary on key nuclear terms, including considering future editions. We are also looking forward to pursuing the dialogue with our four partners and to deepen the work on reporting and transparency.

We are also open to a strengthening of our engagement with the wider disarmament community, in particular by furthering our interaction and dialogue with non-nuclear weapon States, as well as with civil society.

Amongst other areas of cooperation, France stands ready to intensify its interaction with its P5 partners so as to further strengthen all three pillars of the NPT, including by addressing safeguards and compliance issues and supporting peaceful uses of nuclear energy. We are also ready to continue to work closely with the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) in Vienna on the development of the Treaty’s verification regime. On the 20th anniversary of the opening for signature of the CTBT, we reaffirm the vital importance and urgency of the entry into force of the Treaty.

In addition to continuing existing cooperation, France is of the view that the P5 dialogue and collaboration could be expanded, and that new avenues could be explored.

Box 3: P5 Dialogue: suggested reading

Conference on Disarmament

Although not formally a UN organisation, the Conference on Disarmament is mandated and financed by the UN, its terms of reference include practically all issues related to multilateral 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 Nuclear Non-Proliferation Treaty, the Comprehensive Nuclear Test Ban Treaty and both the Biological and Chemical Weapons Conventions are among those treaties negotiated by the Conference. Currently the Conference is primarily focusing its attention on the following issues:

- Cessation of the nuclear arms race and nuclear disarmament
- Prevention of nuclear war
- Prevention of an arms race in outer space
- Effective international arrangements to assure non-nuclear weapon states against the threat or use of nuclear weapons
- New types of WMD
• A comprehensive programme of disarmament
• Transparency

However, in the last fifteen years the Conference has achieved relatively little. The conference comprises 65 Member States \(^{64}\) and conducts proceedings on the basis of consensus. The Presidency of the organisation is also only held for four weeks at a time. Divisions of opinion among its member states have thus 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. Although the Conference had agreed to a mandate for negotiating the FMCT, it has been unable to establish an ad hoc committee to carry forward talks. In 2009 the ten-year deadlock was broken after the Conference agreed a work plan that would address four key issues: nuclear disarmament, an FMCT, the prohibition of space-based weapons and as agreement by the nuclear weapon states not to use their weapons against nations that do not possess them. The hope had been expressed that the agreement of a Work Plan would hail a brand new chapter for the ill-fated FMCT and the Conference as a whole.

However, discussions throughout 2010 continued to stall and in September 2010 the UN Secretary General, Ban Ki Moon, convened a special session of the Conference in order to try and kick start talks. Despite expectations, that meeting achieved little.

At the opening of the 2011 Session of the Conference on Disarmament in February of that year the UN Secretary General once again appealed to Member States to fulfil the “catalytic role” that the Conference has to play in advancing the disarmament agenda and build on the achievements made in 2010. He noted:

> The Conference’s record of achievement has been overshadowed by inertia that has now lasted for more than a decade. The very credibility of this body is at risk. Continued inaction will only endanger its future as a multilateral negotiating forum […]

Unfortunately the programme of work for [the] 2009 session was not implemented, and the Conference ended its 2010 session without starting substantive work. This has been deeply disappointing. \(^{65}\)

He went on to conclude that “this should not be another year of business as usual. Just one or two countries must not be able to block the process indefinitely”. Specifically he warned against pushing States to resort to pursuing alternative arrangements outside of the CD, in particular on issues such as the negotiation of a Fissile Material Cut-off Treaty.

In the last five years, however, little has changed. Every year the Conference has failed to reach an agreement on a programme work

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\(^{64}\) A full list of Member States is available from the UN Office at Geneva

\(^{65}\) UN Secretary General, Remarks to the Conference on Disarmament, 26 January 2011
and therefore nothing of substance has emerged from the process. In his message to the first session of the Conference in January 2016 the UN Secretary General suggested that the “inability to negotiate has become business as usual”, and once again urged Member States to “live up to its responsibility as the single multilateral negotiating forum for disarmament”. Otherwise, he argued “this Conference risks becoming completely marginalized”.

Humanitarian Initiative

The lack of disarmament progress made by the nuclear-armed states and a general frustration at the inertia that has developed within the existing multilateral disarmament architecture, has prompted the non-nuclear weapon states, in concert with NGOs and other civil society stakeholders, to pursue a new initiative as a means of kick starting the disarmament agenda: the Humanitarian Impact of Nuclear Weapons (HINW) initiative.

First acknowledged in the Final Declaration of the 2010 NPT Review Conference the humanitarian consequences of nuclear weapons subsequently became a major theme of the NPT Review Conference Preparatory Committees and the UN General Assembly First Committee on Disarmament. Sixteen countries delivered a joint statement to the 2012 NPT Preparatory Committee on the humanitarian dimension of nuclear disarmament and called for all states to “intensify their efforts to outlaw nuclear weapons and achieve a world free of nuclear weapons”. Those sentiments were echoed in a further statement from 35 countries to the meeting of the UN General Assembly First Committee on Disarmament in October 2012. By the time of Committee’s 2013 meeting, 125 countries had put their names to a Joint Statement. Specifically that statement noted that while the humanitarian consequences of nuclear weapons have been reflected in numerous UN resolutions and multilateral instruments, including the NPT, the “humanitarian consequences of nuclear weapons have not been at the core of nuclear disarmament and nuclear non-proliferation deliberations for many years”.

In March 2013 the first of three international conferences on this issue was held in Oslo. Attended by 127 states, several UN agencies, international organisations and broader civil society, the conference was considered historic in that it brought all of these actors together for the first time in order to facilitate an informed discussion on one specific element of the nuclear weapons debate: the potential humanitarian impact of their use. The outcome of the conference was a broad

66 Secretary General’s Message to the Conference on Disarmament, 26 January 2016

67 A similar approach was adopted in the 1990s with respect to landmines which ultimately led to the Mine Ban Convention 1997. Similarly a ban on cluster munitions was achieved as a result of a humanitarian approach. The Convention on Cluster Munitions was subsequently adopted in 2008.

68 This was the first of three Preparatory Committees held in advance of the 2015 NPT Review Conference.

69 At the 2013 NPT Preparatory Committee Session 80 countries had signed the statement.
acknowledgement that an understanding of the global humanitarian consequences of nuclear weapons use should be the starting point for action to eliminate and ban nuclear weapons.\textsuperscript{70}

Only two nuclear states attended the meeting: India and Pakistan. The five recognised nuclear weapon states, along with North Korea and Israel did not participate. The P5 nations boycotted the meeting, arguing that the conference would “divert discussion and focus” away from other disarmament fora, notably the Conference on Disarmament. It had also been reported that officials were concerned that the conferences were intended to lead towards talks on a convention on the elimination of nuclear weapons.\textsuperscript{71}

The P5 states, along with North Korea and Israel, took a similar view to the follow-up conference in Mexico in February 2014. A US State Department Spokeswoman said at the time that the US decision not to attend the Mexican conference did not “indicate any lessening support for nuclear disarmament. We continue to take very seriously the consequences of nuclear weapons use [...] We remain committed to practical step-by-step disarmament and will continue to take steps toward securing a world without nuclear weapons”.\textsuperscript{72} The British Government shared this view, commenting that “the UK believes the NPT should remain the cornerstone of the international nuclear non-proliferation regime and the essential foundation for the pursuit of nuclear disarmament and for peaceful uses of nuclear energy”. As such the best way to achieve the goal of a world without nuclear weapons is “through gradual disarmament negotiated using the NPT Step by Step process and Review cycle”.\textsuperscript{73}

Again, the conference called for nuclear weapons to be outlawed as a first step towards elimination. The Chairman went on to state that discussions on the humanitarian impact of nuclear weapons together with initiatives such as the entry into force of the Comprehensive Test Ban Treaty, and the achievement of a comprehensive outcome at the 2015 NPT Review Conference, were mutually reinforcing processes. As such:

> The broad-based and comprehensive discussions on the humanitarian impact of nuclear weapons should lead to the commitment of States and civil society to reach new international standards and norms, through a legally binding instrument.

\textsuperscript{70} Further detail on the discussions held at that conference is available in Library briefing SN7028, \textit{Conference on the Humanitarian Impact of Nuclear Weapons}, December 2014.

\textsuperscript{71} “Mexico hosts meeting on nuclear effects”, \textit{Arms Control Today}, March 2014. Proposals for a global convention on nuclear weapons have been on the table since the mid-1990s but have consistently stalled within the Conference on Disarmament. Further detail is available in Library research paper RP10/42, \textit{Progress towards nuclear disarmament}, June 2010.

\textsuperscript{72} “Mexico hosts meeting on nuclear effects”, \textit{Arms Control Today}, March 2014.

\textsuperscript{73} Letter dated 12/02/2014 from Hugh Robertson MP to Jeremy Corbyn MP regarding the Second Conference on the Humanitarian Consequences of Nuclear Weapons, to be held in Mexico 13-14 February 2014, \textsc{DEP2014-0200}.
It is the view of the Chair that the Nayarit Conference has shown that the time come to initiate a diplomatic process conducive to this goal. Our belief is that this process should comprise a specific timeframe, the definition of the most appropriate fora, and a clear and substantive framework, making the humanitarian impact of nuclear weapons the essence of disarmament efforts. It was acknowledged, however, that differing views existed among the delegates on how best to achieve those objectives. Australia, Canada, Germany, The Netherlands and Turkey all expressed concern that outlawing nuclear weapons as a first step was in no way a guarantee that nuclear weapons would be eliminated. They also argued that such an initiative was more likely to "antagonise the nuclear armed states than to bring them into a multilateral process".

At the outset of the third conference, held in Austria in December 2014, the Austrian government said that it did not intend for the Vienna Conference to be the start of a diplomatic process for a ban on the possession of nuclear weapons. It did, however, express the desire to pull together the key findings of the Vienna, Nayarit and Oslo meetings and present them to the NPT Review Conference in 2015 as a means to pushing for more concrete progress towards nuclear disarmament.

Notably, both the US and UK took part in the Vienna conference. In announcing its intention to participate, the US administration concluded that "there were real prospects for constructive engagement with conference participants", although it once again reiterated its argument that the NPT was the focus for its efforts on disarmament, and as such "this conference is not the appropriate venue for disarmament negotiations or pre-negotiation discussions and the United States will not engage in efforts of that kind in Vienna". France, China and Russia did not attend.

The Final Report of the conference set out eight substantive conclusions that had emerged from the humanitarian debate since the first conference in Oslo in 2013. While noting that "the only assurance against the risk of a nuclear weapon detonation is the total elimination of nuclear weapons" the Final Report did not, however, set out any agreement on achieving that aim.

On the back of that conference, the Austrian government issued a ‘National Pledge’, which has since become known as the Humanitarian Pledge. It states:

Austria regards it as her responsibility and consequently pledges to present the facts-based discussions, findings and compelling evidence of the Vienna Conference, which builds upon the previous conferences in Oslo and Nayarit, to all relevant fora, in particular the NPT Review Conference 2015 and in the UN

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74 "Mexico hosts meeting on nuclear effects", Arms Control Today, March 2014
75 Reaching Critical Will, Report from the Nayarit Conference, March 2014
76 “US mulls attending nuclear meeting”, Arms Control Today, November 2014
77 ibid
78 http://www.state.gov/r/pa/prs/ps/2014/11/233868.htm
framework, as they should be at the centre of all deliberations, obligations and commitments with regard to nuclear disarmament.

Austria pledges to follow the imperative of human security for all and to promote the protection of civilians against risks stemming from nuclear weapons.

Austria calls on all states parties to the NPT to renew their commitment to the urgent and full implementation of existing obligations under Article VI, and to this end, to identify and pursue effective measures to fill the legal gap for the prohibition and elimination of nuclear weapons and Austria pledges to cooperate with all stakeholders to achieve this goal.

Austria calls on all nuclear weapons possessor states to take concrete interim measures to reduce the risk of nuclear weapon detonations, including reducing the operational status of nuclear weapons and moving nuclear weapons away from deployment into storage, diminishing the role of nuclear weapons in military doctrines and rapid reductions of all types of nuclear weapons.

Austria pledges to cooperate with all relevant stakeholders, States, international organisations, the International Red Cross and Red Crescent Movements, parliamentarians and civil society, in efforts to stigmatise, prohibit and eliminate nuclear weapons in light of their unacceptable humanitarian consequences and associated risks.79

While not calling specifically for any new treaty, commentators widely interpreted it as a first step towards efforts to establish a treaty banning nuclear weapons, which would make nuclear weapons illegal but not actually eliminate them.80

In December 2015 that pledge was formally adopted at the UN General Assembly (UNGA) as Resolution 70/48.

127 nations have formally endorsed the pledge, while a further 22 nations also voted for its adoption in the UNGA. None of the nine nuclear weapon states have acknowledged the pledge and at the UNGA vote in December 2015 China, North Korea, Pakistan and India abstained; while the US, UK, Russia, France and Israel voted against the resolution.

That resolution also placed the humanitarian pledge on the provisional agenda for the 71st session of the UN General Assembly in September 2016.

In answer to a Parliamentary Question in March 2016 FCO Minister, Tobias Ellwood, confirmed the Government’s view that:

The Austrian pledge to stigmatise, prohibit and eliminate nuclear weapons runs counter to the step-by-step disarmament process; and it does not take into account the current global security and stability challenges. The UN Disarmament machinery and the Non-

80 “NPT review: failure underlines challenges ahead”, Strategic Comments, 4 June 2015
Proliferation Treaty provide the right framework for working towards a world without nuclear weapons.81

**Box 4: Humanitarian Initiative: suggested reading**

- “Humanitarian Campaign’s Challenge to Nuclear Weapon States”, Strategic Comments, October 2014
- “The humanitarian consequences of nuclear war”, Arms Control Today, November 2013

**Open Ended Working Group on Disarmament**

Given the lack of progress within the Conference on Disarmament, in December 2012 the UN General adopted a Resolution (Resolution 67/56) which established an Open Ended Working Group to “develop proposals to take forward multilateral nuclear disarmament negotiations for the achievement and maintenance of a world without nuclear weapons”.82

The OEWG met over the course of Spring/Summer 2013, but was boycotted by the P5 and other nuclear weapon states which dismissed the approach. In line with the Humanitarian Initiative the OEWG was regarded as a shortcut to launching negotiation of a nuclear weapons convention or ban treaty.

The OEWG presented its report to the UN General Assembly and the Conference on Disarmament in October 2013. However, nothing of substance emerged on the back of that report.

In 2015, and in concert with the relative success of the Humanitarian Initiative, efforts were made to revive the OEWG concept. At the NPT Review Conference in May discussions were held on re-establishing the OEWG, although that forum ultimately failed to agree a final document.

The failure to adopt a new mandate for the OEWG led to the issue being revisited by the UN General Assembly at its autumn 2015 session. A Resolution was subsequently passed in December 2015 (A/RES/70/33) establishing an OEWG for 2016.83 Under the terms of the resolution the OEWG is tasked with addressing the legal measures and provisions that will be required to attain, and maintain, a world without nuclear weapons; and examining other measures that could contribute to taking forward multilateral nuclear disarmament negotiations, including measures to increase awareness about the humanitarian and societal

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81 PQ28395, Nuclear disarmament, 3 March 2016
82 France, Russia, the UK and US voted against the resolution; while China, India, Israel and Pakistan abstained.
83 Again the nuclear weapon states either voted against the resolution, or abstained.
consequences of nuclear weapons use. Notably, the resolution also allows the OEWG to operate according to the General Assembly’s normal rules of business, which do not require consensus.

Adopting this approach is regarded as an opportunity to move forward on disarmament issues. However, as with the 2013 OEWG, the nuclear weapon states have refused to participate in the talks labelling them “divisive” and lacking “the vital components that would guarantee both a meaningful collaboration and a productive outcome”. The British Government set out its views on participation in answer to a Parliamentary Question in March 2016:

The UK is not attending the Open Ended Working Group (OEWG) on nuclear disarmament in Geneva. The UK, along with the four other Non-Proliferation Treaty Nuclear Weapons States, voted against the resolution establishing the OEWG at the UN General Assembly First Committee. The Government works with international partners and various organisations to ensure that UK experience and expertise helps to tackle the threat of weapons proliferation but believes that productive results can only be ensured through a consensus-based approach that takes into account the wider global security environment.

The P5 have suggested that they remain open to “an appropriately mandated” OEWG.

The OEWG met in its first session in February 2016, followed by a second session in May 2016. According to media reports discussions have focused on the commencement of negotiations on a legally binding agreement to prohibit nuclear weapons. However, participating States remain divided over the best way to approach this issue. As Aleem Datoo, writing on the BASIC blog, has noted:

The OEWG is in danger of being lost in the disagreements between these camps, unable to find common ground.

A final session is scheduled for August 2016 to consider and adopt a final report which will then presented to the 71st session of the UN General Assembly in the autumn. It currently remains unclear whether that final report will recommend seeking a mandate from the UN General Assembly to begin formal talks on any sort of treaty.

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84 “UN creates new disarmament group”, Arms Control Today, December 2015
85 PQ HL6335, Nuclear disarmament, 2 March 2016
86 “UN creates new disarmament group”, Arms Control Today, December 2015
87 “Momentum builds for nuclear ban treaty”, Arms Control Today, June 2016
88 Aleem Datoo, “Moving the OEWG forward”, BASIC Blog, 20 June 2016
3. Restrictions on the development of new weaponry

In addition to those treaties and agreements aimed at promoting and implementing nuclear disarmament measures, a number of bilateral and multilateral treaties have also been concluded that seek to inhibit the development of new weaponry. These include bans on the testing of nuclear warheads, a proposed ban on the production of fissile material and restrictions on the deployment of missile defence shields.

However, the Comprehensive Test Ban Treaty (CTBT) has yet to enter into force and efforts to begin negotiations on a fissile material cut-off treaty have also stalled within the Conference on Disarmament. Efforts to restrict the development of new weaponry were also considered to have been dealt a blow after the US unilaterally withdrew from the Anti-Ballistic Missile (ABM) Treaty in 2002, to enable the testing and deployment of a new US missile defence system.

3.1 Partial Test Ban Treaty (PTBT) and Threshold Test Ban Treaty (TTBT)

The first multilateral attempt to place restrictions on the development of nuclear weaponry dates back to the 1950s when negotiations began on a Partial Test Ban Treaty (PTBT, also known as the Limited Test Ban Treaty or LTBT). The treaty, which was signed in 1963, has 126 States Parties, including four of the five recognised nuclear weapon states (US, UK, China and Soviet Union/Russia). France was a notable non-signatory, as it was in the process of conducting its first nuclear weapons tests in the early 1960s. The treaty prohibits the testing of nuclear weapons in the atmosphere, in outer space, and under water. Underground tests are prohibited only if they cause "radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control" the explosions were conducted.

In July 1974 a second treaty on nuclear testing – the Treaty on the Limitation of Underground Nuclear Weapon Tests (known as the Threshold Test-Ban Treaty or TTBT) – was concluded by the United States and the Soviet Union. The treaty established a nuclear ‘threshold’ by prohibiting tests with a yield in excess of 150 kilotons (equivalent to 150,000 tons of TNT). Ratification stalled, although in 1976 both sides undertook to observe the treaty limits. It was not until June 1990 that additional verification protocols were agreed and ratification proceeded. The treaty entered into force in December of that year.
3.2 Comprehensive Nuclear Test Ban Treaty (CTBT)

A desire for a treaty banning all nuclear weapons testing was expressed in the preamble of the 1963 Partial Test Ban Treaty, but it was only with the end of the Cold War that it became a realistic prospect.

Three nuclear weapon states – Russia, the UK and the US – declared moratoria on the testing of nuclear weapons in 1992 and these have remained in place since. France and China continued to conduct tests during 1994 and 1995 as negotiations on a draft treaty began under the auspices of the UN Conference on Disarmament. With the negotiations nearing completion, France announced a halt to its testing in early 1996. China followed a few months later. Pakistan and India both announced an informal moratorium on further nuclear testing after their 1998 tests. North Korea continues to conduct nuclear tests, the most recent in January 2016.

The negotiations culminated on 24 September 1996 with the adoption by the UN General Assembly of The Comprehensive Nuclear Test Ban Treaty (CTBT). The treaty prohibits the carrying out of any nuclear weapon test explosion or any other nuclear explosion, and urges each party to prevent, and refrain from encouraging, any such explosion. Implementation of the treaty and verification of compliance by states parties is carried out by the Comprehensive Test Ban Treaty Organisation (CTBTO). Verification is to be achieved by means of an International Monitoring System, using an international seismic detection data network to detect and identify seismic events and determine if a nuclear test has occurred.

The treaty has 183 state signatories. However, it is yet to enter into force, and would only come into effect 180 days after the ratification by the five nuclear-weapon states and a further 39 non-nuclear weapon states that were identified at the time as possessing either civilian nuclear power reactors and/or nuclear research reactors. Collectively these 44 states are referred to as Annex 2 states.

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. The current moratorium on nuclear testing is also regarded as fragile so long as the CTBT and its monitoring regime do not have formal legal effect.

To date the CTBT still awaits ratification by eight Annex 2 countries. As recognised nuclear weapon states, the United States and China have

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89 The preamble to the PTBT declared that the parties were “Seeking to achieve the discontinuance of all test explosions of nuclear weapons for all time, determined to continue negotiations to this end, and desiring to put an end to the contamination of man’s environment by radioactive substances”.

90 More detail on the role of the organisation can be found on the CTBTO website at: http://www.ctbto.org
been generally regarded as the main stumbling block to achieving that aim, with the US Senate controversially refusing to ratify the treaty in 1999 over concerns that the US would not be able to effectively maintain its nuclear arsenal and that detection technology was not accurate enough to effectively monitor a ban.91 Iran, Israel, and Egypt have also signed, but not ratified the treaty; while the remaining Annex 2 countries: India, Pakistan and North Korea are yet to sign the treaty.92

At the 2010 NPT Review Conference, States Parties agreed to seek entry into force of the CTBT as a matter of urgency and in the interim maintain a testing moratorium. While the US, China and Iran are obliged to try and achieve that objective as NPT States Parties, no timeframe for doing so has been established.

In contrast to the previous Bush administration which opposed the treaty on the basis that its verification mechanisms were flawed, that transgressions may not be spotted, and that the reliability of the US' nuclear arsenal could not be guaranteed in the absence of periodic testing, President Obama has repeatedly committed to seeking ratification of the CTBT as part of his wider disarmament agenda. In March 2011 it had been suggested that the US administration was laying the groundwork within Congress ahead of presenting the treaty for ratification later in 2011.93 However, five years later that treaty has yet to be laid before Congress, with many commentators now considering it unlikely before the end of President Obama's presidential term. As Daryl Kimball noted in an article for Arms Control Today in November 2015:

> Bringing the CTBT back to the Senate for another vote requires a lengthy, intensive educational and outreach campaign to present the new information, answer detailed questions and dispel old myths and misconceptions. To date, President Barack Obama has not devoted the effort necessary to ultimately achieve CTBT ratification, and in his short time left in office, he cannot win enough support for the treaty in this Republican-led Senate.94

Many observers have also questioned the likelihood of the incoming US President, of whichever party, pushing for CTBT ratification at an early date.95 As such, US ratification is widely considered to be many years away.

However, if the US does ratify the treaty then China is widely expected to follow suit, although Rebecca Johnson argued back in 2009 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

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91 In October 1999 the Senate voted by 51 to 48 votes to reject ratification. Ratification of a treaty requires a two-thirds majority.
93 “Obama could launch CTBT ratification push in March”, *Global Security Newswire*, 7 March 2011
94 “Reconsidering the test ban treaty”, *Arms Control Today*, November 2015
95 See Paul Ingram, “The role of the nuclear test ban as a non-proliferation and arms control instrument”, *BASIC Blog*, 23 June 2016
convince the US Senate to ratify the treaty. Chinese ratification would demonstrate its international status as a leader, not a follower”.96

Egypt and Iran are considered to be more problematic, however. While supporting the treaty in principle, ratification is likely to be linked to ratification of the CTBT by their neighbours in the Middle East, especially Israel, which Egypt has stated must also join the NPT first. At a symposium of the CTBTO Preparatory Commission in March 2016 Israel proposed a regional moratorium on nuclear testing that “could enhance security and potentially lead to a future ratification of the CTBT”.97 While Israel has signalled its readiness to observe a moratorium it is, however, likely to await progress by Egypt and Iran.

Crucially, Israel, Pakistan, India and 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. The possibility of North Korea ratifying the treaty is minimal, having conducted a nuclear test as recently as January 2016 and with further tests thought to be in the pipeline.

US ratification of the CTBT is viewed by some, however, as a potential ‘circuit breaker’ and likely to have an immediate impact on the other ‘hold-out’ states. As Siddharth Varadarajan has observed:

Pakistan will not sign and ratify the CTBT as the smallest and weakest of the nuclear-armed states before India does, India will not do the same until China does, and the Chinese will not do it until the US does.98

Others have long argued however, that US ratification would have practically no effect in terms of convincing other hold-out nations to follow suit.99

3.3 Anti-Ballistic Missile Treaty (ABM)

In addition to the 1972 Interim Agreement limiting strategic offensive arms, the first round of Strategic Arms Limitation Talks (SALT) between the US and the Soviet Union yielded a treaty on anti-ballistic missile defences (the Anti-Ballistic Missile Treaty or ABM treaty). The motivation behind the treaty was a fear on both sides that the development of strategic anti-ballistic missile defences would undermine the deterrent

97 “Countries pledge renewed CTBT effort”, Arms Control Today, March 2016
98 ibid
99 See the speech by Stephen Rademaker, former US Assistant Secretary of State, at the Center for Strategic and International Studies, 13 May 2009
value of their nuclear arsenal and could encourage the other side to contemplate a pre-emptive nuclear strike.

The treaty sought to impose restrictions on the deployment of strategic missile defences, prohibiting both sides from developing a nation-wide system of missile defence. Under the original terms of the treaty, the two parties were permitted to develop two anti-ballistic missile deployment areas: one around the capital city, and a second around an inter-continental ballistic missile (ICBM) launch site. A protocol was signed in July 1974, reducing the number of permitted ABM deployment areas to one, with an upper ceiling of 100 ABM launchers and 100 ABM missiles. The Soviet deployment area was placed around Moscow, while the US site was located around the Grand Forks ICBM complex. The ABM defences around Moscow were upgraded during the early 1990s, whereas the US site was dismantled in 1976 due to high costs and technical difficulties.

The dissolution of the Soviet Union in December 1991 meant that a number of early warning stations linked to the Moscow ABM defences were located on the territory of the newly independent states of Belarus, Ukraine and Kazakhstan. Clarification was therefore required as to the rights and obligations of these states under the ABM Treaty. A Memorandum of Understanding on Succession, signed in September 1997, established that the United States, Russia, Belarus, Kazakhstan and Ukraine were all parties, with the four former-Soviet states agreeing to assume collectively the obligations of the treaty. As a consequence, only one ABM defence site was permitted among all four successor states, while Russia was permitted to continue operating any of the existing early warning stations and test ranges, provided the host governments agree.

During the latter half of the 1990s, pressure grew from US Congressional Republicans for the abrogation or re-negotiation of the ABM Treaty. Their aim was to allow the United States to develop a missile defence system to combat the perceived threat posed by the proliferation of missile technology to states such as Iran, Iraq and North Korea. In response, the Clinton administration began to explore a limited National Missile Defence system (NMD), and a series of tests were carried out during 1999 and 2000, despite opposition from the Russian Government, which viewed the ABM Treaty as the “cornerstone of strategic stability”.

The Bush administration, which gained office in 2001, was a strong advocate of ballistic missile defence and called for the urgent re-negotiation or abrogation of the ABM Treaty to enable testing and deployment to take place. Negotiations between Moscow and the new Bush administration during 2001 failed to make progress and, as a result, Washington announced on 13 December 2001 that it had given

\[100\] Although experts contend they are of questionable operational effectiveness.
Russia formal notice of its intention to withdraw from the treaty in six months. As a consequence, the treaty is no longer in force.

3.4 Fissile Material Cut-Off Treaty (FMCT)
First raised in 1946, the idea of an internationally verifiable ban on the production of weapons-grade fissile material resurfaced several times during the Cold War as a means of capping the number of nuclear weapons that could be built.\(^{101}\) Non-nuclear weapon states have viewed such a ban as a key staging point on the way to securing the eventual disarmament of the nuclear weapon states, in line with their NPT obligations.

Interest in what has become known as a Fissile Material Cut-off Treaty (FMCT)\(^{102}\) revived with the end of the Cold War. It became apparent that the United States and Russia possessed significantly more nuclear materials than they required for their military programmes. In 1993 a shift in the US position in support of a ban enabled a resolution to be passed in the UN General Assembly calling for negotiations on a “non-discriminatory multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices.”\(^{103}\)

In March 1995 the members of the Conference on Disarmament agreed to establish an ad hoc committee with a mandate to negotiate a treaty. Until such time as a treaty could be agreed, all five acknowledged nuclear weapon states declared a halt to the production of new fissile materials.

Over 20 years later, the negotiation of a Fissile Material Cut-Off Treaty remains 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, progress on achieving that aim within the Conference on Disarmament has been minimal. Operating on the basis of consensus, and with an annual mandate, Conference discussions originally stalled over the inability over the 65 Member States to agree a work plan. A breakthrough was achieved in May 2009 after the Conference agreed 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.

\(^{101}\) For more detail, see Matthew Bunn, ‘Ending Further Production: Fissile Material Cut-off Treaty’, Nuclear Threat Initiative website, last updated 20 February 2003

\(^{102}\) Some non-nuclear weapon states dispute the use of the term “cut-off”, arguing the treaty should also cover existing stocks of fissile material.

\(^{103}\) ‘Prohibition of the production of fissile materials for nuclear weapons or other nuclear explosive devices’, UNGA 48/75L, 16 December 1993
In the last six years however, nothing of substance has emerged from the Conference. Procedural wrangling aside, major substantive issues continue to divide member states, 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 historically rejected such a move. In 2013 the British Government argued that the first priority should be “the cutting off of future production of fissile material for use in nuclear weapons and other nuclear explosive devices”, suggesting that:

Differences of opinion, and the technical complexity of the issue, would make it extremely difficult to reach agreement on the coverage of stocks under a FMCT that would be acceptable to all. There is a clear risk that attempting to do so would jeopardise the ability to deliver a ban on the future production of fissile material…which is our priority. The UK believes that there are other approaches, including voluntary approaches, for dealing with existing stocks that are likely to be most appropriate and that also offer the greatest likelihood of successfully agreeing a FMCT in the Conference on Disarmament.\(^{104}\)

In contrast, a number of non-nuclear weapon states, including Iran, have supported the inclusion of legacy material in any FMCT. Pakistan also supports the negotiation of a non-discriminatory fissile materials treaty, but only if it covers existing stockpiles. Pakistan has maintained that it will be at a disadvantage, with respect to India, if existing stockpiles are not included due to India’s larger stockpile, continuing fissile material production capabilities and the effect of the 2008 US and Nuclear Suppliers Group agreements with India on the foreign import of nuclear materials (see below).\(^{105}\) Due to the need for consensus in decision making Pakistan has effectively used this issue to block the start of negotiations and has stated that it will continue to do so until an agreement on existing stockpiles is added to the treaty text.

China, the only nuclear weapon state recognised under the NPT that is 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”.\(^{106}\) In a US-China joint statement in January 2011, however, both countries expressed their support “for the early commencement of negotiations on a Fissile Material Cut-off Treaty in the Conference on Disarmament, and agreed to work together to reach these goals”.\(^{107}\)

\(^{104}\) Foreign and Commonwealth Office, *Paper on FMCT*, May 2013

\(^{105}\) The 2008 US-India civil nuclear cooperation deal, and subsequent agreement by the Nuclear Suppliers Group, arguably allows India to increase its stockpile of fissile material for weapons purposes by diverting domestically fissile material resources solely into its military programme.

\(^{106}\) For further discussion see “Playing the nuclear game: Pakistan and the Fissile Material Cut-off Treaty”, *Arms Control Today*, April 2010

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.108

In order to get the process moving, in December 2012 the UN General Assembly passed a resolution (A/RES/67/53) creating the FMCT Group of Government Experts. The intention of the GGE was to help set some of the parameters for an FMCT, including the development of a technical framework to support key elements on any future treaty. It was not to negotiate the treaty itself. The GGE presented its report to the UN General Assembly in May 2015.

Despite the efforts of the international community to move the issue forward, until Pakistan perceives a radical shift in its regional security environment, and in particular its relationship with India, substantial progress on an FMCT 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. Indeed, in February 2015 President Hollande confirmed that France would submit a draft treaty text to the disarmament community and called for negotiations on that instrument to begin without further delay. That text was subsequently presented to the NPT Review Conference in April 2015. However, the review conference ended without agreement.

A number of commentators have argued that adopting such an approach would be futile, however, 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 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”.109

In a briefing in October 2010 Daryl Kimball also argued that “Pakistan’s concerns about an FMCT likely will not be alleviated as long as India’s

108 “Fissile material ban should include civilian HEU, experts say”, Global Security Newswire, 30 March 2010
109 “Ending further production”, Nuclear Threat Initiative
production potential remains greater. France, Russia, the United Kingdom and the United States should use what leverage they have to encourage India to exercise greater global non-proliferation leadership and restraint”. 110

An alternative option, put forward by the Nuclear Threat Initiative (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 1998.111

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 Disarmament fail to bear fruit by the end of 2011. That proposal was removed from the final document, however; a move that some interpreted as an effort to keep the FMCT issue bogged down in the Conference on Disarmament.

Countries including Japan, Mexico and the US have expressed support for pursuing alternative arrangements should the CD fail to move this issue forward. Addressing the Conference at the end of February 2011 the US Secretary of State, Hillary Clinton, commented:

> I know this conference has always cherished the principle of consensus, which ensures that every state can defend its national interests at the negotiating table. But our patience is not infinite. There is no justification for a single nation to abuse the consensus principle and forever thwart the legitimate desire of the 64 other states to get negotiations under way on an agreement that would strengthen our common security. It is clear that there is a wide range of views inside the conference, and these views will have to be accommodated through the process of negotiation. That process will be difficult, and it will take a number of years, and that is all the more reason to begin negotiations now. If we cannot summon the shared will even to begin negotiations in this body, then the United States is determined to pursue other options. Global nuclear security is too important to allow this matter to drift forever.112

In his opening statement to the 2011 Conference on Disarmament the UN Secretary General, Ban Ki Moon, warned, however, against pursuing the FMCT outside of the conference framework, arguing that it would undermine the credibility of the organisation as the main multilateral disarmament forum. He went on to suggest:

> With respect to the fissile material treaty, it is clear that within the Conference on Disarmament, there is almost universal support for negotiations on such a treaty. While many members continue to hope that formal negotiations will take place in the Conference on Disarmament, a number of members have recently suggested that alternative arrangements should be explored.

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110 “Time for leadership on the fissile cut off”, Arms Control Today; October 2010
111 “Ending further production”, Nuclear Threat Initiative
112 Secretary of State, Hillary Rodham Clinton, Remarks at the Conference on Disarmament, 28 February 2011
As a first step, I am wondering whether you could commence an informal process before you agree on formal negotiations on the fissile material treaty within the Conference on Disarmament. It could simply be a basic process to educate each other and build trust which will inform and facilitate the formal process once the Conference on Disarmament adopts its work programme.113

Keeping the talks with the CD has also been supported by the Russian government which argued that “the necessary condition for the success of these talks is to hold them at the conference, not outside its framework. Only this can ensure the participation of all the key players”.114

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113 UN Secretary General, Remarks to the Conference on Disarmament, Geneva, 26 January 2011

114 “Clinton calls for negotiations on fissile material pact”, Global Security Newswire, 1 March 2011
4. Non-proliferation regimes

The majority of regimes relating to non-proliferation are multilateral agreements or treaties. The most prolific of those, and considered the cornerstone of the international nuclear non-proliferation regime, has been the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) (examined above). 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 15 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; the Proliferation Security Initiative (PSI) which was launched by the US in 2003; and UN Security Council Resolution 1540 on nuclear security which was passed in 2004. Nuclear security has also risen up the agenda since 2010 with a series of high-level conferences aimed at addressing concerns over nuclear terrorism and the safeguarding of vulnerable materials.

4.1 Zangger Committee and Nuclear Suppliers Group (NSG)

During the 1970s concerns over the incomplete membership of the NPT and emerging loopholes in the international non-proliferation regime led to the formation of two linked groups of nuclear supplier states. Both groups operate informally, and in confidentiality, in the belief that such conditions are less threatening to the national security perceptions of states and encourage the sharing of information and intelligence on what are highly sensitive issues.

Zangger Committee

Between 1971 and 1974 fifteen nuclear supplier states initially held a series of meetings in Vienna, chaired by Professor Claude Zangger of Switzerland, to define the categories of nuclear material or technology that should be subject to special export controls, in accordance with Article III, paragraph 2 of the NPT. The group, known as the Zangger Committee or the NPT Exporters Committee, achieved a number of understandings on export controls, the exchange of information and established a ‘trigger list’ of materials and equipment that would only be exported if they were destined for use in facilities subject to International Atomic Energy Agency safeguards.

The understandings were formally accepted by individual States members of the Committee in an exchange of notes among themselves. These amounted to unilateral declarations that the Understandings would be given effect through respective domestic export control
legislation. In parallel with this procedure, most member States wrote identical letters to the Director General of the IAEA informing him of their decision to act in conformity with the conditions set out in the Understandings.

The Committee periodically engages in revisions to the trigger list as a result of developments in technology and as such the original list has become increasingly detailed. For example, in 1984-85 the Zangger Committee’s trigger list was updated to take into account technical developments in the gas centrifuge enrichment process and reprocessing. In 1990 gas diffusion enrichment methods were also included.

The Committee currently has 39 Member States and the European Commission is a permanent observer. While its membership includes the NPT-recognised nuclear weapon states, India, Pakistan, Israel and North Korea are not members.

**Nuclear Suppliers Group**

A follow-up group of nuclear suppliers was convened in 1974 in the aftermath of an Indian nuclear test. The US, UK, Soviet Union, West Germany, Japan, Canada and France, were initially involved in the group, which became known as the ‘London Club’ or the Nuclear Suppliers Group (NSG) when it was formally established in 1975. In 1976 it agreed guidelines for nuclear exports which went beyond the understandings reached by the Zangger Committee. Safeguards were extended to cover exports of a range of technologies associated with reprocessing, enrichment and heavy water production plants. Participants also agreed to display restraint in the export of such particularly sensitive technologies and to seek commitments from recipient countries that imported enrichment technologies would be used to produce only low-enriched uranium. If materials were diverted or supplier-recipient understandings violated, members agreed to consult on possible common action.

In subsequent years the US, Australia, Canada and Sweden went beyond these guidelines by prohibiting major nuclear exports to countries that had not placed all their nuclear activities under IAEA safeguards. The overall aim of the NSG guidelines was to ensure that nuclear trade for peaceful purposes could be facilitated without contributing to the proliferation of nuclear weapons. As such, NSG states are expected to forego nuclear trade with governments that do not subject themselves to the NPT and inspections, thereby providing confidence that their nuclear imports are not being diverted into a weapons programme. However, the regime is voluntary and therefore


116 India described the test (believed to be only partially successful) as a “peaceful nuclear explosion” and denied that it possessed nuclear weapons. This policy changed with the series of declared nuclear weapons tests in May 1998.
NSG member states may, in theory, make any nuclear exports that they wish.

The NSG did not meet between 1980 and 1991 but was reactivated with meetings in Warsaw in 1991 and 1992. A product of the Warsaw meetings was an ‘export regime’ recommending ways of strengthening export controls on dual-use items that could be used to make nuclear weapons. Between 1993 and 1996 the Group worked on implementing the dual-use regime and adopting full-scope safeguards. Each signatory state is to enforce the controls at national level.

The NSG currently has 48 participating governments. Again that membership does not include India, Pakistan, Israel, Iran or North Korea. The European Commission and the Chair of the Zangger Committee also participate as Permanent Observers. An annual plenary session is held to discuss the regime’s operation and any possible changes to the NSG guidelines.

**NSG/India deal**

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, in return for concluding a Comprehensive Safeguards Agreement with the IAEA which would subject its civilian nuclear facilities to IAEA inspection. 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. That agreement was ultimately transformed into an agreement of the Nuclear Suppliers Group in September 2008 which exempted India from some of its nuclear export rules. India has since negotiated nuclear cooperation agreements with a number of countries including the UK, Russia, France, South Korea, Canada and Australia.

All of these agreements have been 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 argued in 2008 that the US and NSG deals had “damaged the nonproliferation regime and

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117 A full membership list is available at: [http://www.nuclearsuppliersgroup.org/en/participants](http://www.nuclearsuppliersgroup.org/en/participants)

118 The most recent NSG guidelines were approved in 2013. At the plenary session in 2016 NSG member states agreed a number of proposals to clarify and update the guidelines.

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

120 The UK’s civil nuclear trade policy with India was set out in a Written Ministerial Statement on 29 November 2010: HC Deb 29 November 2010, c61-2WS
has exacerbated nuclear tensions in South Asia.\textsuperscript{121} George Perkovich also labelled the deals “selective non-enforcement” of the international non-proliferation rules.\textsuperscript{122} More recently John Carlson of the Nuclear Threat Initiative suggested that “as a result of the US initiative, India is now receiving the benefits of the nuclear nonproliferation treaty without assuming any of the NPT’s obligations, a situation widely seen as damaging the NPT”.\textsuperscript{123}

A number of analysts have also expressed concern that allowing India to secure foreign nuclear fuel shipments for its civilian nuclear energy programme, by default, frees up domestic resources, such as uranium, to be diverted solely into India’s nuclear weapons programme.\textsuperscript{124}

Over the last five years the Indian Government has been attempting gain full membership of the NSG and in May 2016 submitted its formal application for membership. At the latest plenary session of the NSG in June 2016 a decision on India’s formal application to join the NSG was deferred, despite having the backing of the US. India’s position outside of the NPT was cited by China as the main stumbling block as NPT membership has come to be viewed as one of the guiding principles of the organisation. For the immediate future the NSG has committed to continuing discussions on the technical, legal and political aspects of the participation of non-NPT states.\textsuperscript{125}

As Daryl Kimball argued in an editorial for \textit{Arms Control Today}:

If states in the NSG are to be asked to support the objective of Indian membership, it should only be part of a broader strategy to strengthen the global nuclear order. Anything less represents an irresponsible disregard for longstanding non-proliferation principles.\textsuperscript{126}

Pakistan

In early 2010 China announced that it had agreed to finance the construction of two new civilian nuclear reactors in Pakistan, a country that does not accept IAEA safeguards at all of its nuclear sites. China had previously constructed two civilian nuclear reactors in Pakistan, although this was prior to China’s entry into the NSG in 2004. Under what has been termed, the ‘grandfather clause’ in NSG guidelines, China has argued that it is therefore entitled to build additional reactors as they were covered by the original agreement with Pakistan.

\begin{thebibliography}{99}
\bibitem{121} Mark Hibbs, “Moving forward on the US-India nuclear deal”, \textit{Carnegie Endowment for International Peace}, 5 April 2010
\bibitem{122} George Perkovich, “Global implications of the US-India deal”, \textit{Daedalus}, Winter 2010
\bibitem{123} “Nonproliferation benefits of India deal remain elusive”, \textit{Arms Control Today}, June 2015
\bibitem{124} “Indian Nuclear Forces 2015”, \textit{Bulletin of the Atomic Scientists: Nuclear Notebook}, 2015 and “Nonproliferation benefits of India deal remain elusive”, \textit{Arms Control Today}, June 2015
\bibitem{125} \textit{Public Statement: Plenary Meeting of the Nuclear Suppliers Group}, June 2016
\bibitem{126} Daryl Kimball, “Obama’s India nuclear blind spot”, \textit{Arms Control Today}, June 2016
\end{thebibliography}
That announcement prompted calls from the US for all nations’ to respect their non-proliferation commitments. Initially the US failed to openly oppose the deal, a move that Mark Hibbs 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. He went on to conclude that tacit US acquiescence would seriously damage the NSG’s credibility as a rule maker for nuclear trade.

As the NSG guidelines are not legally binding, it had been observed that “if China persists in citing the grandfather clause as justification for these reactors, there may be little that the NSG members can do [...] The NSG is a voluntary multinational arrangement and has no mechanism for resolving disputes about differing interpretations of the guidelines or for sanctioning or expelling members who violate its guidelines. Those are the facts: they are not going to change”.

In March 2011 the IAEA confirmed that a safeguards agreement for the two nuclear reactors involved in the Chinese-Pakistani deal, had been approved, paving the way for the deal to move ahead. Pakistan continues to oppose IAEA safeguards on all of its nuclear facilities however and many NSG countries remain concerned about the agreement which they continue to contend falls outside of the ‘grandfather’ provisions of the previous Chinese deal.

In May 2016 Pakistan submitted a formal application for NSG membership, which China has supported. However, it is thought unlikely that the remaining members of the NSG would support such a move given widespread concerns over 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 February 2016 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”.

4.2 Global Partnership against the Spread of Weapons of Mass Destruction

The Global Partnership was launched by the leaders of the G8 at its summit in Canada in 2002. The initiative was originally established for a period of ten years and had an initial budget of £20bn (more than half committed by the US) to fund and coordinate projects aimed at addressing non-proliferation disarmament, counter-terrorism and nuclear safety issues. Initially the programme focused on four key issues

128 ibid
130 Pakistan’s nuclear weapons, US Congressional Research Service, February 2016
in Russia and the former Soviet States: chemical weapons disarmament, disassembly of retired nuclear submarines, fissile material security and transitioning weapons scientists into civilian life.  

Hopes had been expressed that an extension of the Global Partnership initiative, beyond its original ten-year mandate, could be agreed at the G8 summit in 2010, including a formal expansion of the geographical scope of the programme. At the nuclear security summit in early 2010 President Obama had signalled the US’ willingness to commit a further $10bn to a ten–year extension of the programme. However, leaders at the G8 summit in 2010 failed to agree on renewal of the programme, which led many analysts to questions its future amid speculation that the global economic crisis had left many states unwilling to commit further funding to the project. G8 leaders instead committed to an assessment of the programme’s success to date “as a point of departure for developing options for programming and financing beyond 2012”.  

A decision on the future of the Global Partnership programme was taken at the group’s annual summit in May 2011. G8 leaders agreed to extend the mandate of the partnership for an indeterminate time but with a specific focus on reducing the global threat from nuclear, biological, chemical and radiological weapons materials and expertise. In addition to completing projects in Russia and the former Soviet states, specific focus would be given to nuclear and radiological security, biosecurity, scientist engagement, implementing UNSCR1540 (see below) and introducing new countries to the partnership.  

The US, the UK and France all expressed support for continuing the initiative, but the lack of specificity regarding a timeframe for the extension of the Partnership programme was borne out of concerns by some G8 states over budgetary constraints. Under the US presidency of the G8 in 2012 the Partnership focused greater attention on bio-security and new partnerships, which culminated in Mexico joining the partnership in December of that year, the first Latin American country to do so. In 2013, under the Presidency of the UK, the Partnership focused on expanding membership, strengthening information security and implementing UNSCR1540. In 2015 work on strengthening biosecurity continued, including the provision of funding to assist in the Ebola crisis; along with work to secure radiological and nuclear material in Ukraine.  

Despite being established by the G8, the Global Partnership now involves 28 participating nations, including the EU. Russia was suspended from the G8 in 2014 and as such its participation in the Global Partnership is currently on hold.

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131 In 2002 more than 100 nuclear submarines were waiting to be dismantled in the FSU; while 40,000 metric tons of chemical weapon stocks awaited destruction (“Silent partnership: the G8s non-proliferation program”, Bulletin of the Atomic Scientists, March/April 2010
132 See “G8 non proliferation program faces uncertain future”, Global Security Newswire, 16 August 2010
133 ibid
In 2016 the Global Partnership was identified as one of five initiatives/organisations through which the work of the nuclear security summits (see below) could be taken forward, now that that summit process has concluded. It will continue some of the summit work on securing nuclear and radiological materials worldwide, specifically assisting and coordinating activities that reduce insider threats, providing assistance for enhancing security of radioactive sources and coordinating programmes and exercises on activities to counter nuclear smuggling. Over the course of 2016 further work is also expected on implementing UNSCR1540 and how the Partnership can support the planned review conference of that resolution which is due to take place in 2017.

The UK’s broader Global Threat Reduction Programme delivers the UK’s contribution to the G8 Global Partnership initiative. Between 2002 and 2012 the UK committed over £350 million of funding to Global Partnership projects.

4.3 Proliferation Security Initiative (PSI)

The Proliferation Security Initiative was launched by the US in 2003 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.

The initiative is not treaty based and has no organisational structure to support it. It has instead been best characterised as “an activity rather than an organisation and remains an open and flexible mechanism”, with an Operational Experts Group acting as the PSI ‘Steering Committee’. Participating nations abide by a Statement of Interdiction Principles and meet in a number of formats and take part in an exercise programme intended to test national capabilities and decision making structures.

105 states have endorsed the PSI, although China which is regarded as key states for the success of the initiative, remain outside of its structure.

Box 5: Proliferation Security Initiative: further reading

- PSI website
- The Proliferation Security Initiative: legal considerations and operational realities, SIPRI, May 2013

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134 The UN, the IAEA, Interpol, the Global Initiative to Combat Nuclear Terrorism and the Global Partnership
135 Ministry of Defence, 2010 to 2015 government policy: weapons proliferation
136 Foreign Affairs Select Committee, Global Security: Non Proliferation, HC 222, Session 2008-09, p.29
4.4 Nuclear security initiatives

UNSCR 1540 on nuclear security

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.

Over the last 12 years the mandate of the 1540 Committee has been extended several times. In April 2011 UN Security Council Resolution 1977 recognised that implementation of UNSCR1540 was a long term task and subsequently extended the mandate of the Committee to 2021. A Comprehensive Review of the resolution is due to be submitted to the UN Security Council in December 2016.

Although the onus for implementation of UNSCR 1540 has largely been at the national level, 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
- An Amendment to the Convention on the Physical Protection of Nuclear Materials
- The 2005 International Convention for the Suppression of Acts of Nuclear Terrorism,

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138 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’.

139 First agreed in 2005 this amendment finally entered into force in May 2016. The Convention has 153 signatories, 102 of which have ratified the amendment thus far.

140 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. The Convention currently has 115 signatories, of which 104 have ratified the treaty. The UK ratified the Convention in 2009, while the US ratified the Convention in September 2015, becoming, at the time, the 100th State Party to the treaty.

141 Designed to enhance international cooperation to combat the global threat of nuclear terrorism through the adoption of a core set of principles to prevent,
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.

**Nuclear security summits**

Nuclear terrorism and the safeguarding of vulnerable material was one of the central themes of President Obama’s speech in Prague in April 2009 and [UN Security Council Resolution 1887](https://www.un.org/en/ga/search/view_doc.asp?symbol=S/RES/1887(2009)). In April 2010 the US [Nuclear Posture Review (NPR)](https://www.whitehouse.gov/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.

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 New START 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 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 widely expected to be exercised on a much greater scale as part of the so-called ‘nuclear renaissance’.142

At the conclusion of the Summit, participating states issued a Joint [Communiqué](https://www.washingtonsummit.org) 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](https://www.washingtonsummit.org) which the summit concluded would provide “guidance for national and international action including through cooperation within the context of relevant international fora and organizations”.143 That agreed work plan did 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 manage and respond to attacks involving nuclear or radiological materials, including the control of nuclear materials and detecting and suppressing illicit trafficking. It has 86 partner nations, including India, Pakistan and China, although partner nations are not required to take part in all of the initiatives activities. The UN, IAEA, Interpol, the UN Office on Drugs and Crime and the UN Interregional Crime and Justice Research Institute also participate as observers.

142 Events at the Fukushima nuclear plant in Japan since the earthquake in March 2010 has led many to argue that the ‘nuclear renaissance’ may not be as prolific as initially speculated, although this remains to be seen.143

[Communiqué of the Washington Nuclear Security Summit](https://www.washingtonsummit.org), 13 April 2010
disposal of nuclear materials and in preventing non-state actors from obtaining the information required to use such material for malicious purposes.  

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”. 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”.

In order to maintain momentum on this key issue participating nations have subsequently held a summit every two years to assess progress, reaffirm commitments and identify future goals.

A report published by the Arms Control Association and the Partnership for Global Security found that approximately 90% of the national commitments pledged at the 2010 summit had been completed in the run up to the 2012 summit in Seoul. 53 countries participated in that summit and focused on three main areas: cooperative measures to combat the threat of nuclear terrorism; protection of nuclear materials and related facilities; and prevention of illicit trafficking of nuclear materials. The subsequent Summit Communiqué identified 11 priority areas, including:

- Encouraging participating countries to announce specific actions to minimize the use of HEU by the end of 2013;
- Urging participating countries to ratify the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material by 2014;
- Recognizing a need to increase synergy between nuclear safety and nuclear security;
- Emphasizing the need to improve the security of spent nuclear fuel and radioactive waste; and,
- Establishing specific measures to ensure the protection of radioactive sources.

The third nuclear security summit was held in The Hague in March 2014. The Netherlands laid out several goals for the summit, including; reducing stockpiles of nuclear materials, improving the security of nuclear and radioactive sources, increasing coordination with the nuclear industry, and improving international cooperation. Building on the achievements of the previous two summits, the Summit Communiqué specifically focused on those objectives that had not yet been met.

The final nuclear security summit was held in Washington in April 2016. Recognising that it would be the final summit of its kind the primary

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144 Work Plan of the Washington Nuclear Security Summit, 13 April 2010
145 White House, Press Conference by the President, 13 April 2010
146 ibid
147 Seoul Communiqué, March 2012
goal was to approve five action plans for the UN, the International Atomic Energy Agency, Interpol, the Global Partnership against the Spread of Weapons of Mass Destruction, and the Global Initiative to Combat Nuclear Terrorism, to take forward the work of the nuclear security summits:

- **UN Action Plan** – the plan focuses primarily on support for UNSCR1540, the International Convention for the Suppression of Acts of Nuclear Terrorism and to implement all nuclear security related commitments in relevant UN Security Council and General Assembly resolutions.

- **IAEA Action Plan** – focuses on supporting the IAEA in implementing its own Nuclear Security Plan.

- **Interpol Action Plan** – focuses on facilitating the sharing of information related to criminal and terrorist threats and threats involving nuclear or radiological material, associated facilities and activities; promoting further Interpol cooperation with the IAEA.

- **Global Initiative to Combat Nuclear Terrorism Action Plan** – focuses on capacity building in order to allow partner nations to work together to prevent, deter, detect and respond to nuclear terrorism events.

- **Global Partnership Action Plan** - It will continue some of the summit work on securing nuclear and radiological materials worldwide, specifically assisting and coordinating activities that reduce insider threats, providing assistance for enhancing security of radioactive sources and coordinating programmes and exercises on activities to counter nuclear smuggling.

The nuclear security summit process has generally been regarded as one of success. As Daryl Kimball has noted “the positive results of the nuclear security summit process…demonstrate how high-level, sustained leadership can catalyse action on a global problem […] more work lies ahead, but the intensive, six-year-long summit process has significantly reduced nuclear vulnerabilities in key states”. 148

Yet, the summits were also considered to have had major shortcomings. As an article in *Strategic Comments* noted in May 2016:

> The nuclear summit process fell short of the 2009 pledge to secure all vulnerable nuclear materials in the world in four years. More particularly, the process did not make nuclear security standards universal and enforceable, or the international nuclear security architecture comprehensive […]

> The summit process also failed to address growing stocks of plutonium, convince states to be more transparent on their security arrangements, secure concrete commitments rather than general pledges to address sabotage of nuclear facilities and cyber security, and introduce mandatory certification of security personnel.

> Furthermore the summits focused mainly on civil nuclear materials. These constitute only about 17% of all weapons-usable

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148 “Nuclear disarament summitry”, *Arms Control Today*, April 2016
materials [...] while summit communiqués called for equal security of all materials, no specific decisions or initiatives emerged that specifically addressed military stocks and weapons security.\textsuperscript{149}

The lack of universality has also been criticised. A number of countries with sizeable fissile material stocks, notably Iran, North Korea and Belarus, were not invited to participate in the summit. Russia, which holds the largest stockpile of fissile material in the world, also pulled out of the process in 2014 amid international tensions over its annexation of Crimea.

In order to maintain momentum, the IAEA will hold an international conference on nuclear security in December 2016. However, without leadership at the highest level, arguably from the next US administration, the nuclear security agenda is considered in danger of stagnating.\textsuperscript{150}

Box 6: Nuclear security: further reading

- Nuclear Security Summit 2016 website
- “A new era for nuclear security”, Arms Control Today, June 2016
- “The entry into force of the Amendment to Convention on the Physical Protection of Nuclear Material”, SIPRI Commentary, 14 June 2016
- “Anti-nuclear terrorism initiative turns 10”, Arms Control Today, June 2016

4.5 Nuclear fuel cycle initiatives

The expectation that non-nuclear weapon states will increasingly look towards nuclear energy to meet both their energy security needs and address the global challenge of climate change (what has been termed a ‘nuclear renaissance’), has prompted fresh proliferation concerns. At issue is the ability of such states to potentially divert nuclear materials intended for peaceful purposes into fledgling weapons programmes.

As such, a new element of the proliferation debate has focused on multilateral measures and initiatives intended to assist countries in their right to pursue nuclear technologies for peaceful purposes; while at the same time reducing the incentives for those countries to actually build their own indigenous nuclear fuel facilities, thereby decreasing the proliferation risk. Proposals have included the creation of international fuel banks and agreements on multilateral fuel assurances, 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;

\textsuperscript{149} “The last nuclear security summit”, Strategic Comments, May 2016
\textsuperscript{150} ibid
agreements by suppliers to take back spent fuel and the establishment of spent fuel repositories.

In November 2009 the IAEA governing board approved a proposal to establish the first international fuel bank in Russia, although some nations such as Pakistan and Brazil, which are developing their own civilian nuclear energy programmes, objected to the agreement.\(^\text{151}\) Under the proposal the site would offer low-enriched uranium for sale, on an apolitical basis, to countries that had no proliferation history. The fuel bank would be overseen by the IAEA. That nuclear fuel repository was subsequently opened in December 2010.

On 3 December 2010 the IAEA Governing Board also approved a proposal, initiated by the private organisation the Nuclear Threat Initiative, to establish a multilateral civilian nuclear fuel bank that would be entirely under IAEA control. Unlike the previous vote in the IAEA in November 2009, this proposal was approved without a dissenting vote from any of the board’s 35 members, although six countries abstained.\(^\text{152}\) Under the plan one of the eligibility requirements for recipients is that they have brought into force a full-scope comprehensive safeguards agreement.

In August 2015 the IAEA and the government of Kazakhstan signed an agreement to establish a physical reserve of Low Enriched Uranium (LEU Bank) in Oskemen. The LEU Bank will operate as a supplier of last resort for those eligible IAEA member states unable to secure LEU from the commercial market. The bank is expected to be operational by the end of 2017.

In March 2011 the IAEA also approved a proposal, originally presented by the UK, on Assurance of Nuclear Fuel supply. Unlike previous proposals establishing uranium reserves which eligible countries could access, this proposal involved the establishment of bilateral agreements between a supplier state and a recipient state to guarantee that shipments of nuclear fuel would not be halted for non-commercial reasons. The IAEA would be a co-signatory to any agreement to guarantee that the recipient state was a member of the NPT, has a safeguards agreement with the agency, and was not under suspicion of safeguards breaches, thereby ensuring that the proliferation risk was minimal. Setting out the proposal, the UK’s Ambassador to the IAEA, Simon Smith, stated:

> This complements the earlier fuel bank proposals. Unlike them it isn’t about physical stocks, nor is it about arrangements that carry significant new costs or have big resource implications for the Agency. The aim is to make it easier for countries to decide that an indigenous enrichment capability is something that [they] don’t

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151 Eight nations in total voted against the proposal (Argentina, Brazil, Cuba, Egypt, Malaysia, Pakistan, South Africa and Venezuela), while three states abstained (India, Kenya and Turkey).

152 Argentina, Brazil, Ecuador, South Africa, Tunisia and Venezuela. Pakistan was absent from the vote.
really need to spend money on, because [they] are confident in the reliability of supply from the commercial market.\textsuperscript{153}

He went on to state:

A nuclear fuel assurance would not change or undermine a state’s rights to develop nuclear energy for peaceful purposes […] The offer of nuclear fuel assurance would simply be one item on a ‘menu of options’ to serve as a further confidence building measure for those states interested in adopting or expanding a nuclear power programme.\textsuperscript{154}

While the idea of establishing multilateral nuclear fuel banks or fuel assurance agreements has been identified as one way to encourage smaller countries not to engage in uranium enrichment, it has also been acknowledged that they are unlikely to deter countries such as Iran or Syria.

**Box 7: Nuclear fuel initiatives: further reading**

- IAEA Fact Sheet on the LEU Bank

### 4.6 Nuclear weapons free zones

In an attempt to pre-empt the spread of nuclear weapons technology, a series of treaties have emerged over the last 40 years that declared certain regions of the world to be nuclear-free zones.

There are five NWFZ at present:

- Latin America and the Caribbean (Treaty of Tlatelolco 1967)
- South Pacific (Treaty of Rarotonga 1985)
- Africa (Treaty of Pelindaba 1996)
- South East Asia (Treaty of Bangkok 1995)
- Central Asia (Central Asian Nuclear-Weapon-Free Zone Treaty 2006)

\textsuperscript{153} “UN nuclear body seen backing new fuel supply plan”, Reuters, 10 February 2011

\textsuperscript{154} ibid
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, prohibits the testing of any type of weapon and bans nuclear explosions and the dumping of radioactive waste. Mongolia also has self-declared nuclear weapons free status which was recognised by the adoption of UN General Assembly Resolution 55/33S in 2000.

The Outer Space Treaty 1967, the Sea-Bed Treaty 1971 and the Moon Agreement 1979 also impose geographical restrictions in that they prohibit the deployment of nuclear weapons in orbit around the earth, on the moon and other celestial bodies, in outer space and on ocean floor.

Countries within the NWFZ have committed to not manufacture, acquire, test or possess nuclear weapons and have adopted IAEA Comprehensive Safeguards. Within these zones countries may, however, use nuclear energy for peaceful purposes. States Parties to the Central Asia NWFZ are also required to adopt the IAEA Additional Protocol and comply with the provisions of the CTBT.

Each treaty contains a protocol for the five NPT-recognised nuclear weapon states to sign and ratify that recognise the status of these zones and provide negative security assurances to the NWFZ, by which they will not use or threaten to use nuclear weapons against those countries. 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

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155 Positive security assurances, in contrast, are pledges to come to the assistance of states that are threatened by nuclear attack.
treaty establishing a NWFZ in South East Asia because of concerns that it would conflict with the right of the nuclear weapon states to have freedom of movement in international waters and airspace. The United States is also the only state that is yet to ratify the protocol to the treaty establishing a NWFZ in Central Asia because of concerns that Russia could, in theory, deploy nuclear weapons in the territory of the NWFZ under the terms of mutual assistance obligations set down by the Collective Security Treaty Organisation. The treaty was submitted to the Senate in April 2015. The US Senate has also not ratified the protocols to the either the Treaty of Rarotonga or the Treaty of Pelindaba. Both were submitted to the Senate in May 2011.156

Ratification has, in certain instances, also been accompanied with a declaration of conditions reserving the right to use nuclear weapons against the signatories of such zones in certain circumstances. The UK for example submitted reservations to the Treaty of Pelindaba, declaring that the protocols would not apply to activities within the Chagos archipelago (part of the British Indian Ocean Territory), which were included in the treaty’s territorial remit. In March 2011 the Russian Parliament also ratified the Pelindaba Treaty establishing a NWFZ in Africa, although again it stipulated reservations. Specifically those reservations “do not assume the obligation not to use nuclear weapons against states that are part of the zone...in situations where they have allied commitments to other nuclear states and may participate in military actions using nuclear weapons against Russia, or are members of the corresponding coalitions”. A reservation was also made that the treaty would not apply to the Chagos Archipelago in order to “allow us [Russia] to fully maintain our own security in hypothetical situations of the emergence of crises of conflicts in which the potential use of nuclear weapons is possible”. 157

Middle East NWFZ

Since the 1970s the possibility of establishing a NWFZ in the Middle East has been discussed, and in 1995 a Resolution to establish such a zone was agreed at the NPT Review Conference. Yet, little progress was achieved due to the fact that Israel is not a party to the NPT. Nevertheless the Review Conference in May 2010 once again reaffirmed that the Resolution remained 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

156 Further information is available in the Congressional Research Service briefing, Arms control and non-proliferation: a catalog of treaties and agreements, April 2016
157 “Russia ratifies African nuke-free zone pact”, Global Security Newswire, 14 March 2011
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.

The conclusion of an agreement to progress the 1995 Resolution on a WMD free zone in the Middle East was 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.\(^{158}\)

Since the NPT Review Conference in 2010, however, no progress has been made on this issue. While a facilitator was appointed, the Middle East conference has never been convened as a result of the failure to agree a consensus on the practical arrangements. Israel specifically argued that the conference should not just focus on nuclear weapons but should broaden its agenda to consider regional security issues. This lack of consensus on the Middle East NWFZ permeated the Preparatory Committee of the 2015 NPT Review Conference, which subsequently failed to agree a common set of recommendations for the 2015 review conference partly on this basis.

The Review Conference in 2015 also failed to agree a final document due to the lack of consensus over the Middle East issue.\(^{159}\) Future progress on this key NPT commitment is now uncertain.

4.7 Missile Technology Control Regime (MTCR)

The Missile Technology Control Regime (MTCR) was established in 1987, as an informal and voluntary association of countries, to limit the risks of WMD proliferation by controlling transfers that could make a contribution to WMD delivery systems. The founding states included the UK, the US, West Germany, France, Italy, Japan and Canada, although the organisation has steadily expanded over the years to incorporate the 35 current Member States. The most recent member to join was India in June 2016. Pakistan and China are not signatories to the MTCR.

The Member States have committed themselves to limiting the export of ballistic and cruise missile technology. The MTCR provides export control.

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\(^{158}\) See “Regional restraint – the uses of nuclear weapons-free zones”, Jane’s Intelligence Review, 14 January 2010.

\(^{159}\) See “Is there a future for the NPT?”, Arms Control Today, July/August 2015.
guidelines and annexes listing missile-related equipment and technologies, which would require export licenses. These guidelines focus on missiles capable of delivering weapons of mass destruction, which are defined by the Equipment and Technology Annex as missiles capable of carrying at least 500 kilograms to a range of at least 300 kilometres. The regime also covers components, production facilities and technology for such systems.

The MTCR is not an international agreement binding on its participants under international law. It is, instead, a voluntary arrangement that allows for co-ordination and information exchanges between countries seeking to restrict the proliferation of specific goods and technologies. However, the regime does comprise important guidelines and other technical requirements which participants are politically committed to comply with. The implementation of MTCR guidelines is a matter for individual governments in accordance with national legislation. The MTCR has no regime-wide compliance or verification provisions. When questions arise, partner nations consult bilaterally to promote a common understanding of the issue.

The MTCR also holds annual plenary meetings and also inter-sessional discussions at which government experts can address specific issues. It does not have either a formal secretariat or budget.

While the MTCR has been regarded as at least a partial success, having exerted pressure on several missile development programmes over the years, like many WMD arms control regimes it faces significant challenges from the development of new technologies. For the MTCR specifically the development of unmanned aerial vehicles and lighter than air vehicles (such as airships) poses a challenge due to the ability of such platforms to potentially deliver WMD. Previous efforts, led mainly by the US and UK, to review the regime’s guidelines to include UAVs, failed due to the inability of the participating States to reach a consensus on this issue. As an article in Strategic Comments in March 2011 suggested:

Several MTCR member states, and their defence aerospace industries, have an interest in considering how the regime addresses medium and high-altitude long-endurance UAVs. With domestic defence budgets coming under pressure, there is renewed impetus in identifying additional export markets for these types of UAVs, including commercial and paramilitary applications. The present MTCR guidelines are a hindrance and complicate their sale.

The problem, however, is that while MALE and HALE UAVs offer great utility as intelligence, surveillance and reconnaissance platforms, they are also well suited for the delivery of chemical and biological agents. Indeed UAV’s cruise speed and altitude

160 HL Deb, 21 July 1993, c. 47WA
make them more effective in delivering chemical and biological payloads than ballistic weapons.\textsuperscript{161}

Achieving consensus on this issue is considered unlikely by commentators, in the near future. But as the Strategic Comments article noted “boldness may be required over the coming few years if the regime’s worth is to be maintained”.\textsuperscript{162}

4.8 Hague Code of Conduct against Ballistic Missile Proliferation

The Hague Code of Conduct (HCOC), which was established in 2002, is not an export control regime, but is intended to complement the MTCR. States subscribing to the Code commit to a voluntary set of principles and confidence building measures aimed at strengthening the effort against ballistic missile proliferation, including annual declarations on ballistic missile policies and notifications prior to missile launches.

The Code currently has 138 signatories. Although China is not a signatory to the Code it remains willing to maintain engagement and exchange with HCOC members and strengthen the cooperation in the field of missile non-proliferation.

\textsuperscript{161} “Rumblings precede 25th missile-control meeting”, Strategic Comments, 31 March 2011
\textsuperscript{162} ibid
5. Glossary of Terms

- ABM – Anti-ballistic missile
- BMD – Ballistic Missile Defence
- BWC – Biological and Toxin Weapons Convention
- CBM – Confidence Building Measures
- CD – Conference on Disarmament
- CTBT – Comprehensive Test Ban Treaty
- CTBTO – Comprehensive Test Ban Treaty Organisation
- CWC – Chemical Weapons Convention
- FMCT – Fissile Material Cut-off Treaty
- HCOC – Hague Code of Conduct against Ballistic Missile Proliferation
- HEU – Highly enriched uranium
- IAEA – International Atomic Energy Authority
- ICBM – Intercontinental ballistic missile
- INF – Intermediate Nuclear Forces
- LEU – Low enriched uranium
- MTCR – Missile technology Control Regime
- NPR – Nuclear Posture Review
- NPT – Non Proliferation Treaty
- NSG – Nuclear Suppliers Group
- NWFZ – Nuclear weapons free zone
- OPCW – Organisation for the Prohibition of Chemical Weapons
- PNI – Presidential Nuclear Initiatives
- PSI – Proliferation Security Initiative
- PTBT – Partial Test Ban Treaty
- SALT – Strategic Arms Limitation Treaty
- SLBM – Sea launched ballistic missiles
- SORT – Strategic Offensive Reductions Treaty
- START – Strategic Arms Reduction Treaty
- TTBT – Threshold Test Ban Treaty
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