



HOUSE OF LORDS

# Library Note

## **Debate on 24 January: Multilateral Nuclear Disarmament**

This Library Note provides background reading in advance of the debate to be held on 24 January on:

“the prospects for multilateral nuclear disarmament, and the contribution which Britain could make”

The Note provides statistics on the estimated number of nuclear weapons worldwide; outlines the various international instruments relating to the control of nuclear weapons and to nuclear non-proliferation; sets out the UK’s position on multilateral nuclear disarmament and the policy to maintain a UK nuclear deterrent; and summarises selected commentary on the prospects for disarmament.

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## 1. Number of Nuclear Weapons Worldwide

The Federation of American Scientists (FAS) maintains a database which estimates the global number of nuclear warheads. Its website states that: “More than a decade and a half after the Cold War ended, the world’s combined stockpile of nuclear warheads remain at a very high level: more than 17,000. Of these, some 4,300 warheads are considered operational, of which about 1,800 US and Russian warheads are on high alert, ready for use on short notice”. The FAS acknowledges that figures may not be exact as the “number of nuclear weapons in each country’s possession is a closely held national secret”. However, it contends that “publicly available information and occasional leaks make it possible to make best estimates about the size and composition of the national nuclear weapon stockpiles”. With these caveats borne in mind the FAS website hosts the following table showing the status of the World’s Nuclear Forces as at December 2012:<sup>1</sup>

Country	Operational Strategic	Operational Nonstrategic	Reserve/ Non-deployed	Military Stockpile	Total Inventory
Russia	1,740	0	2,700	4,500	8,500
US	1,950	200	2,500	4,650	7,700
France	290	n.a.	?	300	300
China	0	?	180	240	240
UK	160	n.a.	65	225	225
Israel	0	n.a.	80	80	80
Pakistan	0	n.a.	90-110	90-110	90-110
India	0	n.a.	80-100	80-100	80-100
North Korea	0	n.a.	<10	<10	<10
Total	~4,100	~200	~5,700	~10,200	~17,300

In respect of delivery systems, the International Institute for Strategic Studies (IISS), in its publication, *The Military Balance 2012*, has the following information regarding long-range and strategic delivery systems:<sup>2</sup>

	ICBM Launchers	Bomber Aircraft	Ballistic-Missile Nuclear Powered Submarines
US	450	155	14
Russia	292	251	12
China	66	132	3
UK	-	-	4
France	-	-	4

<sup>1</sup> See: <http://www.fas.org/programs/ssp/nukes/nuclearweapons/nukestatus.html>. See also figures from the Stockholm International Peace Research Institute (SIPRI) website as at January 2012:

<http://www.sipri.org/research/armaments/nuclear-forces>. For a commentary on the history and current status of the nuclear arsenals of states other than the US, Russia, China, the UK and France see: Timothy McDonnell, ‘Nuclear pursuits: Non-P-5 nuclear-armed states, 2013’, *Bulletin of the Atomic Scientists*, vol 69 no 1, January/February 2013, pp 62-70.

<sup>2</sup> IISS, *The Military Balance 2012*, (2012), p 34. See also the FAS website for similar detailed information on types of weapons and delivery systems: <http://www.fas.org/nuke/guide/summary.htm>.

Hans M Kristensen and Robert S Norris, in a recent article in the *Bulletin of the Atomic Scientists*, have suggested that non-strategic nuclear weapons (often characterised as short-range or battlefield) are increasingly being developed, especially by newer nuclear weapon states.<sup>3</sup> They estimate that, combined, five countries have approximately 2,800 nuclear warheads for delivery by nonstrategic nuclear-capable delivery vehicles:

### Countries with estimated nonstrategic nuclear weapons, 2012

Country	Category	Estimated warheads
Russia	air, naval, ground, air-defence, missile defence	2,000*
United States	air, naval	760*
France	air	50
Pakistan	ground	developing
China**	air, ground?	few
Four countries		~2,800

\*Additional retired nonstrategic warheads are in storage awaiting dismantlement.

\*\*China has tested nuclear bombs from tactical aircraft and possibly developed nuclear capability for short-range ballistic missiles and cruise missiles, but status is uncertain.

For analysis of the arsenals of the various countries who are known, or who are thought, to have nuclear weapons, including their plans to modernise them, see: House of Commons Library Research Paper, [Progress Towards Nuclear Disarmament?](#) (15 June 2010, RP 10/42).<sup>4</sup>

In addition to the offensive capabilities of nuclear weapons, there is also the question of Ballistic Missile Defence Systems (BMD) to take into account. As the International Commission on Nuclear Non-Proliferation and Disarmament noted in its 2009 report, *Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers*, this is important as such systems can destabilize defence postures because it “encourages a scramble to acquire enough new weaponry for retaliatory capacity to stay ahead of defence” and the retention of “dangerously high alert launch-on-warning capability... for the fear that even more offensive weapons will be lost if not immediately used in the face of a perceived attack”.<sup>5</sup> It was for this reason that such systems were restricted in the Anti-Ballistic Missile (ABM) Treaty of 1972 (see below) and why their development and use has impacted on subsequent arms control negotiations. The International Commission on Nuclear Non-Proliferation and Disarmament’s report notes that, at the time of writing in 2009, Russia was maintaining one strategic BMD site to protect the Moscow area with one battle-management radar and about 50 short-range nuclear armed anti-missiles. After abrogation of the ABM Treaty in 2002, the US started deployment of a conventionally

<sup>3</sup> Hans M Kristensen and Robert S Norris, ‘[Nonstrategic Nuclear Weapons, 2012](#)’, *Bulletin of the Atomic Scientists*, September/October 2012, vol 68 no 5, pp 96–104.

<sup>4</sup> See also: Report of the International Commission on Nuclear Non-Proliferation and Disarmament, *Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers*, 2009, pp 11–28.

<sup>5</sup> *ibid* p 24.

armed precision guided BMD in California (about 30 long-range ballistic anti-missiles) and Alaska (three anti-missiles).<sup>6</sup>

## 2. Nuclear Arms Control: A Short History

### 2.1 Strategic Arms Limitation Talks (SALT)

The first nuclear arms control agreements were agreed between the United States and the Soviet Union in 1972. The [Strategic Arms Limitation Talks](#) (SALT) led to two agreements: the Interim Agreement on Offensive Arms and the Treaty on the Limitation of Anti-Ballistic Missile Systems.<sup>7</sup> The Interim Agreement on Offensive Arms imposed a freeze on the number of launchers for intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs) that the US and Soviet Union could deploy. The parties agreed that they would not begin construction of new ICBM launchers after 1 July 1972 nor increase the size of existing ICBM silos “significantly”, and capped the number of SLBM launch tubes and SLBM-carrying submarines. The agreement ignored strategic bombers and did not address warhead numbers, leaving both sides free to enlarge their forces by deploying multiple warheads (MIRVs) onto their ICBMs and SLBMs and increasing their bomber-based forces. The agreement limited the United States to 1,054 ICBM silos and 656 SLBM launch tubes. The Soviet Union was limited to 1,607 ICBM silos and 740 SLBM launch tubes.<sup>8</sup> A protocol to the Treaty indicated that the US could deploy up to 710 SLBM launchers on 44 submarines, and the Soviet Union could deploy up to 950 SLBM launchers on 62 submarines.<sup>9</sup>

The [Anti-Ballistic Missile \(ABM\) Treaty](#) was signed on 26 May 1972 and entered into force on 3 October 1972. The Treaty barred Washington and Moscow from deploying nationwide defences against strategic ballistic missiles. In the Treaty preamble, the two sides asserted that effective limits on anti-missile systems would be a “substantial factor in curbing the race in strategic offensive arms”. The Treaty originally permitted both countries to deploy two fixed, ground-based defence sites of 100 missile interceptors each. One site could protect the national capital, while the second could be used to guard an intercontinental ballistic missile (ICBM) field. In a protocol signed on 3 July 1974, the two sides halved the number of permitted defences. The Soviet Union opted to keep its existing missile defence system around Moscow, while the United States eventually fielded its 100 permitted missile interceptors to protect an ICBM base near Grand Forks, North Dakota. Moscow’s defence still exists, but its effectiveness is questionable. The US shut down its permitted ABM defence only months after activating it in October 1975 because “the financial costs of operating it were considered too high for the little protection it offered”.<sup>10</sup> In 1977, both nations agreed to observe the agreement until the

<sup>6</sup> *ibid*, p 24. For a detailed chronology of the evolution of the ABM Treaty and BMD until 2002, when the US left the ABM Treaty, see: <http://www.fas.org/nuke/control/abmt/chron.htm>.

<sup>7</sup> For a narrative on Strategic Arms Limitation Talks (SALT I) see: <http://www.state.gov/t/isn/5191.htm>.

<sup>8</sup> See: <http://www.armscontrol.org/taxonomy/term/61> and <http://www.nti.org/treaties-and-regimes/strategic-arms-limitation-talks-salt-i-salt-ii/>.

<sup>9</sup> For an analysis of SALT I see: Jonathan Haslam and Theresa Osborne, ‘SALT I: The Limitations of Arms Negotiations. U.S.-Soviet Talks Leading to the Interim Agreement on the Limitation of Strategic Offensive Arms, 1969-1972’, *Pew Case Studies in International Affairs*, Institute for the Study of Diplomacy, Georgetown University (1987).

<sup>10</sup> See: <http://www.armscontrol.org/factsheets/abmtreaty>.

completion of the SALT II Treaty.<sup>11</sup> The US withdrew from the ABM Treaty in June 2002.<sup>12</sup>

## 2.2 Strategic Arms Limitation Treaty (SALT II)

In 1979, the [Strategic Arms Limitation Treaty](#) (SALT II) was agreed, which sought to provide for equal limits on US and Soviet strategic offensive nuclear forces. The Treaty limited each nation to a total of 2,400 ICBM launchers, SLBM launchers and heavy bombers, with this number declining to 2,250 by 1 January 1981. Within this total, the Treaty contained limits for the number of launchers that could be deployed for ICBMs with multiple independent re-entry vehicles (MIRVed).<sup>13</sup> This included: MIRVed ICBMs, MIRVed SLBMs, MIRVed air-to-surface ballistic missiles (ASBMs) and heavy bombers. The Treaty would not have limited the total number of warheads that could be carried on these delivery vehicles, which was a growing concern with the deployment of large numbers of multiple warhead missiles, but the nations did agree that they would not increase the numbers of warheads on existing types of missiles and would not test new types of ICBMs with more than ten warheads and new types of SLBMs with more than 14 warheads. They also agreed to provisions that were designed to limit missile modernisation programmes, in an effort to restrain qualitative improvements in their strategic forces.<sup>14</sup> However, the SALT II Treaty was withdrawn by President Carter from consideration by the US Senate. It was criticised by a number of analysts. Some called for lower limits, while others argued that the Treaty would have allowed the Soviet Union to maintain strategic superiority over the US because the Soviet force of large, land-based ballistic missiles would be able to carry far greater numbers of warheads, even within the equal limits on delivery vehicles, than US ballistic missiles. It also reflected the continuing Soviet build-up of strategic nuclear forces, the invasion of Afghanistan, the taking of US hostages in Iran and other challenges to the US in the late 1970s.<sup>15</sup>

## 2.3 Intermediate-Range Nuclear Forces (INF) Treaty

In December 1987, the US and Soviet Union signed the [Intermediate-Range Nuclear Forces \(INF\) Treaty](#). The Treaty required the United States and Soviet Union to eliminate and permanently renounce all of their nuclear and conventional ground-launched ballistic and cruise missiles with ranges of 500 to 5,500 kilometres. The Treaty marked “the first time the superpowers had agreed to reduce their nuclear arsenals, eliminate an entire category of nuclear weapons, and utilize extensive on-site inspections for verification”.<sup>16</sup> The launchers associated with the controlled missiles were also to be destroyed. The signatories agreed that the warheads and guidance systems of the missiles need not be destroyed; they could be used or reconfigured for other systems not controlled by the Treaty. The Soviets agreed to destroy approximately 1,750 missiles and the US agreed to

<sup>11</sup> For a range of materials connected to the ABM Treaty see: <http://www.fas.org/nuke/control/abmt/>.

<sup>12</sup> See: <http://georgewbush-whitehouse.archives.gov/news/releases/2001/12/20011213-2.html>.

<sup>13</sup> A multiple independently targetable re-entry vehicle (MIRV) warhead is a collection of separate warheads, whereas a unitary warhead is a single warhead on a single missile.

<sup>14</sup> See: <http://www.armscontrol.org/documents/salt2>.

<sup>15</sup> See: Congressional Research Service, [Arms Control and Non-proliferation: A Catalogue of Treaties and Agreements](#), March 2012, p 5.

<sup>16</sup> See: <http://www.armscontrol.org/factsheets/INFtreaty>.



destroy 846 missiles, establishing a principle that asymmetrical reductions were acceptable in order to achieve a goal of greater stability. The parties had eliminated all their agreed weapons (2,692) by May 1991. The verification regime of the INF Treaty permitted on-site inspections of selected missile assembly facilities and all storage centres, deployment zones, and repair, test, and elimination facilities. Although it did not permit “anywhere, anytime” inspections, it did allow up to 20 short-notice inspections of sites. Both sides agreed to an extensive data exchange, intended to account for all systems covered by the agreement. The Treaty also established a continuous portal monitoring procedure at one assembly facility in each country. Inspections under the INF Treaty continued until May 2001, though the US continues to operate its site at Russia’s Votkinsk Missile Assembly facility under the terms of the 1991 START Treaty.<sup>17</sup>

## 2.4 Strategic Arms Reduction Treaty (START I)

The US and Soviet Union signed the first [Strategic Arms Reduction Treaty](#) (START I) in July 1991. It limited long-range nuclear forces—land-based intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and heavy bombers—in the US and the newly independent states of the former Soviet Union. It permitted each side to deploy up to 6,000 attributed warheads on 1,600 ballistic missiles and bombers and up to 4,900 warheads on ICBMs and SLBMs. START did not require the elimination of most of the missiles removed from service. The nations had to eliminate launchers for missiles that exceeded the permitted totals, but, in most cases, missiles could be placed in storage and warheads could either be stored or reused on remaining missiles. START contained a complex verification regime, with the parties also using data exchanges, notifications, and on-site inspections to gather information about forces and activities limited by the Treaty. Taken together, these measures were designed to provide each nation with the ability to deter and detect militarily significant violations. The breakup of the Soviet Union delayed START’s entry into force by nearly three-and-a-half years until Belarus, Kazakhstan and Ukraine, which had inherited strategic nuclear weapons from the Soviet Union, ratified START and joined the Nuclear Non-Proliferation Treaty as non-nuclear states. On 5 December 1994 the parties exchanged instruments of ratification at a summit in Budapest. On 5 December 2001, the US and Russian Federation successfully reached the START I levels of 6,000 deployed warheads, with Kazakhstan, Belarus, and Ukraine, having completely eliminated or removed from their territory the nuclear arsenals left over from the Soviet Union. The START Treaty expired in December 2009.<sup>18</sup>

## 2.5 START II

In January 1993, the US and Russia signed START II, after less than a year of negotiations. START II built on START I and aimed to eliminate heavy intercontinental ballistic missiles (ICBMs) and all other multiple-warhead (MIRVed) ICBMs. It also sought to reduce the total number of strategic nuclear weapons deployed by both countries, by two-thirds below pre-START levels. By the end of the first phase, each side would have reduced its

<sup>17</sup> See: Congressional Research Service, [Arms Control and Non-proliferation: A Catalogue of Treaties and Agreements](#), March 2012, pp 6–8.

<sup>18</sup> *ibid*, pp 8–10. See also: <http://www.fas.org/nuke/control/startI/index.html>.

total deployed strategic nuclear warheads to 3,800–4,250. By the end of the second and final phase, each side would have reduced its total deployed strategic nuclear warheads to 3,000–3,500. Of those remaining none were to be deployed on MIRVed ICBMs, including heavy ICBMs; only ICBMs carrying a single warhead would be allowed. It also stipulated that no more than 1,700–1,750 warheads could be deployed on SLBMs, which could be MIRVed. The [1997 Protocol on Early Deactivation](#) extended the date by which the START II limitations and reductions would be completed from 1 January 2003 to 31 December 2007. It also extended the date by which the interim limitations needed to be carried out from 5 December 2001 to 31 December 2004. However, the Treaty never entered into force. Both the Senate and the Duma approved START II, but the Treaty did not take effect because the Senate did not ratify the 1997 protocol and several ABM Treaty amendments, whose passage the Duma established as a condition for START II's entry into force. START II was effectively shelved as a result of the 2002 US withdrawal from the ABM Treaty.<sup>19</sup>

## 2.6 START III

In March 1997, Presidents Bill Clinton and Boris Yeltsin agreed a framework for START III negotiations which would address “the destruction of strategic nuclear warheads... to promote the irreversibility of deep reductions including prevention of a rapid increase in the number of warheads”. START III would by 31 December 2007, and coterminous with START II, have seen the US and Russia each deploy no more than 2,000–2,500 strategic nuclear warheads on intercontinental ballistic missiles, submarine-launched ballistic missiles, and heavy bombers. Russian officials stated that they were willing to consider negotiated levels as low as 1,500 strategic nuclear warheads within the context of a START III agreement. START III would have led to the US and Russia negotiating measures relating to the transparency of strategic nuclear warhead inventories and the destruction of strategic nuclear warheads, as well as other jointly agreed technical and organisational measures to promote the irreversibility of deep reductions. The US and Russia would also have sought to resolve issues related to the goal of making then existing START treaties unlimited in duration. The US and Russia also agreed that in the context of START III negotiations, they would explore (as separate issues) possible measures related to nuclear long-range sea-launched cruise missiles and tactical nuclear systems, including appropriate confidence-building and transparency measures. The two countries would also have considered issues related to transparency in nuclear materials. Negotiations were supposed to begin after START II entered into force, which did not happen.<sup>20</sup>

## 2.7 Strategic Offensive Reductions Treaty (SORT)

On 24 May 2002, Presidents George W Bush and Vladimir Putin signed the [Strategic Offensive Reductions Treaty](#) (SORT). It mandated that the US and Russia reduce their strategic nuclear weapons to between 1,700 and 2,200 warheads by 31 December 2012.

<sup>19</sup> See: Congressional Research Service, [Arms Control and Non-proliferation: A Catalogue of Treaties and Agreements](#), March 2012, pp 10–12. See also <http://www.fas.org/nuke/control/start2/> and <http://www.armscontrol.org/factsheets/start2chron>.

<sup>20</sup> See: <http://www.armscontrol.org/factsheets/start3> and Congressional Research Service, [Arms Control and Non-proliferation: A Catalogue of Treaties and Agreements](#), March 2012, pp 12–13.

The US Senate gave its consent to ratification on 6 March 2003; the Russian Parliament did the same on 14 May 2003. The Treaty entered into force on 1 June 2003, and lapsed on 5 February 2011, when the New START Treaty entered into force.<sup>21</sup> Although the two sides did not agree on specific counting rules, the Bush administration asserted that the US would reduce only warheads deployed on strategic delivery vehicles in active service, ie “operationally deployed” warheads, and would not count warheads removed from service and placed in storage or warheads on delivery vehicles undergoing overhaul or repair. The agreement’s limits were similar to those envisaged for START III, but the Treaty did not require the destruction of delivery vehicles, as START I and II did, or the destruction of warheads, as had been envisaged for START III. The Treaty was approved by the Senate and Duma and entered into force on 1 June 2003.<sup>22</sup> The Centre for Arms Control and Non-Proliferation expressed a number of concerns, such as the absence of a timetable for implementation and no mechanisms for verification of compliance. It was also worried that the Treaty did not require the destruction of decommissioned warheads. This meant that both countries could begin redeploying weapons immediately after the Treaty expired in 2012 or earlier, under a clause permitting unilateral withdrawal from the Treaty for any reason with 90 days notice, while such storage posed “grave proliferation concerns”. The Centre suggested that the threat of warhead theft from a warehouse was much greater than the threat of warhead theft from a silo. SORT also did not address the issue of tactical nuclear weapons.<sup>23</sup> SORT was replaced by New START in February 2011.

## 2.8 President Obama’s Prague Speech (2009)

On 5 April 2009, President Obama delivered a speech in Hradcany Square, Prague, in which he stated “clearly and with conviction America’s commitment to seek the peace and security of a world without nuclear weapons”. He accepted that this goal would take patience and persistence. The US would reduce the role of nuclear weapons in its national security strategy and would urge others to do the same. The US would negotiate a new Strategic Arms Reduction Treaty with the Russians and set the stage for further cuts, seeking to include all nuclear weapons states. To achieve a global ban on nuclear testing, his administration would “immediately and aggressively pursue US ratification of the Comprehensive Test Ban Treaty”. And to cut off the building blocks needed for a bomb, the US would seek a new treaty that verifiably ended the production of fissile materials intended for use in state nuclear weapons. The US would seek to strengthen the Nuclear Non-Proliferation Treaty, including more resources and authority to strengthen international inspections and “real and immediate consequences” for countries caught breaking the rules or trying to leave the Treaty without cause. He also called for steps to ensure that terrorists never acquired a nuclear weapon, such as a new international effort to secure all vulnerable nuclear material around the world within four years and for cooperation with Russia, to pursue new partnerships to lock down such

<sup>21</sup> Congressional Research Service, [Nuclear Arms Control: The Strategic Offensive Reductions Treaty](#), February 2011.

<sup>22</sup> Congressional Research Service, [Arms Control and Non-proliferation: A Catalogue of Treaties and Agreements](#), March 2012, pp 15–17.

<sup>23</sup> See: [http://armscontrolcenter.org/issues/nuclearweapons/articles/position\\_on\\_sort/](http://armscontrolcenter.org/issues/nuclearweapons/articles/position_on_sort/).

sensitive materials. He also announced his intention to host a global summit on nuclear security in the US.<sup>24</sup>

## 2.9 New START

On 8 April 2010, the US and Russia signed [New START](#), a legally binding, verifiable agreement that limited each side to 1,550 deployed strategic nuclear warheads and 800 strategic delivery systems (ICBMs, SLBMs and heavy bombers) deployed and non-deployed, such as submarines in overhaul, with a sublimit of 700 deployed. The warhead limit was 30 percent lower than the 2,200 upper limit of SORT, and the delivery vehicle limit was 50 percent lower than the 1,600 allowed in START I. The Treaty had a new verification regime that included elements of START I. Measures under the Treaty included on-site inspections and exhibitions, data exchanges and notifications related 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 provided for the continued exchange of telemetry (missile flight-test data on up to five tests per year) and did not meaningfully limit missile defenses or long-range conventional strike capabilities. The Treaty limits would take effect seven years after entry into force, and would last for ten years, or longer if agreed by both parties. It was approved by the US Senate on 22 December 2010 and by the Russian Parliament on 26 January 2011. It entered into force on 5 February 2011.<sup>25</sup>

## 2.10 Interrelationship between Strategic Offensive Arms and Strategic Defensive Arms

During the negotiations that led to the New START Treaty, the US and Russia agreed a Joint Understanding at the Moscow Summit in July 2009 that the new Treaty would contain a “provision on the interrelationship of strategic offensive arms and strategic defensive arms”. This statement, which appears in the preamble to New START, states that the parties recognise “the existence of the interrelationship between strategic offensive arms and strategic defensive arms, that this interrelationship will become more important as strategic nuclear arms are reduced, and that current strategic defensive arms do not undermine the viability and effectiveness of the strategic offensive arms of the parties”. Russia and the US each issued unilateral statements when they signed New START that clarified their positions on the relationship between New START and missile defences. Russia indicated that it might exercise its right to withdraw from the Treaty if the US increased the capabilities of its missile defences “in such a way that threatens the potential of the strategic nuclear forces of the Russian Federation”. The US responded by

<sup>24</sup> See: [http://www.whitehouse.gov/the\\_press\\_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered](http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered).

<sup>25</sup> See: <http://www.whitehouse.gov/blog/2011/02/02/new-start-treaty-signed>. For a concise overview of the New START Treaty, see: <http://www.bbc.co.uk/news/world-europe-12066494>. See also: Congressional Research Service, *Arms Control and Non-proliferation: A Catalogue of Treaties and Agreements*, March 2012, pp 17–20. A series of fact sheets relating to New START can be found on the US State Department website at: <http://www.state.gov/t/avc/newstart/c39906.htm>. Materials can also be found on the Centre for Arms Control and Non-Proliferation website at: [http://armscontrolcenter.org/top\\_topics\\_new\\_start/](http://armscontrolcenter.org/top_topics_new_start/). An analysis of the Treaty is offered by Steven Pifer, *Nuclear Arms Control: Another New Start*, Brookings Institution, January 2013.

noting that its missile defence systems were not intended to affect the strategic balance with Russia.<sup>26</sup>

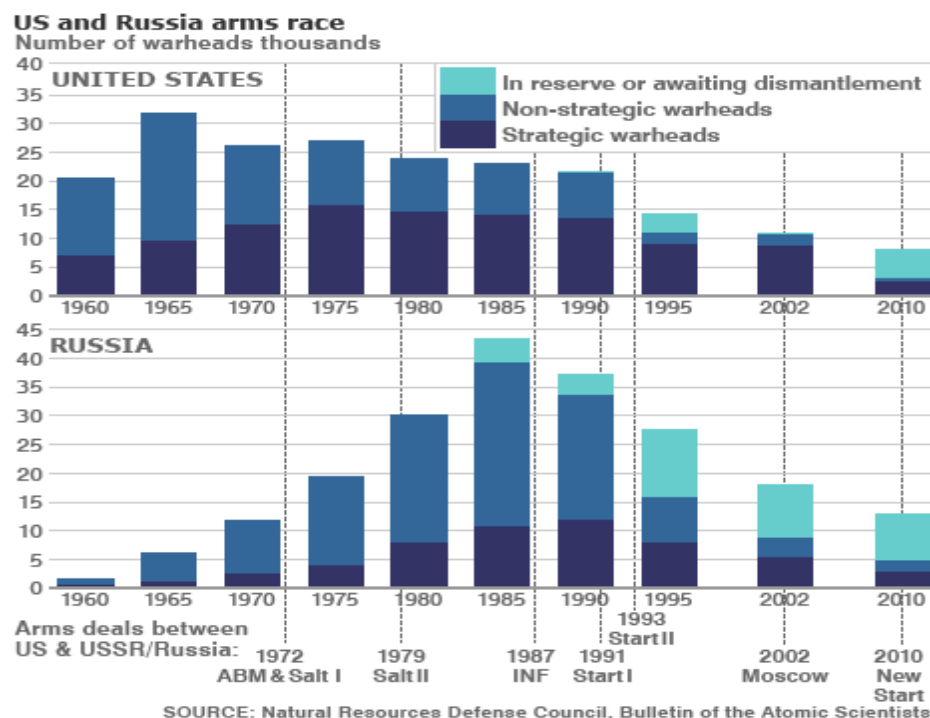
A summary of the above agreements is provided on the Arms Control Association [website](#):

### Strategic Nuclear Arms Control Agreements

	SALT I	SALT II	START I	START II	START III	SORT	New START
<b>Status</b>	Expired	Never entered into force	Expired	Never entered into force	Never negotiated	Replaced by New START	In force
<b>Deployed Warhead Limit</b>	NA	NA	6,000	3,000–3,500	2,000–2,500	1,700–2,200	1,550
<b>Deployed Delivery Vehicle Limit</b>	US 1,710 ICBMs & SLBMs USSR 2,347	2,250	1,600	NA	NA	NA	700; 800 including non-deployed
<b>Date Signed</b>	May 26, 1972	June 18, 1979	July 31, 1991	Jan 3, 1993	NA	May 24, 2002	April 8, 2010
<b>Date Ratified, U.S.</b>	Aug 3, 1972	NA	Oct 1, 1992	Jan 26, 1996	NA	March 6, 2003	Dec 22, 2010
<b>Ratification Vote, U.S.</b>	88-2	NA	93-6	87-4	NA	95-0	71-26
<b>Date Entered Into Force</b>	Oct 3, 1972	NA	Dec 5, 1994	NA	NA	June 1, 2003	Feb 5, 2011
<b>Implementation Deadline</b>	NA	NA	Dec 5, 2001	NA	NA	NA	Feb 5, 2018
<b>Expiration Date</b>	Oct 3, 1977	NA	Dec 5, 2009	NA	NA	Feb 5, 2011	Feb 5, 2021

<sup>26</sup> See: Congressional Research Service, [Arms Control and Non-proliferation: A Catalogue of Treaties and Agreements](#), (March 2012), pp 19-20.

The BBC website in December 2010 produced a graphical overview of how the various arms control treaties and agreements had impacted upon US and Russian arsenals:



### 3. International Nuclear Non-Proliferation Regime

A US Congressional Research Paper, *Proliferation Control Regimes: Background and Status*, (October 2012), notes that “the nuclear non-proliferation regime encompasses several treaties, extensive multilateral and bilateral diplomatic agreements, multilateral organisations and domestic agencies, and the domestic laws of participating countries”. The following section offers an overview of key elements of, and developments in, the international non-proliferation regime.

#### 3.1 Treaty on the Non-Proliferation of Nuclear Weapons (NPT)

Central to this regime is the [Treaty on the Non-Proliferation of Nuclear Weapons](#) (NPT), which was opened for signature in July 1968 and came into force on 5 March 1970.<sup>27</sup> The NPT is based on “three pillars”: non-proliferation, disarmament, and peaceful uses of nuclear energy. There are currently 190 state parties and 93 signatory states.<sup>28</sup> The state parties include the five ‘nuclear weapon states’: the United States, Russia, the United Kingdom, France, and China. All other states joined as non-nuclear weapon states, agreeing not to acquire nuclear weapons in exchange for assistance in the peaceful uses of nuclear energy—the so called “grand bargain”. Only four countries are not members of the Treaty: North Korea withdrew from the Treaty officially in April 2003, while India, Israel, and Pakistan have never been members.<sup>29</sup> The UN Office for Disarmament Affairs

<sup>27</sup> For a chronology of the nuclear non-proliferation regime and the NPT, see:

[http://www.iaea.org/Publications/Factsheets/English/npt\\_chrono.html](http://www.iaea.org/Publications/Factsheets/English/npt_chrono.html).

<sup>28</sup> For the current status of the Treaty, see: <http://disarmament.un.org/treaties/t/npt>.

<sup>29</sup> US Congressional Research Paper, *Proliferation Control Regimes: Background and Status*, October 2012, p 8.



website identifies the NPT as “a landmark international treaty” which “represents the only binding commitment in a multilateral treaty to the goal of disarmament by the nuclear-weapon states”. It also notes that “more countries have ratified the NPT than any other arms limitation and disarmament agreement, a testament to the Treaty’s significance”. The Treaty establishes a safeguards system under the responsibility of the International Atomic Energy Agency (IAEA) to verify compliance with the Treaty through inspections conducted by the IAEA.<sup>30</sup>

### 3.2 2010 Review Conference of the NPT

Conferences to review the operation of the Treaty have been held at five-year intervals since the Treaty went into effect in 1970.<sup>31</sup> Each conference has sought to find agreement on a final declaration that would assess the implementation of the Treaty’s provisions and make recommendations on measures to further strengthen it.<sup>32</sup> The last conference was held in 2010 at the United Nations Headquarters in New York from 3 to 28 May 2010.<sup>33</sup> The final document agreed by the Conference put forward a number of proposals. It supported the early entry into force of the Comprehensive Nuclear-Test-Ban Treaty and the prompt negotiation of a Fissile Material Cut-off Treaty. It recognised the legitimate interest of non-nuclear weapon states to request nuclear weapon states to reduce the operational status of their nuclear weapons and called for efforts to achieve total disarmament and then maintain a world without nuclear weapons. It proposed a 2012 conference of all Middle Eastern states to move forward for a nuclear-free Mideast and for the UN Secretary General, the United States, Russia and Britain to appoint a facilitator and consult with the countries of the Middle East convening the conference. It called upon India, Pakistan and Israel to join the NPT. It also emphasised the need for countries to respect Treaty guidelines for keeping their nuclear programmes open to international inspection and to accept the consequences if they did not and called for the universal adoption of the IAEA Additional Protocol regarding inspections. The document contained specific action plans on the three pillars of the NPT, non-proliferation, disarmament and peaceful uses of nuclear energy, which would be measurable and which could serve as a scorecard for measuring progress to ensure there would be accountability at future meetings. The Conference strongly urged the Democratic People’s Republic of Korea to fulfil its commitments, including the complete and verifiable abandonment of all nuclear weapons and existing nuclear programmes and to return, at an early date, to the Comprehensive Test Ban Treaty and its adherence to IAEA safeguards.<sup>34</sup>

<sup>30</sup> See: <http://www.un.org/disarmament/WMD/Nuclear/NPT.shtml>.

<sup>31</sup> Materials relating to each NPT Review Conference, including conclusions and recommendations, can be found at: [http://www.un.org/disarmament/WMD/Nuclear/NPT\\_Review\\_Conferences.shtml](http://www.un.org/disarmament/WMD/Nuclear/NPT_Review_Conferences.shtml).

<sup>32</sup> For a review of previous Review Conferences 1970–1990, see: Harald Müller et al, *Nuclear Non-Proliferation and Global Order*, 1994.

<sup>33</sup> Details regarding the 2010 NPT Review Conference can be found at: <http://www.un.org/en/conf/npt/2010/index.shtml>.

<sup>34</sup> UN press release, ‘[Nuclear Non-Proliferation Treaty Review Adopts Outcome Document at Last Moment; Though Imperfect, Complex Text Can Advance Process on All Fronts, Speakers Say](#)’, 28 May 2010. The full recommendations and conclusions from the Conference, including actions plans, can be accessed at: [http://cns.miis.edu/treaty\\_npt/pdfs/2010\\_FD\\_Part\\_I.pdf](http://cns.miis.edu/treaty_npt/pdfs/2010_FD_Part_I.pdf) (see pp 19–32).

In terms of implementing the plans agreed at the 2010 Conference in relation to disarmament, the James Martin Centre for Non-proliferation Studies stated in April 2012 that progress had been “limited”, with many of the measures implemented having been initiated or planned before 2010. Furthermore, it stated that plans which required states to undertake significant change in behaviour or revision of policies, for the most part, “saw little or no progress in implementation”. For example, it contended that “states that had not previously declared fissile material in excess of defence needs did not do so during the reporting period”, while “states that had not provided information on their arsenal numbers or warheads dismantlement have not revised these policies”. There was “virtually no progress” during the reporting period in the reduction of the role of nuclear weapons in military and security concepts, which “should provide the overall context for the implementation of other concrete steps”. The most significant progress related to New START whereby Russia and the United States successfully began its implementation. However, the two countries had “not been successful in making much headway on follow-on measures”. It welcomed the engagement of the five nuclear weapon states on verification issues.<sup>35</sup>

The [Ninth NPT Review Conference](#) is due to be held in 2015. The first Preparatory Committee meeting for the 2015 Conference was held in Vienna from 30 April to 11 May 2012. A total of 111 states parties, five international organisations and 60 non-governmental organisations participated in the session. The states parties reaffirmed their commitment to the NPT and resolve to achieve the peace and security of a world without nuclear weapons. Many states parties also made substantive proposals for possible consideration and adoption at the 2015 Review Conference.<sup>36</sup>

### 3.3 Convention on the Physical Protection of Nuclear Material (CPPNM)

The [Convention on the Physical Protection of Nuclear Material](#) (CPPNM), which came into force on 8 February 1987, outlines international standards for nuclear trade and commerce. In particular, it sets out security requirements for the protection of nuclear materials against terrorism and provides for the prosecution and punishment of offenders of international nuclear trade laws. As at September 2012, the Convention had 145 signatory states.<sup>37</sup> Parties to the Treaty agree to report to the IAEA on the disposition of nuclear materials being transported and agree to provide appropriate security during such transport. On 8 July 2005, states parties to the CPPNM adopted by

<sup>35</sup> See: [http://cns.miis.edu/stories/120423\\_npt\\_prepcom\\_2012\\_faq.htm](http://cns.miis.edu/stories/120423_npt_prepcom_2012_faq.htm) and Gaukhar Mukhatzhanova, Implementation of the Conclusions and Recommendations for Follow-on Actions Adopted at the 2010 NPT Review Conference Disarmament Actions 1-22, James Martin Centre for Non-proliferation Studies Monitoring Report, April 2012.

<sup>36</sup> See: UN press release, ‘The Preparatory Committee for the 2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons held constructive deliberations during its first session’, 11 May 2012. Statements by each state party, including proposals, are at:

<http://www.un.org/disarmament/WMD/Nuclear/NPT2015/PrepCom2012/statements.html>. The UK contribution is at: [http://www.un.org/disarmament/WMD/Nuclear/NPT2015/PrepCom2012/statements/20120430/PM/United\\_Kingdom.pdf](http://www.un.org/disarmament/WMD/Nuclear/NPT2015/PrepCom2012/statements/20120430/PM/United_Kingdom.pdf).

<sup>37</sup> For a list of signatories as at 17 October 2012, see:

[http://www.iaea.org/Publications/Documents/Conventions/cppnm\\_status.pdf](http://www.iaea.org/Publications/Documents/Conventions/cppnm_status.pdf).



consensus an amendment to the CPPNM. Whereas the obligations for physical protection under the CPPNM covered nuclear material during international transport, the amendment to the CPPNM makes it legally binding for states parties to protect nuclear facilities and material in peaceful domestic use, storage and transport. It also provides for expanded cooperation between and among states regarding rapid measures to locate and recover stolen or smuggled nuclear material, mitigate any radiological consequences of sabotage, and prevent and combat related offences. The amendment will enter into force when ratified by two thirds of the states parties.<sup>38</sup>

### 3.4 Comprehensive Test Ban Treaty (CTBT)

The [Comprehensive Test Ban Treaty](#) (CTBT), which opened for signature in 1996, was intended to prohibit all nuclear weapon test explosions.<sup>39</sup> Over 2,000 nuclear tests occurred between 1945 and 1996: the United States (1,000+), the Soviet Union (700+), France (200+), the United Kingdom and China (45 each).<sup>40</sup> As at January 2013, 183 countries had signed the Treaty, of which 158 have also ratified it, including three of the nuclear weapon states (France, the Russian Federation and the United Kingdom). However, 44 specific nuclear technology holder countries must sign and ratify before the CTBT can enter into force. Of these, eight are still missing: China, Egypt, India, Iran, Israel, North Korea, Pakistan and the US. India, North Korea and Pakistan have yet to sign the CTBT.<sup>41</sup> In the case of the US, President Clinton submitted the Treaty to the Senate in September 1997, and in 1999 the Senate voted against the Treaty; President Obama has said his Administration will pursue US CTBT ratification.<sup>42</sup> Three countries have broken the de facto moratorium and tested nuclear weapons since 1996: India and Pakistan in 1998, and the Democratic People's Republic of Korea (DPRK) in 2006 and 2009.<sup>43</sup> On 7 December 2012, by a vote of 184 for, 1 against (North Korea), and with 3 abstentions, the UN General Assembly adopted a resolution urging countries that have not done so to sign and ratify the CTBT.<sup>44</sup>

### 3.5 Nuclear Weapon Free Zones

A number of countries have sought to control proliferation by declaring their region as a Nuclear Weapon Free Zone (NFWZ). These regions include Latin America, Central and Southeast Asia, the South Pacific, Africa, and Central Asia. The IAEA website states:

Each treaty establishing a nuclear-weapon-free zone includes a protocol for the five nuclear-weapon states recognized under the NPT—China, France, Russia, the United Kingdom, and the United States—to sign and ratify. These protocols, which are legally binding, call upon the nuclear-weapon states to respect the status of the zones and not to use or threaten to use nuclear weapons against

<sup>38</sup> See: <http://www-ns.iaea.org/security/cppnm.asp>.

<sup>39</sup> For an overview of the history of nuclear testing, see: <http://www.ctbto.org/nuclear-testing/>.

<sup>40</sup> See: <http://www.ctbto.org/specials/who-we-are/>.

<sup>41</sup> See: <http://www.un.org/disarmament/WMD/Nuclear/CTBT.shtml>.

<sup>42</sup> US Congressional Research Paper, *Proliferation Control Regimes: Background and Status*, October 2012, p. 1.

<sup>43</sup> *ibid.*

<sup>44</sup> For an up-to-date assessment of the CTBT and prospects for future progress, see: US Congressional Research Paper, *Comprehensive Nuclear-Test-Ban Treaty: Background and Current Developments*, January 2013.

treaty states-parties. Such declarations of non-use of nuclear weapons are referred to as negative security assurances. However, the five nuclear-armed countries have at times signed and ratified a NWFZ protocol and declared conditions reserving the right to use nuclear weapons in certain scenarios against parties to a nuclear weapon free zone. For instance, the United States signed the protocol for the African nuclear weapon free zone in April 1996 with a declaration that it would reserve the right to respond with all options, implying possible use of nuclear weapons, to a chemical or biological weapons attack by a member of the zone. None of the nuclear-weapon states have signed the relevant protocol for the treaty creating a zone in Southeast Asia because of concerns that it conflicts with the right of their ships and aircraft to have freedom of movement in international waters and airspace. The other three zones do not explicitly rule out the transit of nuclear weapons by nuclear-weapon states through the zones, and the general practice of nuclear-weapon states is not to declare whether nuclear weapons are aboard their vessels.<sup>45</sup>

The Treaty for the Prohibition of Nuclear Weapons in Latin America ([Treaty of Tlatelolco](#)) was signed by 33 states and came into force in 2002.<sup>46</sup> Protocol I of the Treaty obliges non-Latin American countries that have territories in the zone (US, UK, Netherlands, France) to accept the provisions of the Treaty with respect to those territories, while Protocol II requires the nuclear weapons states (China, France, Russia, UK, US) “not to use or threaten to use nuclear weapons against the Contracting Parties of the Treaty”.<sup>47</sup> The Treaty is overseen by the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL), whose Secretariat is based in Mexico City.<sup>48</sup>

The [Treaty of Rarotonga](#), signed by 13 states, came into force in 1986.<sup>49</sup> It prohibits the possession of nuclear weapons by its members and bans the manufacture or permanent emplacement of nuclear weapons within the zone by signatories outside of the Pacific region. However, it does not inhibit transit through the zone by nuclear-armed or powered military ships or aircraft. In 1996, the US, France, and UK signed the protocols to the Treaty, which include security assurances similar to those of the Treaty of Tlatelolco and a ban on nuclear testing in the NWFZ. The US is the only nuclear-weapon state that has not ratified the protocols.<sup>50</sup>

<sup>45</sup> See: <http://www.armscontrol.org/factsheets/nwzfz>.

<sup>46</sup> State parties include: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and Grenadines, Suriname, Trinidad and Tobago, Uruguay, and Venezuela.

<sup>47</sup> All five nuclear weapon states have ratified Protocol II of the Treaty.

<sup>48</sup> For further commentary see: IAEA, [Tlatelolco: Treaty A Trailblazer for Non-Proliferation](#), 2007 and ‘Part One: The Treaty of Tlatelolco’ in P Gasparini Alves and D Cipollone (eds), *Nuclear-Weapon-Free Zones in the 21st Century*, 199), pp 3–48.

<sup>49</sup> State parties include: Australia, Cook Islands, Fiji, Kiribati, Nauru, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

<sup>50</sup> For background information on the Treaty, see: Makurita Baaro, ‘The South Pacific Nuclear-Free Zone Treaty (The Treaty of Rarotonga)’, in P Gasparini Alves and D Cipollone (eds), *Nuclear-Weapon-Free Zones in the 21st Century*, 1998, pp 49–54.

The African NWFZ was established by the [Treaty of Pelindaba](#), opened for signature in April 1996, and came into force in July 2009.<sup>51</sup> It is similar to the South Pacific and Latin American zones. Protocol I (security assurances) and Protocol II (ban on nuclear testing in the nuclear-weapon-free zone) have been ratified by China, France, Russia, and the UK.

A group of ten Southeast Asian nations declared a NWFZ for their region in December 1995, and the [Treaty of Bangkok](#) entered into force in 1997.<sup>52</sup> So far none of the nuclear weapon states have signed the Treaty's protocol. The five nuclear weapons states and ASEAN members met in July 2012 to sign the Treaty protocol. The Treaty commission, however, postponed the signing of the protocol, requesting more time to review reservations that several of the nuclear weapon states had indicated that they would attach during ratification. These reservations centred on what were seen as controversial definitions of its members' sovereignty over territorial seas. The US maintained that the language of the Treaty was inconsistent with the Law of the Sea and could inflame territorial disputes as well as interfere with rights of passage. Modifications of the language are under consideration.<sup>53</sup>

The [Treaty of Semipalatinsk](#), signed in September 2006, created a NWFZ across the five Central Asian states of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. By January 2009, all five countries had ratified joined the Treaty, which entered into force in March 2009. This Treaty was the first nuclear weapon free zone located entirely in the northern hemisphere, and prohibits the development, manufacture, stockpiling, acquisition, or possession of any nuclear explosive device within the zone. It also requires signatories to accept enhanced IAEA safeguards on nuclear material and activities, addresses the impact of production and testing of Soviet nuclear weapons on the environment, and implements measures to meet international standards for nuclear facility security. The protocol has not been signed by the five nuclear weapon states.

There have been attempts to initiate a NFWZ for the Middle East. On 24 November 2012, UN Secretary-General Ban Ki-Moon reaffirmed his support to convene a United Nations-sponsored conference attended by all the states in the Middle East with the aim of establishing a zone free of nuclear weapons and other weapons of mass destruction.

The conference was backed by Russia, the UK and the US and will take place next year in Finland, facilitated by the Finnish Under-Secretary of State, Jaakko Laajava. He appealed to all states of the region "to seize this rare opportunity to initiate a process that entails direct engagement on security issues—a critical shortcoming at the moment—and follow-on steps leading to achieving the complete elimination of all weapons of mass destruction

<sup>51</sup> State Parties include: Algeria, Benin, Botswana, Burkina Faso, Burundi, Cote d'Ivoire, Equatorial Guinea, Ethiopia, Gabon, Gambia, Guinea, Kenya, Lesotho, Libyan Arab Jamahiriya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Nigeria, Rwanda, Senegal, South Africa, Swaziland, Togo, United Republic of Tanzania, and Zimbabwe. Signatories that have not ratified the Treaty are: Angola, Cameroon, Central African Republic, Cape Verde, Chad, Comoros, Congo, Djibouti, Democratic Republic of Congo, Egypt, Eritrea, Ghana, Guinea-Bissau, Liberia, Niger, Seychelles, Sierra Leone, Somalia, Sao Tome & Principe, Sudan, Tunisia, Uganda and Zambia, as well as the area known as the Sahrawi Arab Democratic Republic.

<sup>52</sup> State parties include: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

<sup>53</sup> US Congressional Research Paper, [Proliferation Control Regimes: Background and Status](#), October 2012, p 13.

in the region, nuclear, chemical and biological and their delivery systems.<sup>54</sup> Liviu Horovitz and Roland Popp, however, in an article published in September 2012, were pessimistic. They suggested that Iran's nuclear programme, Israel's atomic options, and the region's ingrate security architecture remained nearly insurmountable hurdles. They advocated that policymakers should focus first on attaining a resolution of the Israeli-Palestinian conflict.<sup>55</sup>

### 3.6 Global Partnership against the Spread of Weapons and Materials of Mass Destruction

After the terrorist attacks of 11 September 2001, the G8 Kananaskis (Canada) Summit of 2002 committed the G8 to “prevent terrorists, or those that harbour them, from acquiring or developing nuclear, chemical, radiological and biological weapons; missiles; and related materials, equipment and technology”. The G8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction aimed to support specific cooperation projects, initially in Russia, to address non-proliferation, disarmament, counter-terrorism and nuclear safety issues. Priority concerns would be the destruction of chemical weapons, the dismantling of decommissioned nuclear submarines, the disposition of fissile materials and the employment of former weapons scientists. The Global Partnership would seek to raise up to \$20 billion to support such projects over the next ten years. This would include a range of financing options, including the option of bilateral debt for programme exchanges, for those countries that contributed to the Global Partnership.<sup>56</sup> In December 2012, a [Report on the G8 Global Partnership against the Spread of weapons and Materials of Mass Destruction](#), stated that Global Partnership had “made tangible contributions to international security, through specific cooperation projects, initially in Russia, and increasingly worldwide”. It had achieved “measurable results in all the key priorities identified by G8 Leaders at Kananaskis, including the destruction of chemical weapons, dismantlement of decommissioned nuclear submarines, the disposition of fissile materials and the redirection of former weapons scientists”. However, work remained “on projects in the Russian priority areas of chemical weapons destruction and nuclear submarine dismantlement”, and on “WMD proliferation and terrorism challenges worldwide”.

### 3.7 European Union and Nuclear Proliferation

The EU's policy on nuclear proliferation is set out in [Fight against the Proliferation of Weapons of Mass Destruction: EU Strategy against Proliferation of Weapons of Mass Destruction](#), which was published in 2003. The policy advocated a “forceful, multilateral approach, in cooperation with the United States and its other partners”. It stressed the fundamental importance of maintaining the integrity of NPT and other agreements such as the CTBT and supporting multilateral institutions, such as the IAEA.<sup>57</sup> It also saw

<sup>54</sup> See: <http://www.un.org/apps/news/story.asp?NewsID=43594>.

<sup>55</sup> Liviu Horovitz and Roland Popp, ‘A Nuclear-Free Middle East - Just Not in the Cards’, *The International Spectator*, September 2012, vol 47 no 3, pp 1–7.

<sup>56</sup> See: [http://www.canadainternational.gc.ca/g8/summit-sommet/2002/global\\_partnership-partenariat\\_mondial.aspx?lang=eng&view=d](http://www.canadainternational.gc.ca/g8/summit-sommet/2002/global_partnership-partenariat_mondial.aspx?lang=eng&view=d).

<sup>57</sup> In respect of the CTBT, the EU provides financial support for specific projects conducted by the Preparatory Commission of the CTBTO and has set out proposals on how the CTBT could be brought

export controls regimes and bodies such as the Nuclear Suppliers Group (see below) as key to controlling the spread of nuclear related items and technology. It stated that in addition to preventative measures (multilateral treaties and export control regimes) it was important that “appropriate, coercive measures under Chapter VII of the United Nations Charter and international law (sanctions, selective or global, interceptions of shipments and the use of force, etc) were enforced. The EU set up a WMD Monitoring Centre in 2007 to encourage cooperative working.<sup>58</sup> It also funds a Joint Research Centre (JRC) which “can deliver a first analysis of seized illicit material within 24 hours” through its development of new forensic methodologies.<sup>59</sup> New measures that were intended to supplement existing ones were outlined in Council Conclusions and New Lines for Action by the European Union in Combating the Proliferation of Weapons of Mass Destruction and their Delivery Systems, published in December 2008. The measures included: an intensification of efforts to counter proliferation flows and proliferation financing; sanctions regarding acts of proliferation; the development of measures to prevent intangible transfers of knowledge and know-how; raising awareness in undertakings, scientific and academic circles and financial institutions; continuing cooperation with international organisations and third countries to help them to improve non-proliferation policies and export controls.

The EU has a number of instruments which contribute to promoting nuclear non-proliferation in third countries. The [Instrument for Stability](#) aims inter alia to assist third countries in developing their capacities to prevent risks related to chemical, biological and nuclear materials. The [Instrument for Nuclear Safety Cooperation](#) establishes a framework for funding measures aimed at providing a high level of nuclear safety and radiological protection, as well as the implementation of effective and efficient safety controls in Non-EU Member Countries. The present financial framework covers the period from 1 January 2007 to 31 December 2013. The [Instrument for Pre-Accession Assistance](#) also promotes nuclear non-proliferation. A SPIRI background paper published in 2009 noted that the EU since 2003 has made cooperation with non-EU countries conditional on satisfactory behaviour in the area of non-proliferation of weapons of mass destruction (WMD). It has sought to do this by inserting a “WMD clause” in all new and revised mixed agreements that makes non-proliferation an essential element of cooperation between the EU and its partners. However, the paper argued that the implementation record of this policy had been “patchy”, revealing that the “EU should reconsider and clarify matters such as how to deal with countries that resist the type of conditionality implied by the clause, what compromises are acceptable regarding the form of the clause in different agreements, and whether the EU can allow its trade interests to override non-proliferation concerns”.<sup>60</sup>

into force as rapidly as possible. See:

[http://europa.eu/legislation\\_summaries/foreign\\_and\\_security\\_policy/cfsp\\_and\\_esdp\\_implementation/133249\\_en.htm](http://europa.eu/legislation_summaries/foreign_and_security_policy/cfsp_and_esdp_implementation/133249_en.htm). For the EU’s work with the IAEA see: Council of the European Union General Secretariat, *The European Union Strategy against the Proliferation of Weapons of Mass Destruction: Effective Multilateralism, Prevention and International Cooperation*, November 2008, pp 18–22.

<sup>58</sup> See: <http://register.consilium.europa.eu/pdf/en/06/st16/st16694.en06.pdf>.

<sup>59</sup> Council of the European Union General Secretariat, *The European Union Strategy against the Proliferation of Weapons of Mass Destruction: Effective Multilateralism, Prevention and International Cooperation*, November 2008, pp 25–6.

<sup>60</sup> Lina Grip, ‘[The EU Non-proliferation Clause: A Preliminary Assessment](#)’, *SPIRI Background Paper*, November 2009.



The Euratom Treaty also provides a framework for nuclear non-proliferation through: safeguards concerning the prevention of the diversion of fissile materials (plutonium, uranium and thorium); radiation protection, physical protection and export controls; Euratom legislation which provides for authorisations and notifications dealing with the regulatory control of nuclear materials; the Euratom Supply Agency which authorises the conclusion of supply contracts and verifies that supply contracts are concluded for peaceful purposes and establishes export authorisation procedures; research, such as the Joint Research Centre, which is the basis for all Community research programmes in the nuclear field.

The EU's stance on nuclear proliferation is also set out in [Report on the Implementation of the European Security Strategy - Providing Security in a Changing World](#), first published in 2003 and updated in December 2008. It noted that the EU had been very active in multilateral forums, on the basis of the WMD strategy (see above), adopted in 2003, and at the forefront of international efforts to address Iran's nuclear programme. It reiterated the importance of working through the UN and multilateral agreements, acting as a key donor and by working with third countries and regional organisations to enhance their capabilities to prevent proliferation. It acknowledged that more work was also needed on specific issues, including: a multilateral approach to the nuclear fuel cycle; countering financing of proliferation; measures on bio-safety and bio-security; containing proliferation of delivery systems, notably ballistic missiles. It stated that negotiations should begin on a multilateral treaty banning production of fissile material for nuclear weapons. The EU member states were also involved in drafting the *Code of Conduct Against Ballistic Missile Proliferation*, which was open to states to sign at a UN conference in The Hague in 2002.<sup>61</sup> For further examples of EU contributions to international efforts to combat nuclear proliferation see: Council of the European Union General Secretariat, [The European Union Strategy against the Proliferation of Weapons of Mass Destruction: Effective Multilateralism. Prevention and International Cooperation](#) (November 2008).

Peter Van Ham, in a paper published in September 2011 for the EU Non-Proliferation Consortium, sought to assess the effectiveness of the EU's WMD policies. Though the External Action Service offered opportunities for concerted EU policies and actions that did not exist before, he suggested that most member states remained unconvinced that the EU could be trusted with the hard challenge of devising and implementing a common WMD non-proliferation policy. He argued that the EU was "too often awaiting the findings of the IAEA and the judgment of the UN Security Council before it makes its own decisions and devises a course of action". This had been a recipe for postponing swift and decisive action, especially on matters of critical importance, such as Iran's nuclear programme and had "also been a strategy to hide the EU's internal divisions on WMD proliferation issues and to explain the EU's own indecisiveness by blaming the hesitant 'international community'". Though the EU financially supported all relevant WMD-related international organisations and regimes, it remained "unclear what practical effect this support really had". He suggested that the EU should seriously evaluate the impact of such funding. He concluded that Europe could "only develop a successful WMD strategy if member states decide to give the EU the benefit of the doubt, and if the EU picks itself up and develops a more robust strategic culture based on

<sup>61</sup> See: [http://eeas.europa.eu/non-proliferation-and-disarmament/balistic-missiles/index\\_en.htm](http://eeas.europa.eu/non-proliferation-and-disarmament/balistic-missiles/index_en.htm).

realpolitik”.<sup>62</sup> An earlier paper, published in 2008 in *Arms Control Today* by Oliver Meier pointed to the EU’s difficulties in developing an agreed position amongst its member states, reflecting in part differences between states who had nuclear weapons and who promoted civil nuclear programmes and those who did not. It also reflected the EU’s inability to work out a “division of labour” between itself and NATO. Though he accepted that the EU had received some credit for its position on Iran, its difficulties were evident, for instance, in its “lack of a coherent position on missile defence”.<sup>63</sup>

### 3.8 Global Initiative to Combat Nuclear Terrorism (GICNT)

In July 2006, US President George W Bush and former Russian President Vladimir Putin jointly announced the creation of the Global Initiative to Combat Nuclear Terrorism (GICNT). The GICNT’s first meeting occurred in Rabat, Morocco in October 2006 and included 13 countries and the International Atomic Energy Agency (IAEA). Under the leadership of US Ambassador Robert Joseph and Deputy Russian Foreign Minister Sergy Ivanovich Kislyak, the delegates developed a Statement of Principles that outlined nuclear security goals that partners would voluntarily work toward in order to effectively combat the shared threat of nuclear terrorism. Becoming a partner to the GICNT involves a commitment to: take steps to improve accounting, control, and protection of nuclear and radiological materials and facilities; develop capabilities to detect and halt illicit trafficking of such materials; prevent terrorists/other non-state actors from acquiring nuclear materials; put in place laws to counter nuclear terrorism-related activity; share information; and develop a capability to respond and mitigate acts of nuclear terrorism.<sup>64</sup> The US State Department notes that, to date, the GICNT has built a partnership of 85 nations and four official observers committed to combating nuclear terrorism and that the GICNT has held more than 50 multilateral activities and exercises to share best practices and lessons learned.<sup>65</sup>

### 3.9 UN Security Council Resolution 1540

On 28 April 2004, the United Nations Security Council unanimously adopted resolution 1540 which affirmed that the proliferation of nuclear, chemical and biological weapons and their means of delivery constituted a threat to international peace and security. The resolution obliges states, inter alia, to refrain from supporting by any means non-state actors from developing, acquiring, manufacturing, possessing, transporting, transferring or using nuclear, chemical or biological weapons and their delivery systems. It imposes binding obligations on all states to adopt legislation to prevent the proliferation of nuclear, chemical and biological weapons, and their means of delivery, and establish appropriate domestic controls over related materials to prevent their illicit trafficking. It also encourages enhanced international cooperation on such efforts. The resolution affirms support for the multilateral treaties whose aim is to eliminate or prevent the proliferation of WMDs and the importance for all states to implement them fully; it reiterates that none of the obligations in resolution 1540 shall conflict with or alter the

<sup>62</sup> Peter Van Ham, ‘[The European Union’s WMD Strategy and the CFSP: A Critical Analysis](#)’, *EU Non-proliferation Consortium Non Proliferation Paper*, September 2011, no 2.

<sup>63</sup> Oliver Meier, ‘[The EU’s Non-proliferation Efforts: Limited Success](#)’, *Arms Control Today*, May 2008.

<sup>64</sup> See: <http://www.state.gov/documents/organization/141995.pdf>.

<sup>65</sup> See: <http://www.state.gov/t/isn/c37072.htm>.

rights and obligations of states parties to the NPT, the Chemical Weapons Convention, or the Biological Weapons Convention or alter the responsibilities of the IAEA and Organisation for the Prohibition of Chemical Weapons. The resolution's mandate has been extended several times by subsequent resolutions: 1673 (2006), 1810 (2008) and 1977 (2011), and will now run until 2021. The operation and implementation of resolution 1540 is overseen by a committee, the 1540 Committee, whose work is periodically reviewed.<sup>66</sup>

### 3.10 Combating the Spread of Nuclear Weapons from the States of the Former USSR

There have been a number of other initiatives which have sought to combat the spread of nuclear weapons and materials in the states of the former USSR. In November 1991, Congress passed the Nunn-Lugar amendment, which authorized US threat reduction assistance to the former Soviet Union. The annual programme has grown from \$400 million in the US Department of Defence (DOD) budget to over \$1 billion per year across three agencies—DOD, Department of Energy and the State Department. It has “evolved from an emergency response to impending chaos in the Soviet Union, to a more comprehensive threat reduction and non-proliferation effort, to a broader program seeking to keep nuclear, chemical, and biological weapons from leaking out of the former Soviet Union and into the hands of rogue nations or terrorist groups, to a global program to address the threat of weapons of mass destruction”.<sup>67</sup> The US Department of Defence also manages the Cooperative Threat Reduction (CTR) Program, which provides Russia, Ukraine, Belarus, and Kazakhstan with assistance in transporting, storing, and dismantling nuclear, chemical, and biological weapons. Such assistance has helped these states eliminate the delivery systems for nuclear weapons under the START Treaty, secure weapons storage areas, construct a storage facility for nuclear materials removed from weapons, construct a destruction facility for chemical weapons, and secure biological weapons materials.<sup>68</sup> The [Megatons to Megawatts Program](#) is the result of a 1993 government-to-government agreement between the US and Russia which called for Russia to convert 500 MT of highly enriched uranium (HEU) from dismantled nuclear warheads into LEU to be fabricated into fuel for nuclear reactors to generate electricity, which is the equivalent of about 20,000 nuclear warheads. The programme is run by USEC, an executive agent for the US Government, and Techsnabexport (TENEX), acting for the Russian Government. The programme is a 20-year, \$8 billion initiative. USEC's website notes that to date 472.5 metric tons of bomb-grade HEU have been recycled into 13,603 metric tons of LEU, the equivalent of 18,899 nuclear warheads.

### 3.11 Controlling the Exports and Shipping of Nuclear Weapons and Materials

The Proliferation Security Initiative (PSI) announced by President Bush in May 2003 aimed to increase international cooperation in interdicting shipments of weapons of mass

<sup>66</sup> For further information, see: <http://www.un.org/en/sc/1540/>.

<sup>67</sup> See: US Congressional Research Paper, [Non-proliferation and Threat Reduction Assistance: U.S. Programs in the Former Soviet Union](#), March 2012, pp 3–6.

<sup>68</sup> *ibid*, pp 7–26.



destruction (WMD), their delivery systems, and related materials. Initially, eleven nations signed the “Statement of Interdiction Principles” that guides PSI cooperation. As at May 2012, 98 countries (plus the Holy See) had committed formally to the PSI principles, although the extent of participation varies by country. PSI is overseen by an Operational Experts Group, made up of 21 PSI participants. The Obama Administration’s 2010 Nuclear Security Strategy said it would work to turn PSI into a “durable international effort”.<sup>69</sup>

The Nuclear Suppliers Group (NSG) is a group of nuclear supplier countries which seek to contribute to the non-proliferation of nuclear weapons through the implementation of Guidelines for nuclear exports and nuclear related exports. The NSG Guidelines are implemented by each participating government in accordance with its national laws and practices. Decisions on export applications are taken at the national level in accordance with national export licensing requirements.<sup>70</sup> The Missile Technology Control Regime (MTCR) is an informal and voluntary association of countries which share the goals of non-proliferation of unmanned delivery systems capable of delivering weapons of mass destruction, and which seek to coordinate national export licensing efforts aimed at preventing their proliferation. The MTCR was originally established in 1987 by Canada, France, Germany, Italy, Japan, the UK and the US. Since then, the number of MTCR partners has increased to a total of thirty-four countries, all of which have equal standing within the Regime.<sup>71</sup> In July 2009, President Obama and President Medvedev jointly announced “their commitment to strengthening their cooperation to prevent the proliferation of nuclear weapons and stop acts of nuclear terrorism”. The statement said the parties would continue to cooperate on export controls to prevent nuclear materials, equipment and technologies falling into the hands of actors “unauthorised by the state”, confirmed their intention to broaden and deepen long-term cooperation to increase nuclear security and reaffirmed their commitment to disposing of “existing stockpiles of weapon-grade materials that are surplus to defence needs”.<sup>72</sup>

### 3.12 UN Secretary General’s Five Point Plan for Nuclear Disarmament

On 21 September 2009, the UN Secretary General, Ban Ki-Moon set out a five point plan for nuclear disarmament to mark the International Day of Peace: all parties to the Nuclear Non-Proliferation Treaty, especially the nuclear-weapon states, should fulfil its requirement to enter into negotiations on nuclear disarmament, which could focus on either a convention or framework of agreements banning nuclear-weapons; the nuclear-weapon states could assure non-nuclear-weapon states that they will not be the subject of the use or threat of use of nuclear weapons; existing nuclear arrangements and agreements (eg a ban on testing, nuclear weapon free zones, and strengthened safeguards) needed to be accepted by states and brought into force; the nuclear powers could also expand the amount of information they published about the size of their

<sup>69</sup> See: Congressional Research Paper, *Proliferation Security Initiative (PSI)*, June 2012.

<sup>70</sup> See: <http://www.nuclearsuppliersgroup.org/Leng/default.htm>.

<sup>71</sup> See: <http://www.mtcr.info/english/index.html>.

<sup>72</sup> See: [http://www.whitehouse.gov/the\\_press\\_office/Joint-Statement-by-President-Barack-Obama-of-the-United-States-of-America-and-President-Dmitry-Medvedev-of-the-Russian-Federation-on-Nuclear-Cooperation](http://www.whitehouse.gov/the_press_office/Joint-Statement-by-President-Barack-Obama-of-the-United-States-of-America-and-President-Dmitry-Medvedev-of-the-Russian-Federation-on-Nuclear-Cooperation).

arsenals, stocks of fissile material, and specific disarmament achievements; complementary measures were needed such as the elimination of other types of WMD, new efforts against WMD terrorism, limits on conventional arms and new weapons bans, including missiles and space weapons.<sup>73</sup>

### 3.13 Washington and Seoul Nuclear Security Summits

In April 2010, President Obama convened a Nuclear Security Summit in Washington attended by 47 states, including non-NPT states India, Pakistan and Israel. The goals of the Nuclear Security Summit were “to come to a common understanding of the threat posed by nuclear terrorism, to agree to effective measures to secure nuclear material and to prevent nuclear smuggling and terrorism”.<sup>74</sup> The Summit Communiqué endorsed President Obama’s call to secure all vulnerable nuclear material in four years, and pledged to work together toward this end. It called for focused national efforts to improve security and accounting of nuclear materials and the strengthening of regulations, especially on plutonium and highly enriched uranium. It sought to promote the universality of key international treaties on nuclear security and nuclear terrorism and noted the positive contributions of mechanisms like the Global Initiative to Combat Nuclear Terrorism. It called for the International Atomic Energy Agency to receive the resources it needed to develop nuclear security guidelines and provide advice to its members on how to implement them. It sought to ensure that bilateral and multilateral security assistance would be applied effectively. It encouraged the nuclear industry to share best practices for nuclear security, whilst making sure that such measures did not prevent countries from enjoying the benefits of peaceful nuclear energy.<sup>75</sup>

The Communiqué also set out a work plan, which included a number of steps: the ratification and implementation of treaties on nuclear security and nuclear terrorism; cooperation through the United Nations to implement and assist others in connection with Security Council resolutions; working with the International Atomic Energy Agency to update and implement security guidance and carry out advisory services; reviewing national regulatory and legal requirements relating to nuclear security and nuclear trafficking; converting civilian facilities that use highly enriched uranium to non-weapons-usable materials; research on new nuclear fuels, detection methods, and forensics techniques; development of corporate and institutional cultures that prioritise nuclear security; education and training to ensure that countries and facilities had the people they needed to protect their materials; and joint exercises among law enforcement and customs officials to enhance nuclear detection approaches.<sup>76</sup> In addition, many summit participants committed to take national actions to increase nuclear security domestically, bilaterally or multilaterally.<sup>77</sup>

<sup>73</sup> See: <http://www.un.org/disarmament/WMD/Nuclear/sg5point.shtml>.

<sup>74</sup> See: <http://www.state.gov/t/isn/nuclearsecuritysummit/2010/index.htm>.

<sup>75</sup> See: <http://fpc.state.gov/documents/organization/140352.pdf>.

<sup>76</sup> *ibid.*

<sup>77</sup> For a list of documents and briefings regarding the Summit, see: <http://fpc.state.gov/c35775.htm>. For a commentary on the Summit, see: House of Commons Library Research Paper, [Progress Towards Nuclear Disarmament?](#), June 2010, pp 45–9.

In March 2012, another Nuclear Security Summit was held in Seoul and was attended by 53 heads of state and government, as well as representatives of the UN, the International Atomic Energy Agency, the EU and INTERPOL. The Summit noted a number of achievements since 2010. Since 2010, 480 kilograms of highly enriched uranium (HEU) from eight countries had been removed for disposal, an amount enough to produce about 19 nuclear weapons, while several countries had newly committed to repatriate their unneeded HEU.<sup>78</sup> Russia and the US were seeking to implement the Plutonium Management and Disposition Agreement signed between the two countries at the Washington Summit, which, when implemented, would result in the disposal of 68 metric tons of plutonium, enough for 17,000 nuclear weapons. Kazakhstan, in cooperation with Russia, the US, UK and IAEA, had secured spent nuclear fuel which contained enough HEU and plutonium to make several hundreds of nuclear weapons by moving them to long-term storage in November 2010. The Czech Republic, Mexico and Vietnam had converted their research reactors from HEU fuel to LEU fuel since the Washington Summit, while several countries had presented their plans to do so. Since Washington, 20 additional countries had ratified the amended Convention on Physical Protection of Nuclear Material (CPPNM), making the total number of states party to the Convention 55, while 14 countries had newly ratified the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT), increasing the number of states party to that Convention to 79. Six countries, Argentina, Mexico, the Philippines, Singapore, Thailand, and Vietnam, had followed through on their pledges made at the Washington Summit and joined the Global Initiative to Combat Nuclear Terrorism (GICNT), thereby making the number of partners to the GICNT 82 in total, while Algeria and Malaysia had indicated their intention to join. Kazakhstan had also become the 24th member to join the Global Partnership against the Spread of Weapons and Materials of Mass Destruction in January 2012. Since 2010, a number of countries were establishing Centres of Excellence to enhance national nuclear security capabilities. In terms of the IAEA, a number of countries, including Belgium, Canada, Denmark, France, Japan, the Republic of Korea, Norway, Netherlands and the UK, had pledged contributions to the IAEA Nuclear Security Fund. Four countries, France, Netherlands, Sweden and the UK, had received a review mission of the IAEA's International Physical Protection Advisory Service (IPPAS) and Australia, Finland, the Republic of Korea, Romania and the US had presented plans in this regard. Progress had also been made in countering the illicit trafficking of nuclear and radiological materials. 51 countries out of the 53 Summit participants were participants in the IAEA's Illicit Trafficking Database. A number of joint proposals had also been made on countering nuclear smuggling and on the security of radioactive sources. Japan had released a statement on transport security jointly with France, the Republic of Korea, the UK and US which would enhance international cooperation on nuclear forensics, enabling the identification of the origin of stolen nuclear materials.

The Seoul Summit Communiqué set out a number of actions going forward. Firstly, it provided important timelines for advancing nuclear security objectives, such as the target year (end of 2013) for states to announce voluntary actions on minimising the use of HEU and the goal year (2014) for bringing the amended CPPNM into effect. Secondly, it

<sup>78</sup> For a discussion of the dangers relating to potential HEU and LEU proliferation see: Corey Hinderstein, Andrew Newman, and Ole Reistad, 'From HEU minimization to elimination: Time to change the vocabulary', *Bulletin of the Atomic Scientists*, July/August 2012, vol 68 no 4, pp 83–95.

reflected the need to address both the issues of nuclear security and nuclear safety in a coherent manner for the sustainable peaceful uses of nuclear energy. It also emphasised the need to better secure spent nuclear fuel and radioactive waste. Thirdly, it set out specific measures to prevent radiological terrorism, an issue which was only briefly touched upon at the Washington Summit.<sup>79</sup> The next Nuclear Security Summit was to be held in 2014 in the Netherlands, though a series of Sherpa Meetings and Sous-Sherpa Meetings would be held beforehand.

### 3.14 NATO: Strategy for Combating Proliferation and the Chicago Summit (May 2012)

NATO has taken a number of steps to combat nuclear proliferation. A key strand is the Strategic-Level Policy for Preventing the Proliferation of WMD and Defending against Chemical, Biological, Radiological and Nuclear (CBRN) Threats.<sup>80</sup> NATO has established the Joint CBRN Defence Centre of Excellence (COE) in the Czech Republic and other COEs and agencies to support NATO's response to the WMD and terrorism threat. The recent establishment of NATO's multinational [CBRN Defence Task Force](#) is designed to protect from, and respond to, an attack or event involving CBRN materials. The strategy also includes information and intelligence sharing on terrorism with partner nations and work in various forums, such as the Euro-Atlantic Partnership Council, the Mediterranean Dialogue, the Istanbul Cooperation Initiative, the NATO-Russia Council, and with other partners around the globe. NATO's annual conference on WMD arms control, disarmament and non-proliferation is "one of NATO's largest outreach activities", which gathers together decision-makers, senior officials and distinguished academics in the field of WMD and security from a wide range of countries to openly exchange views. NATO's Defence against Terrorist Threats, part of its wider Science for Peace and Security Programme, supports security-related civil science and technology collaboration between scientists and experts from NATO and partner countries. Between 2006 and 2010, 68 activities (multi-year projects, workshops and training courses) were completed under this Programme.<sup>81</sup>

The [2012 Chicago NATO Summit](#) was a meeting of the heads of state and heads of government of the North Atlantic Treaty Organization, held in Chicago on 20 and 21 May 2012. The [final Communiqué of the Summit](#) noted deep concern about the proliferation of weapons of mass destruction and their means of delivery, which threatened NATO's "shared vision of creating the conditions necessary for a world without nuclear weapons in accordance with the goals of the Nuclear Non-Proliferation Treaty". It shared the UN Security Council's serious concern with Iran's nuclear programme and called upon Iran to fully comply with all its international obligations and supported the "immediate resolution of the Iranian nuclear issue through diplomatic means and encouraged a sustained process of engagement within the format of the P5+1 and Iran talks". There was also deep concern at the proliferation activities of North Korea and the Communiqué called on it to comply fully with all relevant UNSCRs and

<sup>79</sup> See: <http://www.state.gov/t/isn/rls/fs/187208.htm>. For a list of documents and briefings regarding the Summit, see: <http://www.state.gov/t/isn/nuclearsecuritysummit/2012/index.htm>.

<sup>80</sup> See: [http://www.nato.int/cps/en/natolive/official\\_texts\\_57218.htm](http://www.nato.int/cps/en/natolive/official_texts_57218.htm).

<sup>81</sup> See: [http://www.un.org/disarmament/WMD/SGReport\\_Terrorism/Docs%202011/1st%20Ctee%20-%2010%20replies%20-%202011/NATO-English.pdf](http://www.un.org/disarmament/WMD/SGReport_Terrorism/Docs%202011/1st%20Ctee%20-%2010%20replies%20-%202011/NATO-English.pdf).

international obligations, by “abandoning all activities related to its existing nuclear weapons and ballistic missile programmes, in a complete, verifiable and irreversible manner”. It called for universal adherence to, and compliance with, the NPT and the Additional Protocol to the International Atomic Energy Agency Safeguard Agreement, and called for full implementation of UNSCR 1540 and welcomed further work under UNSCR 1977. It also called on all states to “strengthen the security of nuclear materials within their borders, as called for at the 2012 Seoul Nuclear Security Summit”.

The Communiqué also highlighted progress on NATO’s Ballistic Missile Defence (BMD). NATO had achieved an Interim NATO BMD capability, which would “provide with immediate effect” an operationally significant first step, “offering the maximum coverage within available means, to defend our populations, territory and forces across southern NATO Europe against a ballistic missile attack”.<sup>82</sup> NATO remained committed to cooperate with Russia on missile defence in a spirit of mutual trust and reciprocity, such as the recent NRC Theatre Missile Defence Exercise. The NATO-Russia Council would seek to determine how independent NATO and Russian missile defence systems could work together to enhance European security, such as the proposed joint NATO-Russia Missile Data Fusion Centre and the joint Planning Operations Centre. NATO also proposed a transparency regime “based upon a regular exchange of information about the current respective missile defence capabilities of NATO and Russia”. NATO hoped that such measures would provide Russia with the assurances it sought regarding NATO’s missile defence plans and capabilities. It reaffirmed that NATO missile defence in Europe would not undermine strategic stability and was intended to defend against potential threats emanating from outside the Euro-Atlantic area. However, Russia was very concerned about NATO’s BMD plans. Russian Chief of General Staff Nikolai Makarov was reported by the *Washington Post* as saying that Moscow would strike NATO missile-defence sites in Eastern Europe before they were ready for action, if the US pushed ahead with deployment, though most analysts believed that Russia would not follow through on this threat.<sup>83</sup>

### 3.15 Role of the International Atomic Energy Agency (IAEA)

The International Atomic Energy Agency (IAEA), founded in 1957, oversees a system of nuclear material accountancy coupled with periodic and special inspections which ensures that nuclear material is not diverted from peaceful uses to military uses. In particular, the IAEA implements a system of safeguards agreements to help prevent the further spread of nuclear weapons. Safeguards are a set of activities which seek to verify that a state is living up to its international undertakings not to use nuclear programmes for nuclear weapons purposes or to produce nuclear weapons. Most safeguards agreements are with states that have internationally committed themselves not to possess nuclear weapons through the NPT, for which the IAEA is the verification authority. IAEA verification helps to allay security concerns among states with respect to the development of nuclear weapons. IAEA verification is further strengthened through an ‘Additional Protocol’ to a country’s safeguards agreement. Under such a Protocol, states are required to provide

<sup>82</sup> An article in the *Washington Post*, ‘[As Obama opens NATO summit in Chicago, focus is on winding down Afghanistan war](#)’, 20 May 2012, stated that BMD would have limited capability by 2015 and be fully operational by 2018.

<sup>83</sup> *Washington Post*, ‘[Russia threatens to strike NATO missile Defence sites](#)’, 2 May 2012.



the IAEA with broader information on all aspects of its nuclear fuel cycle-related activities. They must grant the IAEA wider access rights and enable it to use the most advanced verification technologies. Safeguards activities take place routinely at more than 1,100 facilities worldwide.<sup>84</sup>

### 3.16 International Community and Iran's Nuclear Programme

Iran has stated that its nuclear programme is for peaceful purposes; however, some have suspected that it has been working towards a military application.<sup>85</sup> Though it is still unclear whether Iran has a nuclear weapons programme, Iran has been accused of “stonewalling” the IAEA in its monitoring and verification work.<sup>86</sup> In November 2011, the IAEA published a board report that for the first time suggested that the Iranian government might be working on materials relevant to the delivery of a nuclear weapon.<sup>87</sup> The international community has replied in a number of ways. The UN Security Council has adopted six resolutions to address Iran's nuclear programme. The central demand by the Council is that Iran suspend its uranium enrichment programme, as well as undertake several confidence-building measures outlined in a February 2006 IAEA Board of Governors resolution including reconsidering the construction of its heavy-water reactor and ratifying the IAEA Additional Protocol. The Council initially laid out these calls in a nonbinding Security Council presidential statement adopted in March 2006. Almost all the resolutions were adopted under Chapter VII of the United Nations Charter, making most of the provisions of the resolutions legally binding on Iran, or all UN member states. Four of them include a series of progressively expansive sanctions on Iran and or Iranian persons and entities.<sup>88</sup>

The European Union has imposed restrictions on cooperation with Iran in foreign trade, financial services, energy sectors and technologies, and banned the provision of insurance and reinsurance by insurers in member states to Iran and Iranian-owned companies. On 23 January 2012, the EU agreed to an oil embargo on Iran, effective from July, and to freeze the assets of Iran's central bank. On 17 March 2012, all Iranian banks identified as institutions in breach of EU sanctions were disconnected from SWIFT, the world's hub of electronic financial transactions.<sup>89</sup> The US has also imposed sanctions on Iran.<sup>90</sup>

France, Germany, and the UK (the EU3) have also offered Iran several proposals to resolve the nuclear issue during negotiations in 2004 and 2005. China, Russia, and the US joined the three European countries in 2006 as part of the “P5+1” (ie the permanent five

<sup>84</sup> IAEA, *IAEA Primer: Maximizing the Contribution of Nuclear Technology to Society while Verifying its Peaceful Use*, July 2011. See also IAEA, *Tools for Nuclear Inspection*, 2004 and IAEA, *IAEA Safeguards: Stemming the Spread of Nuclear Weapons*, 2002.

<sup>85</sup> For a discussion, see: House of Commons Library Standard Note, *Is Iran Building a Nuclear Weapon?*, 27 November 2012; Congressional Research Service, *Iran's Nuclear Program: Status*, October 2012.

<sup>86</sup> See for example: <http://www.un.org/News/Press/docs/2012/sc10584.doc.htm>.

<sup>87</sup> See: <http://www.iaea.org/Publications/Documents/Board/2011/gov2011-65.pdf>.

<sup>88</sup> For an overview of the UN Resolutions, see: <http://www.armscontrol.org/factsheets/Security-Council-Resolutions-on-Iran>. For an analysis of their impact see: Daniel Wertz and Ali Vaez, ‘Sanctions and Non-proliferation in North Korea and Iran: A Comparative Analysis’, *Federation of American Scientists Policy Brief*, June 2012.

<sup>89</sup> For a full list (December 2012), see: [http://eeas.europa.eu/cfsp/sanctions/docs/measures\\_en.pdf](http://eeas.europa.eu/cfsp/sanctions/docs/measures_en.pdf).

<sup>90</sup> See: <http://www.treasury.gov/resource-center/sanctions/Programs/pages/iran.aspx>.

members of the UN Security Council plus Germany), and offered similar comprehensive proposals to Iran. The P5+1 have described their negotiations with Tehran regarding these proposals as one track of a “dual track strategy” to address Iran’s nuclear programme. The second track consists of Security Council resolutions which impose sanctions on Iran and demand that it suspend all uranium enrichment-related and reprocessing activities, as well as construction of a heavy water reactor.<sup>91</sup> For prospects of a resolution, see: House of Commons Library Standard Note, [Iran: Could There be a Compromise?](#) (June 2012).<sup>92</sup>

### 3.17 International Community and North Korea

North Korea withdrew from the NPT in 2003, citing the failure of the US to fulfil its end of the Agreed Framework—a 1994 agreement between the states to limit North Korea’s nuclear ambitions, in return for a normalisation of relations and help to supply some of North Korea’s energy needs through nuclear reactors. On 9 October 2006, the North Korean Government announced that it had successfully conducted a nuclear test for the first time and on 6 January 2007 it confirmed that it had nuclear weapons. It is estimated that North Korea has between 30 and 50 kilograms of separated plutonium, enough for at least six nuclear weapons.<sup>93</sup> On 12 December 2012, North Korea successfully launched an Unha 3 rocket, placing an object into orbit.<sup>94</sup> Experts were reported to believe that the country is still some way off mastering successful launch technology for use with a nuclear warhead.<sup>95</sup>

In response, the international community has imposed a number of sanctions on North Korea. In October 2006, UN Security Council resolution 1718 inter alia placed a ban on the imports and exports of “battle tanks, armoured combat vehicles, large calibre artillery systems, combat aircraft, attack helicopters, warships, missiles or missile systems”, “related materiel including spare parts” and any other items identified by the sanctions committee. It called for UN member states to freeze the overseas assets of individuals and companies involved with the DPRK’s weapons programmes and imposed an international travel ban on programme employees and their families. It also banned UN member states from exporting luxury goods to North Korea.<sup>96</sup> UN Security Council resolution 1874, of June 2009, introduced targeted sanctions on additional goods, persons and entities, widening the ban on arms imports-exports.<sup>97</sup> The EU adopted UN

<sup>91</sup> See: [http://www.armscontrol.org/factsheets/Iran\\_Nuclear\\_Proposals](http://www.armscontrol.org/factsheets/Iran_Nuclear_Proposals).

<sup>92</sup> See also: Robert Jervis, ‘Getting to Yes With Iran: The Challenges of Coercive Diplomacy’, *Foreign Affairs*, January/February 2013; Richard Dalton, ‘Nuclear deal with Iran is possible if bad habits change’, *World Today*, December 2012, vol 68 no 11; Bernard Gwertzman, ‘Waiting on Iran Nuclear Talks’, Council on Foreign Relations, October 2012; Gideon Rose, ‘Iran and the Bomb: Introduction’, *Foreign Affairs*, September 2012.

<sup>93</sup> For an account of the status of North Korea’s nuclear capabilities see: Congressional Research Service, [North Korea’s Nuclear Weapons: Technical Issues](#), February 2012.

<sup>94</sup> See: <http://www.bbc.co.uk/news/world-asia-20690338> and <http://www.bbc.co.uk/news/world-asia-20694331>.

<sup>95</sup> *Guardian*, ‘North Korea still has long way to go to produce viable weapon, say experts’, 12 December 2012.

<sup>96</sup> See: <http://www.un.org/apps/news/story.asp?NewsID=20261&Cr=DPRK&Cr1>.

<sup>97</sup> See: <http://www.un.org/News/Press/docs/2009/sc9679.doc.htm>. For an analysis of the impact of UN SCRs 1718 and 1874, see: Daniel Wertz and Ali Vaez, ‘Sanctions and Non-proliferation in North Korea and Iran: A Comparative analysis’, [Federation of American Scientists Policy Brief](#), June 2012.

Security Council resolution 1718 as part of the EU's Common Position in November 2006 and prohibits the transfer of all arms and related material to North Korea. The embargo was subsequently extended, renewed and modified by two EU regulations. Commission Regulation (EC) No 689/2009 in force on 31 July 2009 added certain graphite, fibrous or filamentary materials to be banned and also listed persons, entities and bodies whose funds and economic resources were to be frozen. Council Regulation (EU) No 1283/2009 in force on 23 December 2009 extended prohibition on the supply, sale or transfer of certain items, materials, equipment, goods and technology which could contribute to North Korea's nuclear, weapons of mass destruction (WMD) and ballistic missile related programmes. It also imposed new restrictions on obtaining technical and financial assistance from North Korea.<sup>98</sup> The US has also imposed sanctions.<sup>99</sup>

In addition, the 'Six Party Talks' have sought to end North Korea's nuclear programme through a negotiating process involving China, the US, North and South Korea, Japan, and Russia. In April 2009, North Korea quit the talks and expelled all nuclear inspectors from the country. The Obama administration has been pursuing talks with the other four countries in the process to bring Pyongyang back to the negotiating table. In February 2012, under new leader Kim Jong-un, North Korea announced it would suspend nuclear tests and allow International Atomic Energy Agency (IAEA) inspectors to verify and monitor the moratorium on uranium enrichment activities at Yongbyon in exchange for food aid from the US, rekindling hope of resuming the Six-Party Talks.<sup>100</sup>

## 4. UK and Nuclear Weapons

### 4.1 UK's Nuclear Deterrent

The UK's nuclear weapons programme had its origins in World War II. In 1941, Prime Minister Winston Churchill authorised the development of an atomic bomb which led in 1943 to an agreement between Churchill and US President Roosevelt that Britain would contribute to a larger joint effort, the Manhattan Project. Wartime UK-US nuclear collaboration was brought to an end by the 1946 US Energy Act (the McMahon Act). In 1947, the Attlee Government decided to resume an independent UK programme to develop an atomic weapon and the UK successfully tested its first atomic bomb in October 1952. Between 1957 and 1958 the UK successfully tested its first thermonuclear weapons. In 1958, after modification of the 1946 McMahon Act, the UK resumed its collaboration with the US and signed the Agreement for the Co-operation on Uses of Atomic Energy for Mutual Defence Purposes (MDA). The MDA is still the cornerstone of UK-US co-operation on nuclear defence issues. It was renewed in 2004 for a further ten years.<sup>101</sup>

<sup>98</sup> See: <https://www.gov.uk/arms-embargo-on-democratic-peoples-republic-of-korea-north-korea>.

<sup>99</sup> See: <http://www.treasury.gov/resource-center/sanctions/Programs/pages/nkorea.aspx>.

<sup>100</sup> Jayshree Bajoria, 'The Six-Party Talks on North Korea's Nuclear Program', Council on Foreign Relations Backgrounder, February 2012.

<sup>101</sup> MOD and FCO, *The History of the UK's Nuclear Weapons Programme: Fact Sheet 5 - The History of the UK's Nuclear Weapons Programme*, 2006. See also: House of Commons Library Standard Note, [UK-USA Mutual Defence Agreement](#), 2004; R H Paterson, *Britain's Strategic Nuclear Deterrent: From Before the V-Bomber to Beyond Trident*, 1997 pp 3–12; Ian Clark, *Nuclear Diplomacy and the Special Relationship: Britain's Deterrent and America, 1957–1962*, 1994.



The UK has maintained an operational nuclear deterrent since 1956. The UK's nuclear deterrent during the 1950s and early 1960s was based around the Royal Air Force's V-bombers: the Avro Vulcan, Vickers Valiant and Handley Page Victor. The bombers carried the UK's first nuclear weapon, the Blue Danube gravity bomb, which was a low-kiloton yield fission bomb designed before the US detonated the first hydrogen bomb. They also carried US owned bombs and later the British Red Beard tactical nuclear weapon and several other types of nuclear weapons, including the Yellow Sun Mk 2, the first British thermonuclear weapon to be deployed. Blue Steel was the UK's first nuclear missile (operational from 1962 to 1969), launched from a V-bomber. However, Blue Steel had operational constraints and its further development was cancelled in 1961 in favour of participating in the US's Skybolt programme to develop an air-launched stand-off missile. The last of the UK's air-launched nuclear weapons was the WE177 free-fall bomb, which entered service in 1966 and was finally withdrawn in 1998.<sup>102</sup> These bombers operated alongside American bombers from US Strategic Air Command and cooperated in the Single Integrated Operational Plan to ensure coverage of all major Soviet targets from 1958. From 1962 onwards, two jets in every major RAF base were armed with nuclear weapons and permanently on standby. Vulcans were to be airborne within four minutes of receiving an alert, as this was thought to be the amount of time between warning of a USSR nuclear strike being launched and it arriving in Britain.<sup>103</sup> But in the early 1960s developments in radar and surface-to-air missiles suggested that bombers were becoming vulnerable, and might be unlikely to penetrate Soviet airspace.

In December 1962 the Government announced that the UK would purchase Polaris missiles from the US for use in UK-built ballistic missile submarines. HMS Resolution made the first Polaris-armed operational patrol on 15 June 1968. However, it became apparent in the 1970s that the UK Polaris missiles and warheads were vulnerable to the Soviet Anti-Ballistic Missile defence screen concentrated around Moscow, and the UK developed a Polaris improved-front-end (IFE) codenamed Chevaline, designed to counter this ABM defence. The final Polaris/Chevaline patrol took place in 1996, two years after the first Trident-carrying submarine sailed on its first patrol. Until that point there has been at least one Polaris submarine at sea every day from 1969 until May 1996.<sup>104</sup>

In 1980, the Government announced its decision to procure the Trident C4 missile system to replace the ageing Polaris system, and then in 1982 to procure instead the D5 variant of the Trident missile because of its increased capabilities and the long-term financial savings resulting from operating the same missile as the US Navy.<sup>105</sup> The UK's current deterrent force comprises four submarines: HMS Vanguard, Victorious, Vigilant and Vengeance. The first was ordered in 1986 and built at Barrow-in-Furness. The first submarine commenced contractor sea trials in 1992 (the point at which its 25 year design life began) and the initial UK Trident deterrent patrol began in December 1994. Full introduction into service was completed with HMS Vengeance's first patrol in February 2001. The fleet is based at HM Naval Base Clyde at Faslane. Each submarine can carry up

<sup>102</sup> *ibid.*

<sup>103</sup> See Andrew Brookes and Chris Davey, *Vulcan Units of the Cold War*, 2009 and Tim Laming, *V-Bombers: Vulcan, Victor and Valiant – Britain's Airborne Nuclear Deterrent*, 1997.

<sup>104</sup> For additional information, see J E Moore, *The Impact of Polaris: The Origins of Britain's Seaborne Nuclear Deterrent*, 1999 and <http://nuclearweaponarchive.org/UK/UKArsenalDev.html>.

<sup>105</sup> For a commentary on the decision to replace Polaris, see R H Paterson, *Britain's Strategic Nuclear Deterrent: From Before the V-Bomber to Beyond Trident*, 1997 pp 61–94.

to 16 Trident II D-5 ballistic missiles, which will reduce to 8 operational missiles following decisions made in the 2010 Strategic Defence and Security Review. As with Polaris, at least one submarine is constantly on patrol. This is known as ‘continuous at sea deterrence’ (CASD), and has the name Operation Relentless.<sup>106</sup>

In respect of the UK’s current nuclear weapons arsenal, on 26 May 2010, the Foreign Secretary, William Hague, stated the following:

... I am pleased to announce today that, for the first time, the Government will make public the maximum number of nuclear warheads that the United Kingdom will hold in its stockpile—in future, our overall stockpile will not exceed 225 nuclear warheads. This is a significant step forward on previous policy, which was to publish only the number of warheads classed as “operationally available”, the maximum number of which will remain at 160. We believe that the time is now right to be more open about the nuclear weapons that we hold... I can assure the House that this disclosure poses no threat to the security of the United Kingdom. Together with similar announcements made by the United States and France, it helps to set standards of transparency that all states with nuclear programmes should follow.<sup>107</sup>

## 4.2 UK’s Nuclear Deterrent: Principles and Use

The MOD website outlines the UK’s policy regarding its deterrent according to five main principles. Firstly, it is intended to prevent attack and not for military use during conflict but “to deter and prevent nuclear blackmail and acts of aggression against our vital interests that cannot be countered by other means”. Secondly, the UK will “retain only the minimum amount of destructive power required to achieve our deterrence objectives”, referred to as ‘minimum deterrence’. Thirdly, the UK “deliberately” maintains some ambiguity about precisely when, how and at what scale the UK would contemplate use of the nuclear deterrent: “We do not want to simplify the calculations of a potential aggressor by defining more precisely the circumstances in which we might consider the use of our nuclear capabilities (for example, we do not define what we consider to be our vital interests), hence, we will not rule in or out the first use of nuclear weapons”. Fourthly, the UK’s nuclear deterrent supports collective security through NATO for the Euro-Atlantic area. Finally, an “independent centre of nuclear decision-making enhances the overall deterrent effect of allied nuclear forces”. The UK deterrent is operationally independent, and the UK does not require US or NATO authorisation to use its deterrent: only the Prime Minister can authorise the firing of UK nuclear weapons.<sup>108</sup>

The website goes on to note that the UK “has probably the smallest nuclear arsenal of the five states recognised as nuclear weapons states (NWS) under the Nuclear Non-

<sup>106</sup> See: MOD and FCO, [The Future of the United Kingdom’s Nuclear Deterrent Fact Sheet 4: The Current System](#), 2006.

<sup>107</sup> HC Hansard, 26 May 2010, [col 181](#). For comment, see: *Guardian*, ‘[Britain’s nuclear arsenal is 225 warheads, reveals William Hague](#)’, 26 May 2010.

<sup>108</sup> See: <https://www.gov.uk/government/policies/maintaining-an-effective-independent-nuclear-deterrent/supporting-pages/uk-nuclear-deterrence>.

Proliferation Treaty (NPT)” and that the UK is the “only NWS to rely on a single weapons system”. In terms of using the deterrent, the website states that: “the UK has long been clear that we would only consider using nuclear weapons in extreme circumstances of self-defence, including the defence of our NATO Allies, and in accordance with our international legal obligations, including those relating to the conduct of armed conflict”. Furthermore, the UK “will not use or threaten to use nuclear weapons against non-nuclear weapon states parties to the NPT that are compliant with the NPT”, though this “assurance would not apply to any state in material breach of those non-proliferation obligations”.

### 4.3 UK’s Policies on Non-Proliferation and Nuclear Disarmament

The FCO website sets out the UK’s policies regarding non-proliferation. It notes that the UK works with international partners and through organisations such as the UN, G8, NATO and the EU to reduce terrorists’ ability to create, obtain or use chemical, biological, radiological or nuclear (CBRN) materials and technologies. The [Counter-Proliferation Programme](#), which in the financial year 2012/13 has funding of £3 million, is used to support projects around the world which increase political will or technical capacity to reduce the threat of weapons proliferation. The Government’s [National Counter-Proliferation Strategy](#), published in March 2012, seeks: to deny terrorists the materials and expertise to make and use WMD; to stop countries such as Iran and North Korea from obtaining WMD or advanced conventional weapons; and to build up the International Atomic Energy Agency (IAEA), UN and other relevant organisations and treaties.<sup>109</sup> The website also notes that the UK is working towards nuclear disarmament and that the UK is one of 189 states that have signed the Nuclear Non-Proliferation Treaty (NPT).

More specifically, the UK also seeks to strengthen international nuclear security by: improving the security of fissile materials; reducing the number of sites containing nuclear and radiological material; and preventing the acquisition of proliferation-relevant information and expertise by terrorists. An important element of this is the UK’s [Global Threat Reduction Programme](#) which to date has made contributions to reducing vulnerabilities and improving security and safety in 18 beneficiary countries.<sup>110</sup> The UK supports the full implementation of UN Security Council Resolution 1540, which requires all states to refrain from supporting non-government agents from developing, acquiring, manufacturing, possessing, transporting, transferring or using nuclear, chemical or biological weapons and their delivery systems. The UK supports and contributes to the G8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction. The UK is also part of a number of international export control regimes. This includes the [Missile Technology Control Regime](#), an informal and voluntary association of countries that share the goal of non-proliferation of unmanned delivery systems of WMD, and the [Nuclear Suppliers Group](#), which is responsible for making sure nuclear export controls work in practice.

<sup>109</sup> Foreign and Commonwealth Office, [National Counter Proliferation Strategy 2012-2015](#), March 2012.

<sup>110</sup> See:

[http://www.decc.gov.uk/en/content/cms/meeting\\_energy/en\\_security/nonprolif/global\\_threat/policy/policy.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/en_security/nonprolif/global_threat/policy/policy.aspx).

## 5. Recent UK Policy Developments

More recently, UK Governments have begun to consider a replacement system for Trident and have reiterated the need for the UK to have a nuclear deterrent. UK Governments have also set out how they will seek to make further progress on non-proliferation, its monitoring and steps towards nuclear disarmament. The next section covers chronologically a number of key policy documents which have mapped out these policies.

### 5.1 Future of the UK's Nuclear Deterrent (December 2006, Cm 6994)

In December 2006, the Labour Government published a white paper, [The Future of the United Kingdom's Nuclear Deterrent](#) (Cm 6994). It stated that the Government was committed to “retaining the minimum nuclear deterrent capability necessary to provide effective deterrence, whilst setting an example where possible by reducing our nuclear capabilities, and working multilaterally for nuclear disarmament and to counter nuclear proliferation”.<sup>111</sup> Though the end of the Cold War had meant that the UK's security situation had changed, it did not justify complete UK nuclear disarmament. Significant nuclear arsenals still remained, some of which were being modernised and expanded, while the number of states possessing nuclear weapons had continued to grow, as demonstrated by North Korea. The white paper pointed to the continued proliferation of ballistic missile technology and the ability of industrialised countries to develop chemical and biological weapons. Additionally, there was the uncertainty of future threats. They could include a major direct nuclear threat to the UK or threats from states with more limited, yet still grave, nuclear capabilities. They could also include the risk that some countries might in future seek to sponsor nuclear terrorism from their soil. The white paper stated that the UK could “only deter such threats in future through the continued possession of nuclear weapons” as “conventional capabilities cannot have the same deterrent effect”.<sup>112</sup>

In order to sustain a credible deterrent the Government argued that planning needed to start for the replacement of the Trident submarines, which would begin to leave service in the early 2020s. The Government had decided that submarines were the most effective way of maintaining the UK's nuclear deterrent. They were cheaper and were “far more difficult to detect and track and so are less vulnerable to attack than the other options”, whilst ballistic missiles were “more effective than cruise missiles because they have much greater range and payload, and are far harder to intercept”. Though the current nuclear deterrent was based on a fleet of four submarines to maintain one continuously on patrol, the white paper stated that the Government would investigate whether there was “scope to maintain these continuous deterrent patrols with a fleet of only three submarines”. In terms of the warheads that the future submarines would carry, it had decided to participate in the US life extension programme for the Trident D5 missile, which would “enable us to retain that missile in-service until the early 2040s”. On cost,

<sup>111</sup> MOD and FCO, [The Future of the United Kingdom's Nuclear Deterrent](#), December 2006, Cm 6994, p 8.

<sup>112</sup> *ibid*, pp 6–7.

the white paper stated that it had estimated that procurement costs of the new submarines and associated equipment and infrastructure would be in the region of £15–20 billion (at 2006/07 prices) for a four-boat fleet. The costs would fall principally in the period between 2012 and 2027 and would not “come at the expense of the conventional capabilities our armed forces need”, while in-service costs for the deterrent over the period between 2020 and 2050 will remain broadly similar to the current position.<sup>113</sup>

The white paper stressed renewing “our minimum nuclear deterrent capability” was “fully consistent with all our international obligations” and also “with our continuing commitment to work towards a safer world in which there is no requirement for nuclear weapons”. The UK had taken a leading role in a wide range of multilateral initiatives in support of the objectives of the Nuclear Non-Proliferation Treaty (NPT) and taken significant steps to reduce its nuclear capabilities. The UK had “the smallest stockpile of nuclear warheads amongst the nuclear weapon states recognised under the NPT” and was “the only one to have reduced to a single deterrent system”. Furthermore, the Government had decided that the UK could reduce its stockpile of operationally available warheads to fewer than 160, which would have represented a 20 percent reduction on the figure set out in the 1998 Strategic Defence Review, and “almost a 50 percent reduction compared to the plans of the previous Government”.

## 5.2 Lifting the Nuclear Shadow: Creating the Conditions for Abolishing Nuclear Weapons (February 2009)

In February 2009, the then Foreign Secretary, David Miliband, launched an information paper, *Lifting the Nuclear Shadow: Creating the Conditions for Abolishing Nuclear Weapons* at the International Institute for Strategic Studies (IISS).<sup>114</sup> It stated that despite the end of the Cold War and that fact that the UK’s nuclear arsenal had been cut by around 75 percent, “the rationale for nuclear weapons, though it has evolved in the warmed relations between the major powers, has not evaporated”. It outlined new security threats, such as the risks of nuclear weapons spreading to more states or falling into the hands of terrorists. It noted the activities of North Korea who had tested a nuclear device in 2006 and Iran who was suspected of developing nuclear weapons in defiance of the international community. Climate change might also mean that a desire to pursue nuclear energy could make nuclear materials more available to terrorist groups. It argued that “our serious commitment to global nuclear disarmament should not be confused with unilateral disarmament”. If the UK were to dismantle all its nuclear weapons, it was “highly unlikely that others would do the same. Nor do we believe it would have any positive effect on current proliferators like Iran”. The paper concluded that achieving agreement to a global ban on nuclear weapons would involve “persuading states who currently rely on them to give them up” and would require “creating the conditions to give them confidence that their security will on balance be greater in a world without nuclear weapons than with them”. It identified the three main sets of such conditions as: watertight means to prevent nuclear weapons from spreading to more states or to terrorists, at the same time as the use of nuclear energy is expanding; minimal arsenals

<sup>113</sup> *ibid*, p 7.

<sup>114</sup> Speech by David Miliband, IISS, February 2009: <http://www.iiss.org/recent-key-addresses/david-miliband-address/>.

and an international legal framework which puts tight, verified constraints on nuclear weapons; solutions to the technical, political, military and institutional challenges of moving from small numbers of nuclear weapons to zero in ways which enhance national and international security. It further suggested six concrete steps to help create these conditions:

stopping further proliferation and securing agreement among all the NPT states that the way forward must include tougher measures to prevent proliferation and tighten security and the vigorous implementation of such measures including practical help to states which need it;

working with the IAEA to help states which want to develop a civil nuclear energy industry to do so in ways which are safe and secure and which minimise the risks of nuclear weapons spreading;

US-Russia negotiations and agreement on substantial further reductions in their total nuclear arsenals, complemented by efforts by other states with nuclear weapons to reduce and keep their own forces to an absolute minimum; bringing the Comprehensive Test Ban Treaty into force, banning all nuclear weapons test explosions and thereby constraining the qualitative development of nuclear weapons;

starting negotiations without preconditions and making progress on a Fissile Material Cut-Off Treaty. This is vital to help make reductions in nuclear weapons irreversible and to establish many of the mechanisms that would constitute the core of an eventual regime to oversee a global ban; and

exploring the many complex political, military and technical issues which will need to be resolved if the states which possess nuclear weapons are to reduce and ultimately eliminate their arsenals securely, and to prevent nuclear weapons from ever re-emerging.

### 5.3 Road to 2010 (July 2009, Cm 7675)

In July 2009, the Labour Government published [\*The Road to 2010: Addressing the Nuclear Question in the Twenty First Century\*](#), (Cm 7675), ahead of the 2010 NPT Review Conference.<sup>115</sup> The document, whilst considering a range of issues regarding nuclear technology, both civil and military, noted the importance of pursuing progress with regard to proliferation and ultimately disarmament. It called for the strengthening of the NPT framework and action to ensure that terrorists groups, some of which had the intent to acquire and use nuclear devices, did not acquire that capability. This would require a “much stronger emphasis not just on preventing further proliferation of weapons and nuclear weapons technology, but also on securing existing stocks of fissile material and denying access to relevant expertise”. It also called for further progress on

<sup>115</sup> The press release which accompanied the publication of *The Road to 2010*, including the comments of the then Prime Minister, Gordon Brown, can be found at: [http://webarchive.nationalarchives.gov.uk/+/http://www.cabinetoffice.gov.uk/newsroom/news\\_releases/2009/090716-2010.aspx](http://webarchive.nationalarchives.gov.uk/+/http://www.cabinetoffice.gov.uk/newsroom/news_releases/2009/090716-2010.aspx).



nuclear disarmament and stated that nuclear weapon states, including the UK, had a duty to work to create the conditions where further reductions in levels of nuclear weapons could take place. It maintained that the UK had taken significant steps towards disarmament by “reducing the explosive power of its nuclear arsenal by three quarters since the end of the Cold War and maintaining a minimum strategic deterrent based on no more than 160 operationally available warheads”. The UK remained committed to the “principle of irreversibility in these reductions”. The document set out three steps to enable further progress. First was to reduce and prevent any further expansion of global nuclear weapon capabilities and to enhance transparency of existing and future capabilities. The second was to highlight and address the challenges and mechanisms through which further verifiable multilateral disarmament could occur. The third was to establish the security conditions and overcome the technical challenges associated with taking the final steps to a world free of nuclear weapons, including how they could be safely withdrawn and dismantled.

However, the document appreciated that each of these strands would involve complex challenges. The UK would need to work with the international community to ensure that states such as Iran and North Korea complied with their obligations. Verifiable disarmament needed to be applied not just to the five nuclear weapon states (US, Russia, China, France and the UK), but also to countries that had developed nuclear capabilities and remained outside the NPT regime, which would involve significant scientific and technical challenges. There was a need to continue the strengthening of multilateral agreements. This would include working with the US and others to increase momentum for ensuring the entry into force of the Comprehensive Test Ban Treaty, making further progress on a Fissile Material Cut-Off Treaty, and tackling proliferation through financial sanctions and export controls. It would also entail working with international partners to remove underlying causes of insecurity in key regions, notably the Middle East and South Asia, to allow those nuclear armed states outside the NPT to gain, over the long term, the confidence to disarm.

It also stated that the IAEA had to reform if it was to be in a position to carry out its remit more effectively. The UK was the fourth largest contributor to its budget and made significant voluntary contributions to its Technical Cooperation Fund and Nuclear Security Fund. In the short term, the UK would seek to work with the incoming Director General and international partners to develop robust plans for organisational reform of the Agency and host a meeting of the main financial donors to the IAEA (the so-called ‘Geneva Group’) to discuss future funding and staffing issues. In the medium and longer term, the UK would seek agreement at the NPT Review Conference to develop more fully the key role the IAEA needed to play in fissile material security, and how nuclear energy could assist in delivering sustainable energy development as part of the internationally agreed Millennium Development Goals for international poverty.

The UK would also make a number of specific commitments. A new Nuclear Centre of Excellence, which would receive initial government funding of £20 million over the first five years, would be established. It would focus on the development of a cost-effective, and proliferation resistant nuclear fuel cycle to improve access to nuclear power and help ensure that, in the future, nuclear material used in civil nuclear programmes was not used to make weapons. The UK would start a process for establishing the long-term management of plutonium and complete the development of the UK’s Nuclear Fuel Assurance and present proposals to the IAEA to guarantee nuclear fuel to those

countries who wish to enter into an appropriate agreement. The UK would begin to offer assistance to any country that wanted to help to secure their stocks of vulnerable nuclear material. The UK would ratify an amendment to the Convention on the Physical Protection of Nuclear Material and encourage other countries to do the same. The Government would also provide an extra £3 million to support the Atomic Weapons Establishment's world-leading work on forensics and detection.

#### 5.4 Strategic Defence and Security Review (October 2010, Cm 7948)

In October 2010, the present Government published [\*Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review\*](#) (Cm 7948). The foreword to the document argued that the context of the review was the “difficult legacy” that the Government had inherited. On the question of the nuclear deterrent, it stated that the UK would “retain and renew” its independent nuclear deterrent, which was the “ultimate insurance policy in this age of uncertainty”. Though no state currently had both the intent and the capability to threaten the independence or integrity of the UK, there was still “the possibility that a major direct nuclear threat to the UK might re-emerge—a state’s intent in relation to the use or threat of use of its capabilities could change relatively quickly, and while we will continue to work internationally to enhance mutual trust and security, we cannot rule out a major shift in the international security situation which would put us under grave threat”. Despite the success of the NPT in limiting the number of states with nuclear capabilities, large arsenals remained and the risk of nuclear proliferation continued. The UK could not “discount the possibility that the number of states armed with nuclear weapons might increase” and “equally there is a risk that some countries might in future seek to sponsor nuclear terrorism”. It was also important to “recognise that the UK’s nuclear deterrent supports collective security through NATO for the Euro-Atlantic area” and that “nuclear deterrence plays an important part in NATO’s overall strategy and the UK’s nuclear forces make a substantial contribution”.

The Government had decided that it would maintain a continuous submarine-based deterrent and begin the work of replacing its existing submarines and would therefore proceed with the renewal of Trident and the submarine replacement programme. The first investment decision (Initial Gate) would be approved, and the next phase of the project commenced, by the end of the year. The review concluded that the overall cost of the submarine and warhead replacement programmes and associated infrastructure had remained within the £20 billion cost estimate foreseen in 2006 at 2006 prices. To drive value for money the Government would: defer decisions on a replacement to the current warhead; reduce the cost of the replacement submarine missile compartment; extend the life of the current Vanguard class submarines and re-profile the programme to build replacement submarines; take the second investment decision (Main Gate) finalising the detailed acquisition plans, design and number of submarines around 2016; work with British industry to improve efficiency and optimise to expected demand its capacity to build and support submarines. The Government had also reassessed the minimum necessary requirements for a credible deterrence which would mean that it would: reduce the number of warheads onboard each submarine from 48 to 40; reduce the requirement for operationally available warheads from fewer than 160 to no more than 120; reduce the overall nuclear weapon stockpile to no more than 180; and reduce the number of operational missiles on each submarine. The service life of the current



Vanguard-class submarines would be extended and the first replacement would enter service in 2028. The replacements would be configured with eight operational missile tubes. The current nuclear warheads would remain viable until the late 2030s and, therefore, a decision on the replacement warhead would be deferred until 2019. The Government contended that the overall impact of the changes identified by the review would be to reduce costs by £3.2 billion, saving approximately £1.2 billion and deferring spending of up to £2 billion from the next ten years, with some of the deferred spend ultimately to be translated into real savings in later years.

The review also stated that the UK would remain “committed to the long term goal of a world without nuclear weapons” and would “continue to work to control proliferation and to make progress on multilateral disarmament, to build trust and confidence between nuclear and non-nuclear weapon states, and to take tangible steps towards a safer and more stable world where countries with nuclear weapons feel able to relinquish them”. It added that the Government was “now able to give an assurance that the UK will not use or threaten to use nuclear weapons against non-nuclear weapon states parties to the NPT”. However, in giving this assurance the Government emphasised “the need for universal adherence to and compliance with the NPT, and note that this assurance would not apply to any state in material breach of those non-proliferation obligations”. It also stated that the UK reserved the right to review this assurance if, for example, the development and proliferation of chemical and biological weapons made this necessary.

## 5.5 Anglo-French Nuclear Treaty

As a result of the UK-France summit, held on 2 November 2010, both countries agreed various measures on defence co-operation, including joint procurement programmes, greater interoperability, shared logistics and support and greater industrial co-operation. This was taken forward through an overarching defence co-operation treaty ([Cm 7976](#)), a subordinate treaty relating to joint nuclear facilities ([Cm 7975](#)), and a Letter of Intent signed by the Defence Ministers and a package of joint defence initiatives.<sup>116</sup> A Chatham House paper on the defence treaties noted that nuclear co-operation was “undoubtedly a historic leap forward in Franco-British relations”. While France since the 1960s had considered its national nuclear force to be a potent symbol of national independence, the UK had taken a more “subtle rationale, based on a dual-track approach” in which it “sought actively to pursue global nuclear disarmament, while relying on the American nuclear umbrella for protection and retaining a minimum independent nuclear deterrence as a complement”. The agreement on nuclear cooperation would “require an unprecedented level of knowledge-sharing on nuclear weapons”. It would include joint simulated testing of nuclear warheads to be conducted at new facilities at the Atomic Weapons Research establishment at Aldermaston and at the Valduc centre of the Commissariat à l'énergie atomique et aux énergies alternatives in Bourgogne. By 2014, the Aldermaston centre would focus on technology development while technology testing and simulation would be performed in Valduc, with a view to ensuring long-term security and safety of nuclear warheads. The paper speculated that more cooperation should follow, as “the United Kingdom and France have agreed to launch a study on the joint development of some aspects of equipment and technology for the next generation

<sup>116</sup> For an overview of the defence co-operation treaty and package of joint initiatives see: House of Commons Library Standard Note, [Franco-British Defence Co-operation](#), November 2010.

of nuclear submarines”.<sup>117</sup> In June 2012, the British American Security Information Council Trident Commission published a background briefing, [Entente Nucleaire Options for UK-French Nuclear Cooperation](#). It considered the practicalities of nuclear cooperation, but also the implications for future disarmament:

There is a potential paradox in the development of UK-French nuclear cooperation. The more they cooperate, the more they will be able to reduce their nuclear expenses and even, perhaps their respective nuclear forces or stockpiles. But the more the two countries tie the future of their respective nuclear futures with one another, the more it may be difficult for them to make unilateral decisions on concrete disarmament steps. At the extreme, a complete pooling of UK and French nuclear forces might make it impossible for one of the two to give up nuclear weapons without the other doing so as well.<sup>118</sup>

## 5.6 Submarine Initial Gate Parliamentary Report (May 2011)

Though the Initial Gate of the Trident replacement programme was expected to be published at the end of 2010, its approval was not announced until 18 May 2011 by the then Secretary of State for Defence, Liam Fox:

I am announcing today that we have approved the initial gate investment and selected a submarine design that will be powered by a new generation of nuclear propulsion system—the pressurised water reactor 3—that will allow our submarines to deliver our nuclear deterrent capability well into the 2060s if required.

... We have now agreed the broad outline design of the submarine, made some of the design choices—including the propulsion system and the common US-UK missile compartment—and the programme of work we need to start building the first submarine after 2016. We have also agreed the amount of material and parts we will need to buy in advance of the main investment decision.

He also set out the next phase of the programme, the assessment phase. He said it would cost in the region of £3 billion: “That is a significant sum, but I am confident that it represents value for money for the taxpayer, as every aspect of the programme has been carefully reviewed by MOD, Treasury and Cabinet Office officials. It will fund the programme that we need to conduct to make sure that we can bring the submarines into service on time”. He also stated that the submarine element of the programme would “still cost within the £11 billion to £14 billion estimate set out in the 2006 white paper... though the equivalent sum today is £20 billion to £25 billion at out-turn”. He stressed that “there has been no cost growth in the programme” since the 2006 white paper. He added that though the cost of long lead items was expected to amount to about £500 million, it was “not true to say that large parts of the build programme will have been

<sup>117</sup> Chatham House Programme Paper, [Franco-British Defence and Security Treaties: Entente While it Lasts?](#), March 2011, p 6. See also House of Commons Library Standard Note, [Trident after the Strategic Defence and Security Review](#), June 2011, pp 6-7.

<sup>118</sup> British American Security Information Council Trident Commission, [Entente Nucleaire Options for UK-French Nuclear Cooperation](#), June 2012, p 5.

completed by main gate” and that “although we are ordering some of the specialist components, that does not mean that we are locked into any particular strategy before main gate in 2016”.<sup>119</sup>

## 5.7 UK’s Future Nuclear Deterrent: 2012 Update to Parliament (December 2012)

The current assessment phase of the Trident replacement programme is divided into three stages. The first is to assess and decide the specifications of each system and component of the successor submarine, which produce the technical specifications necessary for the purchase of equipment provided by companies outside of the three industrial partners on this programme. The second is a consideration of how the various sub-systems and components will be incorporated into the overall submarine design. The third will focus on the detailed technical drawings required for the submarine to be produced.<sup>120</sup> In December 2012, the MOD issued [The United Kingdom’s Future Nuclear Deterrent: 2012 Update to Parliament](#). It noted that the focus since Initial Gate had been on Stage One work and that “this is about a third completed, with the first wave of task packages completed” whilst “a number of studies are also being conducted to support the work with the aim of achieving the best balance between the submarines’ capability and their cost”. In addition, “the propulsion system design has been reviewed in detail to ensure confidence in the performance of the submarine”.<sup>121</sup> The Update also confirmed various commercial arrangements leading up to Main Gate, noting the award of framework contracts with BAE Systems and Babcock, and an amendment to an existing Rolls-Royce contract, as initially announced by the Secretary of State for Defence on 22 May 2012. The MOD also confirmed that current forecast costs for the successor programme remained within the estimates initially set down in the 2006 white paper (ie £15–20 billion including £11–14 billion for the successor platform (2006/2007 prices)).<sup>122</sup> Over the next year, activity would be focused on the functional design of the submarine’s constituent systems, with a whole boat System Definition Review in 2013 to be conducted to demonstrate that the proposed system architecture met the detailed requirements that the MOD has set for the submarine. There would also be a series of Major System Reviews, a refining of the Build and associated Test and Commissioning Strategies and further work on the collaborative management arrangements and understandings between contractors to avoid duplication and inefficiency. The next iteration of the submarine safety case would also be delivered. A further report to Parliament would be made in 2013.<sup>123</sup>

<sup>119</sup> HC *Hansard*, 18 May 2011, [col 351](#). The Government also released on the same day a report regarding the Initial Gate decision: MOD, [The United Kingdom’s Future Nuclear Deterrent: The Submarine Initial Gate Parliamentary Report](#), May 2011. For a commentary on the Initial Gate, see House of Commons Library Standard Note, [Trident after the Strategic Defence and Security Review](#), June 2011, pp 8–10.

<sup>120</sup> See: House of Commons Library Standard Note, [Update on the Trident Successor Programme](#), 14 January 2013, pp 5–6.

<sup>121</sup> Ministry of Defence, [The United Kingdom’s Future Nuclear Deterrent: 2012 Update to Parliament](#), December 2012, p 2.

<sup>122</sup> For commentary and analysis of the costs to date, see: House of Commons Library Standard Note, [Update on the Trident Successor Programme](#), 14 January 2013, pp 7–8.

<sup>123</sup> Ministry of Defence, [The United Kingdom’s Future Nuclear Deterrent: 2012 Update to Parliament](#), December 2012, pp 4–5.

## 5.8 Government Review of Alternatives

The Coalition Agreement stipulated that the Government would maintain Britain's nuclear deterrent, scrutinise the renewal of Trident to ensure value for money and allow the Liberal Democrats to continue to make the case for alternatives.<sup>124</sup> The Defence Secretary, when announcing the Initial Gate, confirmed that in order to assist the Liberal Democrats in making the case for alternatives, a study into the costs, feasibility and credibility of alternative systems and postures would be undertaken. The study would be an 18-month assessment led by the Cabinet Office, which would consult the then Minister for the Armed Forces, Nick Harvey, and which would report to the Prime Minister and Deputy Prime Minister. The terms of reference for the study were limited to three questions: are there credible alternatives to a submarine-based deterrent; are there credible submarine-based alternatives to the current proposal, such as a modified Astute-class submarine using cruise missiles; are there alternative nuclear postures, for example non-continuous at sea deterrence, which could maintain the credibility of the UK's nuclear deterrent?<sup>125</sup> The outcome of the review is expected in the first half of 2013.

## 5.9 Opposition to Trident and its Successor Programme

A number of groups have made clear their opposition to the replacement of Trident. CND, in [Cut Trident and its Replacement](#) (March 2012) set out its case against replacing Trident. It noted the "enormous cost", which it argued would amount to at least £100 billion in procurement and maintenance. It argued that "the majority of people are against nuclear weapons", stating that "poll after poll show that the majority of British people are against nuclear weapons". It also pointed to international opinion, contending that "most governments and people worldwide" were "strongly in favour of a global ban on nuclear weapons". The briefing also maintained that such weapons would make the UK less secure and safe. It claimed that senior British military figures had declared that "nuclear weapons are completely useless as a deterrent to the threats and scale of violence we currently face or are likely to face, particularly international terrorism". It also maintained that according to the MOD there "was no threat to our security from any other nuclear weapon state" and that threats were more likely to be from terrorism, cyber-attacks and major accidents. It also argued that by having nuclear weapons, the UK was actually encouraging "others to develop them too" and suggested that if the UK used the argument that it needed nuclear weapons for its security then "any other country in the world can say the same, particularly those that are more vulnerable or threatened". It also pointed to the UK's signing of the NPT, which had placed an obligation upon it to "to negotiate in good faith the goal of general and complete nuclear weapons disarmament". Finally, it argued that it was illegal to use or threaten to use nuclear weapons, pointing to an International Court of Justice judgement in 1996 that it was generally illegal to use or threaten to use nuclear weapons.

<sup>124</sup> HM Government, [The Coalition: Our Programme for Government](#), May 2010, p 15.

<sup>125</sup> See: House of Commons Library Standard Note, [Trident after the Strategic Defence and Security Review](#), June 2011, p 12.

In September 2009, Greenpeace published [In the Firing Line: An Investigation into the Hidden cost of the Supercarrier Project and Replacing Trident](#), which argued that the replacement would cost more than the Government had estimated at the time of the 2006 white paper. It noted that the Government had given two figures for replacing Trident: the cost of designing and building the new submarines, warheads and infrastructure, which was in 2006 to be £15–20 billion, and the running costs, which would take up around 5–6 percent of the defence budget (approximately £1.9–2.3 billion) every year. Greenpeace estimated that this would give a total of £72.9–89.5 billion for building and operating a replacement for Trident. However, it believed that these estimates ignored key factors, such as: the £900 million cost of conventional military forces directly assigned to support the nuclear force; the £250 million costs of extending the life of the current Trident missiles; the estimated £3 billion cost of buying next-generation missiles when the Trident missiles were ultimately withdrawn from service midway through the life of the replacement submarines; a percentage of the substantial cost of modernising the Atomic Weapons Establishment (AWE), a modernisation that was largely necessitated by the requirement to develop new warheads for the new Trident system. It believed that such hidden costs would push the “final cost up to £97 billion, or more than 8.5 percent of the defence budget every year over the system’s 30-year lifetime”.

## 5.10 Scottish Independence and Trident

On 25 October 2012, the House of Commons Scottish Affairs Select Committee published [The Referendum on Separation for Scotland: Terminating Trident—Days or Decades?](#) (HC 676 of session 2012–13). The report noted the possible implications of a yes vote in the referendum planned for Scottish independence in 2014 on the Trident fleet based at HM Naval Base Clyde. The Committee’s report noted that the removal of nuclear weapons from Scotland had been a core policy of the Scottish National Party. This commitment was contained within the SNP’s 2011 election manifesto, whilst Alex Salmond, First Minister of Scotland and Leader of the SNP, had also said that if Scotland voted in a referendum to be a separate country, then he would want a written constitution drawn up that included an “explicit ban on nuclear weapons being based on Scottish territory”. More recently, at its October 2012 Conference, the SNP had agreed a resolution on Foreign, Security and Defence Policy that if Scotland became a separate state a sovereign SNP Government would negotiate the speediest safe transition of the nuclear fleet from Faslane. The SNP also had proposed a change in the party’s policy on NATO, such that a separate Scotland would aim to join NATO “subject to an agreement that Scotland will not host nuclear weapons” and only remain in NATO if NATO “takes all possible steps to bring about nuclear disarmament”.<sup>126</sup> The report concluded that a separate Scotland would be presented with a choice over Trident. It could back the SNP’s position and “insist the ‘speediest safe transition’ of Trident from Scotland, which can be done within twenty-four months”, noting that “in fact, Trident can be deactivated within a matter of days”. Such a move would require the Vanguard submarines to come off patrol and the “the UK would lose the ability to operate its nuclear deterrent and inevitably create the prospect of unilateral nuclear disarmament being imposed upon the Royal Navy and UK Government, since the construction of facilities elsewhere could take upwards of 20 years”. Alternatively, a separate Scotland could, in “cooperation with the

<sup>126</sup> House of Commons Scottish Affairs Select Committee, [The Referendum on Separation for Scotland: Terminating Trident—Days or Decades?](#), 25 October 2012, HC 676 of session 2012–13, p 7.

UK, allow Trident to remain on the Clyde long enough for the UK to identify and develop a new base elsewhere”. This would mean armed nuclear submarines operating out of Scotland for 20 years or longer. However, the report noted that developing a new base “could only be done at great expense, and the UK Government has made it clear that any such costs would be included in the separation negotiations”.<sup>127</sup>

The Government in its response said that it was confident that “the people of Scotland will choose to remain part of the UK” and was “not planning for Scottish independence or to move the strategic nuclear deterrent from Her Majesty’s Naval Base Clyde”.<sup>128</sup> It accepted, however, that if the result of the referendum were to lead to the current situation being challenged, then other options would be considered and that “any alternative solution would come at huge cost” and that it “would be an enormous exercise to reproduce the facilities elsewhere”.<sup>129</sup> It noted that HMNB Clyde was the largest employment site in Scotland, with around 6,700 military and civilian jobs, which were projected to increase to around 8,200 by 2022 and stated: “It is for the Scottish Government to explain how this quality and quantity of employment in the region would be matched if the enterprise had to be relocated”.<sup>130</sup>

Professor William Walker, Professor of International Relations at St Andrews University, writing in the *Scotsman* in January 2013, suggested that removing Trident in the event of independence would not be straightforward. Firstly, insistence on eviction would “discourage London’s cooperation on issues that would be immediately vital to Scotland’s establishment as a viable state, including the national debt, pensions and North Sea oil, and support for Scotland’s membership of the United Nations, European Union and other international organisations”. Secondly, the “Scottish Government would risk incurring the displeasure of the American, French and other governments without whose support Scotland would struggle to gain recognition and respect” with “implications for the transatlantic alliance and European security”. Thirdly, the decommissioning of submarines, reactors, warheads and facilities would have to be organised. However, other issues could come into play. If the Labour Party shifted ground and Liberal Democrats stiffened their opposition, anti-Trident coalitions could “conceivably coalesce” around “conversion of the submarine fleet to conventional roles without an immediate, politically risky commitment to nuclear abolition”. Conversely, worries about Iran’s possible possession of nuclear weapons and concerns about nuclear proliferation, the rise of China and an unpredictable Russia could create an inauspicious environment in which to push for the deterrent’s abandonment. He concluded that the issue contained “political traps for both Scottish and UK Governments”.<sup>131</sup>

<sup>127</sup> *ibid*, p 26.

<sup>128</sup> House of Commons Scottish Affairs Select Committee, [Government response to the Committee’s Fourth Report](#), 9 January 2013, HC 861 of session 2012–13, pp 1–2.

<sup>129</sup> *ibid*, p 2.

<sup>130</sup> *ibid*.

<sup>131</sup> Professor William Walker, [‘Trident: at what cost would an independent Scotland refuse the nuclear option?’](#), *The Scotsman*, 8 January 2013.



## 5.11 British American Security Information Council Trident Commission

On 9 November 2011, the British American Security Information Council (BASIC) launched the Trident Commission, a new independent, cross-party commission to examine UK nuclear weapons policy and renewal of the UK nuclear deterrent. The Commission is operating under the chairmanship of Lord Browne of Ladyton, former Labour Secretary of State for Defence, Sir Malcolm Rifkind, former Conservative Defence and Foreign Secretary, and Sir Menzies Campbell, former Leader of the Liberal Democrats and Shadow Foreign Secretary. The Commission is: examining the international context within which the decision on Trident renewal now sits; assessing current UK nuclear weapons policy and the policy of the United Kingdom in efforts to promote multilateral nuclear disarmament and non-proliferation; examining the costs associated with Trident renewal and any potential consequences for non-nuclear portions of the defence budget; considering all possible future policy options with the potential to maintain UK national security while further strengthening efforts at multilateral nuclear disarmament and non-proliferation. The final report of the Commission is due in early 2013.<sup>132</sup>

For an extensive reading list on Trident's replacement, see House of Commons Library, [The Future of the British Nuclear Deterrent: Suggested Reading](#) (July 2012).

## 6. Recent Commentary on Prospects for Nuclear Disarmament and Non-Proliferation

### 6.1 RUSI: Nuclear Agenda for 2013: New Solutions to Old Problems (January 2013)

In a Royal United Services Institute paper, [The Nuclear Agenda for 2013: New Solutions to Old Problems](#), published in January 2013, Hugh Chalmers offered an analysis of nuclear issues and challenges facing policy makers in 2013. He began by arguing that "after a year characterised by leadership transitions in the US, Russia, China, Japan, and South Korea, political paralysis pushed many old nuclear problems into 2013". A key challenge was Iran. Despite "increasingly bellicose rhetoric from Israel" and the implementation of further sanctions, he stated that "Iran's stockpile of 20 percent-enriched uranium almost tripled in 2012, increasing the threat to what fragile stability exists in the Middle East". Furthermore, the IAEA could neither confirm nor deny whether Iran's nuclear programme had a military dimension, and the P5+1 group of nations had yet to negotiate a satisfactory conclusion to this crisis. He suggested that unless Iran dramatically reduced its production of 20 percent-enriched uranium, then "Israeli airstrikes that were narrowly avoided in 2012 may yet haunt 2013". North Korea was also a pressing issue. Its successful recent launch of the Unha-3 rocket was a reminder that it was still prepared to use provocative regional displays of power. He also detected a chill in US-Russia relations, especially after the re-election of Putin. He thought that while the 'reset' in relations between the two powers had successfully secured "modest reductions in the strategic nuclear arsenals of the two states", it had since "stumbled over the deployment

<sup>132</sup> See: <http://www.basicint.org/tridentcommission>.

of US ballistic missile defence systems in Europe, and fallen over Russia's tit-for-tat response to the blacklisting of select Russian individuals by the US Magnitsky act at the end of 2012". He was concerned that the Nunn-Lugar Cooperative Threat Reduction Program and the Megatons to Megawatts Program, which converted Russian weapons-origin fissile material into fuel for US reactors, would be dropped by Russia before the end of 2013 was out. Without a thaw in relations, and a reinvigoration of bilateral nuclear arms control between the two powers, he wondered whether "2013 may leave the global nuclear disarmament movement in a worse state than it found it".

However, he did see some signs for optimism. The new leader of South Korea, Park Geun-Hye, advertised policy of 'trustpolitik' towards North Korea, which suggested that the South may pursue an incremental series of engagements, starting with economic and humanitarian projects, that might evolve into deeper ties if Kim Jong-un cooperated. Kim Jong-un's New Year speech had also "contained hints that the North might be prepared to initiate a less hostile dialogue with their neighbours". He conjectured, that with the "slim chances of a restart to the six-party talks (between the North, its neighbours, and the US), more direct engagement between the North and South, particularly if conducted in partnership with China, may yield a more sustained and productive dialogue in 2013". He thought that a re-elected President Obama might be in a position to consider a more flexible approach to Iran. He suggested that direct US-Iran negotiations, already suggested by Russia and Iran, could iron out Iranian misconceptions regarding America's true negotiating goals, and reassure Israel that the US was committed to exploring all possible options for resolution. However, such an approach needed to be started before Iranian elections in June. In terms of US-Russia relations, he thought that Obama would struggle to meet Russia's concerns regarding the deployment of European missile defence systems. There was some hope that an "avenue for reconciliation may be found among alternative areas of common interest, such as trade and Afghanistan", but not if, as many suspected, Putin's "primary interest is in shoring up domestic support by demonising the US". He suggested that working "with Russia towards a solution to the conflict in Syria, and promoting Russia's role in a negotiated solution to the Iranian nuclear crisis, may be good places to start".

## 6.2 Wilson Centre: Changing Nuclear Weapons Landscape (December 2012)

Tim McDonnell, writing for the Wilson Centre in December 2012, [Nuclear Weapons in International Politics: It's Getting Personal](#), suggested that there was a growing divergence in the rationale for states to acquire and maintain nuclear weapons. He suggested that for many western states nuclear weapons were becoming less relevant as "advanced conventional military capabilities are more discriminating and more usable than nuclear weapons". It was "difficult to imagine, 20 years after the end of the Cold War, a realistic geopolitical-military scenario that would lead the United States to seriously consider using nuclear weapons". He contended that the US faced many problems in the world and that "not one of them can be solved by using nuclear weapons".<sup>133</sup> By contrast, their acquisition might become more important to some authoritarian countries. He suggested

<sup>133</sup> Tim McDonnell, '[Nuclear Weapons in International Politics: It's Getting Personal](#)', *Wilson Centre Policy Brief*, December 2012, p 2.

that the leadership of countries that harbour nuclear ambitions, particularly Iran and North Korea, “may cling harder to those ambitions” as “having watched what happened recently in Iraq, Syria, and Libya, authoritarian leaders by now understand that, although having a nuclear weapons development program involves the risk of military action and crippling sanctions, leaders who do acquire nuclear or other WMD capability have a much freer hand to violently put down domestic dissent and stir up trouble in their regions”. It was also “natural to assume that leaders’ interest in their own fate in addition to their nation’s fate will be a more powerful motivator than their interest in their nation’s fate alone”. He concluded that if this gained traction, this “new, personal dimension to nuclear policies may hamper the Obama administration’s efforts to halt or roll back Iran’s and North Korea’s nuclear programs”.<sup>134</sup>

### **6.3 Carnegie Endowment for International Peace: Beyond Treaties—Immediate Steps to Reduce Nuclear Dangers (October 2012)**

In October 2012, the Carnegie Endowment for International Peace published [\*Beyond Treaties: Immediate Steps to Reduce Nuclear Dangers\*](#). Its authors noted that several obstacles had appeared to stall progress on US nuclear weapons policy. The US political parties were divided on the issue, while the US and Russia had reached an arms control impasse with no new agreement on the horizon. It suggested several confidence-building measures to help reduce nuclear risks between the US and Russia. Information sharing, for example, could include: annual US declarations to Russia of its missile defence plans; data exchanges on offensive forces; or the resumption of data exchanges on nuclear-armed sea-launched cruise missiles. Work in the area of declaratory policy could focus on the joint application of New START’s basing restrictions and data exchanges to heavy bombers that were no longer accountable under the Treaty. The US could also commit not to target Russian or Chinese nuclear forces with its conventional forces. It also suggested joint experiments and studies to build trust between US and Russian national academies, which could include an investigation into whether conventional cruise missiles posed a realistic threat to silos and warhead-level verification experiments. It also advocated resumption of nuclear military-to-military exchanges between the US and Russia.

### **6.4 World Today: Nuclear Weapons could become Obsolete (October 2012)**

Ward Wilson, writing in *World Today* in October 2012, questioned whether nuclear weapons were very good military technology: “There is a fairly strong case to be made—you could make one based on nothing more than the fact that no one has found a single use for them in actual combat in the past 65 years—that nuclear weapons are too big, too clumsy, too messy and too outmoded to be any use to anyone”. He wondered whether “it may turn out that US precision-guided munitions are the weapons of the future—that precision, not brute size, is what will matter in war in the 21st century” and whether “increasingly, nuclear weapons look like dinosaurs: really large and frightening creatures that were destined to die out because they could not adapt”. He suggested that

<sup>134</sup> *ibid*, pp 2–3.

if there were a serious debate on the military value of nuclear weapons, there would be progress towards nuclear disarmament.<sup>135</sup>

## 6.5 Bulletin of the Atomic Scientists: Aspiring to “Indefinite Retention”? (Autumn 2012)

Ray Acheson, writing in the *Bulletin of the Atomic Scientists* in the Autumn of 2012, stated that all nations with nuclear weapons were modernizing their arsenals, delivery systems, and related infrastructure, which had serious implications for nuclear disarmament. By investing in the extension, upgrading, and reinforcement of their arsenals and capacities, he suggested that such governments were investing in the future of nuclear weapons, not in the future of disarmament. He noted that other non-nuclear states had expressed concern with such programmes and were using international venues, including the NPT review conferences, to call on the nuclear-armed states to cease these programmes, which undermined the objectives of the Treaty in terms of both non-proliferation and disarmament. He suggested that ending upgrades and investment in nuclear weapons would help establish the necessary conditions for disarmament. He believed that non-nuclear weapon states should further advance the conditions for disarmament by negotiating a treaty banning nuclear weapons, highlighting that the world’s governments did not need to possess nuclear weapons in order to prohibit them.<sup>136</sup>

## 6.6 BASIC Trident Commission: Trends in Other Nuclear Armed States (November 2011)

In November 2011, the BASIC Trident Commission issued [Beyond the UK: Trends in the Other Nuclear Armed States](#). Its author, Ian Kearns, argued that though there had been a major reduction in the global nuclear weapons stockpile since the mid-1980s, the number of nuclear weapon states had increased. Nuclear weapons were now present in some of the most unstable regions of the world. He suggested that in “North East Asia, the Middle East and South Asia, there are serious conflict and proliferation concerns that suggest an increased potential for nuclear weapons use”. In addition, he pointed to long-term nuclear force modernisation or upgrade programmes being underway in all the currently nuclear armed states. This meant hundreds of billions of dollars being set aside over the next decade “not only in the United States and Russia but in major development programmes in China, India, Pakistan and elsewhere”. Some countries, such as Pakistan and India, also appeared “to be seeking smaller, lighter, warheads than they possess currently, to allow these either to be delivered to greater distances or to allow them to be deployed over shorter ranges and for more tactical purposes”. Russia and the United States had recommitted to maintaining a triad of land, sea and air forces for the long-term, while China, India and Israel were seeking to build triads of their own. In the case of China and India, major ballistic missile programmes were underway, both to increase the range and sophistication of land-based systems and to build fleets of nuclear powered ballistic missile submarines. In the case of Israel, the size of its nuclear-tipped cruise

<sup>135</sup> Ward Wilson, ‘[Nuclear weapons could become obsolete](#)’, *World Today*, October/November 2012, vol 68 no 8/9, p 26.

<sup>136</sup> Ray Acheson, ‘Modernization of Nuclear Weapons: Aspiring to “Indefinite Retention”?’, *Bulletin of the Atomic Scientists*, September/October 2012, vol 68 no 5, pp 88–95.

missile enabled submarine fleet was being increased and the country seemed to be on course, on the back of its satellite launch rocket programme, for future development of an ICBM. Pakistan was rapidly increasing the size of its warhead stockpile and building new plutonium production reactors, which could add to its fissile material stocks and, like North Korea, was seeking to rapidly enhance its missile capabilities. France, having recently completed the modernisation of its ballistic missile submarine fleet, was also introducing new and more capable bombers to the air component of its nuclear force, though at reduced aircraft numbers overall, and was introducing new and better nuclear warheads to both its sea-launched ballistic missiles and to its aircraft. He concluded that: “There is little sign in any of these nuclear armed states that a future without nuclear weapons is seriously being contemplated”.

## **6.7 Foreign Affairs: Long Road to Zero Overcoming the Obstacles to a Nuclear-Free World (January/February 2010)**

Writing in *Foreign Affairs* in the winter of 2010, Charles D Ferguson, President of the Federation of American Scientists, described what he saw as a conundrum facing the US: “In a world where the strongest conventional military power cannot envision giving up its nuclear weapons before all other nations have abandoned theirs, how will humanity ever rid itself of these weapons?”. He put forward a number of principles which might guide such a process. Firstly, all states needed to benefit from a world in which no one ever again used nuclear weapons. Secondly, governments had to declare that nuclear weapons were only necessary for deterring the use of other nuclear weapons: “a shift that would enhance the security of all states and at the same time reduce the perceived strategic value of these weapons”. He suggested, for example, that the US had “followed a policy of calculated ambiguity that leaves adversaries in doubt about whether it would employ nuclear weapons if attacked by nonnuclear means”. The US needed to show the strength to establish a “new international norm against the use of nuclear weapons to respond to non-nuclear threats”. Thirdly, every state that possessed nuclear weapons, materials and technologies that could be used in nuclear weapons had to ensure the security of their arsenals and stockpiles.<sup>137</sup>

<sup>137</sup> Charles D Ferguson, ‘Long Road to Zero Overcoming the Obstacles to a Nuclear-Free World’, *Foreign Affairs*, January/February 2010.