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# Nuclear Non-Proliferation Treaty (NPT)

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State of play

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## IN-DEPTH ANALYSIS

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This publication aims to provide an overview of the Nuclear Non-Proliferation Treaty (NPT), the key legally binding instrument of the international nuclear disarmament and non-proliferation regime, and to present the main challenges for states parties to maintain the Treaty's credibility. The failure of the Ninth NPT Review Conference in 2015 to adopt a final outcome document has put commitment to the NPT into question, but might also open alternative avenues for advancing nuclear disarmament.

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## EXECUTIVE SUMMARY

Since its entry into force in 1970, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) has been the cornerstone of the international nuclear non-proliferation and disarmament regime, and the most widely accepted arms-control agreement. Built on three pillars – nuclear disarmament, non-proliferation and peaceful use of nuclear energy – the NPT aims to prevent the proliferation of nuclear weapons, promote cooperation among states parties on civilian nuclear energy, and ultimately achieve complete nuclear disarmament. The NPT enshrines the right of non-nuclear weapon states parties to develop and use nuclear energy for peaceful purposes, while committing those recognised as nuclear weapon states (the United States, the Russian Federation, China, France and the United Kingdom) to take effective measures towards general and complete nuclear disarmament.

A series of challenges confront the NPT, its relevance and credibility, as reflected in the discussions that took place in the framework of the Ninth Review Conference of the Treaty from 27 April to 22 May 2015.

On the positive side, the negotiations between the E3+3/P5+1 and Iran that led to a comprehensive deal on Iran's nuclear programme represent the most significant development in the non-proliferation pillar. Conversely, North Korea's nuclear tests (the most recent in January 2016) and its advances on the military nuclear path remain a threat to international security and nuclear non-proliferation efforts. Moreover, *de facto* nuclear armed states outside the NPT also threaten the foundations of the Treaty. Finally, how to deal with withdrawals from the NPT still constitutes an unresolved issue.

In the disarmament pillar, despite some optimism following the 2010 NPT Review Conference and the entry into force of a new arms reduction agreement between the United States and Russia, the lack of progress is evident today. All the nuclear weapon states (recognised and *de facto*) are modernising their nuclear arsenals, and some are increasing their nuclear weapons in quantitative terms. The deteriorating security context is not conducive to achieving general disarmament goals, as states are placing more emphasis on the role of nuclear weapons in their security strategies and doctrines. Moreover, newer, more precise nuclear weapons may put at risk the *de facto* testing moratoria. Conversely, the emergence of the humanitarian impact of the nuclear weapons process, although challenged by nuclear weapon states, may give impetus to nuclear disarmament.

On peaceful use of nuclear energy; safeguards, nuclear safety and nuclear security represent the critical elements of the NPT's third pillar. Since its creation in 1957, the International Atomic Energy Agency assists states to cooperate on civilian nuclear energy. At the same time, states must address growing concerns over nuclear security and nuclear safety, in the aftermath of the 2011 Fukushima nuclear accident.

The European Union's position for the 2015 Review Conference emphasised, *inter alia*, the EU's commitment to all three pillars of the NPT, to the creation of a Middle East zone free of weapons of mass destruction, to the entry into force of the Comprehensive Test Ban Treaty and to the universalisation of the NPT.

The failure to adopt the draft outcome document by consensus at the 2015 NPT Review Conference marks not only a setback in efforts to strengthen the NPT regime, but also a widening fracture between nuclear and non-nuclear weapon states. Conversely, disappointment with the lack of progress might push interested states parties towards other avenues for advancing efforts on nuclear disarmament.

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**List of main acronyms used**

<b>IAEA:</b>	International Atomic Energy Agency
<b>CTBT:</b>	Comprehensive Test Ban Treaty
<b>E3+3/P5+1:</b>	Two different references for the grouping of nations involved in the negotiations with Iran. The reference E3+3 is used by the European Union and means the three EU countries (France, Germany and the UK) plus China, Russia and the USA. The P5+1 grouping refers to the five permanent members of the United Nations Security Council (China, France, Russia, UK and USA) plus Germany
<b>FMCT:</b>	Fissile Material Cut-off Treaty
<b>ICBM:</b>	Intercontinental ballistic missile
<b>MIRV:</b>	Multiple independently targetable re-entry vehicle
<b>NNWS:</b>	Non-nuclear weapon state
<b>NPT:</b>	Treaty on the Non-Proliferation of Nuclear Weapons
<b>NWFZ:</b>	Nuclear-weapons-free zone
<b>NWS:</b>	Nuclear weapon state
<b>P5:</b>	Permanent five members of the United Nations Security Council
<b>SLBN:</b>	Submarine-launched ballistic missile
<b>SSBN:</b>	Nuclear powered ballistic missile submarine
<b>UNSC:</b>	United Nations Security Council
<b>WMD:</b>	Weapons of mass destruction

## 1. Overview of the NPT and the global non-proliferation regime

The Treaty on the Non-Proliferation of Nuclear Weapons was signed on 1 July 1968 and entered into force on 5 March 1970.<sup>1</sup> A legally-binding treaty, the NPT is considered the most widely accepted arms control agreement and the cornerstone of the international nuclear non-proliferation and disarmament regime, part of the weapons of mass destruction (WMD) non-proliferation regime. Currently, there are 191 parties to the NPT.<sup>2</sup> India and Pakistan, considered de facto nuclear states, have never signed the NPT and neither has Israel. North Korea withdrew from the NPT in 2003 to develop a nuclear weapons programme. Several states,<sup>3</sup> including Argentina, South Africa, Egypt, Brazil, stopped their nuclear weapons programmes, while other states – Ukraine, Belarus and Kazakhstan – renounced the Soviet nuclear arsenal found on their territories (in exchange for security guarantees), all to join the NPT as non-nuclear weapon states (NNWS).<sup>4</sup> South Sudan, the UN's newest state member, is the only non-nuclear weapon state not yet party to the NPT.<sup>5</sup>

The NPT has at its core a 'grand bargain' between the five recognised nuclear weapon states (NWS), which are allowed to retain their nuclear arsenals but pledge to disarm completely in time, and the non-nuclear weapon states which commit not to acquire nuclear weapons in exchange for access to nuclear materials and technology for civilian use (for which they must accept safeguards and verification by the International Atomic Energy Agency).<sup>6</sup> Despite their Cold War face-off, in the 1960s the United States (US) and the Soviet Union agreed that further limitation of their nuclear arms race was desirable, due to the excessive costs it entailed. Furthermore, another goal of the two major powers was to prevent other states from developing nuclear weapon technology and to maintain credible deterrence. In order to convince non-nuclear states to

### The nuclear-weapon states (NWS)

The NPT recognises five NWS – namely all states who had 'manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967': the United States (US), the Russian Federation, the United Kingdom (UK), France and China (the latter two only acceding to the NPT in 1992). India and Pakistan became de facto nuclear states in 1998, while Israel maintains a policy of ambiguity about its nuclear capabilities. None of the three have signed the NPT. North Korea is the only signatory to withdraw from the treaty to embark on a military nuclear programme, and conducted its first nuclear test in 2006.

<sup>1</sup> [Treaty on the Non-proliferation of Nuclear Weapons](#), United Nations Office for Disarmament Affairs (UNODA), 1968.

<sup>2</sup> UNODA considers [191 parties](#) to the NPT, including the State of Palestine, which acceded to the NPT in 2015, and the Democratic People's Republic of Korea (North Korea). States parties have diverging views concerning DPRK's withdrawal from the NPT. DPRK publicly announced its withdrawal from the Treaty on 10 January 2003 with effect the following day, in contrast to the Treaty's provisions on withdrawal (three months' notice accompanied by an explanation of the extraordinary circumstances prompting the withdrawal). North Korea maintains that it followed the withdrawal procedure in 1994, giving three months' notice, but following the US-DPRK Agreed Framework, it had merely suspended its withdrawal. Generally, it is considered that DPRK withdrawal from the NPT came into effect on 10 April 2003.

<sup>3</sup> [2010 Nuclear Non-Proliferation Treaty Review Conference: Key Issues and Implications](#), Congressional Research Service, 3 May 2010.

<sup>4</sup> [Disarmament Dynamic Map](#), NTI.

<sup>5</sup> [The Nuclear Non-Proliferation Treaty](#), BASIC, April 2015.

<sup>6</sup> 'The Non-Proliferation Treaty: foundation of disarmament policy', Hilborne M. P., *Handbook of nuclear proliferation*, Harsh V. Pant (Ed.), Routledge, 2012, pp. 251-260.

sign the Treaty, the NWS had to make concessions on agreeing to transfer nuclear technology 'for peaceful purposes'.<sup>7</sup>

Since its entry into force in 1970, Review Conferences have taken place every five years to assess the implementation of the Treaty. At the 1995 Review Conference, the NPT was extended indefinitely and, linked to this decision, the states parties adopted a resolution on the creation of a Middle East WMD-Free Zone. Built on three pillars (nuclear disarmament, non-proliferation and peaceful use of nuclear energy), the NPT's goals are to prevent proliferation of nuclear weapons, and ultimately to achieve their complete elimination, as well as to promote cooperation on peaceful uses of nuclear energy.

The Ninth Review Conference of the Treaty on the Non-proliferation of Nuclear Weapons (NPT), organised from 27 April to 22 May 2015, offered states parties an occasion to demonstrate their commitment to the NPT's goals of global disarmament, non-proliferation of nuclear weapons and peaceful use of nuclear energy. Taking place against the background of a deteriorated security environment and of unaccomplished pledges, in particular with regard to nuclear disarmament, the conference was seen as a test for the NPT to ensure its relevance as the cornerstone of the global nuclear disarmament and non-proliferation regime.<sup>8</sup> The disappointing outcome of the conference prompted some states to question the credibility of the NPT, but may also provide incentives for interested states to move forward on disarmament, including on the basis of the 'Humanitarian Pledge' now adhered to by more than 100 states.

### 1.1. Main provisions of the NPT

The main commitments and obligations adhered to by the signatory states to the NPT are contained in:

- Articles I and II, related to non-proliferation, essentially prohibit states from supplying or obtaining nuclear devices as well as manufacturing nuclear weapons or assisting other states in developing or producing such weapons;
- Article III provides for the International Atomic Energy Agency (IAEA) safeguards and monitoring/verification responsibilities over the nuclear facilities of non-nuclear weapon states;
- Article IV enshrines the 'inalienable right of all Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination' in conformity with the NPT's non-proliferation obligations;
- Article VI commits Parties to the NPT, in particular the NWS 'to pursue negotiations in good faith on effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.'
- Article X grants the right of withdrawal from the NPT, if a State Party decides that 'extraordinary events, related to the subject matter of the Treaty, have

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<sup>7</sup> See [The Nuclear Non-Proliferation Treaty \(NPT\)](#), Office of the Historian, US Department of State.

<sup>8</sup> Since 1947, the [Bulletin of Atomic Scientists](#) has assessed the urgency of the danger posed by nuclear weapons through its 'Doomsday clock'. In 2015, the clock indicates that it is 'three minutes to midnight'.

jeopardized the supreme interests of its country. It shall give notice of such withdrawal ... three months in advance.'

The key longstanding challenges of the NPT have been, inter alia: lack of progress on the implementation of Article VI (general and complete disarmament), failure so far to universalise the NPT (i.e. de facto nuclear-armed states joining the Treaty as non-nuclear weapon states) and lack of agreement on how to deal with Article X withdrawals from the NPT.<sup>9</sup>

## 1.2. Other multilateral treaties and initiatives

In addition to the NPT found at its centre, the global nuclear non-proliferation and disarmament regime consists of other multilateral conventions and (informal) initiatives, the most important of which are listed below:<sup>10</sup>

### 1.2.1. Legally binding commitments

- The **International Atomic Energy Agency (IAEA)** was created in 1957 to assist states with the development of their peaceful nuclear programmes. The IAEA developed a system of **safeguards** consisting of data collection, review and periodic inspections at nuclear facilities, to detect any undeclared nuclear material or activities related to nuclear weapons programmes. Non-nuclear weapons states are required under the safeguards regime to declare and submit to IAEA inspections all nuclear materials and facilities. A 1998 Additional Protocol grants the IAEA supplementary inspection authority.<sup>11</sup> As of 14 May 2015, there were 146 signatories to the Additional Protocols and 125 ratifications.<sup>12</sup> India, Israel and Pakistan are members of the IAEA, while North Korea withdrew its participation in 1994.
- There are five **Treaties establishing Nuclear-Weapon-Free Zones (NWFZ)**, i.e. areas where the development, deployment and use of nuclear weapons are banned: **Treaty of Tlatelolco** (Latin America, entry into force in 1969); **Treaty on a NWFZ in Central Asia** (2009); **Treaty of Rarotonga** (South Pacific, 1986); **Treaty of Pelindaba** (Africa, 2009); **Treaty of Bangkok** (Southeast Asia, 1997).<sup>13</sup> In addition, the **Antarctic Treaty** (1961) guarantees that Antarctica will be used only for peaceful purposes; moreover, in 2012, **Mongolia** was recognised as a single-state NWFZ.<sup>14</sup> These treaties have protocols that NWS are supposed to ratify, thus providing compulsory 'negative security assurances' to the members of the NWFZ. In 2014, the five NWS signed the Protocol to the Central Asian NWFZ, but none of them has yet signed the Protocol to the Southeast Asia NWFZ.

<sup>9</sup> [Five Nuclear Powers Discuss Handling of Potential NPT Withdrawals](#), Global Security Newswire, NTI, July 2012.

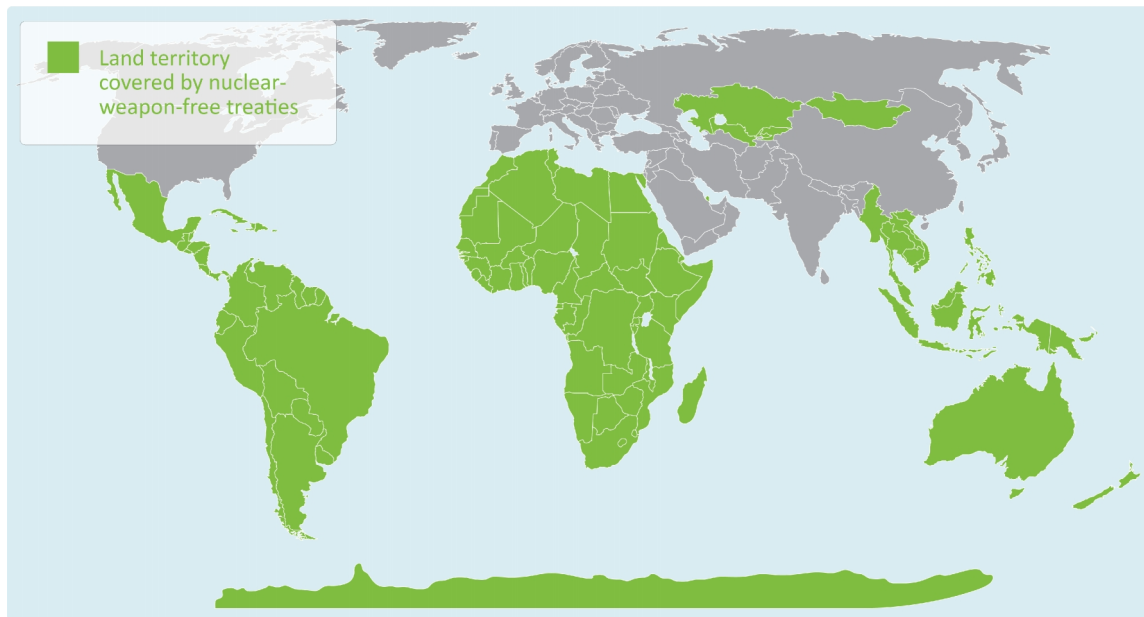
<sup>10</sup> [Treaties and Regimes](#), NTI.

<sup>11</sup> [IAEA Safeguards Overview: Comprehensive Safeguards and Additional Protocols](#), IAEA.

<sup>12</sup> [Conclusion of Additional Protocols status](#), IAEA, 14 May 2015.

<sup>13</sup> Some experts have advanced the idea of a Nuclear-Weapon-Free Zone in Europe. See [A Nuclear-Weapon-Free Zone in Europe: Concept, Problems, Chances](#), Müller H., Franceschini G., Melamud A., Müller D., Péczeli A., Schaper A., May 2015 (latest update).

<sup>14</sup> The 1967 [Outer Space Treaty](#) and the 1971 [Sea-bed Treaty](#) also [forbid](#) the emplacement of nuclear weapons in outer space, on the sea-bed and ocean floor and in subsoil.

**Figure 1 – Land covered by Nuclear-Weapon-Free areas**

Source: [UN Office for Disarmament Affairs](#), 2010.

- The **Comprehensive Test Ban Treaty (CTBT)** bans any nuclear weapon test explosion or any other nuclear explosion. It was opened for signature in 1996, but has still to enter into force. Signing the CTBT made the 1963 **Partial Test Ban Treaty (PTBT)**, which prohibits all nuclear tests in the atmosphere, in outer space and under water, redundant.
- The **International Convention for the Suppression of Acts of Nuclear Terrorism** (in force since 2007) defines (individual) offences related to the unlawful possession and use of radioactive and nuclear material and devices and the use or damage of nuclear facilities, and commits states parties to take measures necessary to criminalise these offences, in addition to preventive measures, to cooperate, and to exchange information.
- **UN Security Council Resolution 1540** adopted in 2004 (under Chapter VII of the UN Charter) imposes binding obligations on all states to criminalise the proliferation of WMD and their means of delivery, to ensure strict export controls and to secure sensitive material. The resolution addresses the issue of transfer of sensitive technologies to non-state actors and universalises the export-control requirements.<sup>15</sup> The UNSC has also adopted resolutions that impose sanctions on states considered to be in breach of their NPT commitments: Iran and North Korea.<sup>16</sup>
- On **nuclear safety and security**, several conventions have been adopted: the **Convention on Nuclear Safety** (in force since 1996) committing states parties to take all the necessary legislative and regulatory measures to ensure the safety of their civilian nuclear plants; the **Convention on the Physical Protection of Nuclear Material** (1987) binding states parties to the protection of nuclear material in international transit (fears of nuclear terrorism prompted the adoption by consensus of an amendment in 2005 – but in force only as of 8 May 2016 – to extend the scope of the convention to nuclear material in domestic use, inter alia) and the **Joint Convention on the Safety of**

<sup>15</sup> [United Nations Security Council Resolution 1540 \(2004\)](#).

<sup>16</sup> [Security Council Committee established pursuant to resolution 1737 \(2006\)](#) and [Security Council Committee established pursuant to resolution 1718 \(2006\)](#).

**Spent Fuel Management and on the Safety of Radioactive Waste Management** (2001) mainly covering the safety of spent fuel and radioactive waste management from civilian applications and, in specific cases, from defence-related activities.

### 1.2.2. *Informal/voluntary initiatives*

In the area of export controls, the **Zangger Committee** was formed in 1971 as an informal collaborative initiative of major nuclear suppliers that drafted a 'trigger list' of nuclear items with conditions for the export and transfer of those items to non-nuclear weapon states. The **Nuclear Suppliers Group** (NSG) was founded in 1975 (following India's 'peaceful nuclear explosion') as a voluntary group of states, to coordinate their exports of civilian nuclear material and nuclear-related technology to non-nuclear weapon states.<sup>17</sup> The informal and voluntary **Missile Technology Control Regime** aims to coordinate export-control efforts to prevent the proliferation of WMD delivery systems.<sup>18</sup>

Other informal multilateral initiatives include the **Proliferation Security Initiative**, established in 2003 to cooperate on interdiction of shipments of WMD-related equipment and materials;<sup>19</sup> as well as the **Nuclear Security Summits** promoting cooperation on nuclear security and prevention of nuclear terrorism.<sup>20</sup> The **Global Initiative to Combat Nuclear Terrorism** – launched by the US and Russia – is based on voluntary cooperation between 86 states and 4 observers, to strengthen global capacity to prevent, detect, and respond to nuclear terrorism.<sup>21</sup> A recent US initiative – the **International Partnership for Nuclear Disarmament Verification** launched in December 2014 – aims to establish a framework for cooperation between NWS and NNWS for addressing the challenges related to nuclear disarmament verification, building on other similar initiatives (e.g. UK-Norway, UK-US).<sup>22</sup> An informal gathering met with particular optimism by disarmament advocates, the **P5 Process**, established in 2009, is a forum for discussion and confidence-building on NPT matters between the five NWS.<sup>23</sup>

Finally, the **UN General Assembly** First Committee resolutions on disarmament, non-proliferation and arms control, although non-binding, reflect the importance the international community attaches to the subject. The 69th UNGA adopted several resolutions dedicated to the topic of nuclear disarmament and non-proliferation.<sup>24</sup>

## 2. Global nuclear arsenals: state of play and main trends

Analysts underline two main **trends** with regard to nuclear arsenals worldwide: firstly, while overall numbers of nuclear weapons have considerably declined since their peak of 70 000 in the mid-1980s, in recent years the pace of reduction has slowed; secondly,

<sup>17</sup> IAEA Information Circular [INFCIRC/539/Rev. 6](#), January 2015.

<sup>18</sup> [Missile Technology Control Regime](#).

<sup>19</sup> [Proliferation Security Initiative](#), US Department of State, 2013.

<sup>20</sup> [Nuclear Security Summit 2014 The Hague](#), US Department of State.

<sup>21</sup> See <http://www.gicnt.org/>.

<sup>22</sup> See [The International Partnership for Nuclear Disarmament Verification Fact Sheet](#), US Department of State; [UK-Norway Initiative on Nuclear Warhead Dismantlement Verification](#); [UK-US Technical Verification Cooperation](#).

<sup>23</sup> [Joint statement from the Nuclear-Weapon States at the London P5 Conference](#), 6 February 2015.

<sup>24</sup> See [Disarmament related UNGA resolutions](#).

all nuclear-armed states are pursuing the modernisation of their nuclear arsenals, including warheads, delivery systems and production facilities, with the potential to become a new form of arms race, thus undermining the goal of general disarmament contained in Article VI of the NPT. In addition, some of the nuclear-armed states are actually increasing their arsenals.<sup>25</sup>

The United States and Russia account for the majority of nuclear weapons worldwide, with roughly 93% of the total.<sup>26</sup> Against this background, the 2009 commitment by US President Barack Obama to 'a world without nuclear weapons' raised hopes for the prospects of 'global zero' and for the strengthening of the NPT regime.<sup>27</sup> Even though Obama clarified that complete nuclear disarmament was a long-term objective, the President insisted the goal was still worth pursuing.<sup>28</sup> The US would thus: reduce the role of nuclear weapons in its national security strategy; negotiate a new Strategic Arms Reduction Treaty (START) with the Russian Federation, seeking inclusion of other NWS in this effort afterwards; pursue ratification of the CTBT; pursue the negotiation and conclusion of a fissile material cut-off treaty (FMCT); and strengthen the NPT as a basis for nuclear cooperation.<sup>29</sup> The signing in April 2010 and entry into force in 2011 of the New START Treaty, committing the US and Russia to further reductions in their nuclear arsenals, was welcomed as a positive step towards disarmament. The 2010 NPT Conference seemed also to gain from this momentum, as states parties agreed to the implementation of a 64-point Action Plan that would reinforce the NPT provisions in all three pillars.

Nevertheless, at the time of the 2015 NPT Review Conference, progress was slow: the implementation of both the 64-point Action Plan and the new START is lagging, while a follow-on process that would extend the (START) arms control efforts to other NWS has not yet emerged.<sup>30</sup> Despite the declining overall numbers, temptation to use a limited nuclear strike in a conflict may actually be growing, as nuclear weapons and their delivery systems become more precise.<sup>31</sup> Moreover, as new types of weapons are being developed, NWS might breach the moratorium on testing, thus endangering any prospects for the CTBT to come into force.<sup>32</sup> Analysts also consider the likelihood of more states attempting to possess nuclear weapons as higher, as are the fears about terrorists acquiring nuclear devices.<sup>33</sup> Finally, the role of nuclear weapons in the nuclear-armed states' security doctrines seems to be increasing and becoming more

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<sup>25</sup> [Disarm and Modernize](#), Mecklin J., in *Foreign Policy*, March/April 2015.

<sup>26</sup> [Status of World Nuclear Forces](#) (as of 1 March 2016), Nuclear Notebook, Bulletin of the Atomic Scientists.

<sup>27</sup> See [globalzero.org](#).

<sup>28</sup> [Obama Prague Speech On Nuclear Weapons](#), Huffington Post, 5 June 2009.

<sup>29</sup> 'The United States: setting the stage for disarmament', Wirtz J., in Harsh V. Pant (Ed.), op. cit., pp. 77-85.

<sup>30</sup> [Slowing nuclear weapon reductions and endless nuclear weapon modernizations: A challenge to the NPT](#), Kristensen H. M., Norris R. S., Nuclear Notebook, Bulletin of the Atomic Scientists, February 2014.

<sup>31</sup> [The unkicked addiction](#), *The Economist*, 7 March 2015.

<sup>32</sup> [Disarm and Modernize](#), Mecklin J., in *Foreign Policy*, March/April 2015.

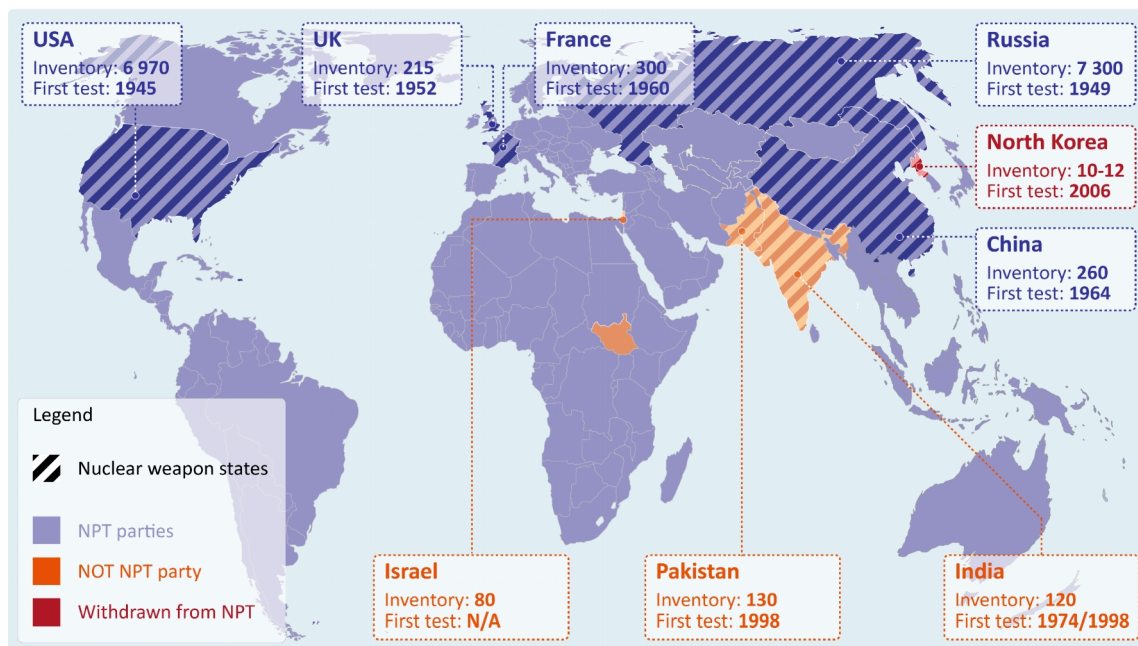
<sup>33</sup> According to some experts, however, fears of nuclear terrorism, while legitimate, overshadow a more realistic consideration of the nuclear threat. See On fear and nuclear terrorism, Weiss L., Bulletin of the Atomic Scientists, 2015, Vol. 71(2), 75-87.

nuanced, rather than giving way to increased reliance on conventional warfare means, as was hoped.<sup>34</sup>

## 2.1. Nuclear arsenals and modernisation plans

According to the Nuclear Notebook of the Bulletin of the Atomic Scientists, at the beginning of March 2016, the number of nuclear weapons worldwide was estimated at 15 350. Approximately 4 000 are operational warheads, of which less than 1 800 each of US and Russian nuclear weapons are on high alert and ready for use at short notice.<sup>35</sup> Besides the nuclear arsenals of the nine states possessing, or thought to possess, nuclear weapons, five NATO Allies (Belgium, Germany, Italy, the Netherlands and Turkey) host some 180 US non-strategic nuclear weapons at six bases in Europe.<sup>36</sup>

**Figure 2 – NPT parties, including the Nuclear Weapon States with their estimated total inventory of nuclear weapons and first detonation of nuclear device**



Source: [Status of World Nuclear Forces](#), 2015 (as of 1 March 2016), Nuclear Notebook, Bulletin of the Atomic Scientists. Total inventory refers to all nuclear warheads, in the stockpile (deployed and non-deployed; strategic and nonstrategic) and those retired for dismantling.

### 2.1.1. The United States' nuclear arsenal and modernisation programme

The **United States'** nuclear arsenal currently consists of a stockpile of 4 670 nuclear warheads for delivery by more than 800 ballistic missiles and bombers. Of these, around 1 930 warheads are deployed, including the 180 tactical warheads in Europe (the US being the only NWS deploying nuclear weapons abroad), while the remaining 2 740 warheads are kept in storage and constitute a 'hedge' against unforeseen events. In addition, around 2 340 retired, but intact, warheads await dismantlement. The total US inventory is around 6 970 warheads.<sup>37</sup> The US maintains a triad of nuclear forces consisting of nuclear submarines (SSBNs), land-based intercontinental ballistic missiles

<sup>34</sup> [Nuclear Weapons Modernization: A Threat to the NPT?](#), Kristensen H., in Arms Control Today, Arms Control Association, 1 May 2014.

<sup>35</sup> [Status of World Nuclear Forces](#) (as of 1 April 2015), Bulletin of the Atomic Scientists.

<sup>36</sup> See also [NATO's Uneasy Consensus: European Views on Nuclear Issues](#), *European Security*, Volume 23, Issue 1, 2014.

<sup>37</sup> [United States nuclear forces, 2016](#), Kristensen H. M., Norris R. S., Nuclear Notebook, Bulletin of the Atomic Scientists, 2 March 2016.

(ICBMs) and long-range bombers with nuclear weapons. The only US tactical nuclear weapons are 500 B61 gravity bombs,<sup>38</sup> currently either in storage or deployed in Europe.<sup>39</sup> The US has embarked on a **major programme of modernisation and maintenance** of all the legs of its nuclear triad. According to Congressional Budget Office (CBO) projections, the estimated cost will amount to US\$348 billion over the 2015-2024 period.<sup>40</sup> Experts underline that instead of reducing US reliance on nuclear weapons, to comply with its arms reduction and disarmament agenda, the Obama administration will have actually committed to extending and modernising the US nuclear arsenal.<sup>41</sup>

Regarding the projects for new weapons and delivery systems, the programme includes the development of a new class of 12 nuclear submarines;<sup>42</sup> a new stealth long-range bomber<sup>43</sup> and the Long-range Standoff (LRSO) weapon to replace the current Air-launched Cruise Missile (ALCO); a new nuclear-capable tactical combat aircraft;<sup>44</sup> and analysing options for the next generation land-based ICBM (known as the Ground-based Strategic Deterrent).<sup>45</sup> Also, new production and simulation facilities are to be built<sup>46</sup> and all nuclear warheads will undergo life-extension and modernisation (including production of the first-ever guided nuclear bomb).<sup>47</sup>

### 2.1.2. The Russian Federation

Estimates of Russia's nuclear forces point to a stockpile of 4 490 operational nuclear weapons, of which 1 790 strategic weapons are deployed on missiles and at bomber bases, and another 2 800 strategic and non-strategic warheads are in storage. Besides these, around 2 800 warheads are retired and await dismantlement. In total, Russia's inventory amounts to around 7 300 nuclear warheads.<sup>48</sup> Russia possesses approximately 311 ICBMs, 72 strategic bombers, as well as 10 SSBNs, and is thought to maintain around 2 000 non-strategic nuclear weapons, although no data are made public by the Russian government. Russia continues to place great importance on its tactical nuclear arsenal, in compensation for the inferiority of its conventional forces compared to the US/NATO, but also as a means to counter China's conventional forces.

<sup>38</sup> [B61 Bombs in Europe and the US Life Extension Programme](#), British American Security Information Council (BASIC), February 2014.

<sup>39</sup> [US nuclear forces, 2015](#), Kristensen H. M., Norris R. S.

<sup>40</sup> The Congressional Budget Office [estimates](#) that the US\$348 billion (budgeted by the Department of Defense and the Department of Energy) will be allocated as follows: US\$160 billion for strategic nuclear delivery systems and weapons; US\$8 billion for tactical nuclear delivery systems and weapons; US\$79 billion for nuclear weapons laboratories and their supporting activities and US\$52 billion for nuclear related command, control, communications and early-warning systems. The US\$49 billion remaining are estimates of additional costs to be incurred over the next decade.

<sup>41</sup> [Nuclear Weapons Modernization: A Threat to the NPT?](#), Kristensen Hans M., Arms Control Association, May 2014.

<sup>42</sup> [SSBN-X Subs: Congressmen Promote Refresh, Have Sub Bases in Districts](#), *Defense Industry Daily*, 5 March 2015.

<sup>43</sup> [The Air Force's B-3 Bomber Isn't As Secret As It Seems](#), Thompson L., *Forbes*, 9 March 2015.

<sup>44</sup> The F35A Lightning II Joint Strike Fighter will be deployed to European NATO Allies from 2024.

<sup>45</sup> [Nuclear Weapons Modernization: A Threat to the NPT?](#), Kristensen H. M., May 2014.

<sup>46</sup> [US nuclear forces, 2015](#), Kristensen H. M., Norris R. S.

<sup>47</sup> [The B61 family of nuclear bombs](#), Kristensen H.M., Norris R. S., Nuclear Notebook, Bulletin of the Atomic Scientists, 22 April 2014.

<sup>48</sup> [Russian nuclear forces, 2015](#), Kristensen H. M., Norris R. S., Nuclear Notebook, Bulletin of the Atomic Scientists, 14 April 2015.

The New START agreement (see section on New START) does not cover shorter range non-strategic forces, a major concern for the US, and for some European NATO Allies. However, negotiating an arms-control agreement on non-strategic forces would prove very difficult due to Russia's large inventory and to the US commitments to European NATO Allies.<sup>49</sup>

The Russian Federation has also started to **modernise** its strategic and non-strategic nuclear force. Reports suggest that Russia aims to replace all Soviet-era nuclear weapons systems<sup>50</sup> within the next decade, and recent declarations by top Russian generals point to the military's priority of qualitatively improving the strategic nuclear forces.<sup>51</sup>

Russia has begun upgrading and extending the life of its bombers, as well as developing a next-generation bomber.<sup>52</sup> Russia is also developing three new land-based ICBMs.<sup>53</sup> The sea-going component of Russia's nuclear forces is also undergoing modernisation, with eight Borey class SSBNs planned for 2020: at present, three have been launched and construction started on another four.<sup>54</sup> As concerns its tactical capabilities, the new Iskander-M SS-26 short range ballistic missile is being deployed to replace older systems. Modifying the design of nuclear warheads might also be an option (which would risk breaching the moratorium on testing).<sup>55</sup>

### 2.1.3. The New START

On 8 April 2010, the US and Russia signed a new **strategic** offensive arms reduction treaty<sup>56</sup> – the New START<sup>57</sup> – which commits Russia and the US to reduce their nuclear forces, according to the Treaty's aggregate limits on nuclear warheads and delivery vehicles, within seven years from its entry into force (on 5 February 2011). It will remain in force for ten years from that date. The New START includes detailed definitions and counting rules, arguably allowing for enough flexibility to the parties to determine the modalities of reducing the structure of their forces,<sup>58</sup> and institutes a monitoring and verification system.

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<sup>49</sup> See [New START Treaty](#) at [The Nuclear Threat Initiative](#).

<sup>50</sup> [Slowing nuclear weapon reductions and endless nuclear weapon modernizations: A challenge to the NPT](#), Kristensen H. M., Norris R. S., Bulletin of the Atomic Scientists, July 2014.

<sup>51</sup> [Russia to Keep Up with US, NATO Nuclear Forces](#), Sputnik International, 30 January 2015.

<sup>52</sup> [Get ready America: Russia wants a new stealthy, long-range bomber](#), Majumdar D., *The National Interest*, December 2014.

<sup>53</sup> [Slowing nuclear weapon reductions and endless nuclear weapon modernizations: A challenge to the NPT](#), Kristensen H. M., Norris R. S., Bulletin of the Atomic Scientists, July 2014.

<sup>54</sup> [Russia's Borey-Class Subs Construction Not Subject to Budget Sequestration](#), Sputnik International, 31 March 2015. Also [Russia Lay Down Seventh Borei-class SSBN](#), The Sentinel Analytical Group, 15 December 2015.

<sup>55</sup> [Disarm and Modernize](#), Mecklin J., in *Foreign Policy*, March/April 2015.

<sup>56</sup> [The New START Treaty: Central Limits and Key Provisions](#), Woolf A. F., CRS, 4 February 2015.

<sup>57</sup> The Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms replaces the 1991 START Treaty (expired in 2009) and supersedes the 2002 Strategic Offensive Reductions Treaty (SORT) or the Moscow Treaty.

<sup>58</sup> See [New START Treaty](#) at [The Nuclear Threat Initiative](#).

Under the New START, both NWS undertake to limit their strategic nuclear arsenals to:<sup>59</sup>

- 1 550 nuclear warheads on deployed ICBMs, deployed submarine-launched ballistic missiles (SLBMs), and deployed heavy bombers equipped for nuclear armaments (each heavy bomber is counted as one warhead);
- 800 deployed and non-deployed ICBM launchers, SLBMs launchers, and heavy bombers equipped for nuclear armaments;
- within the above limit, no more than 700 deployed ICBMs, deployed SLBMs, and deployed heavy bombers equipped for nuclear armaments.

According to New START data,<sup>60</sup> as of 1 March 2016, the US had **741** deployed ICBMs, SLBMs and heavy bombers compared to **521** for the Russian Federation; **1 481** warheads on deployed ICBMs, SLBMs and warheads counted for deployed heavy bombers, compared to **1 735** for Russia; and **878** deployed and non-deployed launchers of ICBMs, SLBMs and heavy bombers, compared to **856** for Russia.<sup>61</sup>

However, the numbers under the New START do not equate to the real status of the US and Russian arsenals; also, fluctuations over time – above and below the treaty limits – do not mean increases or decreases in the number of nuclear forces, but may point to the fact that older systems are being retired and replaced with newer ones.<sup>62</sup> Also, despite the Treaty, both the US and Russia's disarmament efforts have slowed and seem to aim for steady evolution in the long term (but not towards zero).<sup>63</sup> Overall, experts expect this trend to continue until 2018.<sup>64</sup> Despite the situation in Ukraine and some declarations to the contrary, both the US and Russia announced they will continue to implement the New START.<sup>65</sup> However, mutual accusations of breaching the US-Russia Intermediate-Range Nuclear Forces (INF) Treaty are complicating the arms-control dialogue.<sup>66</sup>

#### 2.1.4. The NWS in the European Union: United Kingdom and France

From a peak reached during the 1974-1981 period of around 500 warheads, the **United Kingdom** (UK) arsenal is estimated at approximately 215 nuclear warheads, with

<sup>59</sup> [New START](#), US Department of State.

<sup>60</sup> [New START: Factsheets](#), US State Department.

<sup>61</sup> In agreeing to the New START, both parties were pursuing [specific aims](#), beyond achieving further reductions in their strategic nuclear arsenals. Russia wanted to constrain US missile defence projects and US conventional superiority, while the US aimed to reduce Russia's non-strategic nuclear weapons. However, the Treaty does not limit US missile defence programmes, although it prohibits the conversion of ICBMs and SLBM launchers to launchers for missile defence interceptors; moreover, it does not cover non-strategic nuclear weapons and does not limit the number of non-deployed ICBMs and non-deployed SLBMs (although the US and Russia must keep each other informed about their numbers and location). See [Nuclear force remains central to Russia's defence](#), The Oxford Analytica Daily Brief, 15 January 2015.

<sup>62</sup> [New START Treaty Count: Russia Dips Below US Again](#), Kristensen H. M., Federation of American Scientists, 2 April 2015.

<sup>63</sup> [US nuclear forces, 2015](#), Kristensen H. M., Norris R. S., Nuclear Notebook, Bulletin of the Atomic Scientists, 27 February 2015.

<sup>64</sup> [New START Treaty Count: Russia Dips Below US Again](#), Kristensen H. M., Federation of American Scientists, 2 April 2015.

<sup>65</sup> See [New START Treaty](#) at [The Nuclear Threat Initiative](#).

<sup>66</sup> [Russian Compliance with the Intermediate-Range Nuclear Forces Treaty: Background and Issues for Congress](#), Woolf A. F., Congressional Research Service, 16 December 2014.

plans to reduce their number to 180 by mid-2020.<sup>67</sup> The UK's nuclear deterrent is now based only on a sea component, consisting of four Vanguard class SSBN equipped with Trident II D5 SLBMs, which it leases from the US.<sup>68</sup> The decision to build a new class of SSBNs, equipped with modified Trident SLBMs, to replace the Vanguard class submarines is expected in 2016.<sup>69</sup> The replacement plans, with an estimated cost of £20-25 billion, (in the long run the real cost might be five times higher) have sparked criticism in the UK.<sup>70</sup>

Currently, **France's** nuclear arsenal consists of around 300 warheads. The **sea component** of France's nuclear deterrent comprises four *Triomphant* class SSBNs, while the **airborne component** is represented by two types of land-based aircraft and a carrier-based aircraft.<sup>71</sup> In 1996, France renounced its land-based component, dismantling its short-range surface-to-surface missiles. **France** has also undergone a process of modernisation of its nuclear forces,<sup>72</sup> currently in the final stages, to extend the life of France's arsenal to 2050.<sup>73</sup>

In 2010, France and the UK signed two defence cooperation agreements (the Lancaster House Treaties), including one on specific nuclear cooperation valid for 50 years. It provides for two facilities for development and research to be built – one in France, the other in Britain – for shared use to allow the two NWS to model the performance and safety of nuclear warheads. Nevertheless, the two will not be able to share data, due to the US-UK agreements and France's independent nuclear programme.<sup>74</sup>

#### 2.1.5. China

China's nuclear forces are estimated at around 260 nuclear warheads; of which about 180 are considered operational (all are thought to be kept in central storage, de-mated or separated from their delivery vehicles).<sup>75</sup> China is in the final stages of a **modernisation programme** started two decades ago and is the only P5 state which is actually increasing (quantitatively) its nuclear arsenal (with production of new warheads). Although aiming to possess a triad of nuclear forces, China has only two operational components: around 150 land-based ballistic missiles and nuclear

<sup>67</sup> [World nuclear forces: British nuclear forces](#), Kile S. N., Kristensen H. M. in [SIPRI Yearbook 2014](#).

<sup>68</sup> The UK [collaborates](#) closely with the US on its nuclear weapons programme. After its first successful nuclear test in 1952, the UK and the US signed the 'Agreement for cooperation on the uses of atomic energy for mutual defence purposes' renewed every decade, allowing the two NWS to exchange fissile material, technological know-how and warhead designs. According to 1962 and 1963 agreements, the US would supply the missiles and the UK would build the submarines and warheads. The US provided the UK with the Polaris A3 missile, replaced in 1982 by the current system of Trident II D5 missiles.

<sup>69</sup> [Trident Commons vote delayed until later this year, Defence Secretary Michael Fallon reveals](#), Paul Waugh, The Huffington Post UK, 3 March 2016.

<sup>70</sup> [Costs of UK Trident After the Election](#), Ingram P., BASIC, 23 April 2015; see also [The Trident Successor Programme: An Update](#), Mills C., Brooke-Holland L., House of Commons Library Note, March 2015.

<sup>71</sup> [World nuclear forces: French nuclear forces](#), Schell P.P., Kristensen H. M. in [SIPRI Yearbook 2014](#).

<sup>72</sup> [Slowing nuclear weapon reductions and endless nuclear weapon modernizations: A challenge to the NPT](#), Kristensen H. M., Norris R. S., Bulletin of the Atomic Scientists, July 2014.

<sup>73</sup> [Déclaration de M. François Hollande, Président de la République, sur la dissuasion nucléaire](#), Istres, 19 February 2015.

<sup>74</sup> 'The United Kingdom: a conflicted nuclear weapons state', Ingram P. and Collins M., in Harsh V. Pant (Ed.), op. cit., pp.103-115.

<sup>75</sup> [World nuclear forces: Chinese nuclear forces](#), Schell P. P., Kristensen H. M., in [SIPRI Yearbook 2014](#).

configured aircraft (2013 estimations).<sup>76</sup> Although significant efforts were put into developing the sea-based component of its nuclear forces, the development of the last leg of the triad has been very slow; moreover, analysts have difficulty in understanding the role of the SSBNs in China's nuclear posture, due to its policy of not deploying nuclear warheads on missiles in peacetime. There is uncertainty over the existence of a Chinese non-strategic nuclear arsenal, and some speculation over China adding a nuclear capability to ground and air-launched cruise missiles.<sup>77</sup> **China's** modernisation programme has focused on more mobile systems in an attempt to improve survivability of its nuclear forces and capabilities for retaliation.

#### 2.1.6. South Asia's nuclear armed states: India and Pakistan

India tested a first nuclear device in 1972, claiming a Peaceful Nuclear Explosion. In May 1998, after testing other nuclear devices, India became a de facto NWS. India's nuclear tests were followed closely by Pakistani nuclear tests.<sup>78</sup> The long-time distrust and tense relations between the two countries make South Asia the region in which nuclear confrontation is most likely to happen. Neither India nor Pakistan is a NPT signatory.

**India's** nuclear arsenal is estimated at some 100-120 weapons kept in storage, mostly plutonium-based; in addition, the nuclear warheads are apparently de-mated. **Aircraft** represent the most powerful of India's nuclear capabilities.<sup>79</sup> As for its **land-based systems**, India is currently developing the Agni class of ballistic missiles.<sup>80</sup> India has also been developing the sea-based nuclear component of the triad: the Arihant nuclear-powered submarine began sea trials in December 2014.<sup>81</sup> Plans include the development of four SSBNs by 2020, the second one already in production. India is also developing SLBMs for Arihant.

**Pakistan's** nuclear arsenal is the fastest growing among all nuclear-armed states in quantitative terms. Currently, Pakistan is estimated to possess between 110 and 130 nuclear weapons for delivery by **aircraft** and **land-based missiles**, compared to 60-70 warheads in 2005,<sup>82</sup> and some reports estimate that Pakistan might become the world's third nuclear power within the next decade.<sup>83</sup> Pakistan is believed to keep the warheads de-mated. In terms of delivery systems, Pakistan has developed an impressive ballistic missile force, designed for conventional and nuclear missions, while some of its combat aircraft are assigned a nuclear mission. Pakistan appears not to be seeking to develop a naval nuclear system.<sup>84</sup>

<sup>76</sup> [Chinese nuclear forces, 2013](#), Kristensen H. M., Norris R. S., Nuclear Notebook, Bulletin of the Atomic Scientists, November/December 2013.

<sup>77</sup> [Slowing nuclear weapon reductions and endless nuclear weapon modernizations: A challenge to the NPT](#), Kristensen H. M., Norris R. S., Bulletin of the Atomic Scientists, July 2014.

<sup>78</sup> 'India: the accepted (gate) crasher', Ogden C., in Harsh V. Pant (Ed.), op. cit., pp.149-160.

<sup>79</sup> [World nuclear forces: Indian nuclear forces](#), Kile S. N., Kristensen H. M., in [SIPRI Yearbook 2014](#).

<sup>80</sup> [India successfully test fires nuclear-capable Agni III ballistic missile](#), The Indian Express, 16 April 2015.

<sup>81</sup> [Can India Accommodate the INS Arihant?](#), Saksena A.R., The Diplomat, 26 January 2015.

<sup>82</sup> 'Pakistan: the politics of nuclear force building', Chakma B. in Harsh V. Pant (Ed.), op. cit., pp.161-172.

<sup>83</sup> [Report: Pakistan's nuclear arsenal could become the world's third biggest](#), Craig T., Washington Post, 27 August 2015.

<sup>84</sup> [World nuclear forces: Pakistan nuclear forces](#), Schell P. P., Kristensen H. M., in [SIPRI Yearbook 2014](#).

### 2.1.7. Israel

Israel's policy of ambivalence regarding its nuclear weapons programme (neither confirming nor denying possession of nuclear weapons) renders any official public information on the matter inexistent. Estimations of Israel's nuclear arsenal point to around 80 warheads (mainly plutonium based) to be delivered by aircraft, land-based ballistic missiles and possibly sea-based cruise missiles.<sup>85</sup>

### 2.1.8. Democratic People's Republic of Korea (DPRK)

Since it announced its withdrawal from the NPT in 2003, North Korea has carried out three nuclear tests (in 2006, 2009 and 2013), which were condemned by the international community and triggered a series of sanctions. Most recently on 6 January 2016, a fourth nuclear detonation in North Korea was confirmed, although doubts persist over DPRK claims that it successfully tested a thermonuclear device (or a hydrogen bomb, H-bomb).<sup>86</sup> This latest nuclear test has also received widespread condemnation<sup>87</sup> and new sanctions have been imposed by the UN Security Council.<sup>88</sup>

DPRK's nuclear arsenal is believed to consist of 10-12 rudimentary nuclear warheads, based on plutonium, although there is speculation that DPRK may have been assisted in its efforts to use highly enriched uranium, by the clandestine network of Pakistani engineer A. Q. Khan.<sup>89</sup> Other estimates point to 10-16 or even up to 20 nuclear weapons and the possibility to double its nuclear arsenal by 2016 using its plutonium stocks.<sup>90</sup>

North Korea aims to develop a nuclear weapon for delivery by a long-range missile. Its arsenal – based on old Soviet weapons or developed through reverse engineering – counts nine types of guided ballistic missiles (reportedly more than 800 missiles), some of which have the potential for long-range nuclear capability, provided that North Korea manages to develop a sufficiently compact nuclear warhead.<sup>91</sup> The reliability and operational status of DPRK's missile arsenal is difficult to assess. While most analysts do not believe that North Korea has the capabilities required for a nuclear long-range missile, some top US military officials have stated the contrary. Also, others assert that North Korea does possess a regionally nuclear-capable delivery system.<sup>92</sup> DPRK claimed in May 2015 it had had the capability to miniaturise warheads 'for some time' and announced the successful test of a SLBN, violating various UNSC resolutions.<sup>93</sup>

<sup>85</sup> [Israeli nuclear weapons, 2014](#), Kristensen H. M., Norris R. S., Nuclear Notebook, Bulletin of the Atomic Scientists, 28 October 2014.

<sup>86</sup> [Seismic waves from North Korea suggest a repeat of the 2013 nuclear test](#), Park J., Bulletin of the Atomic Scientists, 7 January 2016; and [Hecker assesses North Korean hydrogen bomb claims](#), Fyffe S., Bulletin of the Atomic Scientists, 7 January 2016.

<sup>87</sup> Lax enforcement weakens UN sanctions on nuclear North Korea, Cara A., Pennington M., 10 January 2016.

<sup>88</sup> [Resolution 2270 \(2016\)](#), S/RES/2270 (2016), UN Security Council, 2 March 2016.

<sup>89</sup> [World nuclear forces: North Korea's military nuclear capabilities](#), Kile S. N., Schell P. P., Kristensen H. M., in [SIPRI Yearbook 2014. See also Status of World Nuclear Forces, Kristensen H. M. and Norris R. S. as of 1 March 2016.](#)

<sup>90</sup> [Images show North Korea nuclear reactor may be operating again: experts](#), Brunnstorm D., Reuters, 29 April 2015.

<sup>91</sup> [World nuclear forces: North Korea's military nuclear capabilities](#) in [SIPRI Yearbook 2014.](#)

<sup>92</sup> [The Future of North Korea's Nuclear Delivery Systems](#), Schilling J., Khan H., US-Korea Institute, 2015.

<sup>93</sup> See [North Korea says it can miniaturize nuclear weapons](#), Mullen J., CNN, 20 May 2015 and [Report: North Korea tests ballistic missile](#), Ripley W., Castillo, M., CNN, 9 May 2015.

However, even with the latest nuclear test, it remains difficult to assess the degree of sophistication and the exact size of DPRK's nuclear arsenal.

## 2.2. Nuclear doctrines

Nuclear weapons have become an important part of the security of NWS and are set to retain or even increase their role in the military strategies and doctrines of states, based on nuclear deterrence.<sup>94</sup> Nuclear deterrence, in arguing that nuclear weapons play a role in ensuring stability between NWS, has to date provided an explanatory framework and is an important strategy for NWS, although it has been widely criticised from a political, ethical and strategic point of view.

### Nuclear deterrence

At the core of deterrence lies the argument that a state will refrain from a nuclear attack against its adversary if it is convinced it might suffer unacceptable damage in a second strike. Extended deterrence (the 'nuclear umbrella' or 'positive security assurances') has a similar role, with nuclear weapon states committing to non-nuclear weapon allies to ensure their security in case of nuclear aggression (e.g. US extended deterrence to NATO Allies, to Australia, Japan and South Korea).<sup>95</sup>

The post-Cold War security environment challenges the nuclear deterrence doctrine, as some NWS are intent on contesting the existing security order; regional rivalries between NWS increase the risk of nuclear war; the number of states possessing nuclear weapons is likely to grow; and the danger of unauthorised use of weapons is also increasing (Pakistan being an often-invoked possibility), including scenarios in which terrorists may obtain nuclear weapons.<sup>96</sup> The goal of complete nuclear disarmament is also a major challenge to the concept of deterrence.<sup>97</sup> Experts are thus encouraging a debate on deterrence, which would allow a reduction in the number of, and reliance on, nuclear weapons while adapting to the nuclear strategy requirements.<sup>98</sup> Others maintain NWS should aim at adhering to a 'no first use policy' rather than a 'global zero' target.<sup>99</sup>

- The United States' nuclear posture

The NWS with the largest arsenals, the US and Russia, continue to assign a significant role to nuclear weapons in their strategies and to see each other as the reference point in terms of size and state of alert of their arsenal.

The 2010 Nuclear Posture Review and the 2013 Nuclear Employment Strategy confirm the US commitment to sustaining a credible strategic deterrent, which could be maintained with one third fewer deployed warheads than the new START limits.<sup>100</sup> The two documents state the need to reduce the role of nuclear weapons in the US security strategy and in deterring non-nuclear attacks, and to increase the role of conventional and non-nuclear strike capabilities and ballistic missile defences. Assessing that the

<sup>94</sup> [The nuclear weapons comeback](#), Thränert O., CSS ETH Zurich, Vol. 3/1, January 2015.

<sup>95</sup> 'Nuclear deterrence: enduring relevance but growing need for re-evaluation', Hobbs C., Harries M., in Harsh V. Pant (Ed.), op. cit., pp.15-26.

<sup>96</sup> [The unkicked addiction](#), *The Economist*, 7 March 2015.

<sup>97</sup> 'Nuclear deterrence: enduring relevance but growing need for re-evaluation', Hobbs C., Harries M., in Harsh V. Pant (Ed.), op. cit., pp.15-26.

<sup>98</sup> [The nuclear weapons comeback](#), Thränert O., CSS ETH Zurich, Vol. 3/1, January 2015.

<sup>99</sup> [No nukes? No—no first use](#), Ulgen S., Bulletin of the Atomic Scientists, 25 October 2014.

<sup>100</sup> [Fact sheet: Nuclear Weapons Employment Strategy of the United States](#), White House, 19 June 2013.

danger of 'a global nuclear war has become remote, but the risk of nuclear attack has increased', the US goals should be to: prevent nuclear terrorism and nuclear proliferation; reduce the role of nuclear weapons in US defence strategy; reduce force levels while maintaining strategic deterrence and stability; strengthen regional deterrence while reassuring US allies and partners; and maintain a safe, secure and effective nuclear arsenal.

The US will mainly seek to 'maintain strategic stability with Russia and China, strengthen regional deterrence, and reassure US allies and partners' while cooperating with Russia on reducing strategic and non-strategic nuclear stockpiles and implementing the NPT. The main elements of US nuclear strategy are reconfirmed, such as maintaining a nuclear triad, the forward deployment of nuclear weapons to Europe and rejection of a minimum deterrence posture. The US confirms its 'negative security assurances' to non-NWS that are in compliance with their NPT obligations (i.e. pledge not to use, or threaten to use nuclear weapons against them). On the other hand, the US maintains ambiguity on whether it will initiate use of nuclear weapons against a NWS. US policy also affirms that the '**fundamental role** of US nuclear weapons remains to deter nuclear attack against the US, its allies and its partners'.<sup>101</sup> On this point, analysts still debate whether this really signifies a departure from a previous policy of ambiguity whereby the US threatened to use nuclear weapons against an attack with chemical and biological weapons.<sup>102</sup> Finally, US policy remains that 'the US will only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners.'

For some experts, the new policy falls short of US President Obama's disarmament pledges; moreover, they point to the emergence of a 'schizophrenic policy' of contradictory messages of nuclear weapons reductions and modernisation.<sup>103</sup> For others however, it follows a trend of 'nuclear weapons neglect' in US (and NATO) planning, at odds with the growing significance nuclear weapons have acquired for other states, such as China, Russia, India and Pakistan.<sup>104</sup>

- NATO

At the most recent summit of the North Atlantic Treaty Organization in Wales (September 2014), allies reaffirmed their guiding principle that **NATO** remains a nuclear alliance, as long as nuclear weapons exist.<sup>105</sup> Yet the debate about removing US tactical nuclear weapons from Europe continues; experts arguing that their withdrawal would strengthen the NPT by showing NATO's commitment to nuclear disarmament.<sup>106</sup> The

<sup>101</sup> [Report on Nuclear Employment Strategy of the United States](#), Department of Defense, 12 June 2013.

<sup>102</sup> [Falling Short of Prague: Obama's Nuclear Weapons Employment Policy](#), Kristensen H. M., in *Arms Control Today*, Arms Control Association, 4 September 2013.

<sup>103</sup> [The US nuclear posture after the 2010 Nuclear Posture Review and the 2013 Nuclear Weapons Employment Strategy](#), Kristensen H. M., *Federation of American Scientists*, 25 September 2013.

<sup>104</sup> [The nuclear weapons comeback](#), Thränert O., *CSS ETH Zurich*, Vol. 3/1, January 2015.

<sup>105</sup> 'Deterrence, based on an appropriate mix of nuclear, conventional, and missile defence capabilities, remains a core element of our overall strategy. As long as nuclear weapons exist, NATO will remain a nuclear alliance. The strategic nuclear forces of the Alliance, particularly those of the United States, are the supreme guarantee of the security of the Allies. The independent strategic nuclear forces of the United Kingdom and France have a deterrent role of their own and contribute to the overall deterrence and security of the Alliance.' [Wales Summit Declaration](#), 5 September 2014.

<sup>106</sup> [Why NATO should eliminate its tactical nukes, despite Russian belligerence](#), Kristensen H. M., Mount A., *Bulletin of the Atomic Scientists*, 3 September 2014.

NATO 'nuclear sharing' arrangements were denounced by Russia at the 2015 NPT Review Conference as breaching Articles I and II of the NPT.<sup>107</sup>

- Russia's new military doctrine

**Russia** has reaffirmed the importance of nuclear forces in its military and security strategy.<sup>108</sup> Moreover, Russia is believed to be, together with France, the NWS that does not consider the goal of total disarmament as realistic or desirable. Despite some recent bellicose Russian rhetoric, and concerns in the West that Russia might lower the threshold for using nuclear weapons in any conflict, in particular with a combination of conventional and nuclear actions in a hybrid war scenario,<sup>109</sup> its most recent military doctrine of December 2014 maintains the previous formulation regarding the principles guiding the use of nuclear weapons.<sup>110</sup>

Russia did not include any reference in its doctrine to a preventive nuclear strike in general or in a local conflict, although many in Russia are said to favour a limited role for nuclear weapons in regional and local conflicts.<sup>111</sup> The 2014 doctrine identifies NATO as the main military threat to Russia, while ballistic missile defence plans and the US 'prompt global strike' concept are viewed as efforts to achieve military superiority and undermine Russia's deterrent. The issue of missile defence is a long-standing policy concern, as Russia considers strategic offensive and defensive arms to be linked inextricably. Russia renounced the Soviet Union's 'no first use' policy in 1993.<sup>112</sup>

- China's doctrine of credible minimal deterrence

**China's** nuclear doctrine is historically centred on the principles of 'no first use' and minimum deterrence, as part of a self-restraint approach to its own nuclear weapons. Amidst growing concerns about China renouncing its 'no first use' principle, Chinese officials have confirmed the country will adhere to the principle, due to worries that such a move would increase instability across the Taiwan Strait and would negatively affect China's international reputation. Similarly, the strategy of credible minimal deterrence allows China to avoid a nuclear arms race (with the US), while consistently seeking to increase the survivability of its nuclear forces.<sup>113</sup> Generally, the prevailing view is that China will continue to adhere to these principles; nevertheless, some analysts estimate that an internal debate is emerging in China, prompted by US missile defence and conventional 'global strike' plans, on whether nuclear weapons should be used as a deterrent for non-nuclear attacks that threaten China's vital interests.<sup>114</sup>

<sup>107</sup> [Statement](#) by the representative of the Russian Federation, NPT Review Conference, 27 April 2015.

<sup>108</sup> [Nuclear force remains central to Russia's defence](#), Oxford Analytica Daily Brief, 15 January 2015.

<sup>109</sup> [Insight - Russia's nuclear strategy raises concerns in NATO](#), Croft A., Reuters, 4 February 2015.

<sup>110</sup> 'The Russian Federation reserves the right to utilize nuclear weapons in response to the utilization of nuclear and other types of weapons of mass destruction against it and (or) its allies, and also in the event of aggression against the Russian Federation involving the use of conventional weapons when the very existence of the state is under threat.' See [Russia's New Military Doctrine All Bark, No Bite](#), Golts A., *The Moscow Times*, 12 January 2015, and [Country profiles: Russia](#), nti.org.

<sup>111</sup> [Russia's New Military Doctrine: Should the West Be Worried?](#), Trenin D., *The National Interest*, 31 December 2014.

<sup>112</sup> [Welcome to Cold War 2.0: Russia's New and Improved Military Doctrine](#), Carden J., *The National Interest*, 5 January 2015.

<sup>113</sup> 'China: a deterrence paradox', Holslag J., in Harsh V. Pant (Ed.), op. cit., pp. 132-145.

<sup>114</sup> [The nuclear weapons comeback](#), Thränert O., CSS ETH Zurich, Vol. 3/1, January 2015.

- French nuclear policy

Characterised by its consistency and 'conservatism', France's nuclear policy has evolved somewhat over time by strengthening the stance on matters of nuclear non-proliferation; however, on disarmament, France has so far rejected as unrealistic the goal of complete nuclear disarmament. Having unilaterally reduced its nuclear forces, dismantled its fissile material production facilities, and being among the first states, together with the UK, to ratify the CTBT, France considers it has an exemplary record in terms of nuclear disarmament; therefore no further cuts in its nuclear forces are envisaged, as France seeks to maintain the credibility of its nuclear posture on the one hand, and on the other awaits significant US and Russian reductions in their arsenals first. Moreover, contrary to the UK and USA, there is significant public support and consensus among political forces in France for the maintenance of an independent nuclear deterrent.<sup>115</sup>

In February 2015, President François Hollande reiterated the main tenets of French nuclear doctrine.<sup>116</sup> Firstly, nuclear weapons could be used only in 'extreme situations of self-defence' and to respond to aggression against France's vital interests. They will not be used against non-nuclear weapon states, which have respected their non-proliferation commitments (not applying to those in breach of their commitments). The concept of 'nuclear warning' is introduced, whereby France as a last resort would use a limited nuclear strike as a warning, in order to re-establish deterrence. Secondly, the size of France's nuclear arsenal does not depend on those of other NWS; nevertheless, should there be a significant reduction in other states' nuclear arsenals and an improvement in global security conditions, then France would also consider the implications for its own nuclear forces. Thirdly, France's vital interests are closely linked to those of Europe, therefore any aggression which would threaten Europe's survival would have 'consequences'. Finally, France will remain outside NATO's Nuclear Planning Group and continue to implement a continuous-at-sea deterrence (one of four nuclear submarines is always deployed).<sup>117</sup>

- United Kingdom nuclear policy

Despite the extensive public debate in the **United Kingdom** (UK) over its nuclear arsenal, all UK governments have adhered to the main principle that the UK needs a credible nuclear deterrent against any potential nuclear aggression. At the same time, the UK is the most engaged NWS on matters of disarmament and arms control, and is assessed as the NWS most likely to discontinue its independent nuclear deterrent. As with France, the UK has a continuous-at-sea policy, with one SSBN of four always on patrol, guaranteeing second strike capability.<sup>118</sup>

<sup>115</sup> 'France: the evolution of a nuclear exception', Brustlein C., in Harsh V. Pant (Ed.), op. cit., pp. 116-131.

<sup>116</sup> [Déclaration de M. François Hollande, Président de la République, sur la dissuasion nucléaire](#), Istres, 19 February 2015.

<sup>117</sup> France's nuclear conservatism, Strategic Comments, The International Institute for Strategic Studies, Volume 21, Comment 3, February 2015. NATO's [Nuclear Planning Group](#) (NPG) is the senior body on nuclear matters, responsible for the reviews of the Alliance's nuclear policy. All NATO members, except France participate in the NPG.

<sup>118</sup> 'The United Kingdom: a conflicted nuclear weapons state', Ingram P. and Collins M., in Harsh V. Pant (Ed.), op. cit., pp. 103-115.

- India and Pakistan

Of all regions, South Asia is believed the most likely to see detonation of a nuclear weapon in the future. Both India and Pakistan – long-standing regional rivals – are de facto NWS, remaining outside the international non-proliferation regime, and both are increasing and modernising their nuclear systems. Notwithstanding Indo-Pakistani relations, the underlying strategic competition in the region has been that between India and China.<sup>119</sup> India's nuclear programme has thus developed as a means of deterring both China and Pakistan. Nuclear and strategic cooperation between China and Pakistan reflects the cooperation between India and the US and between India and Russia, in a dynamic underlining growing regional instability.

**India's nuclear doctrine** emphasises, similarly to China, the principles of 'no first use' and the possession of a 'minimum credible deterrent'. India would use nuclear weapons only to retaliate against a nuclear attack on its territories, or on Indian forces anywhere, or in response to a chemical or biological weapons attack. Moreover, India has given negative security assurances to non-nuclear weapon states, has adopted a moratorium on nuclear testing and has affirmed the goal of universal nuclear disarmament.<sup>120</sup>

**Pakistan**, on the other hand, seems to retain a 'first use' policy, although there is no official Pakistani nuclear doctrine and clarifications are still lacking about the conditions under which Pakistan would launch a nuclear first strike. Pakistan's nuclear planning is clearly directed against India's superior conventional force and envisages its nuclear deterrent in relation to the evolution of India's nuclear build-up.<sup>121</sup>

- Israel's policy of opacity

**Israel** maintains a policy of ambiguity over its nuclear capabilities, neither confirming nor denying their possession. The official statement, coined in the mid-1960s, remains that Israel 'will not be the first to introduce nuclear weapons into the Middle East'. The US reportedly stopped pressuring Israel to join the NPT as long as Israel kept its programme secret and conducted no nuclear tests.<sup>122</sup>

### 3. The 2015 NPT Review Conference

The Ninth NPT Review Conference took place from 27 April to 22 May 2015, with preparatory work starting in 2012.<sup>123</sup> One year before the 2015 NPT Review Conference, some would have assessed that real progress was in sight, considering the ratification of the New START Treaty, some positive steps towards the establishment of a nuclear-weapons-free zone in the Middle East and advances in the negotiations between the E3+3/P5+1 and Iran on its nuclear programme. However, general lack of progress on disarmament, feeble prospects in universalising the Treaty and renewed proliferation concerns had already diminished the prospects for a successful 2015 NPT Review Conference. Beyond the NPT, the deterioration of the security environment is

<sup>119</sup> [Regional Nuclear Dynamics](#), Perkovich G., and [China, India, And Pakistan—Growing Nuclear Capabilities With No End in Sight](#), Tellis A. J., Carnegie Endowment, 25 February 2015.

<sup>120</sup> 'India: the accepted (gate) crasher', Ogden C., in Harsh V. Pant (Ed.), op. cit., pp. 149-160.

<sup>121</sup> 'Pakistan: the politics of nuclear force building', Chakma B. in Harsh V. Pant (Ed.), op. cit., pp. 161-172.

<sup>122</sup> [Israeli nuclear weapons, 2014](#), Kristensen H. M., Norris R. S. Bulletin of the Atomic Scientists, 2014.

<sup>123</sup> United Nations dedicated [website](#) for the 2015 NPT Review Conference.

expected to prevent further negotiations on weapons reductions, as well as any decline in the role attributed to nuclear weapons in the military strategies of NWS.<sup>124</sup> More importantly, the inability to agree on the negotiated draft text at the end of the conference exposed the increasing gap between the NWS and the non-nuclear weapon states, in particular regarding their approaches to nuclear disarmament.

### 3.1. The implementation of the 2010 NPT Action Plan

At the previous NPT Review Conference in 2010, states parties managed to adopt a final document and agree on the implementation of a 64-point Action Plan concerning all three pillars.<sup>125</sup> While the outcome document was viewed by some as a modest achievement and by others as a sign of the NPT's declining relevance,<sup>126</sup> the 2010 NPT Action Plan was met with more optimism.<sup>127</sup> Consisting of 22 actions on nuclear disarmament, 24 on nuclear non-proliferation and 18 on nuclear energy, the Action Plan is considered by NWS as a long-term roadmap without a specific deadline for implementation which should be 'rolled out' at least for the next review cycle. Conversely, most non-nuclear weapon states view the Action Plan as a short-term endeavour. Before the Ninth Review Conference, reports on the implementation of the Action Plan assessed that only 28 of the 64 actions could be considered implemented fully, 21 actions implemented to some degree and 15 actions not implemented at all. With progress seen on only five of the 22 actions, the implementation of the actions on disarmament lags behind those on non-proliferation and nuclear energy.<sup>128</sup>

### 3.2. Key challenges and points of contention

States and various coalitions of states parties, including the European Union (EU), submitted papers underlining their priorities, positions and implementation track record to inform the debates and negotiations at the Review Conference.<sup>129</sup> Three main committees were set up to carry out negotiations on a Final Document. At the end of the conference, states parties remained divided on a number of critical points, reflecting the main challenges and long-standing divergences at the heart of the NPT.

#### 3.2.1. Pillar 1: Nuclear disarmament

The nuclear disarmament pillar proved the most contentious once again, as significant disagreement over issues such as effective measures under Article VI, the humanitarian impact of nuclear weapons and reporting by NWS persisted throughout the Review Conference, revealing a wide gap on nuclear disarmament between states parties.<sup>130</sup>

- Implementation of Article VI obligations: differing interpretations

The interpretation of the obligations arising from **Article VI** differs among states parties. For non-nuclear weapon states, the nuclear weapon state status is meant to be temporary and lack of progress towards total disarmament by the NWS has increased

<sup>124</sup> [The NPT in Review](#), Mount A., Bulletin of the Atomic Scientists multimedia, 28 April 2015.

<sup>125</sup> UN dedicated [website](#) for the 2010 NPT Review Conference.

<sup>126</sup> [Thinking beyond the NPT Review Process](#), Acheson R., Reaching Critical Will, June 2014.

<sup>127</sup> [2015 NPT Review Conference Briefing Book](#), Reaching Critical Will, 2015.

<sup>128</sup> [The NPT Action Plan Monitoring Report](#), Reaching Critical Will, March 2015.

<sup>129</sup> See [Working Papers](#) submitted for the 2015 NPT Review Conference. The main coalitions are the P5, the Non-Aligned Movement (NAM), the New Agenda Coalition (NAC), the Vienna Group of Ten, the Non-Proliferation and Disarmament Initiative, the Humanitarian Consequences Group etc.

<sup>130</sup> [Editorial: Gaps](#), Acheson R., NPT News in Review, Reaching Critical Will, Vol. 13, No. 15, 21 May 2015.

the perception of the NPT as a discriminatory regime. As the P5 NWS account for 98% of the world's nuclear arsenals,<sup>131</sup> many argue that it is mainly these states' responsibility to significantly reduce their nuclear weapons. At the 2015 NPT Review Conference, most non-nuclear weapon states pointed to the obligation of NWS to eliminate their nuclear arsenals and called for the urgent start of the multilateral process that would lead to nuclear disarmament through a legally binding treaty.

Statements delivered on behalf of the Non-Aligned Movement (NAM), the New Agenda Coalition (NAC), the Nuclear Proliferation and Disarmament Initiative (NPDI), the Humanitarian Consequences Group and many individual states parties emphasised the slow progress on the implementation of disarmament obligations and called on the NWS to take measures to increase transparency, diminish the role of nuclear weapons in their military doctrines, to modify the high-alert status of their nuclear weapons, to further achieve reductions in nuclear arsenals, and to comply with their obligation of initiating multilateral negotiations for complete and general nuclear disarmament, amongst others. In this context, the conference was called upon to 'explore the legal approaches available to advance the effective measures relating to nuclear disarmament as required by Article VI'.<sup>132</sup> Moreover, for some of the NNWS, the increased 'understanding of the catastrophic humanitarian consequences of a nuclear weapon detonation' should underpin efforts to meet the objectives set out in Article VI, and should lead to the prohibition and elimination of nuclear weapons through a legally binding agreement.<sup>133</sup> Conversely, the NWS have argued for a step-by-step approach to nuclear disarmament, which they also make conditional on the improvement of the international security environment.<sup>134</sup> In their common statement, the P5 states reaffirmed their belief that 'an incremental, step-by-step approach was the only practical option for making progress towards nuclear disarmament, while upholding global strategic security and stability'.<sup>135</sup>

- The establishment of a Middle East Weapons of Mass Destruction-free zone

Mandated by the 1995 NPT Review Conference and 1995 Resolution on the Middle East, the creation of a Middle East WMD-free zone remains one of the main challenges to the NPT.<sup>136</sup> With the postponement of the proposed Helsinki conference dedicated to the topic in 2012 and the failure to set another date for the conference, many Middle Eastern states started to feel frustrated with the NPT. In particular, Egypt has been pushing for progress on the issue for a long time, arguing that the indefinite extension of the NPT at the 1995 Review Conference has been specifically linked to implementing the Resolution on the Middle East. Conversely, Israel has made its participation in a possible conference conditional on comprehensive negotiations for a package deal that Arab states in the region have so far rejected. The Conference on the Middle East WMD-free zone proved to be the main stumbling block at the 2015 NPT Review Conference (*see below*).

<sup>131</sup> [Slowing nuclear weapon reductions and endless nuclear weapon modernizations: A challenge to the NPT](#), Kristensen H. M., Norris R. S., Bulletin of the Atomic Scientists, July 2014.

<sup>132</sup> [Statement](#) by New Zealand on behalf of the New Agenda Coalition, 28 April 2015.

<sup>133</sup> List of [Statements](#) delivered at the 2015 NPT Review Conference.

<sup>134</sup> [The Nuclear Non-Proliferation Treaty](#), BASIC, April 2015.

<sup>135</sup> [Statement](#) delivered by the UK on behalf of the P5, 30 April 2015.

<sup>136</sup> [Middle-East WMD-Free Zone](#), BASIC, December 2013.

- The entry into force of the Comprehensive Test Ban Treaty (CTBT) and starting negotiations on a proposed Fissile Material Cut-off Treaty (FMCT)

The total number of nuclear test explosions since 1945 amounts to 2 056 (including the 2016 North Korea test), of which more than 90% were conducted by the USA, Russia and France. Since the CTBT's signature in 1996, a de facto moratorium on nuclear testing has been instituted. In the early 1990s, the then-Soviet Union, the UK and the USA instituted moratoria, while France is the only country to have dismantled its test facilities. The de facto moratorium was breached by the nuclear tests of India and Pakistan in 1998, and by the tests conducted by North Korea in 2006, 2009, 2013 and 2016.<sup>137</sup> As of March 201, there are 183 signatories, and 164 states have ratified the CTBT. Nevertheless, the CTBT's entry into force requires ratification from all 44 states listed in the Treaty's Annex 2. Of these 44 states, all but North Korea, India and Pakistan have signed the CTBT, and of the remaining 41 signatories required by the Annex, five have not yet ratified the Treaty: China, Egypt, Iran, Israel, and the United States.<sup>138</sup> The CTBT has instituted a verification regime, with the International Monitoring System – a global network of facilities that aim to detect nuclear explosions by monitoring seismic, hydroacoustic and infrasound waves, and radionuclide particles – at its core. Most statements at the 2015 Review Conference underlined the importance of the swift entry into force of the CTBT and called on the eight states mentioned above to sign and ratify the Treaty.

Concerning the FMCT, the Conference on Disarmament could not establish a committee to begin formal negotiations due to disagreements on the scope of the future treaty and Pakistan's opposition.<sup>139</sup> As the NPT NNWS have already committed not to produce fissile material for weapons and are under the IAEA safeguards, the FMCT would primarily impose limitations on the P5 NWS and the four states currently outside the NPT (India, Israel, North Korea and Pakistan). Therefore, these states' participation is crucial to the FMCT, as it would bring them into the international disarmament and non-proliferation regime. A Group of Governmental Experts, established by UN General Assembly Resolution A/67/53 in 2012, was tasked to propose recommendations to the Conference on Disarmament. France recently announced the submission of a draft Treaty to the Conference on Disarmament.<sup>140</sup>

- Legally binding and universal negative security assurances

These assurances have been demanded by non-nuclear weapon states, either in the form of a treaty or as a protocol to the NPT, as guarantees that NWS will not use or threaten to use nuclear weapons against them.<sup>141</sup> Although NWS have normally given negative security assurances to non-nuclear weapon states, these are either non-binding or have been limited in scope. At the 2015 NPT Review Conference, NNWS – especially the NAM countries – renewed their calls for 'effective, universal, unconditional, non-discriminatory and irrevocable legally binding security assurances against the use or threat of use of nuclear weapons under all circumstances'. They also

<sup>137</sup> [Nuclear testing: 1945-today](#), Comprehensive Test Ban Treaty Organisation Preparatory Commission.

<sup>138</sup> [CTBT status of signature and ratification](#), CTBTO Preparatory Commission.

<sup>139</sup> Pakistan [opposes](#) any negotiations based on the 'Shannon mandate' (document CD/1299) on an eventual FM(CT), addressing only future production, but not existing stockpiles of fissile material.

<sup>140</sup> [France submitted draft fissile material cutoff treaty to the Conference on Disarmament](#), International Panel on Fissile Materials, 9 April 2015.

<sup>141</sup> [Proposed Internationally Legally Binding Negative Security Assurances](#), NTI.

demanded the NWS withdraw any reservations or interpretative declarations they made to the protocols to treaties establishing nuclear-weapons-free zones.<sup>142</sup>

- The humanitarian impact/consequences of nuclear weapons (HINW)

In 2010, Sweden and Norway succeeded in including wording in the outcome document of the NPT Review Conference on the need for all states to comply with international law, including international humanitarian law. Moreover, the 2010 Review Conference expressed 'deep concern at the catastrophic humanitarian consequences of any use of nuclear weapons'. Since then, renewed focus on the humanitarian impact and consequences of nuclear weapons (mentioned previously in many UN resolutions and fora) is reframing the debate on nuclear disarmament.

#### The humanitarian impact/consequences of nuclear weapons

The **humanitarian impact/consequences** of nuclear weapons process has been a significant development in the disarmament area. Three international conferences organised in Oslo (2013), Nayarit (February 2014) and Vienna (December 2014) gave participants an occasion to increase collective awareness of the catastrophic consequences of nuclear weapons, across borders and generations. The latest conference in Vienna welcomed 158 states, including India and Pakistan, and Austria issued the Austrian Pledge aiming at pursuing effective measures to 'fill the legal gap for the prohibition and elimination of nuclear weapons' joined by an ever-growing number of states.<sup>143</sup>

Associated with this process are calls for the negotiation of a **legally binding instrument to forbid nuclear weapons**, based on their unacceptable humanitarian consequences. HINW supporters consider that current international law does not adequately address the issue of complete nuclear disarmament and that a process stigmatising and prohibiting nuclear weapons is necessary. Civil society representatives have called for the start of these negotiations as soon as possible, all the more urgently since 2015 marked the 70th anniversary of the nuclear bombing of Hiroshima and Nagasaki.<sup>144</sup> On the other hand, the P5 NWS have criticised the initiative, as detracting from the efforts undertaken under the NPT Action Plan, in the Conference on Disarmament and through other arms control instruments.<sup>145</sup> The P5 did not attend the Oslo and Nayarit conferences, however, under pressure from civil society and public opinion, the USA and UK decided to send representatives to the Vienna conference. France and Russia declined to attend, while China did not participate in an official capacity.<sup>146</sup>

At the 2015 NPT Review Conference, a majority of NPT states parties declared support for the main tenets of the humanitarian impact process and criticised the weak language on the issue in the draft outcome text. Following up similar statements in other UN fora, **Australia** (on behalf of 26 states parties) and **Austria** (on behalf of 159 states) specifically underlined that all efforts and approaches toward nuclear disarmament should be underpinned by awareness of the catastrophic consequences of nuclear weapons, and emphasised that the total elimination of nuclear weapons was

<sup>142</sup> [Statement](#) by Iran on behalf of the Non-Aligned Movement, 27 April 2015.

<sup>143</sup> [Austrian Pledge](#) and [Filling the gap: report from the Vienna conference on the humanitarian impact of nuclear weapons](#), Reaching Critical Will, December 2014.

<sup>144</sup> [Editorial: We can wait no longer](#), Acheson R., in NPT News in Review, Reaching Critical Will, Vol. 13, No. 1, 27 April 2015.

<sup>145</sup> [The European Union and the Humanitarian Initiative in the 2015 NPT Review Cycle](#), Nielsen J., Hanson M., Non-Proliferation Papers, EU Non-Proliferation Consortium, No. 41, December 2014.

<sup>146</sup> [Outrunning a bear is a relative thing: US and UK participation in the Vienna conference](#), Borrie J., in Comments, UNIDIR-ILPI, 9 January 2015.

the only guarantee against their use.<sup>147</sup> Nevertheless, differing views among the NNWS supporters of HINW also emerged, with some pushing for efforts leading directly to a legally binding instrument banning nuclear weapons, while others insisted on a progressive, step-by-step approach. The NWS dismissed the HINW assumptions at the Review Conference.<sup>148</sup> Nonetheless, civil society organisations<sup>149</sup> concluded that the real ('historic') outcome of the 2015 NPT Review Conference was the Humanitarian pledge proposed by Austria and endorsed by 114 states as of 18 August 2015.<sup>150</sup>

### 3.2.2. Pillar 2: Non-proliferation challenges

The main challenges under the non-proliferation pillar relate to the **universalisation** of the NPT, addressing **non-compliance** cases and **withdrawal** from the Treaty (Article X).

More than disarmament, the non-proliferation dimension has seen some positive developments since the last Review Conference. Most NPT parties have respected their non-proliferation obligations and the implementation of NPT Action Plan actions on non-proliferation has been more successful. The agreement between the P5+1/E3+3 and Iran on a final comprehensive deal concerning Iran's nuclear programme on 14 July 2015 – the Joint Comprehensive Plan of Action (JCPOA) – following nearly two years of difficult negotiations is a historic development.<sup>151</sup> The Iran deal includes reciprocal commitments to be achieved over the long term, essentially aimed at guaranteeing an exclusively peaceful Iranian nuclear programme in exchange for the comprehensive lifting of UNSC sanctions and other multilateral and national sanctions.<sup>152</sup> The agreement was endorsed by UNSC Resolution 2231 (2015) on 20 July 2015.<sup>153</sup>

On the other hand, North Korea's advances in its nuclear weapons programme remain a menace to the international nuclear regime and to international peace and stability. Although its first three nuclear tests prompted wide UNSC sanctions, the latest nuclear detonation casts doubt over the effectiveness and actual degree of implementation of those sanctions.<sup>154</sup> In this context, for some experts, resuming engagement with North Korea on its nuclear programme, on the model of the nuclear talks with Iran – including efforts to revive the stalled Six Party Talks<sup>155</sup> – is the way forward.<sup>156</sup>

Moreover, the de facto nuclear states' refusal to join the NPT as non-nuclear weapon states to date threatens the prospects of universalising the NPT, its foundations and credibility. In this sense, many have expressed concerns about export control waivers

<sup>147</sup> [Statement](#) by Australia on behalf of the Humanitarian Consequences Group (30 April 2015) and [Joint Statement on the Humanitarian Consequences of Nuclear Weapons](#) by Austria on behalf of 156 states (28 April 2015).

<sup>148</sup> [NPT Report Day 20](#), SIPRI, 22 May 2015.

<sup>149</sup> [Editorial: Gaps](#), Acheson R., NPT News in Review, Reaching Critical Will, Vol. 13, No. 15, 21 May 2015.

<sup>150</sup> See International Campaign to Abolish Nuclear Weapons [website](#), 1 June 2015.

<sup>151</sup> [Focus - The Iran nuclear deal](#), EU Non-proliferation Consortium, July-August 2015.

<sup>152</sup> [US, EU lift sanctions against Iran amid landmark nuke deal](#), Jahn G., Klapper B., AP, 17 January 2016.

<sup>153</sup> [Security Council, Adopting Resolution 2231 \(2015\), Endorses Joint Comprehensive Agreement on Iran's Nuclear Programme](#), UN Meetings Coverage and Press Releases, SC 11974, 20 July 2015.

<sup>154</sup> [Lax enforcement weakens UN sanctions on nuclear North Korea](#), Cara A., Pennington M., 10 January 2016.

<sup>155</sup> [South Korea, US, Japan discuss North Korea nuclear concerns](#), Agence France Presse, 27 May 2015. See also [North Korea: Beyond the Six-Party Talks](#), International Crisis Group, 16 June 2015.

<sup>156</sup> [Another nuclear test announced by North Korea: Searching for a plan of action?](#), Rauf T., SIPRI, 11 January 2016.

on access to nuclear civilian technology and fuel granted to some nuclear-armed states not party to the NPT. The US-India Civilian Nuclear Cooperation Agreement (2005) concluded in the aftermath of India's nuclear tests (approved formally in 2008 by the US Congress, but deadlocked until recently),<sup>157</sup> is said to undermine the non-proliferation regime and normalise India's status as a nuclear power.<sup>158</sup> Other countries have recently signed (Canada) or have been negotiating nuclear deals with India (Japan).<sup>159</sup> Additionally, China and Pakistan have increased their nuclear cooperation, building on a 2010 decision by China to supply new nuclear reactors to Pakistan.<sup>160</sup> Unlike India, Pakistan has not been granted any waiver from the Nuclear Suppliers Group.<sup>161</sup>

Most states parties at the 2015 NPT Review Conference supported the universalisation of the Treaty, by calling on all non-parties to join the NPT as NNWS, while the draft outcome document urged North Korea 'to renounce its policy of building its nuclear forces'. On cases of non-compliance, the draft final document emphasised the need for diplomatic responses, and underscored the role of the UNSC and the UN General Assembly in upholding compliance with the IAEA safeguard agreements and 'in taking the appropriate measures as necessary'. States parties also underlined that the IAEA safeguards were 'a fundamental pillar of the nuclear non-proliferation regime'. One point of division was the acceptance of the Additional Protocol, together with the existence of a comprehensive safeguards agreement, as part of the new 'verification standard', promoted by Western states but opposed by other NNWS.<sup>162</sup>

### 3.2.3. Pillar 3: Peaceful uses of nuclear energy

Since 2010, the implementation of the third pillar of the NPT on the peaceful uses of nuclear energy has been the least problematic. Despite a pause in nuclear energy development in the aftermath of the 2011 Fukushima nuclear disaster, the global appeal of nuclear power seems to have been renewed.<sup>163</sup> Nuclear safety is an increasing preoccupation for states, besides safeguards and nuclear security, which are also critical elements of this pillar, and NPT obligations of states parties.<sup>164</sup> The IAEA is implementing various projects to assist states ensure the safety and security of their nuclear and other radioactive materials or to help states to achieve their development goals through the peaceful use of nuclear energy. The IAEA also promoted the Nuclear Security Plan 2014-2017.<sup>165</sup> The main challenges that remain in this pillar relate to the reluctance of states to allow for a greater role for international institutions and mechanisms in ensuring nuclear safety; to the low level of ratification of the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material; and to

<sup>157</sup> [Obama's India Visit: US, India Move Forward On Operationalizing Stalled Civil Nuclear Deal](#), Malik A., in *International Business Times*, 25 January 2015.

<sup>158</sup> [US-India nuclear deal](#), Factsheets, Reaching Critical Will.

<sup>159</sup> See [Indian nuclear deal will help Canada de-link from oil](#), Oxford Analytica, 16 April 2015 and [PM signal: sitting down with Japan, standing up to China](#), Roy S., *The Indian Express*, 2 September 2014.

<sup>160</sup> [China Confirms Pakistan Nuclear Projects](#), Parameswaran P., in *The Diplomat*, 10 February 2015.

<sup>161</sup> In 2008, the IAEA approved the safeguards agreement with India, followed closely by an export control waiver granted by the Nuclear Suppliers Group.

<sup>162</sup> [NPT Report Day 20](#), SIPRI, 22 May 2015.

<sup>163</sup> [Nuclear Renaissance, Redux](#), Johnson K., *Foreign Policy*, 23 March 2015.

<sup>164</sup> [Nuclear Security Factsheet](#), BASIC, March 2014.

<sup>165</sup> [The IAEA Takes its Nuclear Security Plan to Diplomats in New York](#), Henriques S., IAEA, 30 April 2015.

the large quantities of fissile materials for military purposes outside the scope of international efforts on nuclear security.<sup>166</sup>

### 3.3. Outcome of the 2015 Review Conference

Despite statements of support for the NPT and weeks of negotiations, the conference participants could not adopt the draft outcome document on 22 May 2015 and none of the main committees had been able to reach consensus on the respective documents under their consideration.<sup>167</sup> The USA, Canada and the UK have been held responsible by other states parties for blocking the consensus over the section relating to the Conference on the Middle-East WMD-free zone and, in particular, over issues that reflected Israel's position (Israel participated in the 2015 NPT Review Conference as an observer, for the first time in 20 years).<sup>168</sup> The USA, on the other hand, pointed to the inflexibility of the Arab states on the issue of the Middle East WMD-free zone conference, that left no choice for the USA but to reject the final text.<sup>169</sup> One of the main points of contention was the inclusion in the draft text of a deadline of 1 March 2016 to convene the conference, irrespective of a prior agreement between the states in the region on the agenda, on which Israel and the US had insisted.

Many non-nuclear weapon states expressed their disappointment with the inability to reach consensus, but mostly with the fact that some nuclear weapon states blocked the outcome of the review conference over concerns of a non-NPT party. They (for example South Africa) also expressed the view that the NPT had transformed into a 'minority rule' and pointed to the discriminatory orientation of the NPT in favour of the NWS.<sup>170</sup> Failure to reach consensus was interpreted (for instance by Indonesia) as putting into question the credibility of the Treaty. Other states however, including NWS, reaffirmed the importance of the NPT as the cornerstone of the international nuclear non-proliferation and disarmament regime, and insisted the NPT Action Plan retained its relevance as a long-term roadmap, irrespective of the outcome of the review conference. Finally, the failure to adopt the consensus document was not deplored by civil society organisations which criticised the draft as being weak, a reverse compared to the 2010 review conference document, and as reflecting the view of a minority.<sup>171</sup> At the same time they underlined the growing support among states at the conference for the humanitarian impact of nuclear weapons initiative and for the Humanitarian Pledge, which might provide, alternatively, the necessary impetus to disarmament efforts and to the idea of a treaty banning nuclear weapons.<sup>172</sup>

<sup>166</sup> [Nuclear Security Factsheet](#), BASIC, March 2014.

<sup>167</sup> [Draft Final Document](#), NPT/CONF.2015/R.3., 22 May 2015.

<sup>168</sup> See [US rejects nuclear disarmament document over Israel concerns](#), Cara Anna, AP, 22 May 2015; [U.S. presses Israel on talks for Middle East nuclear-free zone](#), Cara Anna, AP, 21 May 2015; [Concern in Jerusalem over international decision against Israeli nuclear program](#), Ravid B., *Haaretz*, 22 May 2015; [U.S. blocks NPT conference statement over Israeli objections](#), Ravid B., Reuters, *Haaretz*, 23 May 2015.

<sup>169</sup> [Remarks at the Conclusion of the 2015 Nuclear Nonproliferation Treaty Review Conference](#), Rose Gottemoeller, Under Secretary of State of Arms Control and International Security, 22 May 2015.

<sup>170</sup> [Editorial: Uprising](#), Acheson R., NPT News in Review, Vol. 13, no. 17, 25 May 2015; [Ya Basta! It's all about the ban](#), Acheson R., NPT News in Review, Vol. 13, no. 16, 22 May 2015.

<sup>171</sup> *Ibidem*.

<sup>172</sup> See the [Nuclear Weapons Convention](#), NTI.

## 4. The European Union

### 4.1. EU priorities at the 2015 NPT Review Conference

While all EU Member States largely agree on the non-proliferation dimension, their positions with regard to disarmament diverge considerably. The fact that two EU Member States are NWS and others host US nuclear weapons at bases on their territory, while other Member States are strong nuclear disarmament advocates (e.g. Sweden and Finland) and supporters of the humanitarian impact of nuclear weapons process (Ireland and Austria), constitutes a significant challenge for the EU to forge a common position on the nuclear file and before NPT reviews. Differences can also be seen regarding the peaceful use of nuclear energy pillar between those EU Member States that rely on nuclear power and those rejecting or phasing-out nuclear energy.<sup>173</sup>

The EU has identified the proliferation of WMD, including nuclear weapons, as a key threat to European security, and in 2003 adopted a Strategy against the Proliferation of Weapons of Mass Destruction, based on the principles of effective multilateralism and cooperation with partners and third countries in strengthening the non-proliferation regime. Every six months, the Council releases a progress report on its implementation.<sup>174</sup> On 20 April 2015, the Council of the EU adopted conclusions on the Ninth NPT Review Conference. These conclusions set out the main elements of the EU's common position, emphasising the EU's commitment to all three NPT pillars; to the balanced, substantive and comprehensive implementation of the 2010 Action Plan; to the creation of a Middle-East WMD-free zone; and to the universalisation of the NPT.<sup>175</sup>

#### Council conclusions on the Ninth NPT Review Conference

On disarmament, the conclusions underline the EU Member States' commitment to nuclear disarmament in accordance with Article VI of the NPT and the special responsibility of states with the largest nuclear arsenals to continue reductions of all types of nuclear weapons; the EU's commitment to treaty-based nuclear disarmament and arms control processes, the need to overcome the stalemate in the Conference on Disarmament and start negotiating the FMCT; the entry into force of the CTBT as top priority for the EU; and 'noted' the ongoing discussions on the consequences of use of nuclear weapons, while emphasising the different views of Member States on the issue.

On non-proliferation, the Council underlined the essential role of the IAEA safeguards system in preventing non-proliferation and the role of the UNSC in dealing with non-compliance cases; condemned North Korea's nuclear tests, urging it to comply with its international obligations and to return to the NPT and the IAEA safeguards system as a non-nuclear weapon state. On Iran, the Council stressed the EU's commitment to a successful outcome of the negotiations on a comprehensive deal that would guarantee the peaceful nature of Iran's nuclear programme, calling for full cooperation with the IAEA. Also, the Council underlined Syria's status of non-compliance with its IAEA safeguards agreement.

On peaceful use of nuclear energy, the conclusions re-affirmed the right of all NPT states parties 'to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with the Treaty' and endorsed the concept of 'the responsible development of the peaceful uses of nuclear energy taking place under the best safety, security, and non-proliferation measures' put forward at the NPT Review Conference. Finally, the conclusions emphasised that strengthening nuclear security was a long-standing EU priority, together with ensuring that states addressed issues of nuclear safety cooperatively.

<sup>173</sup> [The EU and the NPT: drawing lines](#), Dietrich C., EU ISS, April 2015.

<sup>174</sup> [Six-Monthly Progress Report on the implementation of the EU Strategy against the Proliferation of Weapons of Mass Destruction \(2014/II\)](#), OJ C 41, 5.2.2015, pp. 1–34.

<sup>175</sup> [Council conclusions](#) on the Ninth Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), 20 April 2015. See also the EP SEDE committee exchange of views with Jacek Bylica, Principal Adviser and Special Envoy for non-Proliferation and Disarmament, [prior](#) to and [after](#) the NPT Review Conference.

At the conference, High Representative/Vice-President Federica Mogherini delivered the EU statement during the general debate, in accordance with the Council conclusions.<sup>176</sup> Three other EU statements were made within the main committees. Experts point, nevertheless, to significant divisions among EU Member States emerging during the work of the conference.<sup>177</sup>

## 4.2. The European Parliament and the NPT

Despite its limited powers in the field of the Common Foreign and Security Policy, the EP has played an active part in drawing attention to non-proliferation issues and in supporting the strengthening of the multilateral non-proliferation regime. Prior to the Lisbon Treaty, the EP advocated the indefinite extension of the NPT, endorsed in 1995, and adopted a comprehensive position on the non-proliferation of WMD in 2005 and other resolutions prior to NPT Review Conferences. However following the Lisbon Treaty's entry into force, experts assess that the EP has not been very active on non-proliferation of WMD, including nuclear weapons, although its role in providing the necessary budgetary support to EU activities on non-proliferation is undeniable. Moreover, although in 2003 the EU decided to include a WMD non-proliferation clause in agreements with third countries, specialists point to a lack of preoccupation with proliferation risks by failing to include WMD conditionality provisions in agreements with states outside the NPT (in particular, Pakistan and Israel; with India negotiations on a free trade agreement are ongoing, but it is assessed as unlikely that India would agree to the inclusion of such a clause).<sup>178</sup>

Nevertheless, since 2010 the EP has adopted a series of positions on NPT-related issues, including a resolution on the Treaty on the Non-Proliferation of Nuclear Weapons (2010) prior to the Eighth NPT Review Conference. The EP expressed its views on the recommendations of the NPT Review Conference regarding the establishment of a Middle East free of WMD (2013); on nuclear threats and human rights in North Korea (2013); on the EU strategy towards Iran (2014); on the situation in North Korea/DPRK (2014).<sup>179</sup> Prior to the 2015 NPT Review Conference the EP did not adopt a specific resolution, but held a debate in February 2015 where Mogherini underlined EU priorities for the conference and the EU's financial contribution in this field (support to the IAEA and to the CTBT Organisation).<sup>180</sup>

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<sup>176</sup> [EU Statement](#), 2015 NPT Review Conference, 28 April 2015.

<sup>177</sup> See [NPT Side Event: EU as a global actor in the field of Nuclear Safety and Security](#), 14 May 2015 and [Another War in Europe: Dispatches From The Non-Proliferation Treaty Review Conference](#), Berger A., RUSI, 19 May 2015.

<sup>178</sup> 'The European Parliament and the external dimension of the EU Nuclear Non-proliferation Policy', Portela, C. in *The European Parliament and its International Relations*, Stavridis, S., Irrera, D., Routledge, 2015, 337 p. See also [The European Union's Weapons of Mass Destruction non-proliferation clause: a 10 year assessment](#), Grip L., Non-Proliferation Papers, no 40, April 2014.

<sup>179</sup> European Parliament [resolution](#) on the Treaty on the Non-Proliferation of Nuclear Weapons (10 March 2010); EP resolution on the [recommendations](#) of the NPT Review Conference regarding the establishment of a Middle East free of weapons of mass destruction (17 January 2013); EP resolution on [nuclear threats and human rights in North Korea](#) (14 March 2013); EP resolution on the [EU strategy towards Iran](#) (3 April 2014); and EP resolution on the [situation in North Korea](#), DPRK (17 April 2014).

<sup>180</sup> European Parliament [debate](#) on the 2015 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), 10 February 2015.

## 5. Perspectives

The inability of the 2015 NPT Review Conference to adopt the final outcome document has been considered an extreme disappointment and a failed opportunity to strengthen the NPT and the global non-proliferation and disarmament regime. Against the backdrop of a decline in nuclear arsenals worldwide (although on the rise in Asia), which is counter-balanced by investment in more modern nuclear weapons and delivery systems, analysts point to a series of worrying trends that may further undermine the credibility of the NPT regime: an increasing role for nuclear weapons in states' security, in particular in European security, failure to make headway in the disarmament pillar towards reducing and ultimately eliminating nuclear weapons, lack of progress on the issue of a Middle East zone free of nuclear and other weapons of mass destruction, as well as an ever-growing gap between the positions of NWS and NNWS.<sup>181</sup>

Moreover, the NPT's foundations continue to be tested by those nuclear-armed states outside the NPT which are not bound by international non-proliferation and disarmament obligations. In particular, North Korea, the only state to withdraw from the Treaty to embark on a military nuclear programme, remains a significant challenge to the NPT. Conversely, the recent nuclear deal with Iran, if implemented effectively, may succeed in strengthening global nuclear non-proliferation. Finally, the increased adherence to the humanitarian consequences of nuclear weapons initiative – considered by many as the real outcome of the 2015 NPT Review Conference – may provide those states which are interested with a way forward and significant momentum towards pursuing the NPT goal of complete nuclear disarmament.

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<sup>181</sup> [The 2015 NPT Review Conference: setting the record straight](#), Rauf T., SIPRI, 15 June 2015.

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Despite hopes to the contrary, nuclear weapons are making a comeback in the strategic planning of nuclear-armed states. The decline in nuclear arsenals worldwide is accompanied by investment in more modern nuclear weapons and delivery systems, stepping further away from the disarmament pledges the nuclear weapon states assumed under the Nuclear Non-Proliferation Treaty (NPT) and challenging the foundations of the Treaty. Adding to the risk of undermining the NPT's relevance and credibility are the nuclear-armed states outside the NPT which are not bound by key international non-proliferation and disarmament obligations.

The NPT Review Conference in 2015 addressed the states parties' effective implementation of their commitments under the NPT, as well as the enormous challenges ahead. Although the conference ended in failure to agree a consensus on an outcome document, the increased adherence to the humanitarian consequences of nuclear weapons initiative is believed to provide those states which are interested with a way forward towards pursuing the NPT goal of a nuclear-free world.

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