THE NPT ACTION PLAN MONITORING REPORT MARCH 2015

Reaching Critical Will

Reaching Critical Will
– a programme of the Women's International League for Peace and Freedom.
1, Rue de Varembé,
1202 Geneva
Switzerland
Tel: +41 (22) 919 7080
Fax: +41 (22) 919 7081
Email: disarm@wilpf.ch

The report is aimed at providing a platform for discussion about the degree of implementation and operationalization of the Nuclear Non-Proliferation Treaty (NPT) Action Plan adopted during the 2010 NPT Review Conference. The first edition of this publication was published in April 2012 in preparation for the NPT Preparatory Committee in Vienna, Austria. This fourth edition is an updated version with progress until February 2015.

Edited by: Ray Acheson
Research: Mia Gandenberger
Writing: Mia Gandenberger, Gabriella Irsten, and Ray Acheson

Reaching Critical Will would like to thank the Swiss Federal Department of Foreign Affairs for supporting this work. In particular, we are particularly grateful for the support and input by Mr. Reto Wollenman, Mr. Christoph Carpenter, Mr. Laurent Masmejean, Mr. Jean-Daniel Praz, and Mr. Michael Füglister. Special thanks also goes out to Beatrice Fihn for her initiative and past contributions to this project, and to Elsa Ramström and David Stallman for their help.

Cover photo: International Campaign to Abolish Nuclear Weapons
Design and layout: Fly Moskito

This report was made possible with the kind contribution of the Swiss Federal Department of Foreign Affairs.

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Acronyms

AP	Additional Protocol
ASEAN	Association of Southeast Asian Nations
BoG	Board of Governors
BWC	Biological Weapons Convention
CARICOM	Caribbean Community
CD	Conference on Disarmament
CNS	Convention on Nuclear Safety
CPPNM	Convention on the Physical Protection of Nuclear Material
CSA	Comprehensive Safeguards Agreement
CTBT	Comprehensive Nuclear-Test-Ban Treaty
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organization
CWC	Chemical Weapons Convention
DPRK	Democratic People's Republic of Korea
E3/EU+3	European Three (France, Germany and the United Kingdom) European Union plus China, Russia and the United States
EURATOM	European Atomic Energy Community
EU	European Union
FAS	Federation of American Scientists
FMCT	Fissile Material Cut-Off Treaty
GC	General Conferences
GGE	Group of Governmental Experts
HEU	Highly Enriched Uranium
HLM	High-Level Meeting
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
ICRC	International Committee of the Red Cross
IMS	International Monitoring Station
INFCRIC	Information Circular
IPFM	International Panel on Fissile Material
IPU	Inter-Parliamentary Union
ITDB	Incident and Tracking Database
IWG	Informal Working Group
JPA	Joint Plan of Action
LEU	Low Enriched Uranium
MEWMDFZ	Weapons of Mass Destruction Free Zone in the Middle East
NAM	Non-Aligned Movement
NATO	North Atlantic Treaty Organization
NPDI	Non-Proliferation and Disarmament Initiative
NPR	Nuclear Posture Review
NPT	Nuclear Non-Proliferation Treaty
NSA	Negative Security Assurance
NSG	Nuclear Suppliers Group
NSSG	Nuclear Safety and Security Group
NSS	Nuclear Security Summit
NWC	Nuclear weapons Convention
NWFZ	Nuclear Weapon Free Zone
OEWG	Open-Ended Working Group
PrepCom	Preparatory Committee
RevCon	Review Conference
SEANWFZ	Southeast Asia Nuclear Weapon Free Zone
SLBM	Submarine Launched Ballistic Missile
SQP	Small Quantities Protocols
SSBN	Ballistic Missile Submarine
START	Strategic Arms Reduction Treaty
TC	Technical Cooperation
TCF	Technical Cooperation Fund
TCP	Technical Cooperation Programmes
TNW	Tactical Nuclear Weapons
UN	United Nations
UNGA	United Nations General Assembly
UNODA	United Nations Office for Disarmament Affairs
UNSC	United Nations Security Council
UNSCR	United Nations Security Council Resolution
UNSG	United Nations Secretary General
VOA	Voluntary Offer Safeguard Agreement
WMD	Weapons of Mass Destruction
WMDFZ	Weapons of Mass Destruction Free Zone

It's time to draw conclusions

Ray Acheson | Reaching Critical Will

Introduction

Five years after the adoption of the NPT Action Plan in 2010, Reaching Critical Will's final monitoring report provides a straightforward review and assessment of the Plan's implementation. As has been clear with each edition of this report, compliance with commitments related to nuclear disarmament lags far behind those related to non-proliferation or the peaceful uses of nuclear energy. Of the 22 actions related to disarmament, only five have seen definite progress (as compared to 12 of 23 non-proliferation commitments and 11 of 18 related to nuclear energy).

Yet during the same five years, new evidence and international discussions have emphasized the catastrophic consequences of the use of nuclear weapons and the unacceptable risks of such use, either by design or accident. Thus the NPT's full implementation is as urgent as ever, but 70 years after the use of nuclear weapons in Hiroshima and Nagasaki and 45 years after the NPT's entry into force, the promise of disarmament remains unfulfilled.

Ahead of the 2015 Review Conference, the NPT nuclear-armed states and some of their nuclear-dependent allies have argued that the Action Plan is a long-term roadmap and that it is should be "rolled over" for at least another review cycle. This is an extremely retrogressive approach to what should be an opportunity for bold action to achieve the goals and objectives of an important international instrument. Those countries that possess or rely on nuclear weapons, as much as any other country, espouse the importance of the NPT for preventing proliferation and enhancing security. Yet these same countries, more than any other states parties, do the most to undermine the Treaty by preventing, avoiding, or delaying concrete actions necessary for disarmament.

Action 1 of the 2010 plan commits all states parties to "pursue policies that are fully compatible with the Treaty and the objective of achieving a world without nuclear weapons." The majority of non-nuclear-armed states have done so by continuing to contribute to non-proliferation efforts and to exclude nuclear weapons from their security policies. They have also contributed constructively to the conference on the humanitarian impact of nuclear weapons, the open-ended working group and high-level meeting on nuclear disarmament, and other international discussions and initiatives aimed at fulfilling article VI and achieving disarmament. Thus the countries that do not possess or rely on nuclear weapons have done their part to pursue and promote policies consistent with the Treaty and with nuclear disarmament.

It is past time that the NPT nuclear-armed states and their nuclear-dependent allies fulfill their responsibilities, commitments, and obligations –or risk undermine the very treaty regime they claim to want to protect. Their failure to implement their commitments presents dim prospects for the future of the NPT. The apparent expectation that this non-compliance can continue in perpetuity, allowing not only for continued possession but also modernization and deployment of nuclear weapon systems, is misguided. The 2015 Review Conference will provide an opportunity for other governments to confront and challenge this behaviour and to demand concerted and immediate action, in one form or another.

Methodology

Our final installment of the NPT Action Plan Monitoring Report covers the 64-point Action Plan and relevant items from the broader outcome document adopted in May 2010. In addition to

actions for nuclear disarmament, nuclear non-proliferation, and the peaceful uses of nuclear energy, the report covers initiatives related to the Middle East weapons of destruction free zone, and humanitarian consequences of nuclear weapons. It covers activities from May 2010 to February 2015.

This report, as each of the editions before it, aims to provide factual and clear information on the status of the implementation of the 2010 NPT Review Conference outcome document. The research has been carried out through review of open source information. It is not a full technical investigation of all related facts, but is an attempt to provide an overview of states' compliance with the Action Plan and to capture the most significant developments since May 2010.

The research has been carried out within the limits of available resources, such as time, publicly available information, and limited responses from states to our requests for information. It is important to note that the Action Plan is a political document and the language is a carefully crafted compromise. Because the Plan includes deliberately vague commitments such as "encourage," "facilitate," and "continue efforts," it has been difficult to measure and quantify progress. In addition, the discrepancies in interpretation of the NPT remain unresolved in this action plan, opening it up for significant differences of opinion on what the actions specifically require. It has been beyond the scope of this project to make a legal analysis of such interpretations, which left us to focus on facts and general trends in order to make our assessment.

One of the biggest challenges we've faced in monitoring implementation of the Action Plan is both the lack of clear benchmarks against which to measure progress and the absence of any formal institutional mechanism to carry out the monitoring and to report back to the next NPT Review Conference in an organized way.

In order to assess implementation, we have used a system of "traffic lights" signalling red, yellow, and green. The red traffic light indicates that to date, no concrete progress has been made in implementing the action. The yellow light indicates that while some efforts have been detected, additional progress needs to be made in order to fully implement the action. The green light shows that states are making progress and are currently implementing the action.

Action summaries

Nuclear disarmament

This report gives eleven red lights (no progress); six yellow lights (limited progress); and only five green lights (forward movement) on the 22 disarmament-related actions.

The five NPT nuclear-armed states have not met their limited commitments, which did not even require direct action to fulfil article VI's obligation of multilateral negotiations to end the nuclear arms race and eliminate nuclear weapons and delivery systems. These states would not agree to any concrete or time-bound measures in 2010 that would have necessitated such negotiations. However, they did commit to "engaging" on matters of global stockpile reduction; tactical nuclear weapons and nuclear "sharing"; diminishing the role of nuclear weapons in security policies; preventing nuclear weapons use and eliminating nuclear weapons; reducing operational status of nuclear weapons; reducing the risk of accidental use; and increasing transparency and mutual confidence. While the five NPT nuclear-armed states have met with each other on a number of occasions since the 2010 Review Conference, it is clear from the reports on their discussions, statements these countries have made at NPT and First Committee meetings, and their "official" reports to the 2014 NPT Preparatory Committee, that they have had only limited discussions on elements of transparency and have focused on developing a glossary of nuclear terms –something that was not even included in the Action Plan.

Non-nuclear-armed states, on the other hand, have initiated and led new meetings and processes related to nuclear disarmament, such as the conferences on the humanitarian impact of nuclear weapons, the open-ended working group on nuclear disarmament, and the high-level meeting on nuclear disarmament. These are all very welcome developments, and can contribute to fulfilling the obligations of article VI and the 2010 NPT Action Plan. Unfortunately, the NPT nuclear-armed state have been extremely reluctant to participate in any new initiatives, calling them "distracting" and undermining of existing efforts. This is not only incorrect, but also disingenuous, since their own efforts to implement the Action Plan or fulfill the decades-old agenda of the so-called "step by step" approach have been so lackluster.

It is positive that the global stockpile of nuclear warheads continues to decrease, although the majority of reductions have been achieved through dismantlement of non-operational warheads or warheads in storage. Ongoing reductions by the United States and Russia under the New Strategic Arms Reduction Treaty are welcome, but are overshadowed by increasing investments in maintenance and modernization of each country's arsenal. Indeed, all of the NPT nuclear-armed states are planning for or undertaking modernization programmes for their nuclear weapon systems, extending the lives of these systems for perpetuity.[1]

Meanwhile, tensions between these Russia and the United States, due to the conflict in Ukraine, the enlargement of NATO, missile defence, and ongoing deployment of tactical nuclear weapons, have so far prevented the negotiation of any further bilateral reductions. While reductions have occurred in some of the other nuclear-armed states, they have not been transparent or verifiable, and each continues to include nuclear weapons in their national and sometimes allied security doctrines. In some cases, as with the UK, rhetoric on the validity and utility of nuclear weapon possession has become increasingly alarming and potentially damaging to the non-proliferation regime.[2]

Nuclear non-proliferation

Although 23 items (actions 23 to 46) deal with nuclear non-proliferation, they are neither particularly strong nor very concrete. They mainly ask states to "stay the course". As a result, implementation of three actions (those relating to the universalization and export controls) are red, nine are yellow, and twelve are green. Based on this assessment, there has been more success in implementing the actions in the area of non-proliferation than disarmament.

A positive development since the adoption of the 2010 Action Plan has been the negotiations between Iran and the E3/EU+3, which led to the agreement of a Joint Plan of Action. The parties are currently engaged in negotiations to reach a comprehensive agreement; while there have been some postponements of deadlines, those involved still seem to remain committed to the process.

With the very dramatic exception of the Democratic People's Republic of Korea's nuclear explosive test in 2013, the non-proliferation aspects of the NPT have been largely respected by the vast majority of NPT states parties. The most concerning developments are those related to earlier decisions to exempt export control waivers to some non-state parties. This has led to nuclear agreements between states parties and non-state parties that violate the letter and spirit of the Treaty and undermine the pursuit of its universalization.

Nuclear energy

The third part of the action plan consists of 18 action items related to non-weaponized nuclear technology, each with varying grades of quantifiable elements.

The most serious development since the adoption of the action plan has been the Fukushima nuclear disaster, which put the issue of nuclear safety at the centre of this section of the action plan. The number of initiatives around the safety of nuclear energy is growing, but still some key challenges remain. While acknowledging the crucial role of international institutions and mechanisms to ensure safety, some states parties have been wary about allowing them a greater role. These states have emphasized the responsibility and role of national agencies to ensure nuclear safety.For example, applying in a more constraining way the principle of peer reviews is opposed by several states, which emphasize the responsibility and role of national agencies to ensure nuclear safety.

According to the research in this report, while the "right" to develop nuclear energy for peaceful purposes and to have the ability to participate in nuclear technology exchange programmes has been well established and reinforced, its implementation among NPT states parties remains uneven. In addition, the issue of safeguards, safety, and security have become critical elements in the peaceful use of nuclear energy. The Action Plan items related to this pillar have achieved the most progress with one red light, six yellow lights, and 11 green lights.

Middle East weapons of mass destruction free zone

One of the most significant challenges to the NPT is the continued failure to implement the 1995 resolution on the Middle East and to uphold the decision from 2010 to convene a conference in 2012 on a weapons of mass destruction (WMD) free zone in the region. In December 2012 it became clear that the conference set for 2012 would be "postponed" and no new date was set.

"We cannot continue to attend meetings and agree on outcomes that do not get implemented, yet to be expected to abide by the concessions we gave for this outcome,"[3] said the Egyptian delegation before it walked out of the 2013 NPT Preparatory Committee. This was the first walkout in the NPT's history. While the facilitator appointed to organize the conference has convened several informal meetings amongst states of the region and the NPT depository states, a date for the conference has still not yet been set – indicating that this important achievement of the 2010 Review Conference will not be met by April/May 2015. The inability to hold a meeting on this topic could reduce the confidence of many Middle Eastern states that remaining in the NPT is in their interests. It has facilitated a sense of mistrust and frustration that will only continue to escalate if progress is not made on this issue.

Humanitarian impact of nuclear weapons

Yet while progress on disarmament and the Middle East zone remains elusive, effective work to change the landscape surrounding nuclear weapons is ongoing.

The discourse around nuclear weapons is changing. Even in the NPT context, nuclear weapons are now being viewed and described as dangerous and unacceptable weapons. The 2010 NPT Review Conference expressed "deep concern at the catastrophic humanitarian consequences of any use of nuclear weapons."[4] Since then, these consequences have increasingly become a focal point for discussion and proposed action.

In March 2013, the government of Norway hosted a conference on the humanitarian impact of nuclear weapons. Mexico hosted a follow-up meeting in February 2014, and the Austrian government hosted a third in December 2014. The three conferences held on this topic have increased our collective understanding about what nuclear weapons are and what the impact would be if they were ever used again – either by intent or by accident. The evidence presented by UN agencies, academics, former military officials, and civil society organizations has clearly revealed that the continued possession and deployment of nuclear weapons is a reckless and unsanctionable gamble with the future of humanity and the planet.

In addition to these conferences, governments are also increasingly raising the issue of humanitarian impacts in traditional forums dealing with nuclear weapons. 16 governments delivered a joint statement at the 2012 NPT Preparatory Committee highlighting the catastrophic humanitarian consequences of nuclear weapons and calling on

all states to intensify their efforts to outlaw and eliminate these weapons. 35 governments echoed this call at the 2012 General Assembly First Committee session, while 80 countries at the 2013 NPT Preparatory Committee expressed dismay with the "unacceptable harm caused by the immense, uncontrollable destructive capability and indiscriminate nature of these weapons."[5] At the 2013 First Committee session, the statement had reached 125 signatures, and 155 in 2014.

Rather than being divisive, as argued by some nuclear-armed states, the humanitarian initiative has provided the basis for a new momentum on nuclear disarmament. It has involved new types of actors, such as the Red Cross and Red Crescent Movement, the United Nations Office for Coordination of Humanitarian Affairs, the United Nations Development Programme, and a new generation of civil society campaigners. The discussion around the humanitarian impact of nuclear weapons has grown into the most positive development around nuclear weapons in many years, and should be fully supported by all states parties to the NPT.

It has also resulted in the Austrian Pledge, which commits its government (and any countries that wish to associate themselves with the Pledge) to "fill the legal gap for the prohibition and elimination of nuclear weapons."[6] As of February 2015, 40 states have endorsed the Pledge. These states are committed to change. They believe that existing international law is inadequate for achieving nuclear disarmament and that a process of change that involves stigmatizing, prohibiting, and eliminating nuclear weapons is necessary.

Conclusion

This is the end of a review cycle; it is time for conclusions to be drawn. The 2010 NPT Action Plan cannot be considered adequately implemented by the 2015 Review Conference. States parties will have not only undertake a serious assessment of the last five years but will have to determine what actions are necessary to ensure continued survival of the NPT and to achieve all of its goals and objectives, including those on stopping the nuclear arms race, ceasing the manufacture of nuclear weapons, preventing the use of nuclear weapons, and eliminating existing arsenals.

Negotiating a treaty banning nuclear weapons could be instrumental in this regard. A ban on nuclear weapons could address these principles by providing a clear legal rejection of nuclear weapons, in line with the article VI obligations for ending the nuclear arms race and achieving nuclear disarmament. This approach would stigmatize the continued possession of nuclear weapons, creating normative and practical incentives for deeper and faster reductions and the elimination of nuclear weapons, as well as reduce the risk of proliferation and of use.

States concerned with taking such concerted action need to ask themselves how many more times we can sit through sessions of the Conference on Disarmament, Disarmament Commission, First Committee, and the NPT without results. Several initiatives since the 2010 Review Conference have advanced the ongoing international discussion about nuclear weapons and disarmament. States and other actors must now be willing to act to achieve disarmament, by developing a legally-binding instrument to prohibit and eliminate nuclear weapons. This year, the year of the 70th anniversary of the US atomic bombings of Hiroshima and Nagasaki, is a good place to start.

References:

1 Forthcoming: *Assuring destruction forever: nuclear weapon modernization around the world,* R. Acheson (Ed.), Reaching Critical Will, 2015.

2 See for example: United Kingdom Statement to the UNGA First Committee, delivered on 20 October 2014 or Statement of the United Kingdom to the Conference on Disarmament, delivered on 28 January 2015.

3 Statement at the 2013 NPT PrepCom, delivered by Egypt on 29 April 2013.

4 NPT/CONF.2010/50 (Vol. I), p. 19

5 Joint Statement on the humanitarian dimension of nuclear disarmament to the 2013 NPT Preparatory Committee, delivered by South Africa on behalf of 80 states on 24 April 2013.

6 Austrian Pledge, Federal Ministry Republic of Austria, Vienna Conference on the Humanitarian Impact of Nuclear Weapons, 9 December 2014; available at http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/vienna-2014/Austrian_Pledge.pdf (retrieved 2015-02-18).

Summary of Implementation of Actions

Action 1:

All States parties commit to pursue policies that are fully compatible with the Treaty and the objective of achieving a world without nuclear weapons.

All NPT nuclear-armed states and their nuclear-dependent allies continue to include nuclear weapons in security doctrines and policies. The nuclear-armed states are also engaged in or are planning for modernization of their nuclear weapons and related systems and facilities, extending the lives of their arsenals indefinitely. Neither is compatible with the NPT's letter or spirit. If action 1 is to be implemented, modernization programmes must stop and the nuclear-armed states and those involved in nuclear-armed alliances must remove the role of nuclear weapons from their respective security doctrines and policies. Most non-nuclear-armed states have demonstrated their willingness to pursue policies consistent with the Treaty, including its disarmament provisions, by participating and in many cases initiating new opportunities, meetings, and arrangements. However, they have not been able or willing to initiate negotiations for new legally-binding instruments that would help achieve the Treaty's disarmament obligations. Thus even when taking into account the overall picture of policies around nuclear weapons, this action cannot be considered implemented.

Action 2:

All States parties commit to apply the principles of irreversibility, verifiability and transparency in relation to the implementation of their treaty obligations.

For the reductions of nuclear arsenals that have taken place since the adoption of the NPT Action Plan, NPT nuclear-armed states are failing to adequately apply the principles of irreversibility, verifiability, and transparency. The inspection scheme under the New Strategic Arms Reduction Treaty (New START) between Russia and the United States is a step in the right direction of transparency and verification. However, the fact that non-deployed warheads are not covered by New START shows that the principle of irreversibility is not adequately addressed. The new counting rules for warheads also undermine transparency. Aside from the reductions through the New START, any additional lowering by Russia, US, and the UK overall stockpiles of nuclear weapons has not been accompanied by any verification mechanism. This action can therefore not be considered implemented.

Action 3:

In implementing the unequivocal undertaking by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenal, the nuclear-weapon States commit to undertake further efforts to reduce and ultimately eliminate all types of nuclear weapons, deployed and non-deployed, including through unilateral, bilateral, regional and multilateral measures.

The overall global stockpile of nuclear weapons is decreasing. However, it is important to note that qualitative and quantitative disarmament are equally important to achieve a world free of nuclear weapons. The research in this publication shows that the majority of reductions have been of non-operational warheads and warheads in storage. Meanwhile, qualitative disarmament has as of yet not been addressed adequately and the modernization plans of the NPT nuclear-armed states undermine the minimal reductions undertaken. In addition, progress on "all types of nuclear weapons" has not been seen, since tactical nuclear weapons have still not been addressed. Therefore, this action cannot be considered implemented.

Action 4:

The Russian Federation and the United States of America commit to seek the early entry into force and full implementation of the Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms and are encouraged to continue discussions on follow-on measures in order to achieve deeper reductions in their nuclear arsenals.

The ratification and implementation of New START by both the United States and Russia means that the first part of action 4 is being implemented. Recent statements by President Obama suggest that his administration could be interested in pursuing follow-on measures for further reductions, but discussions with Russia have yet to materialize due to Russian concerns about tactical nuclear weapons and "missile defence" plans of the United States and NATO. This action cannot be viewed as fully implemented.

Action 5:

The nuclear-weapon States commit to accelerate concrete progress on the steps leading to nuclear disarmament, contained in the Final Document of the 2000 Review Conference, in a way that promotes international stability, peace and undiminished and increased security. To that end, they are called upon to promptly engage with a view to, inter alia:

(a) Rapidly moving towards an overall reduction in the global stockpile of all types of nuclear weapons, as identified in action 3;
(b) Address the question of all nuclear weapons regardless of their type or their location as an integral part of the general nuclear disarmament process;
(c) To further diminish the role and significance of nuclear weapons in all military and security concepts, doctrines and policies;
(d) Discuss policies that could prevent the use of nuclear weapons and eventually lead to their elimination, lessen the danger of nuclear war and contribute to the non-proliferation and disarmament of nuclear weapons;
(e) Consider the legitimate interest of non-nuclear-weapon States in further reducing the operational status of nuclear weapons systems in ways that promote international stability and security;
(f) Reduce the risk of accidental use of nuclear weapons; and
(g) Further enhance transparency and increase mutual confidence.

The nuclear arsenals of four out of five of the NPT nuclear-armed states continue to decrease, while one has been recorded to have a slight increase of its arsenal. Though reductions are taking place at a different speed in each nuclear-armed state, this is a positive development and means that action 5(a) is currently being implemented by the majority of the NPT nuclear-armed states, though not "rapidly" as the action demands. However, the research in this publication has shown that most reductions are done through dismantlement of non-operational warheads and warheads in storage. Furthermore, modernization and qualitative improvement of nuclear arsenals, reluctance by nuclear-armed states and others to endorse progressive UN General Assembly (UNGA) resolutions on nuclear disarmament, lack of progress on removing or reducing non-strategic nuclear weapons, the outspoken intention to continue to rely on nuclear weapons for "security" for decades to come, the reluctance to decrease operational readiness, failure to address risks of accidental use, the opposition to begin work on a treaty banning nuclear weapons, a nuclear weapons convention, or a framework of mutually reinforcing instruments, and the lack of progress within the Conference on Disarmament mean that the obligations in this important action cannot be considered to be implemented. While the NPT nuclear-armed states have met on a few occasions since the adoption of the Action Plan, the nature and scope of their discussions are either not reported on or have focused on items outside the scope of this action, such as a dictionary of nuclear terms or standard reporting forms.

Action 6:

All States agree that the Conference on Disarmament should immediately establish a subsidiary body to deal with nuclear disarmament, within the context of an agreed, comprehensive and balanced programme of work.

Attempts to establish a subsidiary body to deal with nuclear disarmament through a programme of work in the Conference on Disarmament have repeatedly failed. While the opposition to the most recent proposals comes from a non-NPT state, the reluctance of some states parties to the NPT to come up with new and creative solutions has prevented this action from being implemented. The UN General Assembly in 2012 established an open-ended working group to "develop proposals to take forward multilateral nuclear disarmament negotiations for the achievement and maintenance of a world without nuclear weapons", which met 14-24 May, 27 June, and 19-30 August 2013. Additionally a high-level meeting of the UNGA on nuclear disarmament was held 26 September 2013. Furthermore, in 2013 and 2014 the CD established an Informal Working Group to agree on a programme of work for the Conference, but failed to do so in the time allocated to it. While all these initiatives were welcomed by the great majority of states, they have not yet lead to the establishment of a subsidiary body on nuclear disarmament in the Conference on Disarmament.

Action 7:

All States agree that the Conference on Disarmament should, within the context of an agreed, comprehensive and balanced programme of work, immediately begin discussion of effective international arrangements to assure non-nuclear-weapon States against the use or threat of use of nuclear weapons,to discuss substantively, without limitation, with a view to elaborating recommendations dealing with all aspects of this issue, not excluding an internationally legally binding instrument. The Review Conference invites the Secretary-General of the United Nations to convene a high-level meeting in September 2010 in support of the work of the Conference on Disarmament.

No progress has been made on a global instrument on negative security assurances (NSAs) as mandated by action 7. While the most recent proposal for a programme of work in the Conference on Disarmament was opposed only by a non-NPT nuclear-armed state, NPT states parties have not made adequate efforts to come up with alternative and creative solutions. While the high-level meeting on the work of the CD did take place in September 2010 and a follow-up meeting of the UN General Assembly was held in July 2011, these meetings had no concrete results on starting discussions on negative security assurances or any other topic on the CD's agenda. An Informal Working Group of the CD was established in 2013 and 2014 to agree on a programme of work for the conference, but has not achieved concrete results.

Action 8:

All nuclear-weapon States commit to fully respect their existing commitment with regard to security assurances. Those nuclear-weapon States that have not yet done so are encouraged to extend security assurances to non-nuclear-weapons States parties to the Treaty.

There has not been much progress on the issue of NSAs since the adoption of the 2010 NPT Action Plan. Both the US and UK have made recent changes in the language of their nuclear postures concerning this issue, but China is still the only nuclear weapon state that has made a pledge to not use nuclear weapons against non-nuclear armed stats without any conditions or reservations. The US and UK have a policy not to use nuclear weapons against NPT non-nuclear-armed states that are in compliance with "non-proliferation obligations," which is an undefined concept. France, UK, US, and Russia still abstain on the annual UNGA resolution "Conclusion of effective international arrangements to assure non-nuclear-weapon States against the use or threat of use of nuclear weapons".

Action 9:

The establishment of further nuclear-weapon-free-zones, where appropriate, on the basis of arrangements freely arrived at among States of the region concerned, and in accordance with the 1999 Guidelines of the United Nations Disarmament Commission, is encouraged. All concerned States are encouraged to ratify the nuclear-weapon-free zone treaties and their relevant protocols, and to constructively consult and cooperate to bring about the entry into force of the relevant legally binding protocols of all such nuclear-weapon-free zones treaties, which include negative security assurances. The concerned States are encouraged to review any related reservation.

Since the adoption of the 2010 NPT Action Plan, Russia has ratified protocols I and II to the Pelindaba Treaty. The US submitted the protocols of the Pelindaba and Rarotonga treaties for approval of ratification to its Senate in 2011, but the Senate has yet to take formal action on this. Since 2010, eight African states have ratified the Pelindaba Treaty, leaving 15 African states that have not yet ratified. Consultations between the members of the Bangkok Treaty and the nuclear-armed states looked promising in 2012, but have since then stalled and no formal progress have been made on ratification of the protocols. During the 2014 NPT PrepCom in New York all five NPT nuclear-armed states signed the protocols to theCentral Asian NWFZ. In September 2012 all NPT nuclear-armed states signed parallel declarations regarding Mongolia's nuclear-weapon-free status. The progress made on the establishment of a zone free of nuclear weapons and other weapons of mass destruction in the Middle East, such as appointing a facilitator and agreeing on a venue, is overshadowed by the postponement of the conference initially planned for December 2012. Finally, no modifications of any reservations by nuclear-armed states to any of the protocols of NWFZ treaties have taken place. Despite some positive steps, states parties need to make additional efforts in order to fully implement this action.

Action 10:

All nuclear-weapon States undertake to ratify the Comprehensive Nuclear-Test-Ban Treaty with all expediency, noting that positive decisions by nuclear-weapon States would have the beneficial impact towards the ratification of that Treaty, and that nuclear-weapon States have the special responsibility to encourage Annex 2 countries, in particular those which have not acceded to the Treaty on the Non-Proliferation of Nuclear Weapons and continue to operate unsafeguarded nuclear facilities, to sign and ratify.

There are 30 parties of the NPT, including four Annex II countries – China, Egypt, Iran, and the United States – that have not yet signed or ratified the CTBT. However, China and the United States have a special responsibility under this action as they are the only nuclear-armed states under the NPT that have not yet ratified the Treaty. Both states have made clear their intention to ratify the CTBT since the NPT Review Conference in 2010, but have not laid out any concrete timetable for when this will happen.

Action 11:

Pending the entry into force of the Comprehensive Nuclear-test-Ban treaty, all States commit to refrain from nuclear-weapon test explosions or any other nuclear explosions, the use of new nuclear weapons technologies and from any action that would defeat the object and purpose of that Treaty, and all existing moratoriums on nuclear-weapon test explosions should be maintained.

Action 12:

All States that have ratified the Comprehensive Nuclear-Test-Ban Treaty recognize the contribution of the conference on facilitating the entry into force of that Treaty and of the measures adopted by consensus at the Sixty Conference on Facilitating the Entry into Force of the Comprehensive Nuclear-test-Ban Treaty, held in September 2009, and commit to report at the 2011 Conference on progress made towards the urgent entry into force of that Treaty.

Action 13:

All States that have ratified the Comprehensive Nuclear-Test-Ban Treaty undertake to promote the entry into force and implementation of that Treaty at the national, regional and global levels.

Action 14:

The Preparatory Commission for the Comprehensive Nuclear-Test- Ban Treaty Organization is to be encouraged to fully develop the verification regime for the Comprehensive Nuclear-Test-Ban Treaty, including early completion and provisional operationalization of the international monitoring system in accordance with the mandate of the Preparatory Commission, which should, upon entry into force of that Treaty, serve as an effective, reliable, participatory and non-discriminatory verification system with global reach, and provide assurance of compliance with that Treaty.

Many states parties participated in the CTBT Ministerial Meetings in September 2010, 2012 and 2014 as well as the Article XIV Conferences in September 2011 and 2013, and repeatedly called for the prompt entry into force of the CTBT. Furthermore, during the 2013 CTBT Article XIV Conference, a Group of Eminent Persons was created to support and complement efforts for the CTBT's entry into force as well as international efforts to that end. It is not clear to what extent states promoted the entry into force of this instrument in their bilateral relations with the outstanding annex II states, though official statements and documents indicate that states are currently complying with these actions. The monitoring system of the CTBT continues to be developed by the Preparatory Commission to the CTBTO and therefore action 14 is also complied with.

Action 15:

All States agree that the Conference on Disarmament should, within the context of an agreed, comprehensive and balanced programme of work, immediately begin negotiation of a treaty banning the production of fissile material for use in nuclear weapons or other nuclear explosive devices in accordance with the report of the Special Coordinator of 1995 (CD/1299) and the mandate contained therein. Also in this respect, the Review Conference invites the Secretary-General of the United Nations to convene a high-level meeting in September 2010 in support of the work of the Conference on Disarmament.

Not much progress has been made on negotiations of a treaty banning fissile materials for use in nuclear weapons in the CD. While the most recent proposals for a programme of work in the CD have been opposed only by a non-NPT nuclear-armed state, NPT states parties have not made adequate efforts to come up with alternative and creative solutions. The high-level meeting on the CD's revitalization took place in September 2010 and a follow-up meeting of the UN General Assembly was held July 2011, without having a great effect on discussions within the CD. However, in 2012 at the UNGA adopted a resolution establishing a Group of Governmental Experts (GGE) to make recommendations on possible elements of such a treaty. The GGE, consisting of 25 states, met in 2014 and 2015. In preparation, the UNSG sought the views of member states on this issue and collected them in a report to the 68th session of the UNGA. While this is a positive step, it does not fulfill the requirements set out by the action, to begin negotiations on such an instrument within the CD.

Action 16:

The nuclear-weapon States are encouraged to commit to declare, as appropriate, to the International Atomic Energy Agency (IAEA) all fissile material designated by each of them as no longer required for military purposes and to place such material as soon as practicable under IAEA or other relevant international verification and arrangements for the disposition of such material for peaceful purposes, to ensure that such material remains permanently outside military programmes.

Action 17:

In the context of action 16, all States are encouraged to support the development of appropriate legally binding verification arrangements, within the context of IAEA, to ensure the irreversible removal of fissile material designated by each nuclear-weapon State as no longer required for military purposes.

No significant changes after the adoption of the 2010 NPT Action Plan have taken place. Three out of the five NPT nuclear-armed states have declared excess fissile material for military use, although IAEA involvement has been limited. The remaining stockpile of HEU in both Russia and the US exceeds their military requirements and both countries could declare more HEU as excess to national security requirements. No developments of any legally-binding verification arrangements as described in action 17 have taken place, and therefore states are not considered to have implemented this action.

Action 18:

All States that have not yet done so are encouraged to initiate a process towards the dismantling or conversion for peaceful uses of facilities for the production of fissile material for use in nuclear weapons or other nuclear explosive devices.

Since a moratorium on production of fissile material for weapons purposes has been announced by four of the five NPT nuclear-armed state, most production facilities have been dismantled. While not publicly declaring such a moratorium, China is also believed to have stopped production of fissile material for weapons purposes and to have closed or converted such facilities, but it should announce this publicly. This action is considered being as complied with, but it needs to be noted that no specific steps have been taken since the 2010 NPT Action Plan.

Action 19:

All States agree on the importance of supporting cooperation among Governments, the United Nations, other international and regional organizations and civil society aimed at increasing confidence, improving transparency and developing efficient verification capabilities related to nuclear disarmament.

The UK-Norway-VERTIC initiative is currently the only significant project related to cooperation on these issues, although some countries are reportedly developing new projects on similar issues. The recently launched US initiative of the International Partnership for Nuclear Disarmament Verification will expand on the work already done by the United Kingdom and Norway and the Nuclear Threat Initiative will be a main partner. However, the impact of this initiative cannot be evaluated at this stage and more efforts of this kind are needed to fully implement this action.

Action 20:

States parties should submit regular reports, within the framework of the strengthened review process for the Treaty, on the implementation of the present action plan, as well as of article VI, paragraph 4 (c), of the 1995 decision entitled "Principles and objectives for nuclear non-proliferation and disarmament", and the practical steps agreed to in the Final Document of the 2000 Review Conference, and recalling the advisory opinion of the International Court of Justice of 8 July 1996.

The national reporting system under the NPT had a low level of participation in the lead-up to the 2010 NPT Review Conference. After the three Preparatory Committees, only seven non-nuclear-armed states have submitted reports. This action cannot be considered implemented.

Action 21:

As a confidence-building measure, all the nuclear-weapon States are encouraged to agree as soon as possible on a standard reporting form and to determine appropriate reporting intervals for the purpose of voluntarily providing standard information without prejudice to national security. The Secretary-General of the United Nations is invited to establish a publicly accessible repository, which shall include the information provided by the nuclear-weapon States.

In accordance with the 2014 reporting deadline set by the Action Plan, the five NPT nuclear-armed states submitted their reports on implementation of actions 5, 20, and 21. The reports follow a fixed set of headings but the content varied widely and very few new facts were shared. The information mainly covered past activities before 2010 and each state focused on certain issues rather than the whole picture. The fixed set of headings cannot be considered a standard reporting form, especially since the information provided is neither comparable nor a great increase in transparency. The United Nations has created an online repository for reports from the five NPT nuclear-armed states.

Action 22:

All States are encouraged to implement the recommendations contained in the report of the Secretary-General of the United Nations (A/57/124) regarding the United Nations study on disarmament and non-proliferation education, in order to advance the goals of the Treaty in support of achieving a world without nuclear weapons.

Reporting on implementation of the UN Secretary-General's recommendations on disarmament education has been poor, with only ten states submitting information for the 2014 update of the Secretary-General's report. In order for this action to be implemented, NPT states parties must significantly improve their disarmament education efforts.

Action 23:

The Conference calls upon all States parties to exert all efforts to promote universal adherence to the Treaty, and not to undertake any actions that can negatively affect prospects for the universality of the Treaty.

By examining the concrete events that have taken place since the adoption of the 2010 NPT Action Plan, it is possible to conclude that states parties are not exerting all efforts in order to reach this goal. While some have made statements on the topic, many consistently avoid calling out the names of the non-members of the NPT. Furthermore, the increased nuclear cooperation with India and Pakistan show that such rhetoric is not matched by corresponding actions. In fact, any calls for universalization are undermined by the reality of the international community's relations with these two states as well as with Israel. Also, the voting results in the UN General Assembly concerning resolutions calling for universalization of the NPT have not significantly changed since the conclusion of the Action Plan. The 2013 nuclear test by the DPRK signals a negative development that moves the country even further away from once again adhering to the Treaty, and the end of diplomatic efforts through the six-party talks makes significant progress on this in the near future rather unlikely.

Action 24:

The Conference re-endorses the call by previous review conferences for the application of IAEA comprehensive safeguards to all source or special fissionable material in all peaceful nuclear activities in the States parties in accordance with the provisions of article III of the Treaty.

Only twelve countries have not yet implemented a comprehensive safeguards agreement (CSA) with the IAEA, and most of those countries do not carry out any noteworthy civilian nuclear activities. Therefore, the call in this action can be considered implemented.

Action 25:

The Conference, noting that 18 States parties to the Treaty have yet to bring into force comprehensive safeguards agreements, urges them to do so as soon as possible and without further delay.

This action calls specifically on the states parties that had not brought into force a CSA by May 2010 to do so. Since that date, six out of eighteen countries have done so. No progress by the remaining twelve countries has been noted. Thus while some progress in implementing this action item has been achieved, further efforts by the remaining ten countries will need to be carried out.

Action 26:

The Conference underscores the importance in complying with the non-proliferation obligations, addressing all compliance matters in order to uphold the Treaty's integrity and the authority of the safeguards system.

Action 27:

The Conference underscores the importance of resolving all cases of non-compliance with safeguards obligations in full conformity with the IAEA statute and the respective legal obligations of Member States. In this regard, the Conference calls upon Member States to extend their cooperation to the Agency.

These two actions are complicated to evaluate since the phrases "non-proliferation obligations" and "non-compliance" are open for interpretation. The view on what constitutes mandatory obligations and thereby compliance with such obligations differs quite significantly. "Non-proliferation obligations" is not a legally-defined term, whereas the safeguards agreements of each country are very specific. Furthermore, it can be argued that the term "respective legal obligations" in action 27 also includes those obligations arising from UNSC resolutions. The IAEA Board of Governors has reported that Iran, Syria, and the DPRK are currently not complying with certain obligations. All parties need to implement their non-proliferation obligations to the fullest extent. However, the three above-mentioned states do not agree that they are in violation of any of their legal obligations. Additionally, DPRK has withdrawn from the NPT and has no agreements with the IAEA. Iran is in compliance with its CSA obligations (though not the (voluntary) implementation of the additional protocol).

The joint plan of action agreed upon in November 2013 between Iran and the E3+3 is a significant positive step towards resolving remaining issues in this regard. Due to the extension of the timeframe until 30 June 2015, it is not yet possible to conclude that this action is fulfilled. The current situation in Syria does not allow for the implementation of any safeguards agreement. However, it is imperative that the concerned states implement their legal obligations in good faith and exercise flexibility and transparency in their cooperation with the IAEA. Depending on the reading of action 27 and the respective developments, this action could be considered as not complied with by several states or only partly complied with.

Action 28:

The Conference encourages all States parties which have not yet done so to conclude and to bring into force additional protocols as soon as possible and to implement them provisionally pending their entry into force.

Currently, 124 states have additional protocols in force, an increase of 23 states since May 2010. This is a positive development, but 65 member states of the NPT have still not brought into force an additional protocol. However, the discussion around the ratification of the additional protocol has lost intensity due to the development of a "state-level approach" to safeguards. This action cannot be considered fully implemented.

Action 29:

The Conference encourages IAEA to further facilitate and a ssist the States parties in the conclusion and entry into force of comprehensive safeguards agreements and additional protocols. The Conference calls on States parties to consider specific measures that would promote the universalization of the comprehensive safeguards agreements.

One of the priorities of the IAEA is to facilitate and assist states parties on progress on CSAs and additional protocols. Several initiatives to further facilitate the entry into force and universalization of CSAs and additional protocols by the IAEA have taken place and the progress on adherence to such instruments shows that this action is currently being implemented.

Action 30:

The Conference calls for the wider application of safeguards to peaceful nuclear facilities in the nuclear-weapon States, under the relevant voluntary offer safeguards agreements, in the most economic and practical way possible, taking into account the availability of IAEA resources, and stresses that comprehensive safeguards and additional protocols should be universally applied once the complete elimination of nuclear weapons has been achieved.

There have been no reported changes in the application of the Voluntary Offer Agreement in the nuclear weapon states since May 2010 and therefore this action cannot be considered implemented.

Action 31:

The Conference encourages all States parties with small quantities protocols which have not yet done so to amend or rescind them, as appropriate, as soon as possible.

Since the adoption of the Action Plan, 15 states parties have amended their small quantities protocols (SQP). In addition, two countries have signed a new SQP, two states have rescinded their SQP, and four more SQPs have entered into force. However, a large number of SQPs from before 2005 remain and therefore this action will require further efforts by these states in order to be implemented fully.

Action 32:

The Conference recommends that IAEA safeguards should be assessed and evaluated regularly. Decisions adopted by the IAEA policy bodies aimed at further strengthening the effectiveness and improving the efficiency of IAEA safeguards should be supported and implemented.

There has been some significant progress in this area, through new IAEA, multilateral, and national initiatives on optimizing the IAEA safeguards system. While it remains to be seen if any of these activities will have any concrete results on improving effectiveness and efficiency of safeguards, the action is currently being implemented.

Action 33:

The Conference calls upon all States parties to ensure that IAEA continues to have all political, technical and financial support so that it is able to effectively meet its responsibility to apply safeguards as required by article III of the Treaty.

Action 34:

The Conference encourages States parties, within the framework of the IAEA statute, to further develop a robust, flexible, adaptive and cost effective international technology base for advanced safeguards through cooperation among Member States and with IAEA.

There has been modest progress reported on actions 33 and 34 dealing with the IAEA and safeguards. However, the actions do not call for a specific increase of activities, but rather for continued support and to "further develop" activities. The work of the IAEA in this area appears to be moving forward and to be of a predictable nature, and therefore these actions seem to be implemented.

Action 35:

The Conference urges all States parties to ensure that their nuclear related exports do not directly or indirectly assist the development of nuclear weapons or other nuclear explosive devices and that such exports are in full conformity with the objectives and purposes of the Treaty as stipulated, particularly, in articles I, II and III of the Treaty, as well as the decision on principles and objectives of nuclear non-proliferation and disarmament adopted in 1995 by the Review and Extension Conference.

This action does not add any additional obligations aside from what is already in the NPT and previous decisions, but it does serve as a reminder that states are obliged to ensure that their nuclear-related exports do not directly or indirectly assist the development of nuclear weapons and that the 1995 decision on objectives and purposes of the Treaty requires states parties to promote transparency in nuclear-related export controls. In order to fully comply with this action, all states with nuclear cooperation agreements with states non-parties to the NPT need to provide transparent information on how their nuclear exports do not directly or indirectly assist the development of nuclear weapons in these countries. As this is not the case, in particular in nuclear energy cooperation agreements with India and Pakistan, this action cannot be considered implemented.

Action 36:

The Conference encourages States parties to make use of multilaterally negotiated and agreed guidelines and understandings in developing their own national export controls.

Action 36 is simply an encouragement and will be dependent on the state involved. The research in this study has shown that many countries have developed national export controls based on multilaterally negotiated guidelines, and therefore this action is considered implemented.

Action 37:

The Conference encourages States parties to consider whether a recipient State has brought into force IAEA safeguards obligations in making nuclear export decisions.

The implementation of this action depends on how one interprets safeguards obligations. As the action only refers to "IAEA safeguards obligations," it could be interpreted as meaning that the limited safeguards agreement on certain specified nuclear facilities in states not party to the NPT would be enough to implement this action. With such an interpretation, one could argue that the action is being implemented. If one interprets "IAEA safeguards obligations" as meaning the comprehensive safeguards agreement and additional protocol, then nuclear exports to countries outside the NPT and to countries without an additional protocol in place means that this action is not being implemented.

Action 38:

The Conference calls upon all States parties, in acting in pursuance of the objectives of the Treaty, to observe the legitimate right of all States parties, in particular developing States, to full access to nuclear material, equipment and technological information for peaceful purposes.

Action 39:

States parties are encouraged to facilitate transfers of nuclear technology and materials and international cooperation among States parties, in conformity with articles I, II, III and IV of the Treaty, and to eliminate in this regard any undue constraints inconsistent with the Treaty.

Many states continue to highlight the importance of having the right to develop nuclear energy for peaceful purposes and to have the ability to participate in nuclear technology exchange programmes. At the same time, there are few examples of states parties making additional and publicly visible efforts to make sure that all states parties can participate in nuclear energy exchanges. The statement by the G8 from 2011 shows that countries continue to support the notion of exchange of technology for development of nuclear energy, but it remains difficult to assess what this actually means in practice. It is therefore appropriate to conclude that states parties are currently complying with the obligations under action 38 and 39 of the 2010 NPT Action Plan, but that disagreement on the implementation of these commitments is based on the interpretation of certain wording in the Action Plan and the NPT itself.

Action 40:

The Conference encourages all States to maintain the highest possible standards of security and physical protection of nuclear materials and facilities.

The term "highest possible standards" is not defined in the Action Plan. The IAEA provides a list of instruments that are "fundamental for nuclear security" but does not indicate if these are considered to be a general interpretation of the "highest possible standards". If such an interpretation is made, a clear majority of states parties are complying with this action. Since it was launched in April 2010, the Nuclear Security Summit process as well as the 2013 IAEA Nuclear Security Conference reinforced Action 40.

Action 41:

The Conference encourages all States parties to apply, as appropriate, the IAEA recommendations on the physical protection of nuclear material and nuclear facilities (INFCIRC/225/Rev.4 (Corrected)) and other relevant international instruments at the earliest possible date.

As the IAEA recommendation does not entail a legal commitment and does not require signature and ratification of member states, it is difficult to assess compliance levels. However, nothing indicates that states parties are not continuing to promote and work on physical protection of nuclear materials so therefore the action is considered implemented.

Action 42:

The Conference calls on all States parties to the Convention on the Physical Protection of Nuclear Material to ratify the amendment to the Convention as soon as possible and encourages them to act in accordance with the objectives and the purpose of the amendment until such time as it enters into force. The Conference also encourages all States that have not yet done so to adhere to the Convention and adopt the amendment as soon as possible.

Adherence to this convention and its amendments is improving, but a significant number of countries still remain outside. Therefore, additional progress by those states remaining outside is needed in order to fully implement this action.

Action 43:

The Conference urges all States parties to implement the principles of the revised IAEA Code of Conduct on the Safety and Security of Radioactive Sources, as well as the Guidance on the Import and Export of Radioactive Sources approved by the IAEA Board of Governors in 2004.

A clear majority of NPT states parties have expressed support for this Code and many of those have explicitly supported all aspects of the supplementary Guidance on the Import and Export of Radioactive Sources. At the same time, adherence has not increased significantly since May 2010. Therefore, this action cannot be considered implemented fully.

Action 44:

The Conference calls upon all States parties to improve their national capabilities to detect, deter and disrupt illicit trafficking in nuclear materials throughout their territories, in accordance with their relevant international legal obligations, and calls upon those States parties in a position to do so to work to enhance international partnerships and capacity-building in this regard. The Conference also calls upon States parties to establish and enforce effective domestic controls to prevent the proliferation of nuclear weapons in accordance with their relevant international legal obligations.

The amount of activities dedicated to prevention of nuclear terrorism and the illicit trafficking of nuclear materials is significant. It has continued to grow after the conclusion of the 2010 NPT Action Plan. However, most initiatives are multilateral and not national. The action requires states to improve their national capabilities to detect illicit trafficking. While the multilateral initiatives are important for assisting states in improving their national capabilities, their direct effects are difficult to assess.

Aside from the difficulties to assess the impact of multilateral activities on national capacities, preventing nuclear terrorism and illicit trafficking of nuclear materials is one of the most fast-paced areas of implementation of the NPT Action Plan. The cooperation between governments, organizations, and some non-governmental actors is significant and therefore states parties are currently implementing this action.

Action 45:

The Conference encourages all States parties that have not yet done so to become party to the International Convention for the Suppression of Acts of Nuclear Terrorism as soon as possible.

Since May 2010, the Convention has 32 new parties. While this is a positive step in the right direction, there are still 44 states that have signed but not yet ratified the Convention.

Action 46:

The Conference encourages IAEA to continue to assist the States parties in strengthening their national regulatory controls of nuclear material, including the establishment and maintenance of the State systems of accounting for and control of nuclear material, as well as systems on regional level. The Conference calls upon IAEA Member States to broaden their support for the relevant IAEA programmes.

There has been modest progress reported on action 46, dealing with the activities of the IAEA. As the action does not call for specific increases of activities, but rather for member states to assist and broaden support for the IAEA, this action seems to be implemented.

Action 47:

Respect each country's choices and decisions in the field of peaceful uses of nuclear energy without jeopardizing its policies or international cooperation agreements and arrangements for peaceful uses of nuclear energy and its fuel cycle policies.

Action 48:

Undertake to facilitate, and reaffirm the right of States parties to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy.

The research shows that states continue to highlight the importance of having the right to develop nuclear energy for peaceful purposes and to have the ability to participate in nuclear technology exchange programmes. At the same time, there are few examples of states parties making additional and publicly visible efforts to make sure that all states can participate in nuclear energy exchanges. Despite the Fukushima accident, most states continue to support the notion of exchange of technology for development of nuclear energy, but it remains difficult to assess what this actually means in practice.

It is therefore concluded that states parties are currently complying with the obligations under these actions, but it is essential to note that disagreement on the implementation of these commitments can exist due to differences in interpretation of certain wording of the Action Plan and the NPT itself.

Action 49:

Cooperate with other States parties or international organizations in the further development of nuclear energy for peaceful purposes, with due consideration for the needs of the developing areas of the world.

Nuclear energy continues to be a source of extensive international cooperation. The earthquake and tsunami in Japan and the following disaster at the Fukushima nuclear power plant have given pause to some negotiations and some states are reconsidering their continued use or development of nuclear power, but most states continue to expand their nuclear options.

The number of technical cooperation initiatives through the IAEA continues to rise and so does bilateral cooperation among states. Immediate connection to the NPT Action Plan, however, is difficult to ascertain, since no significant increase in training or cooperation activities since May 2010 can be detected. IAEA Technical Cooperation Programmes (TCP) and regional cooperation under the umbrella of the respective regional division of the TCP mostly focus on the training of personnel and the education of experts. Bilateral cooperation among states also includes the training of personnel but mainly focuses on the exchange of nuclear technology and expertise. States are therefore considered to be in compliance with action 49.

Action 50:

Give preferential treatment to the non-nuclear-weapon States parties to the Treaty, taking the needs of developing countries, in particular, into account.

While some have argued that through sharing of best practices and technical cooperation agreements of the IAEA, NPT states parties with developing nuclear energy programmes are indeed given preferential treatment, the extent of cooperation with states outside the NPT gives cause to question whether this action is being implemented. The scope of cooperation of NPT states parties with nuclear-armed states not party to the NPT, especially the increased cooperation with India since the Nuclear Suppliers Group (NSG) exception was non-nuclear armed states parties to the NPT is diminishing. Such a development has inevitably raised concerns about the compliance with this action and will continue be a source of significant disagreement at future NPT conferences, especially since the United States has formally introduced the issue of the India's membership in the NSG.

Action 51:

Facilitate transfers of nuclear technology and international cooperation among States parties in conformity with articles I, II, III, and IV of the Treaty, and eliminate in this regard any undue constraints inconsistent with the Treaty.

While there continues to be some reluctance to share technology in the field of enrichment and processing of nuclear material, nuclear energy cooperation amongst NPT states parties is significant and continues to expand. The earthquake and tsunami in Japan and the following disaster at the Fukushima nuclear power plant have given pause to some negotiations and some states are reconsidering their continued use or development of nuclear power, but most states continue to expand their nuclear options. Differences in interpretation of the NPT and its articles can lead to different conclusions on the implementation of this action, but our research has not found anything concrete that would indicate that this action is not currently being implemented.

Action 52:

Continue efforts, within IAEA, to enhance the effectiveness and efficiency of its technical cooperation programme.

Action 53:

Strengthen the IAEA technical cooperation programme in assisting developing States parties in the peaceful uses of nuclear energy.

The technical cooperation programmes between states parties and the IAEA are continuing to be developed and implemented and new ones are initiated constantly. Progress on action 52 and 53 is significant and is therefore considered implemented.

Action 54:

Make every effort and to take practical steps to ensure that IAEA resources for technical cooperation activities are sufficient, assured and predictable.

For the timeframe of 2010-2015, the IAEA Board of Governors increased by over five million dollars the estimated target figure for the Technical Cooperation Fund. If states parties continue to pledge and pay at the same rate as they did in 2009, the funding for the technical cooperation programme should increase from its 2009 levels. Based on the target figures, action 54 is considered complied with by the IAEA member states as a group.

Action 55:

Encourage all States in a position to do so to make additional contributions to the initiative designed to raise 100 million dollars over the next five years as extra budgetary contributions to IAEA activities, while welcoming the contributions already pledged by countries and groups of countries in support of IAEA activities.

Action 55 encourages states to make additional contributions to the initiative designed to raise 100 million dollars. So far, the United States has contributed $31 million. Several other countries have announced that they either will or are considering contributing to this initiative, but recently no figures have been made public. According to the IAEA, it has become an important tool for extra-budgetary contributions and projects with various departments of the IAEA are on-going. However, in order to fully implement action 55, states would need to increase their publicly pledged donations and deliver what was pledged. Since the technical cooperation is a statutory task of the Agency, the debate on diminishing the importance of extra-budgetary funding by introducing the Technical Cooperation Fund in the IAEA regular budget has become more intense since 2010.

Action 56:

Encourage national, bilateral and international efforts to train the necessary skilled workforce needed to develop peaceful uses of nuclear energy.

The action does not require any increase in activities; it mainly calls upon states to encourage training programmes. No decrease of training programmes has been found, and therefore this action is considered implemented.

Action 57:

Ensure that, when developing nuclear energy, including nuclear power, the use of nuclear energy must be accompanied by commitments to and ongoing implementation of safeguards as well as appropriate and effective levels of safety and security, consistent with States' national legislation and respective international obligations.

The Fukushima disaster has raised significant concerns around the world about the safety of nuclear energy and has highlighted that existing nuclear power plants are not always accompanied by "appropriate and effective" levels of safety. Fukushima has led to renewed focus on nuclear safety, and states are engaging in additional efforts to improve nuclear safety. While not without criticism and reservations, the adopted IAEA action plan on nuclear safety is a positive step. Additionally during the meeting of the Convention on Nuclear Safety in February 2015 states adopted Vienna Declaration on Nuclear Safety, which contains calls to address the design and construction of both existing and new nuclear power plants as well as a process requesting the contracting parties to report on their implementation of the measures contained in the Vienna Declaration. While these worldwide efforts are a step in the right direction, there is a reluctance to adopt more legally-binding measures. More concrete measures and improvements in nuclear safety need to be implemented. The significance of this action is evolving and therefore needs to be implemented more strictly.

Action 58:

Continue to discuss further, in a non-discriminatory and transparent manner under the auspices of IAEA or regional forums, the development of multilateral approaches to the nuclear fuel cycle, including the possibilities of creating mechanisms for assurance of nuclear fuel supply, as well as possible schemes dealing with the back-end of the fuel cycle without affecting rights under the Treaty and without prejudice to national fuel cycle policies, while tackling the technical, legal and economic complexities surrounding these issues, including, in this regard, the requirement of IAEA full scope safeguards.

The decision to establish a new nuclear fuel bank under the auspices of the IAEA is one of the most significant developments since the Action Plan was adopted in May 2010. The decision was taken in the IAEA, and therefore is compatible with the requirement of the action. The financial and rhetorical support from several states shows a continued commitment to this action and implementation seems to be progressing.

Action 59:

Consider becoming party, if they have not yet done so, to the Convention on Nuclear Safety, the Convention on Early Notification of a Nuclear Accident, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, the International Convention for the Suppression of Acts of Nuclear Terrorism, the Convention on the Physical Protection of Nuclear Material, and to ratify its amendment so that it may enter into force at an early date.

The conventions on nuclear safety and security, as well as civil liability in case of nuclear accident, are growing in importance since the Fukushima disaster. The conventions in action 59 have seen some modest progress in signatures and ratifications, but it is far from any significant achievement to increase adherence. Even though the action only obliges states to "consider" becoming parties to these conventions, more efforts by states were needed in order to implement action 59.

Action 60:

Promote the sharing of best practices in the area of nuclear safety and security, including through dialogue with the nuclear industry and the private sector, as appropriate.

This action does not require any increase of activities; it mainly calls upon states to promote sharing of best practices. However, new initiatives for sharing of best practices have taken place and therefore it is considered being implemented.

Action 61:

Encourage States concerned, on a voluntary basis, to further minimize highly enriched uranium in civilian stocks and use, where technically and economically feasible.

The global amount of highly-enriched uranium (HEU) has decreased from 2009 to 2014, indicating that some progress has been made. Many states have since May 2010 made significant progress in removing their entire stockpiles of HEU also under the auspices of the Nuclear Security Summit. Despite the voluntary nature of this action, more efforts to reduce HEU should be made in order to fully implement this action. States should also consider measures to increase transparency in the field of fissile material, in order to facilitate additional reductions in the future. Unfortunately, there has been no significant discussion on whether the security and transparency concerning such material really is best served by transferring it to a nuclear-armed state or whether other mechanisms, such as within the framework of the IAEA should be developed.

Action 62:

Transport radioactive materials consistent with relevant international standards of safety, security and environmental protection, and to continue communication between shipping and coastal States for the purpose of confidence-building and addressing concerns regarding transport safety, security and emergency preparedness.

No significant changes can be mentioned in connection with the transport of radioactive material. Several IAEA initiatives continue to take place and international standards for transport and communications seem to be complied with. The continued concerns expressed by the Caribbean Community (CARICOM) show that more communication and confidence-building measures are needed to address this issue, but the action is considered to be implemented.

Action 63:

Put in force a civil nuclear liability regime by becoming party to relevant international instruments or adopting suitable national legislation, based upon the principles established by the main pertinent international instruments.

With regards to international civil liability regimes, only limited progress has been achieved. As the action includes a concrete commitment that states parties "shall" put such civil liability regimes in place, it cannot be considered fully implemented.

Action 64:

The Conference calls upon all States to abide by the decision adopted by consensus at the IAEA General Conference on 18 September 2009 on prohibition of armed attack or threat of attack against nuclear installations, during operation or under construction.

No attack against a nuclear installation has been reported since the adoption of the NPT Action Plan. However, concrete threats of attacks on Iranian nuclear facilities have been made by Israel while the US has publicly stated that "all options are on the table". This raises concerns with regard to the implementation of this action.

Implementing Article VI

Action 1:

All States parties commit to pursue policies that are fully compatible with the Treaty and the objective of achieving a world without nuclear weapons.

Action 3:

In implementing the unequivocal undertaking by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenal, the nuclear-weapon States commit to undertake further efforts to reduce and ultimately eliminate all types of nuclear weapons, deployed and non-deployed, including through unilateral, bilateral, regional and multilateral measures.

Action 4:

The Russian Federation and the United States of America commit to seek the early entry into force and full implementation of the Treaty on Measures for the Further reduction and Limitation of Strategic Offensive Arms and are encouraged to continue discussions on follow-on measures in order to achieve deeper reductions in their nuclear arsenals.

Action 5:

The nuclear-weapon States commit to accelerate concrete progress on the steps leading to nuclear disarmament, contained in the Final Document of the 2000 Review Conference, in a way that promotes international stability, peace and undiminished and increased security. To that end, they are called upon to promptly engage with a view to, inter alia:

(a) Rapidly moving towards an overall reduction in the global stockpile of all types of nuclear weapons, as identified in action 3;

(b) Address the question of all nuclear weapons regardless of their type or their location as an integral part of the general nuclear disarmament process;

(c) To further diminish the role and significance of nuclearweapons in all military and security concepts, doctrines and policies;

(d) Discuss policies that could prevent the use of nuclear weapons and eventually lead to their elimination, lessen the danger of nuclear war and contribute to the non-proliferation and disarmament of nuclear weapons;

(e) Consider the legitimate interest of non-nuclear-weapon States in further reducing the operational status of nuclear weapons systems in ways that promote international stability and security;

(f) Reduce the risk of accidental use of nuclear weapons; and

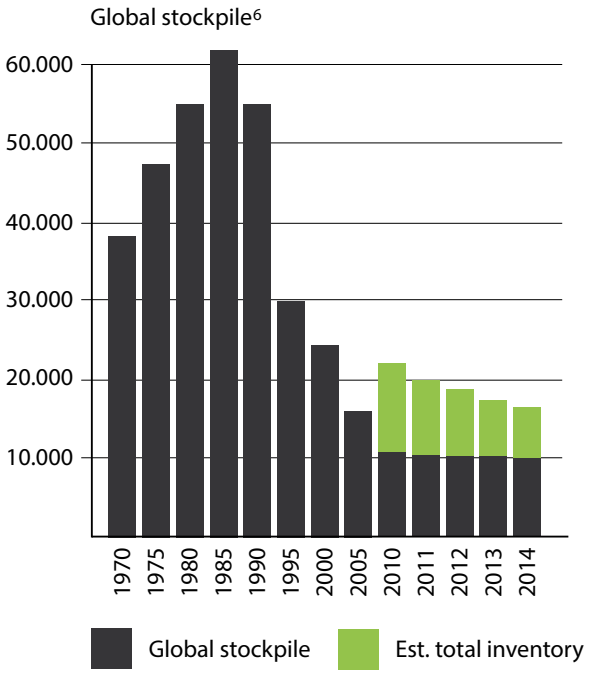
Action 6:

All States agree that the Conference on Disarmament should immediately establish a subsidiary body to deal with nuclear disarmament, within the context of an agreed, comprehensive and balanced programme of work

Action 22:

All States are encouraged to implement the recommendations contained in the report of the Secretary-General of the United Nations (A/57/124) regarding the United Nations study on disarmament and non-proliferation education, in order to advance the goals of the Treaty in support of achieving a world without nuclear weapons.

Status of world nuclear forces



The Federation of American Scientists (FAS) regularly publishes a global nuclear weapon inventory based on available information. According to these figures, the total numbers of nuclear weapons are decreasing due to Russian and US reductions of Cold War arsenals. However, all NPT nuclear-armed states, as well as other non-NPT nuclear-armed states,[1] continue to either produce new or modernize current nuclear weapon systems. In addition, all nuclear-armed states insist that nuclear weapons are essential for their national security.

China

China

Size of nuclear arsenal: 250.

Arsenal reductions: None, increased by 10.

Role of nuclear weapons in security doctrines: Unchanged.

Alert status: No change, China keeps its nuclear weapons on low alert.

Risk reduction: No information available on new risk reduction efforts.

There are various estimates on the size of China's nuclear arsenal.[2] According to FAS, China has a total stockpile of around 250 nuclear warheads, most of them in storage.[3] Under the guideline of China's no first use doctrine and the principle of a "lean and effective" nuclear force, the main goal of China's nuclear modernization, initiated in the 1980s, is reportedly aimed at securing a "limited and reliable" second-strike nuclear force to "deter" a nuclear attack.[4] China's current modernization efforts are aimed at qualitative improvement, rather than mere quantitative increase, as has been the case during the past three decades. Specifically, China's efforts are mainly aimed at increasing the survivability of its nuclear force by replacing older, liquid-fuelled missiles with solid-fuelled, mobile ballistic missiles, constructing underground tunnels that can act as missile bases, and expanding its sea-based systems.[5]

Quantitative

In April 2013, China published a new white paper that gives an overview of China's military strategy and arms control policy. As in previous defence papers and other official documents, the white paper does not reveal any basic information on the size of China's current nuclear capability or nuclear arsenal. However it does mention that a strategic task of its modernization efforts is to build a strong defence and powerful armed forces.[6]

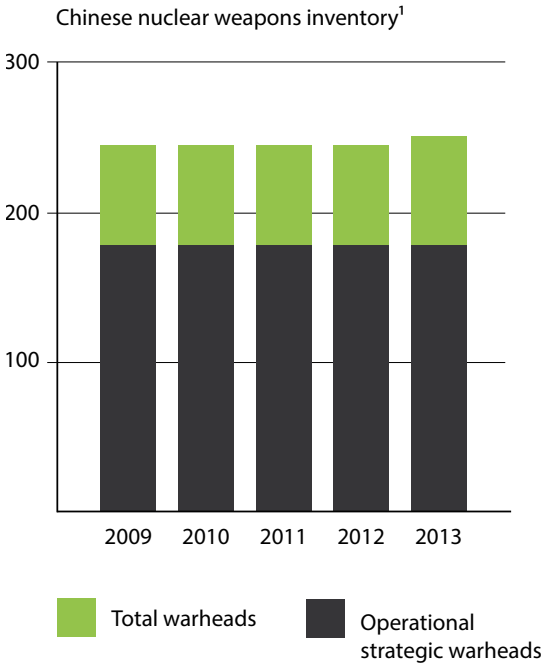
According to information provided by the British American Security Information Council (BASIC), in 2011 China was reported to be phasing out its older missiles, the DF-3A and the DF-4, and replacing them with new DF-21 medium range missiles, approximately 55-60 of which are nuclear capable.[7] In addition, China has deployed four other nuclear-capable ballistic missiles, the DF-5A, DF-31, DF-31A, and JL-2.[8] These developments in missile capability will both increase the range and sophistication of land-based systems and nuclear-powered ballistic missile submarines.[9]

Estimates in November 2013, published in an article of the Bulletin of Atomic Scientists, indicate that China has about 148 land-based nuclear ballistic missiles that can carry one warhead each. China also has additional warheads for their submarine-launched ballistic missiles (SLBMs) as well as bombs for air delivery.[10] The warheads are thought to be stored in another location than the missiles and many of the strategic nuclear warheads are intended only for regional use.[11]

Unlike the other NPT nuclear-armed states, which are maintaining their current arsenal levels or are slowly decreasing, China is believed to be slowly increasing the size of its nuclear weapons arsenal.[12] China has prioritized land-based ballistic and cruise missile programmes[13] and according to the US Department of Defense (DoD) assessment, China has the leading programme in the world.[14] The 2014 DoD report also states that China may be developing intercontinental ballistic missiles (ICBM) with multiple independently targetable re-entry vehicles (MIRV) capability, as well as other technologies to counter other countries' ballistic missile defence systems, such as decoys, chaff, jamming, thermal shielding, and anti-satellite weapons.[15]

China has also been reported to be replacing its first generation ballistic nuclear missile-carrying submarines. In March 2011 two SSBNs were seen at Xiaopingdao submarine base and

satellite pictures taken by the Pentagon indicated that China has already launched three Jin-class SSBNs and have more under construction. In actual numbers the currently active three JIN-class SSBNs could carry 36 missiles (12 each), which is an increase from the maximum of 12 SLBMs that the old Xia-class submarine could carry.[16] Up to five of this kind may enter service before China will proceed to the next generation of submarines over the next decade.[17] The latest DoD report estimated that the first nuclear deterrence patrols with JIN-class SSBN would be conducted in 2014.[18]



Qualitative

China's white paper from April 2013 states, "Following the principle of building a lean and effective force, the PLASAF [People's Liberation Army Second Artillery Force] is striving to push forward its informationization transform, relying on scientific and technological progress to boost independent innovations in weaponry and equipment, modernizing current equipment selectively by applying mature technology, enhancing the safety, reliability and effectiveness of its missiles, improving its force structure of having both nuclear and conventional missiles, strengthening its rapid reaction, effective penetration, precision strike, damage infliction, protection and survivability capabilities."[19]

Some analysts have argued that China is currently modernizing its sea-based strategic force in order to secure a second-strike force.[20] The 2011 white paper states that "the PLA Navy (PLAN) endeavours to accelerate the modernization of its integrated combat forces, enhances its capabilities in strategic deterrence and counterattack, and develops its capabilities in conducting operations in distant waters and in countering non-traditional security threats."[21] In the 2013 white paper the focus of PLAN's accelerated modernization efforts are the forces for comprehensive offshore operations, the development of advanced submarines, destroyers and frigates, and the improvement of integrated electronic and information systems. Furthermore, it repeats the endeavours stated in the 2011 white paper.[22]

Security doctrines and policies

China reaffirmed its no first use and negative security assurance policy in the 2011 white paper.[23] However, in the 2013 white paper that was not the case. The paper does explain that should China come under nuclear threat, alert levels will be increased, and should it come under nuclear attack, a counterattack will be launched. As a result, shortly after the whitepaper was released a debate arose whether this meant China was turning away from its no first use policy, as it did not specifically rule out other uses.[24] However, China reaffirmed its commitment to the policy of no first use in its report submitted to the 2014 NPT Preparatory Committee.[25] Thus, China has not reduced the role of nuclear weapons nor can a change in China's security doctrine be reported.

France

Size of nuclear arsenal: 300

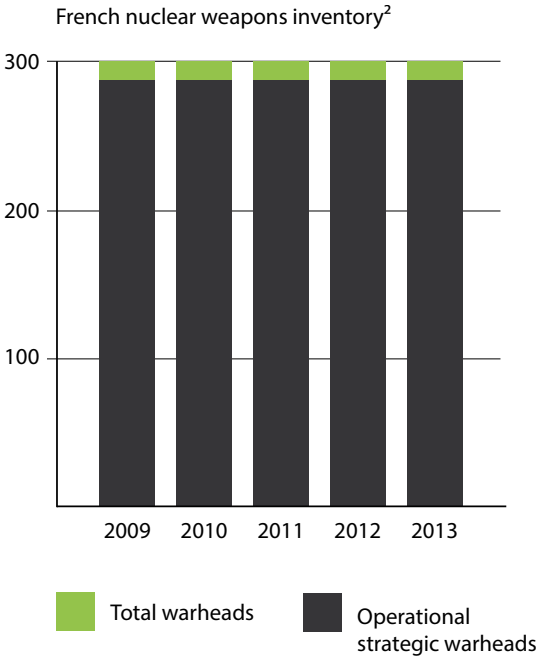
Arsenal reductions: None.

Role of nuclear weapons in security doctrines: Unchanged.

Alert status: No change, many weapons remain on high-alert.

Risk reduction: No information available on new risk reduction efforts.

France has both a sea- and air-based nuclear capability and has announced a total nuclear stockpile of about 300 weapons. 290 of the 300 warheads are for deployment on the four French nuclear submarines.[26] In its latest white paper of April 2013, the French government reaffirmed its position that "nuclear deterrence" is a means of protecting France's vital interests.[27] France is also in the process of modernizing its nuclear forces.[28]



Quantitative

In 2010 the Le Triomphant-class SSBNs submarines were completed. However, France is still in the process of modernising its four nuclear submarines.[29] From the last estimates made on France's nuclear capacity, 80% of France's 300 nuclear warheads are for delivery on three ballistic missiles submarines and the remaining warheads are on cruise missiles for delivery by land- and sea-based strike aircraft. The French stockpile is expected to decrease to around 290 warheads within the next few years.[30] France has stated that it has no additional nuclear reserves, although FAS estimates that it does have a small inventory of spare warheads.[31]

Qualitative

The new Le Triomphant submarines are a modernization of France's sea-based nuclear weapon system and will ensure that it can maintain its capability until at least the 2030s.[32] The new submarines are quieter and the M45 missiles are gradually being replaced with longer-range M-51 missiles. The TN75 warhead will be replaced, starting in 2015, with the Tête nucléaire océanique warhead.[33] In addition to modernizing its submarine-based nuclear forces, France is also introducing new aircrafts and missiles to its nuclear air force capabilities. This modernization is expected to result in a quantitative reduction of nuclear-capable aircrafts. France is also introducing a new nuclear warhead to its air-based nuclear system (Tête nucléaire aéroportée) as it is to its sea-launched ballistic missiles.[34]

Estimates on French nuclear spending vary from $4.6-6 billion per year. Deficit cuts announced by the French government would only limitedly affect the spending on nuclear weapons.[35]

Security doctrines and policies

The French government says it relies on its nuclear capacity to protect the country's "independence and strategic autonomy" as well as to defend its "vital interests," which former French President Sarkozy described as "identity and our existence as a nation-state, as well as our capacity to freely exercise our sovereignty."[36] The French government argues that nuclear weapons protect its territory from a potential attack and deter aggressions against France by another state.[37] France has not adopted a no first use policy and President Hollande stressed its nuclear force will protect France against all threats and allow it to "play a strong role on the world stage".[38]

In April 2013, France released a new white paper[39], which mainly confirmed the positions outlined in the previous one from 2008. Deterrence is one of the three main priorities, along with protection and intervention, identified in the paper.[40] Deterrence is also listed as part of a global approach consisting of five strategic functions (knowledge and anticipation, protection, prevention, deterrence, and intervention) to ensure national security in the coming years.[41] Nuclear deterrence is defined as a strictly defensive protection from aggressions by another state against France's vital interests and, thus, the "ultimate guarantee" for the country's sovereignty.[42] However, vital interests are not specifically defined in the white paper. This suggests that the use of nuclear weapons is not necessarily limited to the sole purpose of deterrence.

In February 2015, President François Hollande gave an address[43] focused on nuclear deterrence, explaining the decision to maintain both air- and sea-based components of France's nuclear force as part of the recent law on the military programme.[44]This law allows for continued modernization of both components. In reviewing the role of nuclear deterrence, President Hollande reiterated previous assessments with regard to protection, stressed the complementary nature of nuclear to conventional

forces, and highlighted the need for "continuity". He also stressed that France's "nuclear forces must be capable of inflicting absolutely unacceptable damage to the opponent on its centres of power, that is to say, its nerve centres, political, economic and military."[45]

Thus there is certainly no indication that France has reduced the role of nuclear weapons in its security doctrine in any way.

Russia

Russian Federation

Size of nuclear arsenal: 8'000.

Arsenal reductions: Reduction of around 5'500 warheads, mostly non-deployed.

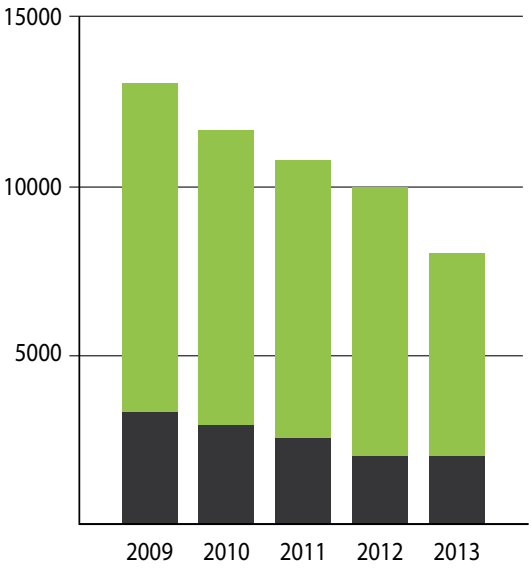
Role of nuclear weapons in security doctrines: Unchanged.

Alert status: No change, many weapons remain on high-alert.

Risk reduction: No information available on new risk reduction efforts.

Russia is estimated to have a total stockpile of 8000 nuclear warheads, of which about 3700 are awaiting dismantlement.[46] Russia is also engaging in an extensive modernization of its strategic forces, as part of a broader rearmament programme focusing on various military systems in 2011-2020, $700 billion of which (about 10% of the total funds allocated for rearmament) will be spent on the modernization of nuclear weapon systems.[47]

Russian nuclear weapons inventory[3]



Quantitative

Russia has been retiring some delivery systems, such as old ICBMs, even before the New Strategic Arms Reduction Treaty (START) entered into force. Most of the systems date back to the time of the Soviet Union, therefore the retirement is mainly due to the fact that their life expectancy has been reached. It has been retiring old missile systems-SS-25, SS-19, and SS-18- and replacing them with newer SS-27 (Topol-M) and SS-27 mod.2 (RS-24 Yars) ICBMs, deployed in silo or in road-mobile launchers. Old missiles, however, still account for the majority of deployed ICBMs and ICBM warheads. In total Russia has about 305 deployed ICBMs that can carry 1166 warheads. These include about 72 SS-25s, 60 SS-19s and around 46 SS-18 that together carry about 890 warheads. As for the newer ICBMs, as of January 2015 Russia is estimated to have 78 Topol-M and 49 RS-24 Yars missiles that could carry about 274 warheads.[48]

Due to the retirement of older categories of ICBMs over the last few years, Russian numbers for these categories were already below the limits set by New START upon its entry into force. Data exchange under New START indicates that Russia has, as of 1 January 2015, 1'643 warheads deployed on 528 strategic delivery vehicles (the total number of deployed and non-deployed launchers of ICBMs, SLBMs and heavy bombers was 911).[49] This means that since New START's entry into force on 5 February 2011, Russia has increased its nuclear deployed delivery vehicles by 7, and its deployed warheads by 106 warheads. The total number of deployed and non-deployed launchers decreased by 46.[50]

According to one estimate, Russia is dismantling about 400-500 warheads annually, with an estimated 200 or so warheads being replaced with remanufactured warheads, resulting in roughly 200-300 dismantled warheads annually.[51] When US President Obama pledged during his State of the Union speech on 12 February 2013 to "engage Russia to seek further reductions in our nuclear arsenals,"[52] the Russian Foreign Ministry responded that it was ready to study such proposals carefully.[53] Similar calls made during President Obama's speech in Berlin on 19 June 2013 were met with the same hesitation.[54] The Russian administration has raised concerns with the status of non-nuclear weapons, such as the NATO missile defence system and the US conventional arsenal for a prompt global strike, in that connection. Additionally, it suggested including other nuclear-armed states in the process of arms reduction agreements.[55]

Qualitative

President Putin announced in November 2013 that Russia should replace its Soviet-built arsenals with modern weapons to counter new evolving threats.[56]

Future modernization and upgrading of the ICBMs focuses on deployment of multiple-warhead RS-24 Yars missiles. These ICBMs will replace the currently deployed Topol (SS-25) and UR-100NUTTH (SS-19) missiles. Being a multiple-warhead missile, RS-24 allows Russia to keep the number of deployed warheads at a relatively high level without the need to produce a large number of missiles.[57] This modernization process is

expected to be completed in 2020.[58] Russia is also working on other ICBM projects. For example, in 2011, the government made a decision to begin development of a new multiple-warhead liquid-fuel ICBM. This new missile is supposed to be ready for deployment in 2018.[59] Russia has also been testing a new solid-propellant ICBM, known as Rubezh.[60]

Russia is also upgrading its SSBN fleet with a planned construction of eight new submarines of Project 955 Borey class, each carrying 16 Bulava missiles.[61] In September 2013 the lead Borey submarine joined the Russian Navy.[62] As of January 2015 three submarines are accepted for service and three more are under construction.[63] Russia is working on an overhaul of its current strategic bomber fleet and is also reported to have started preliminary work on a new-generation strategic bomber.[64]

Russia's modernization plans demonstrate that it is determined to maintain its strategic nuclear forces and to preserve parity with the United States in the number of warheads. Arms control and disarmament efforts could change these plans and result in a smaller force, but it is likely that most of the reductions would be done by reducing the number of deployed warheads rather than by eliminating strategic delivery vehicles.

Security doctrines and policies

Russia's position on nuclear weapons is reportedly linked to a number of security concerns, such as US ballistic "missile defence," US advantage in terms of conventional weapon systems, NATO expansion, and in the long run, China's position in the region.[65] When the 2010 military doctrine was released, the Russian president approved the "Principles of State Nuclear deterrence Policy to 2020," but this document has not been released to the public.[66] In February 2012 the Chief of the Russian General Staff, Nikolai Makarov, said that Russia would use nuclear weapons in response to any imminent threat to its national security. Furthermore, he indicated that Russia's nuclear "deterrent" is the cornerstone of "strategic stability" and Russia is in the course of modernizing the country's nuclear triad.[67] The latest Russian military doctrine was released on 25 December 2014 and reiterates the position laid out in the 2010 document[68], namely, "Russia reserves the right to use nuclear weapons in response to a use of nuclear or other weapons of mass destruction against her and (or) her allies, and in a case of an aggression against her with conventional weapons that would put in danger the very existence of the state."[69] Other changes are more of an editorial nature.[70]

United Kingdom

United Kingdom

Size of nuclear arsenal: 225.

Arsenal reductions: None.

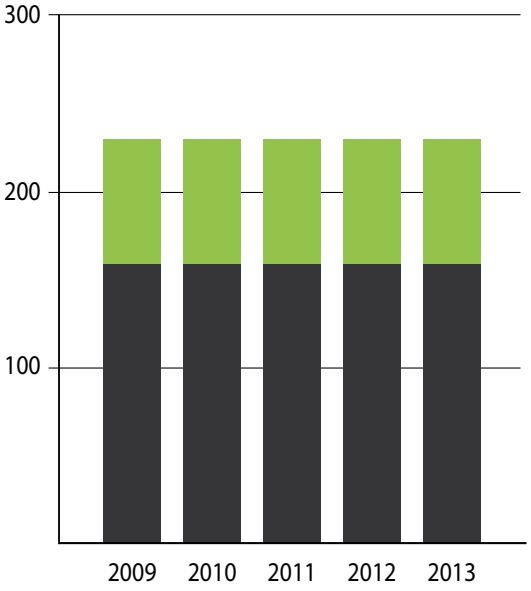
Role of nuclear weapons in security doctrines: Slight modification in October 2010.

Alert status: No change, many weapons remain on high-alert.

Risk reduction: No information available on new risk reduction efforts.

The United Kingdom reportedly has a total nuclear weapons stockpile of about 225 warheads, of which "not more than 120" are believed to be operational. In its 2010 Strategic Defence and Security Review, the United Kingdom declared that the UK "can meet the minimum requirement of an effective and credible level of deterrence with a smaller nuclear weapons capability."[71] However the UK government also announced that it could not dismiss the possibility that a major direct nuclear threat to the UK might re-emerge.[72] Its plan is to retain a "minimum requirement nuclear deterrent out until the 2060s."[73]

British nuclear weapons inventory[4]



Quantitative

In contrast to the other NPT nuclear-armed states, the United Kingdom only operates a single nuclear weapon delivery system: four Vanguard submarines armed with Trident missiles. Until 2010 each of the Vanguard class submarines carried between 12 and 14 operational Trident II D5 missiles and a maximum of 48 warheads. The UK Ministry of Defence announced it would

reduce these "over the next few years" to eight missiles and a maximum of 40 warheads per submarine.[74] The decision to deploy 40 warheads on eight missiles will require an increase in warheads per missiles, from three to five.[75]

Currently the UK maintains some operational warheads in reserve, in addition to those on submarines. In January 2015, it was announced to the British Parliament that all submarines "on continuous at-sea deterrent patrol now carry 40 nuclear warheads and no more than eight operational missiles. We have therefore achieved our commitment to reduce the number of operationally available warheads to no more than 120,"[76] which is the same as the new maximum number for three armed submarines.[77]

Qualitative

In May 2011, the UK government decided to move forward with the preparatory work for renewal of its Trident submarine fleet. The "Initial Gate Parliamentary Report" stated that the UK would move forward into the "Assessment Phase," where the design will be finalized and preparation for the main build will take place. In 2016, the government will sign the main construction contracts and also decide whether "continuous at sea deterrence can be delivered by three or four boats."[78]

On 22 May 2012 the UK Ministry of Defence announced the award of a contract to BAE Systems, Babcock, and Rolls Royce worth £350 million for the design of successor submarines. The key contract, worth £328 million, was awarded to BAE Systems.[79]

On 18 June 2012 the Secretary of State for Defence informed the House of Commons that his Ministry had signed a contract with Rolls-Royce Engineering over approximately £1.1 billion for an 11-year programme of work at its nuclear reactor core facility in Raynesway, Derby. The site regeneration will cost about £500 million, the remaining £600 million will sustain reactor core production at the facility until March 2023 including the production of reactor cores for the Astute class and the next generation nuclear deterrent successor SSBN submarines if approved.[80]

If the Trident renewal programme is approved, the delivery of the first submarines will take place in 2028. The former British Secretary of State for Defence, Dr. Liam Fox, said that the new submarine "will incorporate the latest safety technologies and ensure our future nuclear-armed submarines have the performance required to deliver our minimum credible deterrent out until the 2060s."[81]

Because of financial constraints, the UK's decision on Trident renewal has been put off until after the next election in 2015.[82] Despite the fact that no formal decision has been made on the outcome of the project for new submarines, the Ministry of Defence is already spending £2 billion on new nuclear weapons plans. The plans include a £734 million facility for dismantling and assembling of warheads, a £634 million plant that will handle enriched uranium, and a £231 million high explosive factory. Other similar facilities are being built as part of the Atomic Weapon Establishment development plan for 2005-2015 and the cost of two more are being kept secret for commercial reasons. The new spending has caused some debate in the UK on how crucial military spending decisions can be pushed through parliament without a proper parliamentary procedure.[83]

In December 2012 the UK Ministry of Defence published the first progress report on the successor nuclear submarine programme as a follow-up report on the "Initial Gate Parliamentary Report". The report gives a superficial summary of the above-mentioned developments and does not include the £1 billion per year expenditure on Aldermaston.[84] The 2013 Update to Parliament of "The UK's Future Nuclear Deterrent" in a similar fashion lays out the developments since the last report and lists additional financial commitments the UK government entered into, both for the submarine itself as well as for the warheads, missiles, and infrastructure.[85] The 2014 Update to Parliament summarises the developments since the last report and outlines additional fiscal implications, such as an increase of £0.3 billion of the total for the so-called Assessment Phase from 2011-2016.[86]

In July 2013 the Cabinet Office of the UK Government released a "Trident Alternatives Review," which looked at "credible" alternatives to a submarine-based system and the effect of any such alternatives on the "credibility" for "deterrence".[87] However, it did not consider the option of not replacing its Trident system.[88]

The Trident Commission, comprised of eight senior UK political figures, concluded its final report in June 2014. It had examined three questions[89] in connection with the renewal of the Trident submarines and concluded that if "there is more than a negligible chance that the possession of nuclear weapons might play a decisive future role in the defence of the United Kingdom and its allies, in preventing nuclear blackmail, or in affecting the wider security context within which the UK sits, then they should be retained."[90]

In the beginning of 2015, during a parliamentary debate, more critical opinions were expressed.[91] The Scottish National Party (SNP), Plaid Cymru, and the Green Party had called the debate and a number of MPs used the opportunity to raise the humanitarian and environmental consequences of nuclear weapons as well as question the need for renewing the Trident submarines.[92]

Security doctrines and policies

While stating in the 2010 Strategic Defence and Security Review that the UK should retain a "credible, continuous and effective minimum nuclear deterrent,"[93] the government also restated that the UK makes it clear that it will only use its nuclear weapons in extreme circumstances of self-defence, including the defence of its NATO allies. The 2010 review also stated that the United Kingdom would retain and renew its independent nuclear deterrent – "the United Kingdom's ultimate insurance policy in this age of uncertainty."[94]

The "minimum nuclear deterrent" policy announced in 2010 was previously mentioned in the 1998 Defence Review and its 2003 update.The 1998 Review stated: "We will retain our nuclear deterrent with fewer warheads to meet our twin challenges of minimum credible deterrence backed by a firm commitment to arms control."[95] Furthermore the 1998 Review states that the UK will "not use nuclear weapons against a non-nuclear weapon state not in material breach of its nuclear non-proliferation obligations, unless it attacks us, our Allies or a state to which we have a security commitment, in association or alliance with a nuclear-armed state."[96] Although the concept of a "minimum nuclear deterrent" is not new for a UK security policy, the language in the 2010 Strategic Defence and Security Review is stronger in language than previous reviews.

United States

United States

Size of nuclear arsenal: 7'315.

Arsenal reductions: Reduction of around 3'185 warheads, mostly non-deployed.

Role of nuclear weapons in security doctrines: Unchanged.

Alert status: No change, many weapons remain on high-alert.

Risk reduction: Several reports about security and safety problems at nuclear missile bases. No information available on new risk reduction efforts.

As of December 2014, the United States is reported to have a total nuclear weapons stockpile of 7315 warheads, of which about 2500 warheads are awaiting dismantlement.[97]

Quantitative

In accordance with the obligations under New START, in 2011 the US was reportedly planning to maintain up to 420 land-based ICBMs, each equipped with one warhead each, 240 SLBMs with multiple warheads each, deployed on a fleet of 12-14 SSBNs, and finally 60 heavy bombers, long-range B-2s and B-52s,[98] with capability to deliver gravity bombs or cruise missiles.[99] In accordance with the US' plans for its land-based ICBM force, this means that many of the warheads attached to the ICBMs today will be removed from the missiles. The removed warheads will not necessarily be destroyed, but kept in storage.[100] The US also has a number of non-strategic weapons that are addressed in the section on non-strategic nuclear weapons below.

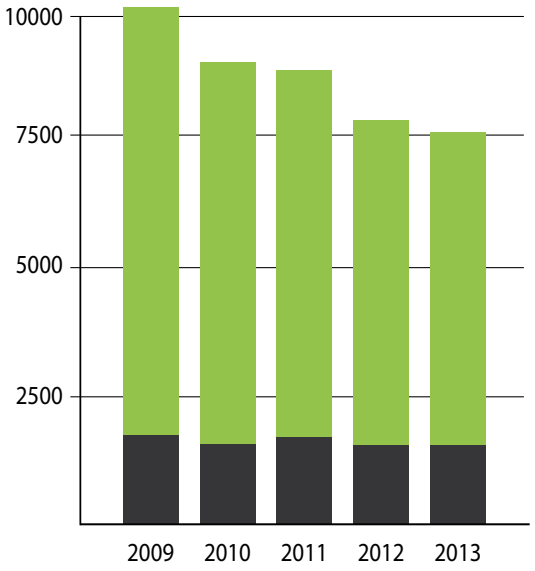
The Arms Control Association estimates that the current US nuclear delivery systems will remain operational for another 20-30 years.[101] As of 1 January 2015, the United States deployed 1'642 warheads on 794 strategic delivery vehicles and the total number of deployed and non-deployed launchers of ICBMs, SLBMs and heavy bombers was 912.[102] This is a reduction of 158 warheads, 88 delivery vehicles, and 212 deployed and non-deployed launchers since 5 February 2011.[103] By adding the numbers of warheads not covered by New START, the United States possesses around 7315 warheads.[104]

The administration has been reported to be "making preparations for the next round of nuclear reductions."[105] On 19 June 2013 President Obama announced in Berlin that his administration would, together with its NATO allies, seek "bold reductions in US and Russian tactical nuclear weapons in Europe."[106] As during the State of the Union address on 12 February 2013, no numbers were mentioned in the Berlin speech, but White House officials at the time of the State of the Union were quoted to be considering cuts that would take the US arsenal to just above 1000 deployed nuclear weapons.[107] The Russian government is reportedly ready to study such proposals carefully, though continues to express certain scepticism towards about further bilateral reductions prevails.[108] This is mainly due to Russian concerns with US development and deployment of non-nuclear weapons and "missile defence" systems.[109] Due to the increased tensions resulting from the crisis in Ukraine, the prospects of a new agreement have decreased significantly.

Qualitative

While reductions under New START are taking place, in 2010 Secretary of Defense Robert Gates and Admiral Mike Mullen stated: "Over the next decade, the United States will invest well over $100 billion in nuclear delivery systems to sustain existing capabilities and modernize some strategic systems. US nuclear weapons will also undergo extensive life extension programmes in the coming years to ensure their safety, security, and effectiveness."[110]

US nuclear weapons inventory[5]



The ratification of New START by the US Senate included a 10-year plan to maintain US nuclear warheads supporting

infrastructure. The plan called for $80 billion over ten years to spend on activities for the National Nuclear Security Administration and $100 billion on maintaining and modernizing US nuclear delivery systems.[111] According to a report by the Congressional Research Service, the US is currently modernising its Minuteman ICBMs (and is considering follow-on options), is developing new submarines, and has begun a plan for the development of a new strategic bomber.[112]

In July 2012 increased costs for the B61 life extension project were announced, from $4 billion to $11 billion, with production delayed until at least 2020.[113] The project consolidates the existing B61-3, B61-4, B61-7, and B61-10 to one upgraded model of the B61-4, the B61-12. FAS estimates that about 400 B61-12s are planned, resulting in $28 million per bomb including the cost of tail kit, one of the costliest elements of the modernisation of the B61 and intended to increase accuracy of the new B61.[114] In January 2014, US Air Force Chief of Staff, General Norton Schwartz, confirmed that the modernized B61 will have improved military capabilities to attack targets with greater accuracy and less radioactive fallout. Since the 2010 Nuclear Posture Review (NPR) pledged that nuclear weapon life extension programmes "will not support new military missions or provide for new military capabilities," this confirmation violates the NPR pledge and contradicts US and NATO goals of reducing the role of nuclear weapons.[115] More details can be found in the section of this report on NATO.

Other US nuclear warheads are also undergoing modernisation and so-called life extension programmes. They are set to be replaced by new warheads and bombs as part of the so-called "3+2" stockpile plan. Estimates based on the latest Stockpile Stewardship and Management Plan of 2014 put the cost for this enterprise at $275 billion over the next 25 years.[116] These financial commitments in light of budgetary difficulties face more and more doubts from all sides.[117] The 3+2 plan is widely considered to be off the table. Modernization of some related facilities are facing budgetary challenges, while plans for others have been scrapped entirely.[118] Over the past years, several reports and studies on the cost of the US nuclear programme and possible options for savings have been published.[119]

In December 2013 the Congressional Budget Office (CBO) published a report assessing the projected costs of the US nuclear forces for the 2014-2023 timeframe.[120] According to CBO estimates the US will spend $152 billion on maintaining current generation of systems and $89 billions to modernise or replace those systems. However, as most modernisations efforts are still in the initial phase, annual costs are expected to increase over that time period.[121] In January 2015, the CBO increased its estimate for 2015 - 2024 to $348 billion, as cost for the DoD and the Department of Energy have increased.[122]

In early 2014, US experts have estimated $1 trillion to be spent over the next three decades.[123] These costs include an estimated $100 billion for 100 long-range strategic manned nuclear bombers alone, with additional connected costs rising to $30-40 billion; $20-120 billion for a new generation of land based ICBMs; and $350 billion in funding for the National Nuclear Security Administration which is already carrying out the 3+2 plan.[124]

During the planning of the budget for FY2015, the timelines of all modernization projects for both warheads and delivery systems have been extended in an attempt to spread out costs and decrease the amount of yearly spending on modernization.[125]

Security doctrines and policies

The US 2010 Nuclear Posture Review (NPR) states that the US will keep relying on its nuclear weapons as an important part of its national security and will also do this for the foreseeable future.[126] In spite of this, the NPR states that"improvements" in US conventional weapon forces together with major improvements in "missile defence" has enabled the US to rely less on nuclear weapon without jeopardizing its "deterrence" capacity.[127] The NPR also states that with the changing security climate the US will "better align" its nuclear polices, so it can better deal with other priorities such as preventing nuclear terrorism and nuclear proliferation. It acknowledges that nuclear weapons are not adequate to address today's main security threats, such as terrorism and other countries seeking nuclear weapons.[128] Furthermore the NPR specifically addresses the reduction of the role of nuclear weapons in the US national security strategy.[129]

The 2002 NPR was not publicly released due to classification considerations. The foreword submitted to Congress on 31 December 2001 states that the NPR "puts in motion a major change in our approach to the role of nuclear offensive forces in our deterrent strategy and presents the blueprint for transforming our strategic posture."[130] Since no other information is publicly available it is difficult to compare the two NPRs. However, the 2010 NPR does introduce some new elements, in particular by stating that the fundamental yet not sole purpose of nuclear forces is to deter a nuclear attack.

The same day of President Obama's speech in Berlin, the US administration published a report on its employment strategy of nuclear weapons outlining President Obama's new guidance on this issue.[131] Among other things, the US reaffirmed that "as long as nuclear weapons exist," it will maintain a "safe, secure and effective arsenal for its protection and that of its allies." The new guidance also highlights that all plans must "be consistent with the fundamental principles of the Law of Armed Conflict," including the principles of distinction and proportionality[132] Accordingly, the US will, for example, not intentionally target civilian populations or civilian objects. Additionally, the Department of Defense is directed to "strengthen non-nuclear capabilities and reduce the role of nuclear weapons in deterring non-nuclear attacks"[133] as well as examining options for reducing the role of "Launch Under Attack" in US planning, "while retaining the ability to Launch Under Attack if directed."[134] In the same vein, the new guidance reiterates "the intention to work towards" making deterrence of nuclear attacks the sole purpose of US nuclear weapons over time."[135]

NPT nuclear-armed states agreements, coordination, and cooperation

"P5 Process"

Meetings since May 2010:
30 June - 1 July 2011
27 - 29 June 2012
18 - 19 April 2013
14 - 14 April 2014
04 - 05 February 2015

Results: Joint press releases after each meeting, no concrete outcomes reported yet.

Expected outcome by 2015:
"P5 glossary" of key nuclear terms.

On 30 June-1 July 2011, the five NPT nuclear-armed states met in Paris for a meeting to discuss nuclear non-proliferation and disarmament for the first time since the adoption of the 2010 NPT Action Plan. The meeting focused on transparency, nuclear doctrines, and verification. Furthermore the participating states approved the establishment of a working group that will pursue work on definitions for key nuclear terms, in order to facilitate future consultations and discussions.[136] They met again in June 2012 in Washington to further discuss above-mentioned issues. In their joint statement after their fourth meeting hosted by Russia in Geneva, Switzerland in the context of the 2013 NPT PrepCom, they announced that further discussions on various topics have been held and that their relevant activities across all three pillars had "advanced".[137] The NPT nuclear-armed states met again in Beijing on 14-15 April 2014, to discuss the implementation of 2010 NPT commitments and shared their respective reports to the 2014 NPT PrepCom.[138] At their latest meeting in London 4-5 February 2015, the NPT nuclear-armed states reiterated their shared understanding "about the severe consequences of nuclear weapon use and underlined their resolve to prevent such an occurrence from happening,"[139] but also stressed the need to take into account "all factors that could affect global strategic stability."[140] They also met with members of the Non-Proliferation and Disarmament Initiative (NPDI), Australia, Canada, Mexico, Netherlands, and the United Arab Emirates,[141] and representatives of civil society for the first time.

The Royal United Service Institute has published a report on the so-called "P5-process", for which it conducted interviews with officials and experts of NPT nuclear-armed states and non-nuclear-armed states. The report concludes, among other things, that progress has been too slow to demonstrate many concrete outputs and that the greatest risk of the process was "insufficient ambition to overcome inevitably difficult steps" as well as poor communication that was kept to an unnecessary minimum.[142]

None of these meetings seemed to include any specific proposals or discussions on nuclear doctrines or other issues they are mandated to discuss under action 5 of the 2010 Action Plan. Despite submitting national reports on implementation of action 5, 20, and 21 of the NPT action plan, NPT nuclear-armed states did not share new information.[143]

New START: Russia-United States

On 8 April 2010, President Obama and President Medvedev signed the New Strategic Arms Reduction Treaty (New START).[144]Under this Treaty both states have until February 2018 to reduce their nuclear capacity from 1950 to 1550 deployed nuclear warheads and limit their deployed missiles strategic launchers and heavy bombers to 800.[145] The US senate ratified New START in December 2010 and the Russian Federal Assembly in January 2011.[146]

By 9 February 2015 the United States and the Russian Federation have conducted 7877 notifications under the Treaty since its entry in to force in February 2011.[147]The notifications track the movement and changes in the status of treaty-covered systems, for example if a heavy bomber were to be out of its home territory for more than 24 hours.[148] The US and Russia have conducted 72 on-site inspections each, since February 2011.[149] This is the first time that the two countries have exchanged data on re-entry vehicle loadings. The two countries are also required to exchange a comprehensive database, every six months, of exactly where weapons systems are located if they are undergoing maintenance or have been retired.[150]

Seven sessions of the Bilateral Consultative Commission under New START took place in Geneva on 28 March-8 April 2011, 19 October-2 November 2011, 24 January-7 February 2012, 11-21 September 2012, 6-19 February 2013, 11-21 November 2013, and 18–28 February 2014. During these consultations, the United States and Russia discussed a number of practical issues related to the implementation of the Treaty.[151] During the third session of consultations the United States and Russia agreed on the sharing of telemetric information and other issues relating to ICBMs and SLBMs.[152] The number of launches of ICBMs and SLBMs was agreed upon during the fifth meeting in February 2013.[153]

However, New START has some problematic aspects. Among other things the aggregate numbers do not cover thousands of additional warheads, such as non-deployed and non-strategic warheads.[154]Furthermore dual-capable bombers are counted as both one delivery vehicle and one warhead.[155] Each bomber is also counted as only carrying one warhead, which means that "[a] force of 60 bombers loaded at their maximum capacity of 1,136 bombs and cruise missiles would only count as 60 weapons."[156]

The New START verification regime is, in comparison to START I, less intrusive and burdensome. This is largely because the New START ceilings and limitations are relatively simple.[157] Furthermore the Treaty does not include the Russian Federation's estimated 2000 and the United States' 200 tactical nuclear weapons in Europe.[158]

The issue of missile "defence" has further complicated discussions on follow-on measures in relation to New START. The 2010 NATO decision to push ahead with the alliance's missile "defence" project has created tension between Russia and NATO-members.[159] On 24 November 2011 Russia announced that it "reserves the right to discontinue further disarmament and arms control measures," such as withdrawal from New START and deployment of new nuclear weapons if the US progresses with its anti-missile plans in Europe without Russian cooperation.[160] In its latest Deterrence and Defence Posture Review from May 2012, NATO stated that its "missile defence is not oriented against Russia nor does it have the capability to undermine Russia's strategic deterrent."[161] US Defense Secretary Chuck Hagel repeated this position in December 2013.[162] That month Russia had deployed a missile system closer to Lithuania and Poland.[163] The US is on schedule to deploy 24 interceptors and one radar station in Romania by 2015 as part of a "phased adaptive approach" for European missile defence.[164]

"New START"

Agreement between:
Russian Federation and United States.

Entry into force: 5 February 2011.

On-site inspections:
US - 72 inspections, Russia – 72 inspections.

Bilateral consultations: seven rounds of consultations have taken place since the entry into force.

Notifications given since entry into force:
7877 Follow-up measures: No discussions of further reductions, tactical nuclear weapons, or missile defense yet.

In January 2014,[165] the US declared Russia to be in violation of its obligations under the 1987 Intermediate-Range Nuclear Forces (INF) Treaty not to possess, produce, or flight-test a ground-launched cruise missile with a range capability of 500 km to 5,500 km, or to possess or produce launchers of such missiles.[166] Russia highlighted the lack of proof, and stressed that the US failed to address Russian concerns about US compliance in turn.[167]

France-United Kingdom

In November 2010, France and the United Kingdom joined in a collaboration of developing equipment and technologies for the next generation of nuclear submarines. The co-operation is aimed to "sustain their combined industrial base" and "generate savings".[168] The cooperation also includes a new warhead simulation facility that will open in 2015 and a joint Technology Development Centre in Britain to provide scientific and engineering expertise to support both countries' stockpiles.[169] In 2013, Defence Minister Philip Dunne confirmed that £21 million have already been spent on a facility at the Atomic Weapons Establishment. The total cost for that specific project has been estimated at £48.7 million.[170]

United Kingdom-United States

Since 1958 the United States and the United Kingdom have been collaborating on the basis of the US-UK Mutual Defence Agreement. The agreement was last renewed in 2004 and extends to 2014. The Agreement enables the US and the UK to exchange classified information with the objective of improving each party's nuclear weapons design, development, and fabrication capability. In July 2014, an amendment to the Agreement was signed by both parties that will last for the next ten years[171] and refers among other things to the potential threats of state or non-state actors.[172] The document itself is not public.

The nuclear warhead deployed on the UK submarines today is partly American made. The UK has also purchased the rights to 58 Tridents missiles out of the existing American pool of missiles.[173]

In December 2006, after an exchange of letters between President Bush and Prime Minister Blair on the renewal/replacement of Trident, a new wave of enhanced collaborations with the US into how to refurbish or replace the UK Trident warhead began.[174] The two countries are also working together to develop the new ballistic-missile submarines. If the renewal goes ahead as planned, the first British vessel is due to enter service in 2028 and the last could still be at sea in 2060. The first new US submarine is scheduled for 2027 and some of the vessels are due to remain in service until 2080.[175]

Successful tests have been carried out in the US on a new warhead firing system to arm the UK's nuclear missiles, making them more accurate and more capable. Because of the very close collaboration and dependence on US technology for components the UK's Trident system is very dependent on the US, which could complicate further reductions.[176] In March 2013 Chiefs of Staff of both the UK and US met to discuss the strategic future of the military alliance.[177] What was discussed during that meeting was not revealed to the public; however, the US is reportedly concerned about the UK remaining an able military partner in non-nuclear missions.[178] In December 2014, the UK government, in its update to parliament on the trident renewal, announced that collaboration with the US will continue on nuclear propulsion and strategic weapon system, with modernisation efforts for components on-going.[179]

Non-strategic nuclear weapons

United States and NATO

In preparation for the NATO summit in 2010, the United States announced that its "non-strategic" or "tactical" nuclear weapons (TNW) deployed in Europe would not be unilaterally withdrawn.[180] These weapons are as of yet under no international arms control regime. US President Obama stated at the signing ceremony of New START that his administration is interested in

further discussions with Russia on reducing both strategic and tactical weapons. He again voiced similar intentions in his speech in Berlin;[181] however, no such discussions have yet taken place.

The United Sates possesses approximately 500 B61 warheads, 200 of these are deployed on US military bases in five European countries, namely Belgium, Germany, Italy, Netherlands and Turkey (see section below on North Atlantic Treaty Organization (NATO)).

Furthermore, the US-NATO nuclear capacity is undergoing modernization. The 2010 Nuclear Posture Review announced that the United States would be retiring all nuclear Tomahawk land attack sea-launched cruise missiles, half of which were earmarked for NATO support. However, the NPR also announced plans on making the F-35 Joint Strike Fighter (JSF) aircraft nuclear-capable so that the US can replace the F-15E and F-16. Two states with NATO nuclear strike missions, Italy and the Netherlands, are planning on acquiring JSF aircraft over the next 15 years.[182] Costs for developing the JSF have spiraled out of control. With estimated total present and future programme costs approaching $400 billion, the F-35 is the costliest weapons system ever.[183]

In comparison with the 1999 NATO Strategic Concept document, the 2010 version places less importance on US TNW as an essential military and political link between Europe and North America. However, the new NATO concept makes further reductions in US nuclear weapons in Europe conditional on reciprocal actions by Russia. This was not the language used in the 1999 NATO Strategic Concept, in which the US discussed removal without mentioning Russia.[184] Previously, Russia has stated that the US would have to remove all of its TNW from Europe before it would even consider discussions on its own TNW. The argument for this has been that since the breakup of the Soviet Union, Russia took sole responsibility for collecting all USSR nuclear weapons spread out in the former Soviet Union states and Russia has been waiting for the US to do the same with its European TNW.[185] The new 2012 DDPR could not agree on the removal of the non-strategic weapons from Europe and as before tied any further "significant reductions"[186] to reciprocal actions by Russia.[187]

Russia

Official information on the Russian non-strategic nuclear weapons or TNW is rare and to a great deal based on estimations by experts. Russia declared that all operational non-strategic weapons are in central storage.[188]

In an article in the Bulletin of the Atomic Scientists more detailed estimations are made.[189] According to these estimates, Russia possesses around 2000 non-strategic nuclear warheads. Of these, 730 are assigned to non-strategic aircrafts, 700 to naval forces and circa 170 remain for short-range ballistic missiles and 430 are assigned to air-defence forces, ballistic missile defence and costal defence forces.[190] Additionally, a small force of nuclear-capable ground-launched cruise missiles is retained by Russia for "coastal defence".[191] Russia is currently modernizing some of its SU-24 (Fencers) aircrafts, but will be replacing it with the SU-34 (Fullback) fighter-bombers. In December 2013 the first of eight to ten new nuclear-capable nuclear powered guided-missile attack submarine was delivered in December 2013. These submarines are and will be equipped with non-strategic nuclear weapons.[192]

These non-strategic nuclear weapons are believed to be stored in about a dozen different storage facilities. They are located in central and western Russia as well as on the Kola Peninsula relatively close to bases with delivery systems.[193] Experts estimate that Russia's inventory is declining and will continue doing so for the next decade.

North Atlantic Treaty Organization (NATO)

The alliance retains around 200 US B61 nuclear weapons on American bases in five non-nuclear-armed states of the NPT, namely Belgium, Germany, Italy, Netherlands, and Turkey. These arrangements have been criticized repeatedly as being not in compliance with the NPT's non-proliferation obligations.

At NATO's Lisbon Summit in November 2010, NATO adopted a new Strategic Concept and a Summit Declaration that outline the alliance's future nuclear policy. In the new concept, titled "Active Engagement, Modern Defence," NATO for the first time committed itself to "create the conditions for a world without nuclear weapons".[194] The concept explains that this goal must be pursued "in accordance with the goals of the Nuclear Non-Proliferation Treaty, in a way that promotes international stability, and is based on the principle of undiminished security for all." At the same time, the Strategic Concept states, "as long as nuclear weapons exist, NATO will remain a nuclear alliance."[195]

Building on the 2010 NATO Strategic Review, NATO members conducted a DDPR in order to define an "appropriate mix" between nuclear and conventional weapons and missile defence needed to uphold Alliance commitments to collective self-defence. During the first phase of the DDPR process, ten member states[196] offered suggestions on how to collaborate with Russia on the issue of tactical nuclear weapons (TNW).[197]

The 2012 DDPR concluded that NATO's nuclear force posture met "the criteria for an effective deterrence and defence posture"[198] and nuclear weapons are declared a "core component" of its overall capabilities.[199] However, it also stated "circumstances in which any use of nuclear weapons might have to be contemplated are extremely remote".[200] Regarding negative security assurances, the 2012 DDPR acknowledges the unilateral commitments made by the three NPT nuclear-armed states members to NATO and recognised the conditions each states attached to them, such as the right to self-defence.[201]

In the 2012 DDPR NATO declared that it "will ensure that all components of NATO's nuclear deterrent remain safe, secure and effective,"[202] which in this context is seen as a "green light" for the

modernization of the B61s currently also deployed in Europe.[203] It also concluded that the existing nuclear force meets an effective deterrence and defence posture, despite this the B61 bomb is currently undergoing major modernization and the costs of the B61 modernization programme have grown far beyond original estimates, from $4 billion to $10 billion with production delayed until at least 2020.[204] In addition several hundred millions more will be needed to integrate the modernized B61-12 on five different aircraft, including Belgian, Dutch, German, Italian, and Turkish fighter-bombers.[205]

Next to the B61 modernization programme NATO has invested over $80 million since 2000 to secure nuclear weapons storage sites in Belgium, Germany, Italy, the Netherlands, and Turkey. This amount is expected to increase as the US Department of Defense budget request for FY2015 more money is allocated to secure infrastructure at the European military bases. "NATO funds infrastructure required to store special weapons within secure sites and facilities," notes the budget request document. "Since 2000, NATO has invested over $80 million in infrastructure improvements in storage sites in Belgium, Germany, Italy, the Netherlands, and Turkey. Another $154 million will be invested in these sites for security improvements to meet with stringent new U.S. standards."[206]

The NATO Wales Summit Declaration from September 2014 states that "[t]he 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."[207] Furthermore it highlights that "[t]he circumstances in which any use of nuclear weapons might have to be contemplated are extremely remote."[208]

While for a brief period after the 2010 NPT RevCon, had been increasing signs from numerous NATO member states[209] that there was greater scepticism towards NATO's relationship to nuclear weapons, in particular to the current deployed TNW on US NATO bases in Europe[210], with the crisis in the Ukraine, calls from many eastern European NATO members for more reassurance have increased and more troops to be deployed.[211] The debate around the humanitarian impact of nuclear weapons has also drawn attention back to existing commitments under alliances such as NATO.

UNGA First Committee resolutions on nuclear weapons [212]

The UNGA First Committee annually discusses and adopts resolutions on nuclear disarmament issues. The table below shows the changes in support for the most important resolutions since the adoption of the NPT Action Plan in 2010.

2009	2010	2011	2012	2013	2014 [213]
A/RES/69/43: Follow-up to the advisory opinion of the International Court of Justice on the Legality of the Threat or Use of Nuclear Weapons.					
Yes: 126 No: 29 Abstain: 22	Yes: 121 No: 27 Abstain: 22	Yes: 127 No: 25 Abstain: 22	Yes: 123 No: 24 Abstain: 24	Yes: 127 No: 24 Abstain: 27	Yes: 109 [214] No: 24 [215] Abstain: 18 [216]
A/RES/69/69: Convention on the Prohibition of the Use of Nuclear Weapons					
Yes: 116 No: 50 Abstain: 11	Yes: 107 No: 48 Abstain: 11	Yes: 113 No: 48 Abstain: 10	Yes: 110 No: 47 Abstain: 10	Yes: 119 No: 49 Abstain: 9	Yes: 123 [217] No: 48 [218] Abstain: 7 [219]
A/RES/69/48: Nuclear disarmament					
Yes: 112 No: 43 Abstain: 21	Yes: 107 No: 44 Abstain: 20	Yes: 113 No: 44 Abstain: 18	Yes: 111 No: 43 Abstain: 20	Yes: 117 No: 44 Abstain: 18	Yes: 102 [220] No: 41 [221] Abstain: 17 [222]
A/RES/69/54: Promotion of multilateralism in the area of disarmament and non-proliferation					
Yes: 126 No: 5 Abstain: 49	Yes: 116 No: 4 Abstain: 49	Yes: 120 No: 4 Abstain: 49	Yes: 119 No: 4 Abstain: 49	Yes: 123 No: 5 Abstain: 50	Yes: 122 [223] No: 4 Abstain: 48 [224]
A/RES/69/52: United action towards the total elimination of nuclear weapons					
Yes: 161 No: 2 Abstain: 8	Yes: 154 No: 1 Abstain: 13	Yes: 156 No: 1 Abstain: 15	Yes: 159 No: 1 Abstain: 12	Yes: 164 No: 1 Abstain: 14	Yes: 163 [225] No: 1 Abstain: 14 [226]
A/RES/68/35: Follow-up to nuclear disarmament obligations agreed to at the 1995, 2000 and 2010 Review Conferences of the Parties to the NPT.					
Yes: 105 No: 56 Abstain: 12	-	Yes: 105 No: 52 Abstain: 10	-	Yes: 113 [227] No: 52 [228] Abstain: 7 [229]	-
A/RES/69/37: Towards a nuclear-weapon-free world: accelerating the implementation of nuclear disarmament commitments.					
Yes: 165 No: 5 Abstain: 4	Yes: 158 No: 5 Abstain: 4	Yes: 160 No: 6 Abstain: 4	Yes: 156 No: 7 Abstain: 4	Yes: 165 No: 7 Abstain: 5	Yes: 166 [230] No: 7 [231] Abstain: 5
A/RES/69/42: Decreasing the operational readiness of nuclear weapons systems					
-	Yes: 144 No: 3 Abstain: 22	-	Yes: 145 No: 4 Abstain: 19	-	Yes: 163 [232] No: 4 [233] Abstain: 10 [234]
A/RES/69/40: Reducing nuclear danger					
Yes: 113 No: 50 Abstain: 15	Yes: 103 No: 48 Abstain: 14	Yes: 110 No: 48 Abstain: 12	Yes: 108 No: 48 Abstain: 13	Yes: 117 No: 49 Abstain: 11	Yes: 118 [235] No: 48 [236] Abstain: 10 [237]
A/RES/69/41: Taking forward multilateral nuclear disarmament negotiations					
-	-	-	Yes: 133 No: 4 Abstain: 35	Yes: 151 No: 4 Abstain: 21	Yes: 152 [238] No: 4 [239] Abstain: 22 [240]

No significant trend away from the usual voting pattern before the adoption of the 2010 NPT Action Plan can be discovered here. The nuclear weapon possessing states continue to vote in a similar way and provide similar explanations of votes as before the adoption of the 2010 NPT Action Plan.Some resolutions have seen a slightly decreased number of no votes, mostly from non-nuclear-armed states. However there is a clear pattern of solidarity to vote in the same way as nuclear weapon possessing states, to the extent possible. In cases where the latter are voting no, a significant number of non-nuclear-armed states abstain.

Nuclear disarmament discussions in the Conference on Disarmament (CD)

Since the adoption of the 2010 NPT Action Plan, the CD has not been able to adopt a programme of work. However, there have been some attempts by states to move the issue forward and start negotiations on the substantive issues on the CD's agenda.

Revitalizing the work of the CD

In 2011 a new resolution, "Revitalizing the work of the Conference on Disarmament and taking forward multilateral disarmament negotiations,"[241] put forward by the Netherlands, South Africa, and Switzerland, was adopted by consensus in 2011. This resolution offers space for continuing the dialogue on breaking the impasse at the CD, though it unfortunately does not contain any mechanisms itself for breaking that impasse.[242] The resolution was turned into a draft decision in 2012 and again tabled in 2013 and 2014.[243]

In addition, in July 2011 at the UNGA plenary meeting on revitalizing multilateral disarmament negotiations, the Secretary-General's Advisory Board on Disarmament Matters released a report, which contained three recommendations: that the United Nations Secretary-General (UNSG) continue to encourage the CD to achieve a breakthrough; that if a panel of eminent persons be established to consider the stalemate at the CD, the UNSG should ask the panel to make recommendations on ways to revitalize the United Nations disarmament machinery as a whole; and that the UNSG should continue to raise public awareness and encourage civil society and NGOs to offer input on ways to overcome the stalemate at the CD.[244] No such panel of eminent persons has been established yet.

Taking forward multilateral disarmament negotiations

A draft resolution "Taking forward multilateral disarmament negotiations" was put forward during the 2011 session of the UNGA's First Committee by Austria, Mexico, and Norway but was not submitted to a vote once it became clear that it would not gain enough support from key states. It received criticism from the nuclear-armed states and some key non-nuclear-armed states, which argued that it would undermine the CD.

While this was not supported in 2011, "Taking forward multilateral disarmament negotiations", A/C.1/67/L.46, was tabled by Austria, Mexico, and Norway in 2012 and adopted with a vote of 134-4-34. All NPT nuclear-armed states voted against the resolution except China, which abstained. The resolution established an open-ended working group (OEWG) to "develop proposals to take forward multilateral nuclear disarmament negotiations for the achievement and maintenance of a world without nuclear weapons." The opposing nuclear-armed states expressed concern that such new processes as the OEWG might jeopardize the 2010 consensus on the NPT Action Plan.[245]

The OEWG convened in Geneva on 14-24 May, 27 June, and 19-30 August 2013. During the meetings, participants exchanged views on the current situation of nuclear weapons and the role they have in today's international security. Member states and civil society developed proposals about how these traditional views could be challenged in order to lead to the elimination of nuclear weapons. While the discussed issues and proposed solutions were mostly familiar concepts, the new format integrating civil society and empowering non-nuclear-armed states allowed participants to focus on concrete ways forward. The nuclear-armed states did not participate in the meetings.[246] On 30 August 2013 the OEWG adopted a report to the UNGA reflecting the discussions held and proposals put forward.[247]

The report summarizes the proposals into six main sections focusing on taking forward multilateral nuclear disarmament negotiations for the achievement and maintenance of a world without nuclear weapons, including approaches; elements; reviewing the role of nuclear weapons in the security context of the twenty-first century; the role of international law; the role of states and other actors; and other practical actions. While the different sections contain quite a bit of overlap and includes many items already agreed upon in the NPT context, it also acknowledges new proposals, such as a prohibition of the possession, stockpiling, development, or transfer of nuclear weapons; the idea of undertaking a study of the evolution of international law relevant to nuclear weapons, including international humanitarian law, human rights law, environmental law, and in the legal realm of the International Criminal Court; the need to challenge the status and perceived value attached to nuclear weapons; and focusing on the humanitarian impact of nuclear weapons. Furthermore, the report notes that all states have a responsibility to act "in the light of the catastrophic humanitarian consequences of nuclear weapons." These paragraphs also mention in particular that non-nuclear-armed states have a role in promoting global nuclear disarmament.

During the 2013 First Committee "Taking forward multilateral disarmament negotiations," A/C.1/68/L.34, was tabled again and adopted by a vote of 151-4-21 with France, Russia, UK, and US voting no.[248] The resolution had been updated to include the work of the OEWG and a request to the UNSG to seek the views of member states on how to take forward multilateral disarmament negotiations and to submit it to the 69th session of the UNGA. It also called on the UNSG to submit the OEWG report to the CD and Disarmament Commission. However, it did not schedule another meeting for the working group in 2014, but retains the option of an OEWG.[249]

The 2014 version, resolution A/C.1/69/L.21, contained technical updates as well as welcomed the report of the OEWG and the report of the UNSG containing the views of member states on how to take forward negotiations, including the steps that member states have already taken to that end. It also requests the UNSG to transmit that report to the CD and the Disarmament Commission.[250] It was adopted by a vote of 152-4-22, again with France, Russia, UK, and US voting no.[251]

High-level meeting on nuclear disarmament

The resolution "High-level meeting of the General Assembly on nuclear disarmament," A/C.1/67/L.19, adopted 165-0-5, was submitted by the Non-Aligned Movement. France, Israel, the UK, the US, and Ukraine abstained. The resolution convened a one-day high-level meeting on nuclear disarmament on 26 September 2013. The abstaining nuclear-armed states questioned the value of holding such a high-level meeting (HLM) and wondered how it would further the goals of implementing the 2010 NPT Action Plan.[252]

The HLM on nuclear disarmament was held on 26 September 2013. 74 heads of state and government, ministers, and representatives spoke during the meeting and great number of states decided to use this opportunity to condemn the continued existence of nuclear weapons and demand immediate action to ban and eliminate these weapons. All nuclear-armed states of the NPT participated in the meeting and criticised recent efforts such as the HLM as a distraction from existing processes.[253] In a defensively worded joint statement by France, the United Kingdom, and United States, the three nuclear-armed states expressed "regret" that some states and civil society have decided to highlight the humanitarian consequences of nuclear weapons: "While we are encouraged by the increased energy and enthusiasm around the nuclear disarmament debate, we regret that this energy is being directed toward initiative such as this High-Level Meeting, the humanitarian consequences campaign, the Open-Ended Working Group, and the push for a Nuclear Weapons Convention."[254] They argued that energy should instead be directed to existing processes and making progress on the step-by-step agenda. On the other hand, the majority of participating states clearly voiced their frustration with the perpetual lack of progress on nuclear disarmament and expressed their sense of urgency at achieving concrete goals. Several called for a treaty to prohibit nuclear weapons and most countries focused their statements on the humanitarian impact of nuclear weapons and new initiatives to eliminate nuclear weapons such as the OEWG.[255]

During the 2013 UN First Committee the Non-Aligned Movement introduced resolution A/C.1/68/L.6/Rev.1 entitled "Follow-up to the 2013 high-level meeting of the General Assembly on nuclear disarmament," which was adopted by a vote of 129-28-19. This resolution established 26 September as the "International Day for the Total Elimination of Nuclear Weapons" and scheduled a follow-up meeting no later than 2018 to assess progress made on nuclear disarmament. With regard to the work of the CD, the resolution called for the commencement of negotiations in the CD on a nuclear weapons convention (NWC). Additionally, it requested the UN Secretary-General to seek the views of member states on way to achieve the objective of the total elimination of nuclear weapons, particularly elements of a NWC, and present a report during the sixty-ninth session. The resolution also included a reference to article VI of the NPT in preambular paragraph eleven.[256]

During the 2014 UNGA session the resolution A/C.1/69/L.44 was adopted with a vote of 135-24-18. In their explanation of negative votes, France, UK, and US regretted that their views expressed during the HLM were not reflected in the resolution, and that the meeting itself did not address non-proliferation as well and argued that another conference in 2018 "risks weakening commitment among states to securing a successful outcome" of the 2015 review conference."[257] In their view, the resolution's reference to the NPT was "insufficient, incidental and unbalanced."[258] They, together with the delegations of the Netherlands and Spain speaking on behalf of seventeen and nine states respectively, stressed that nuclear disarmament was only one among four issues on the agenda of the CD.[259] China, though voting in favour of the resolution, stressed that the principles of maintaining global strategic balance should be considered and the countries with the largest arsenals should lead on nuclear disarmament. Then once the conditions are ripe, others could join.[260]

On the other hand, Ireland, speaking on behalf of six states that had voted in favour of the resolution, saw the resolution as "entirely consistent with, and supportive of"[261] the NPT as well as the 2010 NPT Action Plan. Therefore, any nuclear disarmament effort should consider the important ongoing discussion regarding the humanitarian consequences of any nuclear weapons detonation, which L.44 acknowledges. The seven states remained favourably disposed towards "any set of effective measures to achieve the objective of complete nuclear disarmament, regardless of how such measures might be elaborated."[262]

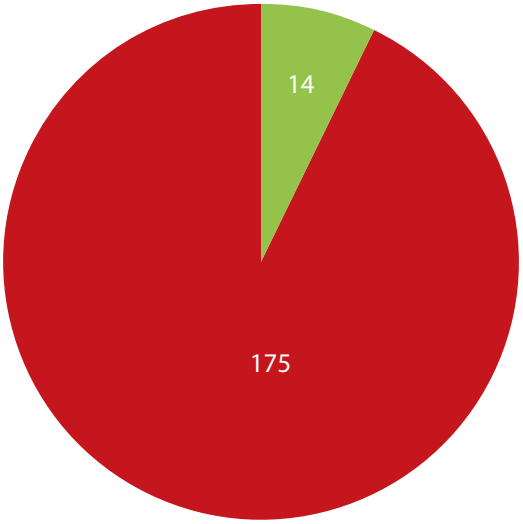
In December 2014, Cuba proposed to establish an OEWG during the 2015 UNGA First Committee with the mandate to negotiate and recommend a draft nuclear weapons convention, which would be presented to the HLM established under A/RES/68/32 for its consideration and adoption.[263]

Informal Working Group of the CD

On 16 August 2013 the CD established an Informal Working Group (IWG) "to produce a programme of work robust in substance and progressive over time in implementation."[264] During the 2013 session the IWG met three times to discuss possible elements of a programme of work for the CD based on a "food for thought" paper that was circulated before the second meeting.[265] The work of the IWG did not result in a programme of work for 2013.

In 2014, member states took a dual track approach to agree on a programme of work. The IWG was re-established on 3 March[266] and a schedule of activities for informal discussion on the CD's agenda items was adopted 26 March.[267] However, no agreement on a programme of work could be reached in the 2014 session of the CD.

Disarmament education



During the current review cycle, only 14 states have reported on disarmament education efforts

UNGA resolutions

In 2002, the UNGA unanimously adopted 34 recommendations in the UN Study on Disarmament and Non-Proliferation Education.[268] The UN Secretary-General (UNSG) issues a report on the implementation of these recommendations biennially. Unfortunately, not many member states contribute to the report. Only nine member states[269] contributed to the 2012 report.[270] Two years later, ten member states[271] submitted information for the 2014 report.[272] The United Nations Disarmament Affairs has a section on its website for disarmament education.[273]

In October 2010, First Committee adopted two biannual resolutions on disarmament education: "United Nations study on disarmament and non-proliferation education"[274] and "United Nations Disarmament Information Programme".[275] Both resolutions were adopted again without a vote during the UNGA in 2012 and 2014 sessions.[276] While education is not a controversial topic compared to others during the First Committee, implementation of these resolutions is still very limited.

Japan

During the 2010 session of the UNGA First Committee, the Japanese delegation highlighted the fact that the outcome document of the 2010 NPT Review Conference included for the first time a reference to the importance of disarmament and non-proliferation education as a useful and effective means to advance the goal of a world without nuclear weapons.[277] Japan and the United Nations University (UNU) submitted a working paper to the 2010 NPT Review Conference that encouraged cooperation between governments and civil society on relevant education initiatives. Japan and UNU indicated they would "initiate dialogue" to this end. Japan announced to the First Committee 2010 that together with the UNU they intend to hold "the Global Forum on Disarmament and Non-proliferation Education" in March 2011 in Japan.[278] Due to the earthquake on 11 March 2011 the forum had to be postponed and was held on 10-11 August 2012 in Nagasaki.[279]

During the final week of First Committee in 2011, Japan hosted a side event where Special Communicators for a World without Nuclear Weapons spoke for the first time in their new role. The Special Communicators status has been thus far given to hibakusha (atomic bomb survivors) in recognition of their work for nuclear disarmament.[280]

Japan has raised the issue in different disarmament fora and encouraged states to implement the recommendations contained in the report of the UN Secretary-General regarding the United Nations study on disarmament and non-proliferation education.[281] NPDI, of which Japan is a member, recognized the importance of disarmament and non-proliferation education as an integral part of their joint work.[282] The group submitted working papers to both the 2012 and 2013 NPT PrepCom on this issue. Austria and Japan submitted a separate one as well as to the 2012 NPT PrepCom.[283] At the 2014 NPT PrepCom, Japan spoke on behalf of 36 states highlighting the recommendations contained in Action 22.[284]

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215 Albania and Denmark voted no in 2010.

216 Iceland, Norway and The Former Yugoslav Republic of Macedonia abstained in 2010; Georgia, Montenegro and Tajikistan abstained in 2011; Albania, Belarus and Ukraine abstained in 2012; Palau, Serbia, Sweden and Togo abstained in 2013.

217 Equatorial Guinea *(fov)*, Gabon *(fv)*, Guinea-Bissau *(fv)*, Kazakhstan, Seychelles *(fov)* and Uganda *(fv)* voted yes in 2010; Azerbaijan, Cabo Verde *(fv)*, Chad *(fv)*, Comoros *(fv)* and Saint Vincent and the Grenadines *(fv)* voted yes in 2011; Tajikistan and Ukraine voted yes in 2012; Central Africa Republic *(fov)*, Gambia *(fv)*, Kyrgyzstan and South Sudan *(fov)* voted yes in 2013; Marshall Islands voted yes in 2014.

218 Ukraine voted no in 2013; Georgia voted no in 2014.

219 Georgia abstained in 2010; Tajikistan abstained in 2011.

220 Kazakhstan, Seychelles *(fv)*, Sierra Leone *(fv)* and Uganda *(fv)* voted yes in 2010; Azerbaijan, Cabo Verde *(fv)*, Chad *(fov)*, Comoros (first vote) and Gabon (first vote) voted yes in 2011; Saint Vincent and the Grenadines (first vote) and South Sudan *(fv)* voted yes in 2012; Equatorial Guinea *(fov)*, Gambia *(fv)*, Guinea-Bissau, Kyrgyzstan and Tajikistan voted yes in 2013; Marshall Islands voted yes in 2014.

221 Republic of Moldova and The Former Yugoslav Republic of Macedonia voted no in 2010.

222 Guinea-Bissau *(fv)* and New Zealand abstained in 2010; Montenegro and South Africa abstained in 2012; Liechtenstein abstained in 2014.

223 Guinea-Bissau (first vote) and Tuvalu (first vote) voted yes in 2010; Cabo Verde *(fv)*, Chad *(fv)*, Comoros *(fv)*, Solomon Islands *(fv)* and Ukraine voted yes in 2011; El Salvador voted yes in 2012; Gambia *(fv)* and South Sudan voted yes in 2013; Georgia voted yes in 2014.

224 El Salvador abstained in 2011; South Sudan *(fv)* abstained in 2012; Tonga and Ukraine abstained in 2013.

225 Belize *(fv)*, Bhutan, France, Nicaragua *(fv)*, Nigeria *(fv)*, Paraguay *(fv)*, San Marino *(fv)*, Senegal *(fv)*, Seychelles *(fv)*, Sierra Leone *(fv)* and Uganda *(fv)* voted yes in 2010; Cabo Verde *(fv)*, Chad *(fv)*, Comoros *(fv)*, Liberia *(fv)*, Mexico and Solomon Islands *(fv)* voted yes in 2011; Namibia *(fv)*, South Africa, Tuvalu *(fv)*, Venezuela and Zimbabwe voted yes in 2012; Bolivia, Gambia *(fv)*, Guinea-Bissau, Nicaragua and South Sudan *(fov)* voted yes in 2013; Ecuador and Nauru *(fov)* voted yes in 2014.

226 Brazil, Guinea-Bissau (first vote), India, Mauritius, Mexico, South Africa and Syria abstained in 2010; Bolivia, Ecuador, Venezuela and Zimbabwe abstained in 2011; Nicaragua abstained in 2012; Egypt, Russian Federation, Uganda and Zimbabwe abstained in 2013.

227 Afghanistan *(fv)*, Azerbaijan, Cabo Verde *(fv)*, Chad *(fov)*, Colombia, Comoros *(fv)*, Costa Rica, Haiti, Honduras, Peru, Saint Vincent and the Grenadines *(fv)*, Sierra Leone *(fv)* and Vanuatu voted yes in 2011; Cameroon, Central African Republic *(fov)*, El Salvador, Gambia *(fov)*, Guinea-Bissau *(fov)*, South Sudan *(fov)*, Tuvalu *(fv)* and Uganda voted yes in 2013.

228 Panama *(fv)* voted no in 2011.

229 Cameroon, Democratic Republic of the Congo, El Salvador, Pakistan and Uganda *(fv)* abstained in 2011; Sierra Leone abstained in 2013.

230 Central African Republic *(fv)*, Gabon *(fv)*, Guinea-Bissau *(fv)*, Marshall Islands *(fv)*, Seychelles *(fov)*, Sierra Leone *(fv)* and Turkmenistan *(fv)* voted yes in 2010; Cabo Verde *(fv)*, Comoros *(fv)* and Saint Vincent and the Grenadines *(fv)* voted yes in 2011; Gambia *(fv)* and South Sudan (first and only vote) voted yes in 2013; Chad (first and only vote) voted yes in 2014.

231 United Kingdom voted no in 2011; Russian Federation voted no in 2012.

232 Albania, Benin *(fv)*, Comoros *(fv)*, Guinea *(fv)*, Honduras *(fv)*, Kyrgyzstan, Niger *(fv)*, Saint Lucia *(fv)*, Saint Vincent and the Grenadines *(fv)*, Serbia and The Former Yugoslav Republic of Macedonia voted yes in 2012; Cabo Verde *(fov)*, Chad *(fov)*, Croatia, Czech Republic, Gabon *(fov)*, Gambia *(fov)*, Liberia *(fov)*, Marshall Islands, Nauru *(fov)*, Netherlands, Republic of Moldova, Romania, Rwanda *(fov)*, Slovakia, Somalia *(fov)* and Ukraine voted yes in 2014.

233 Russian Federation voted no in 2012.

234 Democratic People's Republic of Korea *(fv)* and Ukraine abstained in 2012.

235 Gabon (first vote), Guinea-Bissau *(fv)*, Kazakhstan, Seychelles *(fov)* and Sierra Leone *(fv)* voted yes in 2010; Azerbaijan, Cabo Verde *(fv)*, Chad *(fv)*, Comoros *(fv)*, Saint Vincent and the Grenadines *(fv)*, Uganda *(fv)* and Vanuatu voted yes in 2011; Central African Republic *(fov)*, Gambia *(fv)*, Kyrgyzstan and South Sudan *(fov)* voted yes in 2013; Marshall Islands and Tajikistan voted yes in 2014.

236 Grenada voted no in 2014.

237 Georgia abstained in 2010.

238 Algeria, Bangladesh, Cabo Verde *(fv)*, Cambodia, Gambia *(fv)*, Georgia, Guinea-Bissau *(fv)*, India, Kazakhstan, Kenya, Kyrgyzstan, Lao People's Democratic Republic, Lithuania, Myanmar, Nepal, Pakistan, Poland, Rwanda *(fv)*, Seychelles *(fov)*, Sri Lanka, Tonga *(fv)*, Tuvalu *(fv)*, Uganda, Ukraine *(fv)* and Zimbabwe *(fv)* voted yes in 2013; Bolivia *(fov)*, Chad *(fov)*, Marshall Island, Nauru *(fov)*, Tajikistan and Turkmenistan *(fov)* voted yes in 2014.

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240 Estonia and Marshall Islands *(fv)* abstained in 2013; Cyprus, Haiti and Norway abstained in 2014.

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Humanitarian consequences of nuclear weapons – What has happened since 2010?

"The Conference expresses its deep concern at the catastrophic humanitarian consequences of any use of nuclear weapons and reaffirms the need for all States at all times to comply with applicable international law, including international humanitarian law."[1]

While the 2010 NPT action plan has 64 specific actions, it is part of a bigger framework of the entire outcome document of the 2010 Review Conference. Implementation of the action plan therefore needs to be considered in light of the outcome document as a whole.

One of the most significant achievements of the 2010 outcome document was the specific acknowledgement of the catastrophic humanitarian consequences that any use of nuclear weapons would cause. The review section of the outcome document refers to "deep concern at the continued risk for humanity represented by the possibility that these weapons could be used and the catastrophic humanitarian consequences that would result from the use of nuclear weapons."[2] In the section on the "Conclusion and recommendations for follow-on actions" for nuclear disarmament, the document also reaffirmed "the need for all States at all times to comply with applicable international law, including international humanitarian law."[3]

Since the 2010 Review Conference, attention to the humanitarian consequences of nuclear weapons has garnered an increasingly prominent place in multilateral nuclear disarmament discussions. Support for the humanitarian dimension has radically increased among governments, international organisations, and civil society representatives. It has become the dominant theme of any discussion around nuclear weapons and will likely be one of the main topics of the 2015 Review Conference.

Governmental conferences

In March 2013, the Norwegian government hosted a conference on the Humanitarian Impact of Nuclear Weapons attended by 127 states, many international organisations, and civil society representatives. The conference brought states and other actors together to discuss and review the devastating effects that would be caused by the use of nuclear weapons to human health, the environment, economies, development, infrastructure, and more. The Chair's summary[4] concluded that there is no possibility of an adequate national or international response to such a catastrophe; and that this fundamental challenge to human and planetary survival must be addressed through preventative measures. While the five nuclear-armed states of the NPT did not participate in this conference, India and Pakistan did.

At the Oslo conference, governments for the first time focused on the humanitarian consequences of nuclear weapons, which was instrumental in reframing the discourse around these weapons. It consequently resulted in a significant change in perspective for many non nuclear-armed states.[5] The Chair's summary reflected the increasing global concern regarding the effects of nuclear weapons detonations and recognized that this is an issue of fundamental significance to us all.[6]

A second conference to build on and deepen the discussions on that topic was held in Nayarit, Mexico, on 13-14 February 2014, to which 146 governments, and numerous international organisations and civil society attended. The focus was on further discussions around the long-term effects of nuclear weapons, including public global health consequences, displacement of people, and the impact on transports, communications, and economic development. It also included a discussion on existing risks with current stockpiles of nuclear weapons. International organisations and research institutes such as the World Health Organisation, United Nations Development Programme, International Office for Migration, Chatham House, and United Nations Institute for Disarmament Research delivered

presentations at the conference. The five nuclear-armed states of the NPT did not participate in the conference.

The Chair's summary concluded that the discussion in Nayarit should lead to the commitment of states and civil society to reach new international standards and norms, through a legally binding instrument, and that a diplomatic process conducive to this goal should be initiated.[7] Calling for this process to conclude by the 70th anniversary of the bombings of Hiroshima and Nagasaki, the Chair described the Nayarit conference as "the point of no return".

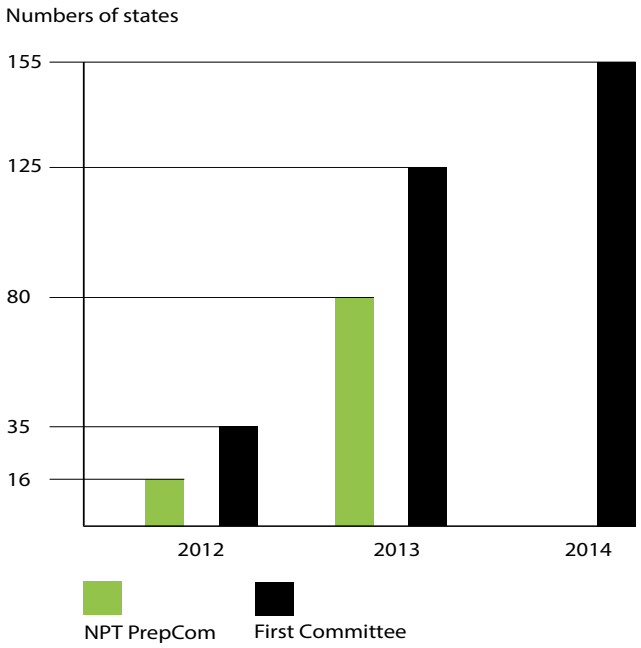
The third conference addressing the humanitarian impact of nuclear weapons was held the same year in Vienna, Austria, from 8-9 December. 158 states, including the United Kingdom and the United States, as well as various international organisations and civil society representatives attended. In addition to building on the discussions in Oslo and Nayarit in panels examining the effects of nuclear weapons explosions and testing, the risks for deliberate or accidental use, and the challenges of responding, the Vienna conference also saw a discussion of the existing legal framework and gaps with regard to nuclear weapons development, use, possession, and stockpiling. It also explored views on the ethics and morality of nuclear weapons, including a deontological perspective, which suggests looking at the inherent immorality of nuclear weapons rather than the moral status of its consequences, and featured testimonies from survivors of nuclear weapons use and testing.[8]

As for the previous conferences, a Chair's summary reflecting the main themes that arose during the discussions was issued.[9] In addition, Austria pledged nationally to pursue effective measures to fill the "legal gap" for the prohibition and elimination of nuclear weapons as well as to cooperate with all stakeholders to achieve this goal.[10]

Based on "inescapable conclusionws" resulting from the three conferences on the humanitarian impact of nuclear weapons, such as the increasing nature of the risk of a nuclear weapon explosion, due to proliferation, modernisation, and the role attributed to nuclear weapons in security doctrines or the conviction that nuclear weapons raise profound moral and ethical questions that go beyond debates about their legality, the Austrian government underlined that efforts are needed now to stigmatise, prohibit, and eliminate nuclear weapons "in light of their unacceptable humanitarian consequences and associated risk."[11] In January 2015 the Austrian government reached out to governments with an invitation for interested states to associate themselves to this pledge. Until 1 March 2015, 40 states had done so.[12]

Multilateral discussions

Since the adoption of the 2010 outcome document, the humanitarian discourse on nuclear weapons has been consolidated in a number of joint statements.



During the 2012 NPT Preparatory Committee (PrepCom) in Vienna, 16 governments[13] delivered a Joint Statement on the Humanitarian Impact of Nuclear Weapons.[14] The Swiss-lead statement highlighted the catastrophic humanitarian consequences of any use of nuclear weapons and called for efforts to outlaw and eliminate nuclear weapons. Six months later, at the 2012 General Assembly's First Committee, a similar statement was signed by 35 states.[15]

At the 2013 NPT PrepCom in Geneva, a similar statement[16] the South African delegation delivered a similar statement on behalf of 80[17] states. In October, during the 2013 UNGA First Committee 125 states joined a statement delivered by New Zealand.[18] A year later, at the 2014 UNGA First Committee, New Zealand again delivered a similar statement, this time on behalf of 155 states.[19]

Australia also delivered joint statements on this subject at the 2013[20] and 2014[21] UNGA First Committee. While stressing similar concerns about the humanitarian consequences of nuclear weapons, the Australian statement also drew attention to the security dimensions of these weapons. Adding up the 20 States supporting the Australian Statement to the 155 States supporting the New Zealand Statement, a total number of 175 States stressed their humanitarian concerns about nuclear weapons at the 2014 UNGA First Committee.

In addition to these joint statements, many additional states and groups of states such as the New Agenda Coalition (NAC), the Non-Aligned Movement, and the Non-Proliferation and Disarmament Initiative (NPDI)[22] have raised concerns individually about the humanitarian impact of nuclear weapons for example at the NPT PrepComs, during the high-level meeting on nuclear disarmament in September 2013, or at the UNGA First Committees in New York. While this has been the case since the first NPT PrepCom in 2012, over time, the number of

states referring to the humanitarian consequences has gradually increased to the majority of states mentioning them at the at the 2014 UNGA First Committee.[23]

Further, the eighth NPDI Ministerial Meeting took place on 11-12 April 2014 in Hiroshima and the subsequent joint statement called on states to reiterate their concern at the catastrophic humanitarian consequences of the use of nuclear weapons and extend the "nearly 69 year record of non-use of nuclear weapons … forever."[24]

The Chair's summaries of all three NPT PrepComs include references to this increased attention to the catastrophic humanitarian consequences of any use of nuclear weapons.[25] Additionally, in the Chair's summary from the 2013 NPT PrepCom, references to the Oslo conference, its conclusions, and the follow-up conference in Mexico are also included.[26]
For the 2014 NPT RevCon, the NAC submitted a working paper on the implementation of Article VI.[27] It begins by outlining the failure to implement the various outcome agreements of NPT Review Conferences, especially those relating to nuclear disarmament. It then discusses options of "effective measures" that are envisaged and required by article VI of the Treaty," namely, a nuclear weapons convention, a ban treaty, a framework agreement, and a hybrid. In closing the NAC calls for all options to be discussed, examined, and tested; however, it does not express preference for on particular option. It has served as an important basis for the ensuing debates and has triggered further research.[28]

During the meetings of the 2013 Open-Ended Working Group (OEWG) to "develop proposals to take forward multilateral nuclear disarmament negotiations for the achievement and maintenance of a world without nuclear weapons," the humanitarian impact of nuclear weapons was put forward as "a cross-cutting issue that affects all elements of the disarmament agenda."[29]

Similarly, many of the resolutions introduced to the 2013 and 2014 First Committee of the General Assembly include references to the humanitarian consequences of any use of nuclear weapons.[30]

This rapid increase of attention indicates a growing concern among states about the humanitarian impact of nuclear weapons. It also reflects the change towards a more humanitarian-focused discourse among governments in multilateral disarmament and arms control fora.[31]

However, the shared views on the necessary next steps exist. While some have drawn "inescapable conclusions" on the need for a new legally binding instrument to prohibit nuclear weapons, others advocate for using the conclusions drawn in the context of the debate on humanitarian impact of nuclear weapons as an instrument of pressing nuclear-armed states into fulfilling their disarmament-related obligations.[32]

International organisations

Not only governments, but also many international organisations are pursuing this topic.

In 2011, the Red Cross/Red Crescent movement, supported by the International Committee of the Red Cross (ICRC), adopted a resolution which stated that the movement "finds it difficult to envisage how any use of nuclear weapons could be compatible with the rules of international humanitarian law, in particular the rules of distinction, precaution and proportionality,"[33] and urges states to abolish nuclear weapons. In November 2013, a follow-up resolution was adopted, containing a four-year action plan towards the prohibition and elimination of nuclear weapons. The resolution outlines activities for every section of the global Red Cross and Red Crescent movement to take in support of its implementation at national, regional and international levels.[34]

At the conference on the humanitarian impact of nuclear weapons in Oslo, international organisations such as the International Committee of the Red Cross, World Food Programme, United Nations Development Programme (UNDP), and the United Nations Office for Coordination of Humanitarian Affairs (OCHA) delivered presentations on the humanitarian impact of nuclear weapons and their respective roles as responders in the event of a detonation. They all acknowledged that effective assistance to the victims of a nuclear weapon detonation is not currently available and that it would be difficult to imagine how such assistance could be developed in the future. Those participating in the follow-up conferences in Nayarit and/or Vienna, such as the United Nations Institute for Disarmament Research (UNIDIR), the World Health Organsiaition, the International Organization for Migration, and the Comprehensive Test Ban Treaty Organisation Preparatory Commission shared their views on possible response capacities, implications for the international community and remaining gaps in their respective fields.

UN Secretary-General Ban Ki-moon has recognised and repeatedly highlighted the growing understanding and concern with the humanitarian consequences of any use of nuclear weapons.[35] He asserted that as long as nuclear weapons exist, "so, too will the risks of use and proliferations."[36] Similarly, the UN High Representative for Disarmament Affairs, Ms. Angela Kane, has welcomed the growing public awareness about humanitarian impacts as "one of the most encouraging signs of progress [in the global debate on nuclear disarmament]."[37]

After participating in the Oslo and Vienna Conferences' opening ceremonies, ICRC President Peter Maurer addressed the Geneva-based disarmament community on 18th February 2015 stressing that "reducing the risk of nuclear-weapon use and ensuring their elimination through a legally binding international agreement is a humanitarian imperative."[38] Seventy years after their first use, it is time to draw the "legal, political and operational conclusions"[39] from the catastrophic humanitarian consequences referred to in the 2010 NPT outcome document.

Research institutes

The UNIDIR has engaged in a research project on the humanitarian impact of nuclear weapons since 2011.[40] As part of this project, UNIDIR in cooperation with OCHA and UNDP published a study on the challenges to UN emergency preparedness and humanitarian coordination and response in the event of nuclear weapon detonations. The study finds that, among other things, a number of challenges for the humanitarian system exist and the UN "is unlikely to be able to offer much humanitarian assistance in the immediate aftermath of a nuclear weapon detonation event."[41] It offers suggestions for improved coordination and preparation, but also concludes that while "nuclear weapons exist the risk of their detonation does too, whether deliberately or inadvertently."[42]

Many other research institutes are focusing on the humanitarian impact of nuclear weapons, such as the International Law and Policy Institute in Oslo and Chatham House in London. Various others are pursuing research projects on the topic and/or have released reports and organized workshops on the matter.[43]

Other efforts

Aside from multilateral events and processes, the humanitarian impact of nuclear weapons has also become a central feature of the agenda of key regular meetings on nuclear disarmament, such as the Carnegie International Nuclear Policy Conference, the EU Non-Proliferation Conference, and the Wilton Park "Towards the 2015 NPT Review Conference" meeting.

In March 2013 the Inter Parliamentary Union (IPU) adopted a resolution "Towards a Nuclear-Weapons-Free World: The Contribution of Parliaments" during its 130th Assembly in 2014 in Baku, Azerbaijan.[44] During the 129th Assembly in Geneva in October 2013, the IPU held a panel discussion on the issue in preparation for the 2014 meeting.[45]

Reactions from NPT nuclear-armed states

Since the first conference on the humanitarian impact of nuclear weapons, the approach of the five nuclear-armed states of the NPT has developed from an en bloc response to more individual responses. In the lead up to Oslo, the five NPT nuclear-armed states jointly issued a demarche announcing their concern that that the conference would "divert discussions away from practical steps to create conditions for further nuclear weapons reductions."[46] The five states did not attend the conference in Mexico in 2014, but did not issue any official reasons for their absence. The third conference in Vienna later that year was attended by the United Kingdom and the United States who made statements from the floor.

At the UN high-level meeting on nuclear disarmament in New York on 26 September 2013, France, United Kingdom, and the United States delivered a joint statement saying, "We fully understand the serious consequences of nuclear weapon use and will continue to give the highest priority to avoiding such a contingency … and while we are encouraged by the increased energy and enthusiasm around the nuclear disarmament debate, we regret that this energy is being directed toward initiatives such as this High-Level Meeting, the humanitarian consequences campaign, the Open-Ended Working Group and the push for a Nuclear Weapons Convention."[47]

At the 2013 UN General Assembly's First Committee, Russia argued that the humanitarian discourse "turns a difficult issue into public diplomacy" and is not in line with "true needs and priorities".[48] Similarly, during the 2014 session the United States voiced the concern that "any call to move nuclear disarmament into international humanitarian law circles" could only distract from the "practical agenda set forth in the 2010 NPT Action Plan."[49] The United Kingdom while recognizing the concern with the humanitarian consequences, stressed that in its view, nuclear weapons are not "per se inherently unacceptable."[50] France underlined the need to consider the "strategic context" in order to be able to move forward on nuclear disarmament.[51]

The United States announced on 7 November 2014, that it would participate in the third conference on conference on the humanitarian impact of nuclear weapons in Vienna.[52] On 2 December, the UK Foreign Secretary in responding to questions to the Foreign and Commonwealth Office announced the government's decision to join the conference as well.[53] Previously, the UK government felt "that the focus and format of the conference will not lend itself to the UK setting out our narrative and key messages around our forward leaning approach to multilateral disarmament,"[54] as internal documents from the United Kingdom, requested through the Freedom of Information Act regarding the participation in Oslo, show.

At the conference in Vienna, both the US and UK delegations expressed their preference for advancing nuclear disarmament through a so-called step-by-step or building blocks approach and the United Kingdom called for consideration of security concerns of states in moving ahead on nuclear disarmament.[55] The other nuclear-armed states of the NPT, China, France, and Russian Federation, did not participate in the conference.[56]

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13 Austria, Chile, Costa Rica, Denmark, Holy See, Egypt, Indonesia, Ireland, Malaysia, Mexico, New Zealand, Nigeria, Norway, Philippines, South Africa and Switzerland.

14 Joint Statement on the humanitarian dimension of nuclear disarmament to the 2012 NPT Preparatory Committee, delivered by Switzerland on behalf of 16 states on 2 May 2012.

15 New states: Algeria, Argentina, Bangladesh, Belarus, Brazil, Colombia, Ecuador, Iceland, Kazakhstan, Liechtenstein, Malta, Marshall Islands, Peru, Samoa, Sierra Leone, Swaziland, Thailand, Uruguay and Zambia.

16 Joint Statement on the humanitarian dimension of nuclear disarmament to the 2013 NPT Preparatory Committee, delivered by South Africa on behalf of 80 states on 24 April 2013.

17 New states: Bosnia and Herzegovina, Botswana, Burkina Faso, Cambodia, Côte d'Ivoire, Cyprus, Cuba, Djibouti, El Salvador, Ethiopia, Ghana, Georgia, Grenada, Guatemala, Honduras, Iran, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Lesotho, Luxembourg, Maldives, Mauritius, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Niger, Palau, Panama, Papua New Guinea, Paraguay, Qatar, Serbia, Singapore, Solomon Islands, Tanzania, Togo, Tonga, Trinidad and Tobago, Tunisia, Uganda, Ukraine, Yemen.

18 Joint Statement on the humanitarian consequences of nuclear weapons to the UNGA First Committee, delivered by New Zealand on behalf of 125 states on 21 October 2013. New states: Afghanistan, Angola, Antigua and Barbuda, Bahamas, Bahrain, Barbados, Belize, Benin, Bolivia, Cameroon, Cape Verde, Central African Republic, Congo, DR Congo, Dominican Republic, Equatorial Guinea, Eritrea, Fiji, Gabon, Guinea, Guinea Bissau, Haiti, Iraq, Japan, Kiribati, Lao PDR, Liberia, Libya, Macedonia, Madagascar, Malawi, Mali, Mongolia, Montenegro, Myanmar, Nauru, Rwanda, San Marino, Senegal, Seychelles, South Sudan, Suriname, Timor-Leste, Tuvalu, United Arab Emirates, Vanuatu and Viet Nam.

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20 Joint Statement on the humanitarian consequences of nuclear weapons to the UNGA First Committee, delivered by Australia on behalf of 17 states on 21 October 2013. These states were: Australia, Belgium, Canada, Finland, Germany, Italy, Japan, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Slovakia, Spain, Sweden and Turkey.

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Transparency, irreversibility, and verification

Action 2:

All States parties commit to apply the principles of irreversibility, verifiability and transparency in relation to the implementation of their treaty obligations.

Action 5:

The nuclear-weapon States commit to accelerate concrete progress on the steps leading to nuclear disarmament, contained in the Final Document of the 2000 Review Conference, in a way that promotes international stability, peace and undiminished and increased security. To that end, they are called upon to promptly engage with a view to, inter alia:
(g) Further enhance transparency and increase mutual confidence.

Action 19:

All States agree on the importance of supporting cooperation among Governments, the United Nations, other international and regional organizations and civil society aimed at increasing confidence, improving transparency and developing efficient verification capabilities related to nuclear disarmament.

Action 20:

States parties should submit regular reports, within the framework of the strengthened review process for the Treaty, on the implementation of the present action plan, as well as of article VI, paragraph 4 (c), of the 1995 decision entitled "Principles and objectives for nuclear non-proliferation and disarmament", and the practical steps agreed to in the Final Document of the 2000 Review Conference, and recalling the advisory opinion of the International Court of Justice of 8 July 1996.

Action 21:

As a confidence-building measure, all the nuclear-weapon States are encouraged to agree as soon as possible on a standard reporting form and to determine appropriate reporting intervals for the purpose of voluntarily providing standard information. without prejudice to national security. The Secretary-General of the United Nations is invited to establish a publicly accessible repository, which shall include the information provided by the nuclear weapon States.

Irreversibility, verifiability, and transparency of recent reductions

Treaty obligations for non-proliferation are monitored under the International Atomic Energy Agency (IAEA) safeguards system, but no such international body exists to monitor disarmament efforts under the NPT. Since the adoption of the NPT Action Plan, only three of the five NPT nuclear-armed states have announced reductions of nuclear arsenals.

Information available on nuclear weapons differs greatly between NPT nuclear-armed states. A special concern regarding lack of transparency involves warheads that are not covered by any control regime. For example, information on the stockpiles of tactical nuclear weapons (TNW) for Russia and United States is not available or is cursory. Further transparency and confidence-building measures from all NPT nuclear-armed states are limited.

China

China has not reported any reductions since the 2010 NPT Action Plan was adopted. According to a recent article in the Bulleting of the Atomic Scientists, China even is slowly increasing the size of its nuclear weapons arsenal.[1]

Further measures

China's 2013 white paper does not give any official data on China's nuclear stockpile. China has never released any official data on its nuclear arsenal[2] and any discussion of the Chinese inventory is based on estimates made by Western governments and non-governmental organizations.

France

France has not carried out any reductions of nuclear warheads since the adoption of the 2010 NPT Action Plan. But it has been reported that the French stockpile is expected to decrease to around 290 warheads within the next few years.[3] No plan for the verification or irreversibility of this reduction has been reported.

Further measures

France has released the total numbers of all its nuclear weapons, not just deployed ones, through public speeches and legal documents attached to procurement laws and defence budgets.[4] It has also dismantled the fissile material production facilities in Marcoule and Pierrelatte as well as former nuclear testing facilities, in a reportedly transparent manner.[5]

Russian Federation and the United States

The New Strategic Arms Reduction Treaty (START) data exchange, which, under the terms of the Treaty, had to take place within 45 days of its entry into force, indicates that Russia had 1,537 deployed strategic warheads, 521 deployed strategic delivery vehicles, and 865 launchers. The United States had 1,800 deployed strategic warheads, 882 deployed strategic delivery vehicles, and 1,124 launchers. From February 2011, both countries have seven years to meet the Treaty's targets. The data are to be updated every six months.[6] On-site inspections offer access to additional data on missiles and bombers. When an intercontinental ballistic missile, submarine-launched ballistic missile, or air base is inspected (which may take place up to ten times each year, as noted above), in what the Treaty labels 'Type One" inspections, the inspectors will be told and shown where each missile is and told how many warheads are deployed on it.

The verification system for New START has been called "the most intrusive verification system ever implemented for counting nuclear warheads"[7] and for the first time includes verification of actual deployed warhead numbers, rather than counting delivery vehicles as carrying a pre-determined number of warheads based on maximum loading.

But, it has also been noted that while the Treaty reduces the legal limit for deployed warheads, it does not impose a reduction in the number of warheads, as no limits are set for non-deployed warheads (the Treaty does not require the destruction of non-deployed warheads). Additionally a new counting regulation attributes one weapon to each bomber, rather than the actual number of weapons assigned to the bombers. It has been argued by nuclear experts that such "fake counting rules free up a large pool of warhead spaces under the treaty limit that enable each country to deploy many more warheads than would otherwise be the case."[8]

New START lacks any requirements for warheads to actually be dismantled or destroyed. While it does mark a significant departure from the system of counting "attributed" warheads, it is only through the actual dismantlement of warheads and destruction of their fissile material components and delivery vehicles that disarmament can realistically be irreversible.[9]

Further measures

Public information on Russia's nuclear weapons is limited. Russia's strategic nuclear weapons are thought to be on Russian soil, but there is no available information on the numbers or location.[10]Also, the availability of information on non-strategic nuclear weapons is limited. However, the US and Russia have, through the entry into force of New START, exchanged information on strategic nuclear weapon delivery systems.[11]

The United States has released the most detailed information on its nuclear weapons, although it does not reveal deployment locations or exact numbers of total inventory of warheads.[12] In May 2010, the United States revealed the total size of its operational nuclear stockpile. In January 2014, it released the full aggregate numbers of strategic offensive arms under New START. The data comes from the biannual exchange of data required under New START.[13] At the NPT Preparatory Committee in New York in May 2014 the United Sates announced its updated "active" nuclear warhead numbers of 4,804, reflecting a reduction of 309 warheads since 2009.[14]

On 4 December 2014 the United States announced the creation of the International Partnership for Nuclear Disarmament Verification. The partnership is based on collaboration between both nuclear-armed states and non-nuclear-armed states in order to better understand the technical problems of verifying nuclear disarmament agreements, and to develop solutions. The initiative will expand on the work already done by the United Kingdom and Norway and the Nuclear Threat Initiative will be a main partner.[15]

United Kingdom

In May 2010, the United Kingdom announced for the first time the approximate size of its nuclear stockpile, and provided some information of the operational status of warheads.[16]Describing what he called a "more open" policy, Foreign Secretary of State, William Hague said Britain's total number of nuclear warheads would not exceed 225, including the maximum 160 already declared as "operationally available". Later that year, on 9 June 2010 the Foreign Office Minister Alister Burt stated, "We have no plans to establish procedures to allow the international community to verify the UK's nuclear warhead stockpile."[17] In January 2015, it was announced to the British Parliament that all submarines "on continuous at-sea deterrent patrol now carry 40 nuclear warheads and no more than eight operational missiles. We have therefore achieved our commitment to reduce the number of operationally available warheads to no more than 120."[18]

Further measures

The United Kingdom, together with Norway, has conducted research on the verification of warhead dismantlement. This UK-Norway initiative started in 2007 and is monitored by the Verification, Research, Training and Information Centre (VERTIC). The project's main goal is to investigate the verified dismantlement of nuclear warheads and to formulate recommendations for future work. The UK-Norway process has also inspired new projects currently in development by several countries[19] In December 2010, the United Kingdom hosted a workshop in London to share experiences with non-nuclear weapons states[20] and in April 2012 the UK hosted a similar meeting to share the outcomes of the research project with the other NPT nuclear-armed states.[21] During 2013, VERTIC published a briefing paper on "Nuclear disarmament verification: the case for multilateralism"[22] and a representative participated in a panel to the OEWG in May.[23]

NPT nuclear-armed states "confidence-building efforts"

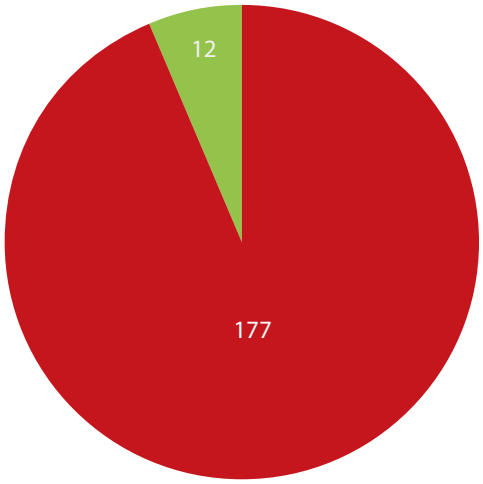
None of the five NPT nuclear-armed state have published a full account of specific nuclear weapons modernization programmes and their costs. The official statement from the NPT nuclear-armed state Paris meeting in 2011 indicated that they "continued their previous discussions on the issues of transparency and mutual confidence, including nuclear doctrine and capabilities, and of verification, recognizing such measures are important for establishing a firm foundation for further disarmament efforts."[24]

In their joint statement from June 2012, they informed about their continued discussion on above mentioned topics and added they "will continue their discussions in multiple ways within the P5, with a view to reporting to the 2014 PrepCom, consistent with their commitments under Actions 5, 20, and 21 of the 2010 RevCon final document."[25] After their meeting in April 2013, they again confirmed this commitment and stressed "the importance of this work, which will increase P5 mutual understanding and facilitate further P5 discussions on nuclear matters."[26] During the meeting they shared information on their respective experiences in verification and decided to continue such exchanges.[27] Similarly in April 2014, the NPT nuclear-armed states continued their discussions and shared information on transparency, confidence-building measures, and experiences in verification as well as shared their reports for the 2014 PrepCom. [28]

Regular reports under the NPT

Step 12 of the 13 Practical Steps for the implementation of Article VI adopted by the 2000 NPT Review Conference calls for regular reports by all states parties on the implementation of Article VI and paragraph 4 (c) of the 1995 Decision.

Only 12 states have submitted implementation reports during the current review cycle



In the lead up to the 2010 NPT Review Conference, only 23[29] out of 189 states parties submitted such national reports. China and Russia were the only two NPT nuclear-armed states to do so. So far only seven non-nuclear-armed states[30] have submitted reports to the current review cycle. The reports focus on the implementation of the 2010 outcome document and those of previous Review Conferences, the implementation of article VI of the treaty and the establishment of the zone free of nuclear weapons and other weapons of mass destruction in the Middle East.[31]

Reporting by the nuclear weapons states

While several of the NPT nuclear-armed states disclose information about their nuclear weapons reductions, each of them has different counting rules on their arsenals, which complicates comparisons.[32]

The issue of reporting was mentioned in the joint NPT nuclear-armed states statement from their Paris meeting in June 2011. The statement said that the NPT nuclear-armed states "met with the determination to work together in pursuit of their shared goal of nuclear disarmament under article VI of the NPT, including engagement on the steps outlines in action 5, as well as reporting and other efforts called for in the 2010 Review Conference Action Plan."[33] During their Washington meeting in June 2012, they "continued their previous discussions on the issues of transparency, mutual confidence, and verification, and considered proposals for a standard reporting form."[34] In the joint statement after their fourth meeting in Geneva in April 2013, the NPT nuclear-armed states reaffirmed their advancement on "discussions of an approach to reporting on their relevant activities" as well as their objective to submit a "glossary of key nuclear terms" to the 2015 NPT RevCon.

In accordance with the 2014 reporting deadline set by the Action Plan the five NPT nuclear-armed states submitted their reports on implementation of action 5, 20, and 21 of the NPT action plan. The reports follow a fixed set of headings but the content varied widely and limitedly new facts were shared mainly covering past activities before 2010 and each states focusing on certain issues only.[35]

A report by the Royal United Services Institute for Defence and Security Studies argues that the lack of progress in the NPT nuclear-armed states process is due largely to the complex relationships among the NPT nuclear-armed states, which make some reticent to alter their current policies. Domestic constraints continue to limit what the NPT nuclear-armed states are willing to do in the course of these discussions, which has "led the group to begin work in those areas considered relatively easy," note the report authors. They point out that transparency among the NPT nuclear-armed states remains elusive and that the lack of outcomes and progress has led to skepticism about the utility of the NPT nuclear-armed states "process".[36]

On 22 September 2010,[37] the NPDI was formed.[38] In 2011, NPDI developed a draft standard nuclear disarmament reporting form, as promoted by action 21 in the Action Plan. The reporting form has been shared with the five NPT NPT nuclear-armed states during their meeting in 2011 in Paris but has not received any official response from the five NPT nuclear-armed states. It was submitted as a working paper to the 2012 PrepCom.[39]

The United Nations Office for Disarmament Affairs has set up a website to function as a repository of information provided by the NPT nuclear-armed states in accordance with the 2010 NPT Action Plan, where the 2014 reports are made available.[40]

The International Panel on Fissile Material (IPFM) has focused on measures to increase transparency of nuclear warhead and fissile material stocks in its latest Global Fissile Material Report from October 2013.[41]Among other things, IPFM proposes that nuclear-armed states could make baseline declarations of the total numbers of nuclear warheads in their possession as of a specific date and commit to subsequent annual updates; they could agree on a shared terminology with regard to nuclear warheads and all related aspects; all non-military fissile material could be placed under IAEA safeguards; and approaches for verifying warhead dismantlement could be developed.[42]

For more information on verification and irreversibility, please see chapter on nuclear material.

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Risk

Action 5:

The nuclear-weapon States commit to accelerate concrete progress on the steps leading to nuclear disarmament, contained in the Final Document of the 2000 Review Conference, in a way that promotes international stability, peace and undiminished and increased security. To that end, they are called upon to promptly engage with a view to, inter alia:

(e) Consider the legitimate interest of non-nuclear-weapon States in further reducing the operational status of nuclear weapons systems in ways that promote international stability and security;

(f) Reduce the risk of accidental use of nuclear weapons;

No public information is available regarding concrete steps that have been taken to reduce the operational status of nuclear weapons or reduce the risk of accidental use of these weapons. In the meantime, case studies and new research continue to highlight the existing risk by discussing examples of past near-misses, accidents, safety and security breaches, and misconduct. Over the past review cycle more states have raised concerns about the deliberate or accidental use of nuclear weapons due to proliferation, modernisation, nuclear doctrines, misconduct, system vulnerabilities, and more, which is closely linked to the increasing amount of information that became available during that time.

De-alerting

With regard to reductions of the operational status of nuclear weapons systems, no progress has been recorded since May 2010. According to the latest estimates, the US and Russia have about 1800 strategic nuclear warheads on high alert on both land- and sea-based ballistic missiles, a figure that has not decreased since the 2010 NPT Review Conference.[1] France and the UK keep 80 and 48 of their weapons, respectively, on their missile submarines fully operational. These weapons are on a lower readiness level than the US and Russian weapons.[2] China, as part of its no first use policy, is believed not to maintain nuclear weapons on a high level of readiness.

In 2014, as in previous years, France, Russia, the United Kingdom, and United States voted against[3] the UN General Assembly resolution on "Decreasing the operational readiness of nuclear weapon systems" put forward by Chile, Malaysia, New Zealand, Nigeria, and Switzerland.[4] France, UK, and US issued a joint statement explaining that they disagree that the current operational status of nuclear weapons increases the risk of deliberate or accidental use. They argued that further "de-alerting" is not a priority for nuclear disarmament and that their weapons "are subject to the most rigorous command, control and communication systems."[5] Despite continued opposition from four nuclear-armed states, the de-alerting resolution was adopted by a vote of 166-4-11, underlining a continued increase of support for lower alert levels.

During the 2014 NPT PrepCom, the NPDI submitted a working paper on de-alerting, outlining how reducing the alert level of operational readiness "would demonstrate a commitment to reducing the role of nuclear weapons in security and defence doctrines," as well as "be a valuable confidence-building measure and an important step towards nuclear disarmament."[6]

Misconduct and accidents

Since the 2010 NPT RevCon, some reports about security and safety breaches within the US nuclear forces appeared, causing concern within the international community about the risk of accidents.[7] ICBM launch officers had violated security rules, allegedly cheated on tests of their knowledge of the launch systems, participated in gambling rackets, and acted in a drunk and disorderly fashion abroad.[8] One missileer has even been convicted of running a violent street gang that arranged for the exchange of money for sex with underage girls, distributed drugs, and gave alcohol to teenagers.[9] As a response to these developments, US Defense Secretary Chuck Hagel ordered a review of US military's nuclear weapons mission.[10] Officials from both the US Navy and US Air Force have been released from duty in some cases, while the gang leading missileer has received a sentence of 25 years in prison. As the result of the review, which revealed "structure of US nuclear forces is so incoherent that it cannot be properly managed in its current form"[11] explaining the disconnect between top-levels and those below, US Defense Secretary Chuck Hagel, as part of a more extensive overhaul, authorised the air force to appoint a four star general in charge its nuclear forces.[12]

There have also been several concerning security and safety incidents at nuclear weapons facilities in the US. On 28 July 2012, three peace activists including an 82 year old nun broke into the Y-12 National Security Complex in Tennessee, which has highly enriched uranium facilities and materials. They spray painted verses from the Bible and splashed blood on the walls of one of the buildings and hammered on a guard tower before waiting to be arrested.[13] On 14 February 2014, a chemical reaction in a drum of nuclear waste at the Waste Isolation Pilot Plant in New Mexico caused the drum to rupture, triggering a radioactive

leak that exposed more than 20 workers to contamination and indefinitely shut down the plant.[14]

These recent incidents follow decades of near-misses during the Cold War, when fires, explosions, false attack alerts, and accidentally dropped bombs posed extraordinary risk.[15]

Other nuclear-armed states are not immune from such incidents. In the United Kingdom, a Nuclear Site Safety Justification report published in 2010 revealed 22 safety shortfalls at the Faslane Naval Base in Scotland where the UK's nuclear-armed submarines are based.[16] The shiplift is used to lift 16,000-ton Vanguard ballistic missile submarines out of the water for maintenance with nuclear warheads and ballistic missiles still aboard.

Then in 2012 "it was revealed that UK submarines, many of them nuclear-powered, had experienced over 266 fires in the past 25 years. 243 were small-scale fires dealt with using onboard resources, but 67 of these were on ballistic missile submarines."[17]

Also in the UK, 44 officers of the Ministry of Defence Police working at the Atomic Weapons Establishment (AWE) in Burghfield are currently subject to a "police misconduct investigation."[18] The investigation involves allegations of officers failing to complete their duties correctly.

For the other NPT nuclear-armed states, very limited information is available on such security or safety breaches. However, the Chatham House report catalogues a number of incidents of near-use of nuclear weapons in the India, Israel, Pakistan, Soviet Union/Russia, UK, and US.[19]

International affairs can also affect the risk of nuclear weapon use. In September 2014, in the context of the Ukraine crisis, both the Russian Federation[20] and NATO[21] conducted military exercises that have contributed to further heightening of tensions and, as the recent report from Chatham House points out, may "increase the risks of miscalculation, escalation and propensity for considering nuclear response."[22]

Cyber attacks are also becoming an increasing concern for nuclear security. In March 2013, the Pentagon's Defense Science Board indicated uncertainty about the resilience of most US nuclear weapon systems against a sophisticated cyber attack.[23] General Robert Kehler, head of Strategic Command, told US senators that he did not know whether other countries' nuclear command and control systems were impervious to a cyber attack that could launch a nuclear-armed missile.[24]

Risk reduction

Non-nuclear weapon states have addressed the issue of risk reduction not only during disarmament meetings at the United Nations,[25] but also outside during the second and third conferences on the humanitarian impact of nuclear weapons in Nayarit, Mexico and Vienna, Austria. In Mexico, one working session focused on "The risk of a nuclear blast and other effects of a nuclear weapon detonation." The evidence presented in this segment demonstrated that the mere existence of nuclear weapons generates great risk. Additionally, some presentations explored the many instances where an accidental nuclear detonation had only narrowly been averted.[26]

The chair's summary from the Mexico conference noted that the risk of nuclear weapons use is growing due to proliferation, vulnerabilities of command and control networks to cyber attacks and human error, potential access to nuclear weapons by non-state actors, and high-alert status of nuclear weapon systems.[27]

In Vienna, a session was dedicated to "Risk drivers for deliberate or inadvertent nuclear weapons use". Presentations included an overview of historical near-misses, systems analysis of risks, and the potential impact of cyber attacks on nuclear security.[28]

The chair's summary of the Vienna conference found that even if the probability is considered low, "given the catastrophic consequences of a nuclear weapon detonation, the risk is unacceptable." It highlighted the same risks as the summary of the Mexico conference and noted that these risks increase over time.

The summary also critiques the doctrine of "nuclear deterrence" as lending gravely to risk, because it necessitates preparing for nuclear war. "Opportunities to reduce risk must be taken now, such as de-alerting and reducing the role of nuclear weapons in security doctrines," the summary suggests. "Limiting the role of nuclear weapons to deterrence does not remove the possibility of their use. Nor does it address the risks stemming from accidental use. The only assurance against the risk of a nuclear weapon detonation is the total elimination of nuclear weapons."[29]

The Austrian government's pledge at the conclusion of the conference also highlights the increasing nature of the risk of a nuclear weapon explosion, due to proliferation, modernisation, and the role attributed to nuclear weapons in security doctrines. It notes that the risks associated with nuclear weapons raise moral and ethical questions and that they concern all humanity.[30]

This pledge, and many governmental and civil society statements before it, call for risk reduction through reducing operational status, removing nuclear weapons from deployment and putting them in storage, diminishing their role in military doctrines, rapid reductions of arsenals, and ultimately their total elimination.

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Nuclear weapon free zones and negative security assurances

Action 7:

All States agree that the Conference on Disarmament should, within the context of an agreed, comprehensive and balanced programme of work, immediately begin discussion of effective international arrangements to assure non-nuclear-weapon States against the use or threat of use of nuclear weapons, to discuss substantively, without limitation, with a view to elaborating recommendations dealing with all aspects of this issue, not excluding an internationally legally binding instrument. The Review Conference invites the Secretary-General of the United Nations to convene a high-level meeting in September 2010 in support of the work of the Conference on Disarmament.

Action 8:

All nuclear weapon States commit to fully respect their existing commitment with regard to security assurances. Those nuclear weapon States that have not yet done so are encouraged to extend security assurances to non-nuclear-weapons States parties to the Treaty.

Action 9:

The establishment of further nuclear-weapon-free-zones, where appropriate, on the basis of arrangements freely arrived at among States of the region concerned, and in accordance with the 1999 Guidelines of the United Nations Disarmament Commission, is encouraged. All concerned States are encouraged to ratify the nuclear-weapon-free zone treaties and their relevant protocols, and to constructively consult and cooperate to bring about the entry into force of the relevant legally binding protocols of all such nuclear-weapon-free zones treaties, which include negative security assurances. The concerned States are encouraged to review any related reservation.

General negative security assurances

Since May 2010, a number of efforts have been made by some of the NPT nuclear-armed states on the topic of NSAs. Although the international community is no closer to a legally-binding agreement than before the NPT Review Conference, some NPT nuclear-armed state have modified their previous assurances.

China

China is the only NPT nuclear-armed state that has a no first use policy. This policy has two parts. Firstly, it means China has declared that it will not use nuclear weapons against any NPT nuclear-armed state in a first strike and secondly, that it will never use or threaten to use nuclear weapons against any NPT non-nuclear-armed state or members of a NWFZ.

China holds that while moving towards the complete prohibition of nuclear weapons, all NPT nuclear-armed states should abandon any nuclear "deterrence" policy based on first use of nuclear weapons as well as make an unequivocal commitment that under no circumstances will they use or threaten to use nuclear weapons against non-nuclear-armed states or NWFZs and negotiate an international legal instrument in this regard. In the meantime, China maintains, NPT nuclear-armed states should negotiate and conclude a treaty on no first use of nuclear weapons against each other.[1]

During the signing ceremony of the Treaty on a nuclear-weapon-free-zone in Central Asia on 6 May 2014, China reiterated its no-first-use policy.[2]

France

France reiterated its NSA policy in line with UN Security Council (UNSC) resolution 984 in a statement delivered during the 2010 NPT Review Conference, emphasizing that "France granted positive and negative security assurances to all non-nuclear-armed state parties to the NPT, in compliance with their non-proliferation obligations."[3]

France has consistently opposed the idea of a no first use pledge and attaches less weight to NSAs than other NPT nuclear-armed states. It conditions the NSAs it has previously given to non-nuclear-armed states that are party to the NPT by arguing that nuclear retaliation is consistent with the legal right to self-defence as recognised in article 51 of the UN Charter and that the right to self-defence would, in the face of aggression by others, take precedence over any no first use commitments given in peacetime. France also argues that any state not meeting its own non-proliferation commitments, including in relation to chemical and biological weapons, could not expect any NSA to apply to them.[4] In its 2013 white paper it confirmed this position and explained that its nuclear force was strictly for protection in defence from aggressions by another state against France's vital interests "wherever it may come from and whatever form it may take."[5]

Russia

UNSC resolution 984 remains the basis of Russia's NSAs to non-nuclear-armed states. However, Russia has expressed readiness to move towards the elaboration of global NSAs, provided that they will take into consideration the Russian military doctrine and its national security concepts.[6]

On 25 December 2014, President Putin approved a new version of the Russian military doctrine. In it, Russia "reserves the right to use nuclear weapons in response to a use of nuclear or other weapons of mass destruction against her and (or) her allies, and in a case of an aggression against her with conventional weapons that would put in danger the very existence of the state."[7]

United Kingdom

In October 2010, the UK government released its Strategic Defence and Security Review and stated that it is "now able to give an assurance that the UK will not use or threaten to use nuclear weapons against NNWS parties to the NPT." It explained, "In giving this assurance, we emphasise the need for universal adherence to and compliance with the NPT, and note that this assurance would not apply to any state in material breach of those non-proliferation obligations. We also note that while there is currently no direct threat to the UK or its vital interests from states developing capabilities in other weapons of mass destruction, for example chemical and biological, we reserve the right to review this assurance if the future threat, development and proliferation of these weapons make it necessary."[8] Previous language in the 1998 Strategic Defence Review stated that the UK will not use nuclear weapons against "a non-nuclear weapon state not in material breach of its nuclear non-proliferation obligations, unless it attacks us, our Allies or a state to which we have a security commitment, in association or alliance with a nuclear weapon state."[9]

United States

The 2010 NPR states: "The United States will not use or threaten to use nuclear weapons against NNWS that are party to the NPT and in compliance with their nuclear non-proliferation obligations."[10] The NPR gives no definition of what compliance in this regard means, leaving this statement open to interpretation.

The NPR also states that conventional weapons would be used to retaliate against a biological or chemical weapons attack. This is a change from the previous NPR, which stated that nuclear weapons could be used, even if the attack came from a non-nuclear-armed states.[11] The 2010 NPR does however also state that if the evaluation and proliferation in biological weapons threat would change, the US reserves the right to adjust its NSA policy accordingly.[12] Furthermore, the NPR states that the nuclear weapons may still play a role in deterring conventional, chemical, and biological weapons from the states listed as not being under the US security assurances. The NPR also indicates that the US will seek to ensure that nuclear weapons would only be used in "extreme circumstances".[13] In the same spirit, in a new guideline published in June 2013 the Department of Defense is directed to "strengthen non-nuclear capabilities and reduce the role of nuclear weapons in deterring non-nuclear attacks."[14]

NSAs in the UN General Assembly (UNGA)

During the 2010 session of the UNGA First Committee, resolution A/RES/65/43, "Conclusion of effective international arrangements to assure non-nuclear-weapon States against the use or threat of use of nuclear weapons," was adopted with a vote of 106-0-56.[15] The same resolution, which is introduced annually by Pakistan, was adopted again during the 2011–2014 sessions with similar votes. On all occasions, France, Russia, the United Kingdom, and the United States all abstained while China voted yes. This voting pattern is the same as before the adoption of the 2010 NPT Action Plan.[16]

NSAs in the Conference on Disarmament (CD)

Although no significant steps towards legally-binding NSAs have been taken, action 7 also calls on the UN Secretary-General to convene a high-level meeting in support of the CD. In September 2010 he convened such a meeting on "revitalizing the work of the Conference on Disarmament and taking forward multilateral disarmament negotiations".[17] Yet, NSAs were discussed only limitedly both at this meeting and the follow-up that took place in July 2011.

During its 2014 session the CD held informal discussions on all agenda items, including NSAs. No progress regarding the development of binding NSAs through the CD can be reported. However, with the resolutions passed in the UNGA First Committee, the issue clearly remains on the agenda.

Budapest Memorandum

The Budapest Memorandum is a political agreement with focus on Security assurances related to the Ukraine handing over nuclear weapons to Russia and consequently acceding to the NPT as a non-nuclear weapon state. It was signed in 1994 by the US, Russia and the UK giving the assurance not to use or threat to use force against the territorial integrity or political independence of Ukraine, Belarus, and Kazakhstan.[18] In exchange for the security assurances, these states turned over their nuclear weapons stockpiles remaining from the Soviet Union to Russia.

Ukraine and other governments have argued that Russia violated the Budapest Memorandum due to recent events in Ukraine. In a statement to the CD on 24 June 2014, Ukraine stressed that Russia had violated "each article of this fundamental document [Budapest Memorandum] for the whole international security architecture but one (article 5) – using of nuclear weapons against Ukraine."[19] Russia however argues that the Budapest Memorandum does not apply to the Crimean incident, as it was driven by an internal political and social-economic crisis. It also argues the security assurance in the Budapest Memorandum only applies to the assurance not to use or threaten to use nuclear weapons against non-nuclear states.[20]

The Russian view is contested among UN member states and has raised fundamental questions about the value of security assurances.[21] Additionally, some argue that it could complicate the resolution of possible future proliferation challenges.

Nuclear Weapon Free Zones

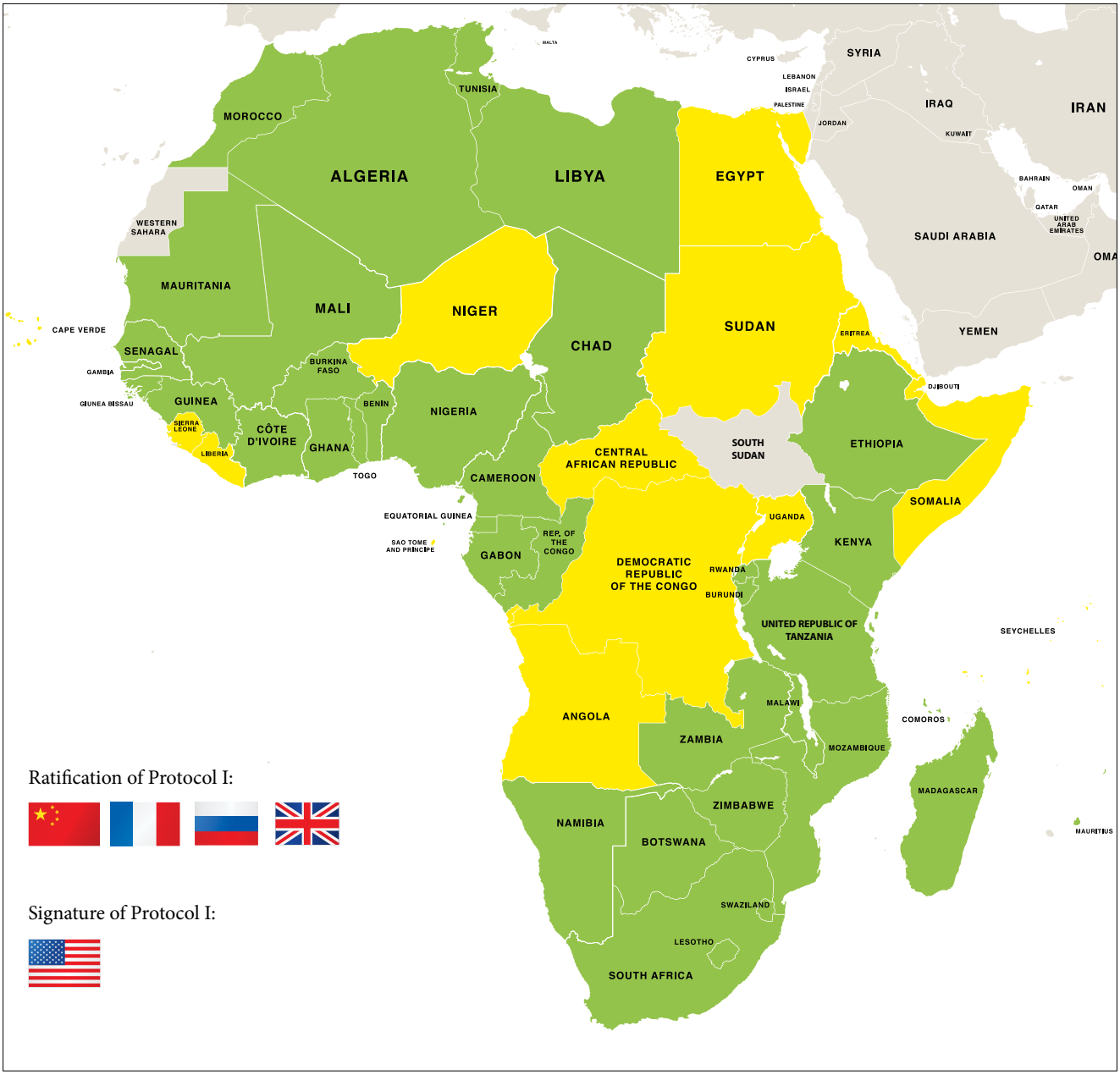
The Pelindaba Treaty (African Nuclear-Weapon-Free-Zone)

In accordance with Article 14 of the Pelindaba Treaty, the African region held its First Conference of States Parties to the Treaty on 4 November 2010 at the African Union Headquarters in Addis Abeba, Ethiopia.

Eight countries, Cameroon,[22] Chad, Comoros, Congo, Ghana, Guinea-Bissau, Namibia, Sahrawi Arab Democratic Republic, and Zambia, have ratified the Treaty since the adoption of the NPT Action Plan.[23] As of February 2014, fifteen signatories have yet to ratify the Pelindaba Treaty.[24]

Both Protocol I (NSA) and Protocol II (ban on nuclear testing in the NWFZ) have been signed by all NPT nuclear-armed states, and ratified by all NPT nuclear-armed states except the United States. The protocols were handed in to the US Senate in May 2011 for ratification.[25] Protocol III is open for signature by France and Spain, as non-African countries that are "de jure" or "de facto" responsible for territories within the zone. France has signed and ratified Protocol III but Spain has indicated it will not do so, arguing that its current safeguards obligations with EURATOM and IAEA are sufficient.

All NPT nuclear-armed states, except for China, have attached reservations to Protocol II, reserving the right to use their nuclear arsenals in response to "changes of the international environment".



Member states: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Togo, Tunisia, Uganda, United Republic of Tanzania, Western Sahara, Zambia, Zimbabwe.

The Treaty of Tlatelolco (Nuclear-Weapon-Free-Zone in Latin America and the Caribbean)

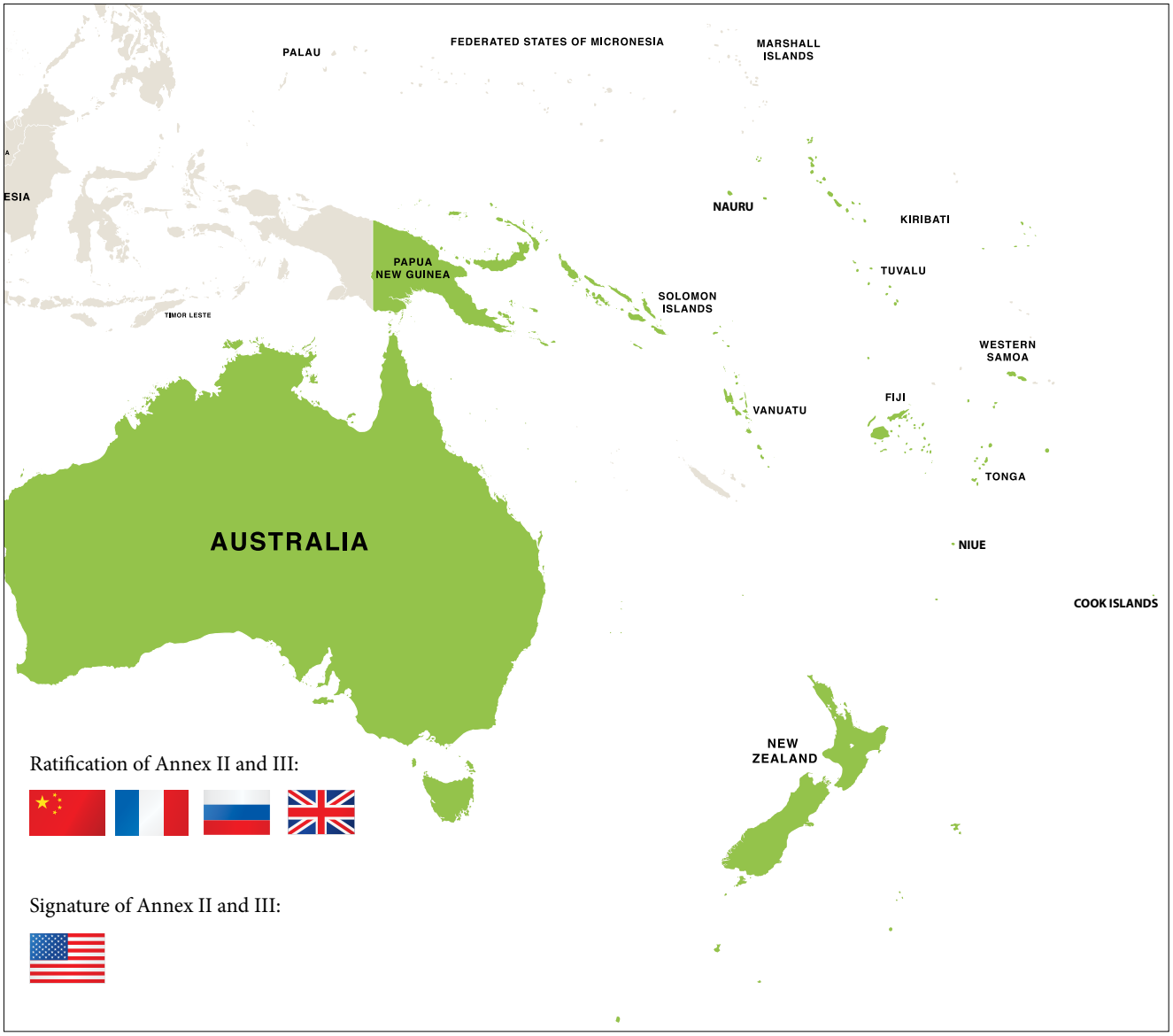
The Treaty of Tlatelolco[16] entered into force on 25 April 1969 and, since 23 October 2002 when Cuba deposited its instrument of ratification, all states of Latin America and the Caribbean have signed and ratified the Treaty.[27] It has two additional protocols. Protocol I involves non-Latin American countries that have territories in the NWFZ. France, the United Kingdom, and the United States have signed and ratified Protocol I. Protocol II deals with the provisions of NSAs. All NPT nuclear-armed states have ratified Protocol II, albeit with reservations.[28]

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

The Treaty of Rarotonga (South-Pacific-Nuclear-Weapon-Free-Zone)

After the Treaty's entry into force in 1986, the Marshall Islands, Micronesia, and Palau became eligible states for signing this Treaty, but none have yet done so. The Treaty's Protocol I (which calls on US, UK and France to apply the key provisions of the Treaty in respect to their territories situated within the zone), Protocol II (on negative security assurances), and Protocol III (whereby NPT nuclear-armed states undertake not to test nuclear weapons in the zone) have been ratified by all NPT nuclear-armed state except for the United States.[29] President Obama handed in the request for ratification of the three Protocols together with the Pelindaba Treaty protocols to the US senate in May 2011.[30] As of February 2015, these protocols have not been ratified.

Out of the four NPT nuclear-armed states that have ratified the protocols, France and the United Kingdom have made reservations on Protocol II (NSAs). These reservations are the same they have made for the Pelindaba Treaty.



Member states: Australia, Cook Islands, Fiji, Kiribati, Nauru, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.

The Treaty of Bangkok (Southeast Asia Nuclear-Weapon-Free-Zone)

The Protocol to the Treaty on NSAs has not been signed by any of the NPT nuclear-armed states.[31]

In August 2011, the NPT nuclear-armed states met with officials from the Association of Southeast Asian Nations (ASEAN) to discuss their ratification of the Protocol to the Treaty. One follow-up meeting was held in October 2011. In November 2011, Thailand's foreign minister announced that the ASEAN countries together with the NPT nuclear-armed states had reached an agreement on how to proceed on the region's NWFZ. On 19 November the White House stated, "All sides have agreed to take the necessary steps to enable the signing of the protocol and its entry into force at the earliest opportunity."

This agreement involves further negotiations on the issue.[32] In July 2012 France, Russia, the United Kingdom and the United States announced they would not be able to sign the Treaty during the ASEAN Foreign Minister's meeting. They had introduced reservations to the SEANWFZ commission too late for the commission to review them before the conference.[33]

As of February 2015 still no NPT nuclear-armed state has signed the Protocol to the Treaty.

Member states: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam.

The Treaty of Semipalatinsk (Central Asia Nuclear-Weapon-Free-Zone)

The Treaty of Semipalatinsk opened signature in 2006 and entered into force on 21 March 2009.[34] While Russia and China had expressed support for the Treaty, France, the United Kingdom, and United States opposed article 12, which states that the Treaty "does not affect the rights and obligations of the Parties under other international treaties." These countries were concerned that under the Commonwealth of Independent States Collective Security Treaty, Russia could possibly deploy nuclear weapons in Central Asia.[35] During the 2013 NPT PrepCom in Geneva the signatories of the Treaty launched the so-called C5-P5 consultations to resolve this issue.[36]

On 6 May 2014, all five NPT nuclear-armed states of the NPT signed the Protocol on the margins of the 2014 NPT PrepCom in New York, providing legally-binding assurances not to use or threaten to use nuclear weapons against CANWFZ Treaty.

Member states: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

Mongolia

Mongolia declared itself a single state NWFZ on 25 September 1992 and the "Law on of Mongolia on its nuclear-weapon-free status" was adopted by the national parliament on 3 February 2000. Later that year, in October, the five NPT nuclear-armed states delivered a joint statement in which they reaffirmed their commitment to cooperate with Mongolia in implementing resolution 53/77 entitled "Mongolia's international security and nuclear-weapon-free-status" of 1998. They each had declared their support bilaterally at the time.[38]

On 17 September 2012, Mongolia and China, France, Russia, UK, and US signed parallel declarations regarding Mongolia's nuclear-weapon-free status. The declaration included a reaffirmation of the security assurances made in 2000 and the intent to respect Mongolia's status by not contributing to any act that would violate it.[39]

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Developments regarding a potential Weapons of Mass Destruction Free Zone in the Middle East (MEWMDFZ)

In addition to the 64 point action plan, the 2010 NPT Review Conference outcome document also includes a set of three "practical steps" to implement the 1995 Resolution on the Middle East.

1. The Secretary-General of the United Nations and the co-sponsors of the 1995 Resolution, in consultation with the States of the region, will convene a conference in 2012, to be attended by all States of the Middle East, on the establishment of a Middle East zone free of nuclear weapons and all other weapons of mass destruction, on the basis of arrangements freely arrived at by the States of the region, and with the full support and engagement of the nuclear-weapon States. The 2012 Conference shall take as its terms of reference the 1995 Resolution;

2. Appointment by the Secretary-General of the United Nations and the co-sponsors of the 1995 Resolution, in consultation with the States of the region, of a facilitator, with a mandate to support implementation of the 1995 Resolution by conducting consultations with the States of the region in that regard and undertaking preparations for the convening of the 2012 Conference. The facilitator will also assist in implementation of follow-on steps agreed by the participating regional States at the 2012 Conference. The facilitator will report to the 2015 Review Conference and its Preparatory Committee meetings;

3. Designation by the Secretary-General of the United Nations and the co-sponsors of the 1995 Resolution, in consultation with the States of the region, of a host Government for the 2012 Conference;

Facilitator

In October 2011, Finland was designated as the host country for the 2012 Middle East Conference, and the UN Secretary-General named the Finnish Undersecretary of State Ambassador Jaakko Laajava as the facilitator.

In accordance with the decisions in the 2010 outcome document, the facilitator reported to the 2012,[1] 2013,[2] and 2014[3] NPT Preparatory Committees on his efforts.

During the 2012 NPT PrepCom, Ambassador Laajava discussed his outreach activities. At the time, not all states of the region had announced their participation and no date had been set for the conference. In conclusion, the facilitator noted that further and intensified efforts were needed from the conveners, the states in the region, but also from the facilitator himself. He indicated that while all states of the region support the goal of the WMDFZ, views differ on how and when it should be created.

During the 2013 NPT PrepCom, the facilitator reported that he had carried out over 300 rounds of discussions with regional and international parties regarding the WMD-free zone.[4] Unfortunately, those consultations had not yet produced any tangible results.

States in the Middle East not yet parties to the main WMD treaties and regulations

NPT: Israel.

IAEA Additional Protocol: Egypt, Iran, Israel, Lebanon, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and Yemen.

CTBT: Egypt, Israel, Iran, Saudi Arabia, and Yemen.

CWC: Egypt and Israel.

BWC: Egypt, Israel, and Syria.

Since the 2013 NPT PrepCom, the facilitator has organized three multilateral consultations in Glion, Switzerland and two meetings in Geneva, Switzerland to prepare for the conference. See below for more information.

Postponement of conference

As of 1 March 2015, a conference on the establishment of a Middle East zone free of nuclear weapons and all other weapons of mass destruction had not yet been held or announced.

On 23 November 2012 the United States, one of the co-sponsors of the resolution and co-conveners of the conference, announced "the conference cannot be convened because of present conditions in the Middle East and the fact that states in the region have not reached agreement on acceptable conditions for a conference."[5] Shortly after the announcement, the other co-sponsors the UK and Russia delivered similar statements. Russia and the UK, as well as UN Secretary-General Ban Ki-moon, called for the conference to take place in 2013.[6]

On 24 November 2012, the facilitator issued a press release regretting that the conference would not convene in 2012. He indicated that Finland as the host government remained prepared and the facilitator together with the conveners and the states of the region would continue their efforts to "prepare the ground for the earliest possible convening of a successful conference, to be attended by all states of the region."[7] To that end he proposed multilateral consultations to be held before the 2013 NPT Preparatory Committee, as a step towards holding the actual conference.[8]

The League of Arab States expressed regrets over the postponement of the conference in a statement on 25 November 2012.[9] Mr. Nabil El-Araby, the Secretary-General of the League, stressed, "all countries in the region except Israel have expressed their willingness to participate in the conference on schedule in accordance with what was agreed upon."[10] Israel had been hesitant to announce its participation; even after all other states in the region had done so.[11]

During the 2013 NPT Preparatory Committee, Russia expressed disappointment about the postponement of the conference and explained it had never given its consent to postpone it.[12] In the months leading up to the 2013 PrepCom, threats of boycott from the Arab states were circulated, as a protest against the failure to convene the conference on the MEWMDFZ.To demonstrate its disappointment with the continued lack of progress on the implementation of the 1995 resolution, the Egyptian government decided to walk out of the PrepCom after the facilitator had delivered his report. While no other country followed Egypt's walk out, others expressed frustration over the situation.[13] This frustration was further expressed in a working paper submitted by the League of Arab States.[14]

During the final NPT PrepCom in 2014, states of the region continued to express frustration and the Arab Group announced it might reconsider the indefinite extension of the NPT, if no progress could be achieved on the MEWMDFZ.[15]

Multilateral consultations after postponement

The first multilateral consultations, as proposed by the facilitator, took place in Glion, Switzerland from 21-22 October 2013. Delegates from Iran, Israel, and Arab states took part in the meeting as well as representatives of the conveners. Little information has been given of the content of the meeting. Israel described it as a "preparatory session" and "mainly technical".[16]

A second meeting was held 25-26 November 2013 in the same venue in Switzerland. The aim was to agree on the agenda for regional talks. According to reports, however, some key differences remain. While the meeting was closed and no public report was issued, off the record accounts have suggested that one of the central issues during the consultations was to determine the scope of the discussions. Arab states wanted to continue to focus on nuclear, biological, and conventional weapons and delivery systems. Israel remained determined to focus on the broader context of national security in the Middle East. No representatives of Iran partook in the second meeting for internal reasons.[17] However, reports say Iran has not ruled out re-joining consultations at another time.[18] A third meeting was held in on 3-5 February 2014 at the same venue in Switzerland.

After the final NPT PrepCom in April/May 2014, states of the region met for the first time in Geneva, on 14-15 May. At this meeting two non-papers were introduced, one outlining the proposals put forward by participants, the other offered "some specific elements for process outcomes."[19] After few weeks to review these documents, a fifth meeting from 24-25 June 2014 was held in in Geneva with discussions focusing on the agenda for a proposed meeting in Helsinki.[20]

At the time of printing this report, no further meetings have been held.

Reactions in other international fora

The IAEA General Conference adopted the traditional resolution on the implementation of safeguards in the Middle East in 2010, 2011, 2012, 2013, and 2014. This resolution calls upon all states in the region to accede to the NPT and invites the countries concerned, which have not yet done so, to adhere to international non-proliferation regimes. Despite being the only country in the Middle East not party to the NPT, Israel is not mentioned by name in this resolution.

In 2010, the Arab League presented an IAEA General Conference resolution on Israeli nuclear capabilities. The resolution singled out Israel's nuclear programme, but was eventually rejected at the IAEA General Conference. At the 2011 and 2012 IAEA General Conference, the Arab League decided not to table a similar resolution in order to improve the atmosphere in light of the work to convene the 2012 MEWMDFZ Conference. After the postponement of the conference, the Arab League again presented the resolution at the 2013 General Conference but it was not adopted after receiving 51 votes against it and 43 in favour.[21] Similarly, in 2014 the draft

resolution was rejected by a vote of 58 against and 45 in favor, with 27 abstentions.[22]

At the UN General Assembly (UNGA) First Committee in 2013 and 2014, several states expressed their disappointment over the lack of progress on the MEWMDFZ. Delegates from the Arab Group, African Group, and Latin America among others expressed the need for setting a new date before the end of the year.

The annual UNGA First Committee resolution on "The establishment of a nuclear-weapon-free zone in the region of the Middle East" was adopted without a vote in the 2011, 2012, 2013, and 2014. In its 2014 explanation of vote Israel stressed the need for confidence-building measures after which "more ambitious undertakings"[23] could be considered. The Iranian explanation of vote expressed grave concerns that despite of repeated calls, Israel had not yet acceded to the NPT.[24]

During the 2013 General Debate of the UNGA, the Egyptian Foreign Minister, Mr. Nabil Fahmy, announced an initiative to support efforts for creating a MEWDMFZ. The initiative consists of three steps: all countries should deposit a letter with the UN Secretary-General stating their support for declaring the Middle East a WMDFZ; countries in the region outside of international conventions on weapons of mass destruction should, before the end of 2013, commit to joining them; and international efforts should be renewed to ensure the conference is swiftly held by Spring 2014.[25] In response, 21 states and Palestine have written a letter to the UN Secretary-General expressing their support for declaring the Middle East a zone free of weapons of mass destruction.[26]

Other initiatives

In 2011, the IAEA organized a Forum on NWFZs. The discussion focused on how the experiences of existing NWFZs might apply to the development of such a zone in the Middle East. Following the adoption by the Board of Governors (BoG) of a resolution against its nuclear programme on 18 November 2011, Iran decided not to participate in the Forum. The Arab states as well as Israel participated.

The Council of the European Union has sponsored two seminars on "Middle East Security, WMD Non-proliferation and disarmament," which were organized in Brussels by the EU Non-proliferation Consortium. The first seminar was held in 2011 and the second one was held in 2012.

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Comprehensive Nuclear-Test-Ban Treaty

Action 10:

All nuclear-weapon States undertake to ratify the Comprehensive Nuclear-Test-Ban Treaty with all expediency, noting that positive decisions by nuclear-weapon States would have the beneficial impact towards the ratification of the Treaty, and that nuclear-weapon States have the special responsibility to encourage Annex 2 countries, in particular those which have not acceded to the Treaty on the Non-Proliferation of Nuclear Weapons and continue to operate unsafeguarded nuclear facilities, to sign and ratify.

Action 11:

Pending the entry into force of the Comprehensive Nuclear-Test-Ban Treaty, all States commit to refrain from nuclear-weapon test explosions or any other nuclear explosions, the use of new nuclear weapons technologies and from any action that would defeat the object and purpose of that Treaty, and all existing moratoriums on nuclear-weapon test explosions should be maintained.

Action 12:

All States that have ratified the Comprehensive Nuclear-Test-Ban Treaty recognize the contribution of the conferences on facilitating the entry into force of that Treaty and of the measures adopted by consensus at the Sixth Conference on Facilitating the Entry into Force of the Comprehensive Nuclear-Test-Ban Treaty, held in September 2009, and commit to report at the 2011 Conference on progress made towards the urgent entry into force of that Treaty.

Action 13:

All States that have ratified the Comprehensive Nuclear-Test-Ban Treaty undertake to promote the entry into force and implementation of that Treaty at the national, regional and global levels.

Action 14:

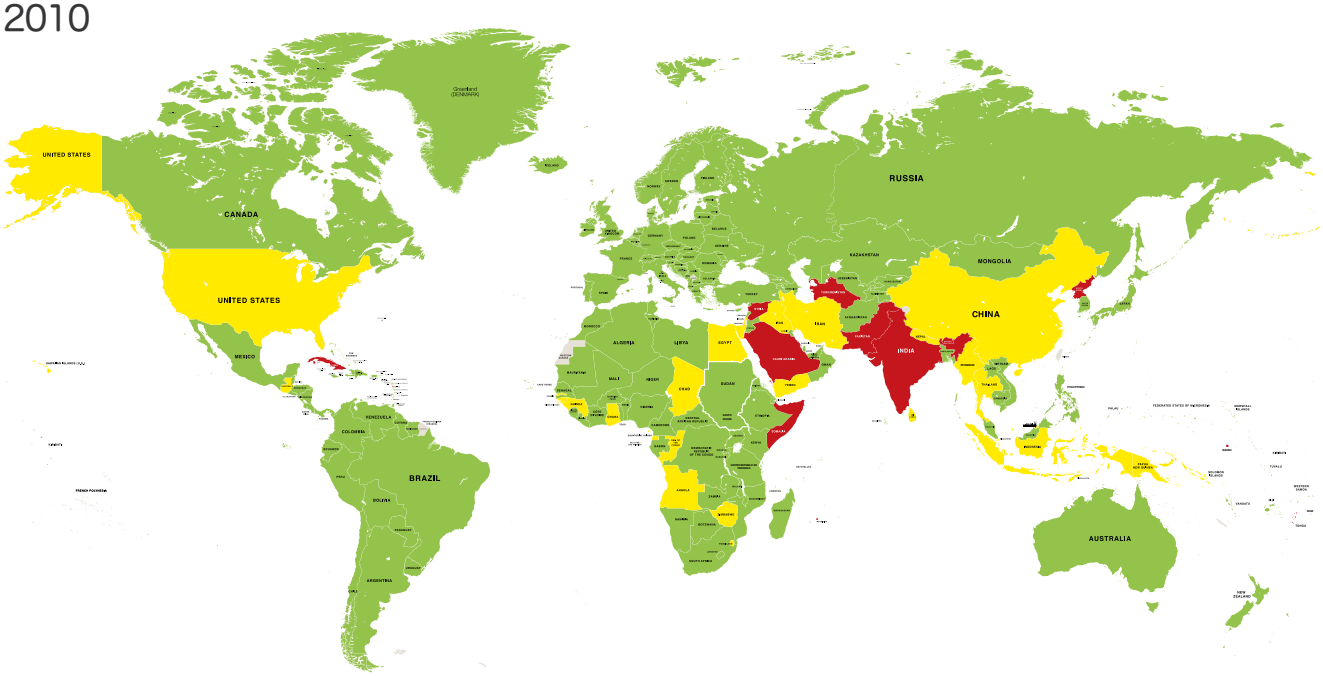
The Preparatory Commission for the Comprehensive Nuclear-Test- Ban Treaty Organization is to be encouraged to fully develop the verification regime for the Comprehensive Nuclear-Test-Ban Treaty, including early completion and provisional operationalization of the international monitoring system in accordance with the mandate of the Preparatory Commission, which should, upon entry into force of that Treaty, serve as an effective, reliable, participatory and non-discriminatory verification system with global reach, and provide assurance of compliance with that Treaty.

New developments for the CTBT

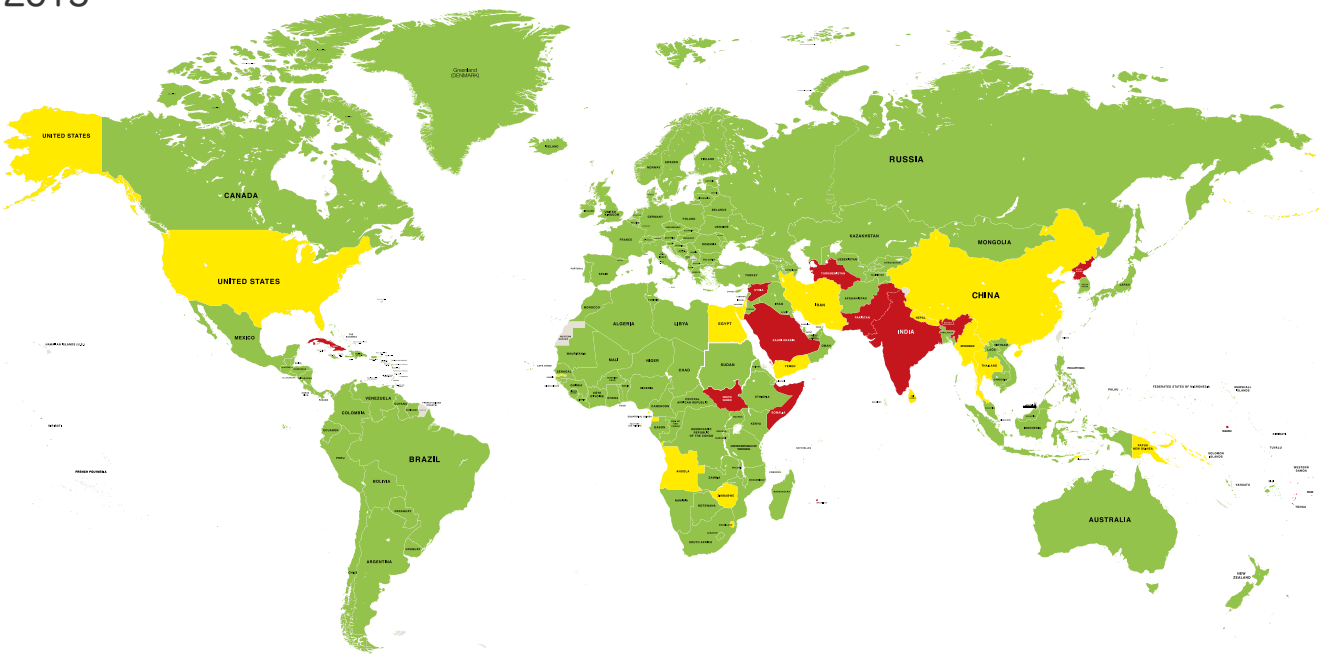
The Treaty has been signed by 183 states, and ratified by 163. Since the adoption of the 2010 NPT Action Plan, ten[1] additional states have become parties, including one Annex II country, Indonesia.

13 countries have not yet signed the CTBT[2] and 20[3] countries have signed but not yet ratified it. Formal entry into force of the CTBT requires that a specific group of 44 states listed in Annex II of the Treaty ratify it. Eight more ratifications are needed before it can enter into force, including that of four NPT states: China, the Democratic People's Republic of Korea (DPRK), Egypt, India, Iran, Israel, Pakistan, and the United States.

2010



2015



Outstanding ratifications from NPT nuclear-armed states

United States

In May 2011, the US Under-Secretary of State for Arms Control and International Security said "The Obama Administration is preparing to engage the Senate and the public on an education campaign that we expect will lead to ratification of the CTBT."[4] On 6 December 2011, US President Barack Obama welcomed Indonesia's ratification and stated, "The United States remains fully committed to pursuing ratification of the Test Ban Treaty and will continue to engage members of the Senate on the importance of this Treaty to U.S. security. America must lead the global effort to prevent proliferation, and adoption and early entry into force of the CTBT is a vital part of that effort."[5] Secretary of State John Kerry reaffirmed that commitment on 26 September 2014 during the latest Ministerial Meeting of the CTBT.[6]

Since May 2010, the US administration has held informal briefings of Senators and staff on key technical and scientific issues related to the CTBT. However, the change in composition of the US Senate and US House of Representatives following the 2012 and 2014 elections have made any prompt ratification of the CTBT even more unlikely.

China

The 2010 white paper on China's National Defence stated it has strictly abided by its commitment to a moratorium on nuclear testing. Furthermore it has "actively participated in the work of the Preparatory Commission of the Comprehensive Nuclear Test Ban Treaty Organization, and is steadily preparing for the national implementation of the Treaty."[7] However, despite the support for the CTBT, the Chinese government has not yet initiated the ratification process.[8] The 2013 white paper does not address nuclear testing.[9]

Other NPT states

In addition to the two above mentioned NPT nuclear-armed states there are two more states parties to the NPT that are Annex II states that have not yet ratified the CTBT: Egypt and Iran.

Egypt

In 2009, the Egyptian delegation to the UNGA First Committee stated that it has not ratified the CTBT because doing so "would only result in widening the steep gap in commitments undertaken by States member to the NPT and States outside the Treaty which enjoy unlimited freedom in the nuclear area."[10] In 2011, the Egyptian delegation made it clear that Egypt would not ratify the Treaty without a change in Israeli policy with regard to nuclear weapons. No change in the Egyptian position has been reported.

Iran

At the Fifth Conference on Facilitating the Entry into Force of the CTBT in 2007, Iran outlined a number of negative developments that "have jeopardized the prospects of entry into force of the Treaty," including lack of progress towards nuclear disarmament, upgrading and modernization of existing nuclear weapons, rejection of the CTBT by some nuclear-armed states, and acknowledgement of the possession of nuclear weapons by Israel.[11] No change in the Iranian position has been reported.

CTBT Conferences

Since the 2010 NPT Action Plan was adopted, three Ministerial Meetings of the CTBT (September 2010, September 2012, and September 2014) and two CTBT Article XIV Conferences (September 2011 and September 2013) were held in New York on the margins of the UN General Assembly (UNGA). These meetings concluded with joint statements, which reaffirmed the commitment of the parties to the CTBT and called upon the states that had not yet ratified the Treaty to do so.[12]
During the 2013 CTBT Article XIV Conference, a Group of Eminent Persons was launched on 26 September 2013. The Group consists of 17 eminent personalities and international experts whose goal is to support and complement efforts achieve the CTBT's entry into force. The Presidents of the Article XIV Conference will also be members of the group.[13] In April 2014, the Group met in Stockholm, Sweden, to discuss ways to promote the CTBT.[14]

Verification

Pending the entry into force of the Treaty, the Preparatory Commission of the CTBTO is establishing a verification regime to detect nuclear explosions anywhere on the globe. The CTBTO detected a nuclear test explosion in the Democratic People's Republic of Korea (DPRK) on the morning of 12 February 2013 and could inform its member states with data one hour before the DPRK's announced its test.[15]

From 28 November to 9 December 2011, over 60 participants including International Monitor Station (IMS) operators, National Data Centre staff, diplomats, academics, and members of civil society attended the Advanced Science Course on the verification technologies of the CTBT. In total, participants from more than 100 different countries followed the event.[16] Furthermore, the CTBTO continues to host various other trainings and workshops on verification related issues.[17]

From 3 November to 9 December 2014, the CTBTO's most sophisticated on-site inspection was conducted in Jordan, searching and area of nearly 1000 square kilometres using 15 of the 17 techniques permissible under the CTBT. The so-called Integrated Field Exercise, IFE14, took place after four years of preparation and involved 150 tonnes of specialised equipment and over 200 international experts.[18]

However, the CTBTO Preparatory Commission lists several key challenges for the completion of the verification regime. For example, stations intended for India and Pakistan cannot be started until these two countries sign the CTBT.[19]

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19 The future role of the International Monitoring System, CTBTO Preparatory Commission, 2011; http://www.ctbto.org/verification-regime/building-theinternational-monitoring-system/the-future-role-of-theinternational-monitoring-system/ (retrieved 2014-02-24).

Nuclear Material

Action 15:

All States agree that the Conference on Disarmament should, within the context of an agreed, comprehensive and balanced programme of work, immediately begin negotiation of a treaty banning the production of fissile material for use in nuclear weapons or other nuclear explosive devices in accordance with the report of the Special Coordinator of 1995 (CD/1299) and the mandate contained therein. Also in this respect, the Review Conference invites the Secretary-General of the United Nations to convene a high-level meeting in September 2010 in support of the work of the Conference on Disarmament.

Action 16:

The nuclear-weapon States are encouraged to commit to declare, as appropriate, to the International Atomic Energy Agency (IAEA) all fissile material designated by each of them as no longer required for military purposes and to place such material as soon as practicable under IAEA or other relevant international verification and arrangements for the disposition of such material for peaceful purposes, to ensure that such material remains permanently outside military programmes.

Action 17:

In the context of action 16, all States are encouraged to support the development of appropriate legally binding verification arrangements, within the context of IAEA, to ensure the irreversible removal of fissile material designated by each nuclear-weapon State as no longer required for military purposes.

Action 18:

All States that have not yet done so are encouraged to initiate a process towards the dismantling or conversion for peaceful uses of facilities for the production of fissile material for use in nuclear weapons or other nuclear explosive devices.

Action 40:

The Conference encourages all States to maintain the highest possible standards of security and physical protection of nuclear materials and facilities.

Action 41:

The Conference encourages all States parties to apply, as appropriate, the IAEA recommendations on the physical protection of nuclear material and nuclear facilities (INFCIRC/225/Rev.4 (Corrected)) and other relevant international instruments at the earliest possible date.

Action 42:

The Conference calls on all States parties to the Convention on the Physical Protection of Nuclear Material to ratify the amendment to the Convention as soon as possible and encourages them to act in accordance with the objectives and the purpose of the amendment until such time as it enters into force. The Conference also encourages all States that have not yet done so to adhere to the Convention and adopt the amendment as soon as possible.

Action 43:

The Conference urges all States parties to implement the principles of the revised IAEA Code of Conduct on the Safety and Security of Radioactive Sources, as well as the Guidance on the Import and Export of Radioactive Sources approved by the IAEA Board of Governors in 2004.

Action 45:

The Conference encourages all States parties that have not yet done so to become party to the International Convention for the Suppression of Acts of Nuclear Terrorism as soon as possible.

Action 58:

Continue to discuss further, in a non-discriminatory and transparent manner under the auspices of IAEA or regional forums, the development of multilateral approaches to the nuclear fuel cycle, including the possibilities of creating mechanisms for assurance of nuclear fuel supply, as well as possible schemes dealing with the back-end of the fuel cycle without affecting rights under the Treaty and without prejudice to national fuel cycle policies, while tackling the technical, legal and economic complexities surrounding these issues, including, in this regard, the requirement of IAEA full scope safeguards.

Action 61:

Encourage States concerned, on a voluntary basis, to further minimize highly enriched uranium in civilian stocks and use, where technically and economically feasible.

Fissile materials in the Conference on Disarmament (CD)

The stalemate over the adoption of a programme of work in the CD has continued since the adoption of the 2010 NPT Action Plan. As a consequence, no negotiations of a fissile material cut-off treaty (FMCT) have been undertaken in the CD, though some discussions have taken place on the margins.

In 2011, along with CD plenary discussions on an FMCT, Australia and Japan co-hosted expert-level talks seeking to define key aspects of a treaty, including what would be considered fissile material and what constitutes production of such material. These events were arranged in order to "build confidence about FMCT and momentum towards FMCT negotiations in the CD on the basis of CD/1299 and the mandate contained therein." Many delegations participated with experts from capitals, but not all CD delegations participated. A report from the discussions was submitted as an official document by the delegation of Japan to feed into the work of the CD.[1]

In 2012 CD plenary discussions on a FMCT continued.[2] On 29–30 May and 28–29 August 2012, Germany and the Netherlands held Scientific Expert meetings on "Technical Issues Related to a Fissile Material Cut-Off Treaty (FMCT),"[3] which saw participation of around 45 government, and representatives of the United Nations Office for Disarmament Affairs (UNODA), the International Atomic Energy Agency (IAEA), the European Commission (Euratom), and the United Nations Institute for Disarmament Research (UNIDIR). The meetings looked at some clearly defined important technical issues that negotiators will be faced with when dealing with an FMCT in the future, and a report from the meetings was submitted to the CD.[4]

Fissile materials in the UNGA First Committee

At the UNGA First Committee 2012, Canada presented A/RES/67/53, "Treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices". The resolution requests the UN Secretary-General (UNSG) to seek the views of member states on a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices in 2013 and establishes a group of governmental experts (GGE) to meet for two weeks in 2014 and two weeks in 2015 "to make recommendations on possible elements of such a treaty."[5] It will report back to the First Committee in October 2015.

The resolution as a whole was adopted with a vote of 148-1-20.[6] Pakistan was the only country to vote no, arguing that the proposal to set up a GGE is "ill-advised" and "adds no value to the substance of the envisaged treaty."[7] The Chinese delegation abstained on the entire resolution since it did not "specify that the CD is the only place where negotiations of an FMCT can take place"[8] and the Russian delegation argued it did not believe that a GGE would contribute to solving the issue that has complicated negotiations of a fissile material, and therefore abstained on the specific paragraph that set up the GGE while supporting the rest of the resolution. The other three NPT nuclear-armed states supported the resolution and the GGE.[9]

In this context and as requested in paragraph 2 of the resolution, the UNSG sought the views of member states on a treaty banning the production of fissile material for nuclear weapons or other explosive devices and compiled a report to present at the 68th session of the UNGA. In total 37 member states[10] and the European Union have submitted their views for this report contained in document A/68/154.[11] They address the questions of

definitions, verification, the possible role of the IAEA, the scope of the treaty, in particular the inclusion of existing stocks of fissile material, and the significance of the treaty for the nuclear disarmament and non-proliferation agenda.[12]

At the UNGA First Committee session in 2013 the resolution was been turned into a draft decision recalling previous resolutions on this matter and welcoming the report by the UNSG on the issue, as the process for the GGE was still on-going. It was adopted by a vote of 172-1-5.[13] Pakistan reiterated its position regarding the commencement on an FMCT and the GGE and voted against. The DPRK, Egypt, Israel, Syria, and Zimbabwe abstained.[14] In 2014 the draft decision was adopted with 173-1-5.[15]

During its 2014 session, the Chair of the GGE, Ambassador Elissa Golberg of Canada, reported to the UNGA First Committee session on the progress made. The group met on three occasions in Geneva in 2014 and 2015[16] and focused on technical details of definitions, scope and verification as well as explored questions related to the legal arrangements and institutional structure that could form part of a future treaty.[17] It will meet again from 23 March - 2 April 2015, to finalise the work and agree on the report to be submitted to the 2015 UNGA First Committee.

Declaration of excess fissile material for military use[18]

Between 1996 and 2002, the Russian Federation, the United States, and the IAEA launched the Trilateral Initiative. This initiative was dedicated to examining the technical, legal, and financial issues associated with IAEA verification of fissile materials determined to be excess to military purposes. Included in the Trilateral Initiative were discussions on a possible legal instrument through the Voluntary Offer Agreements.[19] Since the end of 2002, when the Bush administration made it clear that the US would withdraw its participation,[20] no significant steps have been taken to put the Trilateral Initiative, or any similar agreements, into action. There is no information available concerning this initiative.

In 2000 Russia and the US signed the Plutonium Management and Disposition Agreement (PMDA), which was finalized in 2010. Both states committed to eliminate 34 tonnes of excess weapon-grade plutonium and ensure that the plutonium is irreversibly removed from stockpiles for military use. The agreement also calls on both states to implement monitoring and inspection activities. The US monitors the key stages of the Russian process in the programmes facilities and Russia will conduct visits to the US facilities to ensure that LEU is not diverted from civilian use. The agreement also opens up for IAEA verification once appropriate agreements with the IAEA are concluded,[21] but as of yet the IAEA is not involved in any activities.[22]

The global stockpile of highly enriched uranium (HEU) in 2010 was 1475±125 metric tonnes and 485±10 tonnes separated plutonium.[23] In January 2013, global stocks of HEU had decreased to around 1380±125 tonnes while stockpiles of separated plutonium now are estimated to be 495±10 tonnes, of which about 260 tonnes is the material in civilian custody.[24]

About 98% of the global stockpile of HEU is held by the NPT nuclear-armed states, the largest being in the United States and the Russian Federation. The stockpile of separated plutonium for weapons continues to increase because of production in Israel, India, and Pakistan. The DPRK appears to have resumed production. The United Kingdom, France, Russia, and Japan have accumulated the largest civilian plutonium stockpiles.[25] According to the International Panel on Fissile Material, the global civilian stockpile of separated plutonium now exceeds the military stockpile.[26]

More recently, the Nuclear Security Summits have triggered efforts to reduce existing levels of HEU and separated plutonium, yet these fail to include military stockpile.[27] Consequently, at the latest Nuclear Security Summit, a group of fourteen states has therefore called for a comprehensive approach to nuclear security.[28]

Russia

In 1996 Russia declared 500 tonnes excess HEU as a part of the US-Russian HEU-LEU deal. On 14 November 2013 the last shipment of low enriched uranium (LEU) under this agreement left Russia.[29] The remaining HEU in Russia adds up to about 695±120 tonnes.[30] Its stockpile of weapons plutonium is estimated to be about 128±8 tonnes.[31] Russia has also declared up to 50 tonnes weapon grade plutonium to be eliminated as excess material. Out of these 50 tonnes, 34 tonnes are included in the PMDA. Russia has not yet started building the designated fuel fabrication plan that will eliminate the plutonium; it is estimated that the programme will start in 2018.[32]

United Kingdom

The United Kingdom has an estimated stockpile of 21.2 tonnes of HEU. According to estimates by IPFM, 0.7 tonnes of this HEU may have been consumed through fission in the UK's nuclear powered attack submarines and ballistic-missile submarines. The UK has also declared that 1.4 tonnes are for civilian use.[33] In 1998, the UK declared 0.3 tonnes of weapon-grade plutonium and informed that it would, together with 4.1 tonnes of non-weapon grades material, place this under IAEA safeguards. It has not been reported that any such safeguard agreement has been concluded and the UK has not proceeded to eliminate any of this material yet.[34] However, it includes in the annual declaration of civilian material made under the IAEA INFCIRC/549 agreement the 4.4 tonnes of plutonium declared surplus for military requirements. This material has been placed under European Atomic Energy Community (EURATOM) safeguards and is also designated for IAEA safeguarding.[35]

United States

The current estimated HEU stock of the US is 595 tonnes. It has declared more than 370 tonnes of HEU as excess, both in 1996 and 2005.[36] By the end of 2012 approximately 141 tonnes of HEU had been down blended. With an estimated HEU down-blending rate of 3–4 tonnes per year, the down-blending of the remaining HEU already declared excess is planned to take at least until 2050.[37] In June 2012, the US published a declaration of its historical production, consumption and losses to waste of plutonium until 30 September 2009. In this update, the US reports a plutonium stock of 95.4 tonnes. In addition to the declared 49.3 tonnes of plutonium excess to its military necessities, the US has 34 tonnes included in the PMDA. The elimination is estimated to begin in 2025 and it will take 13 years to eliminate the 34 tonnes of plutonium. However, according to the IPFM the programme is facing problems.[38]

China and France

France and China have not declared any military nuclear material as excess. However, France declared a stockpile of 4.7 tonnes of civilian HEU to the IAEA in 2012.[39]

Dismantling of production facilities for fissile material for military use

Pending the conclusion of an FMCT, most NPT nuclear-armed states have concluded a unilateral political declaration – a moratorium – on production of fissile material for weapons use. Most production facilities for weapons-grade fissile materials in the five NPT weapon states are therefore shut down and, in some cases, are in the process of being decommissioned. However, this is not verified and very little concrete information is available.

France has invited international experts to visit the dismantling of its former fissile material facilities at Pierrelatte and Marcoule, though this took place before the 2010 NPT Action Plan was adopted. It is the only NPT nuclear-armed state to have organised such a visit.

Russia ended the production of fissile materials for nuclear weapons in 1994. Ten out of Russia's thirteen plutonium production reactors were shut down by 1992. Of the three remaining facilities, the Zeleznogorsk was the last to be closed down on 15 April 2010.[40]

The Nuclear Decommissioning Authority of the United Kingdom announced in July 2012 the planned closure by 2018 of its THORP reprocessing plant, at Sellafield.[41]

The United States has a number of shutdown reprocessing facilities, including the Nuclear Fuel Services' West Valley plant near Buffalo, New York; a plant near Morris, Illinois; a PUREX reprocessing plant in Hanford, Washington that was shut down in 1989; the Idaho Chemical Processing Plant; and the Savannah River site.[42]

China is the only NPT nuclear-armed state that has not officially declared a moratorium on HEU and plutonium production for weapons. However, it is believed that China ceased its production of HEU in 1987 and of plutonium by about 1990. All of its previous military production facilities are reported to be closed, converted, or decommissioned.[43]

Nuclear Security

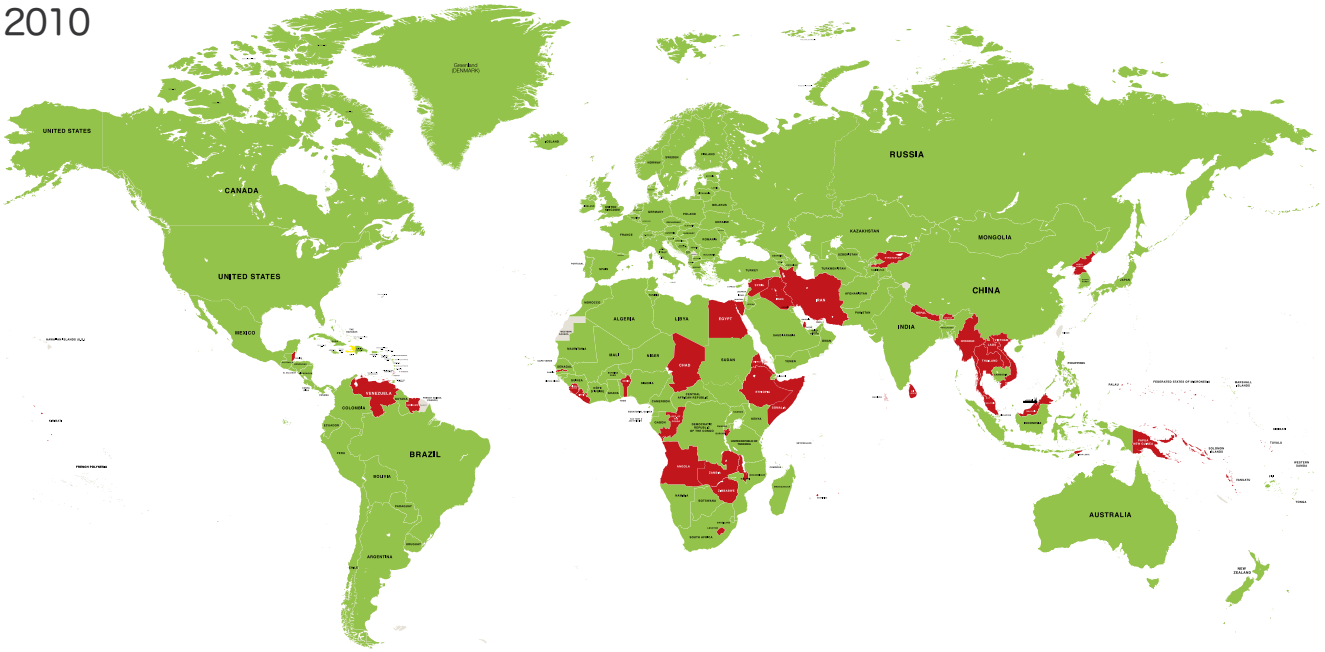
International Security Standards

The IAEA has identified the following instruments as fundamental for nuclear security:[44]

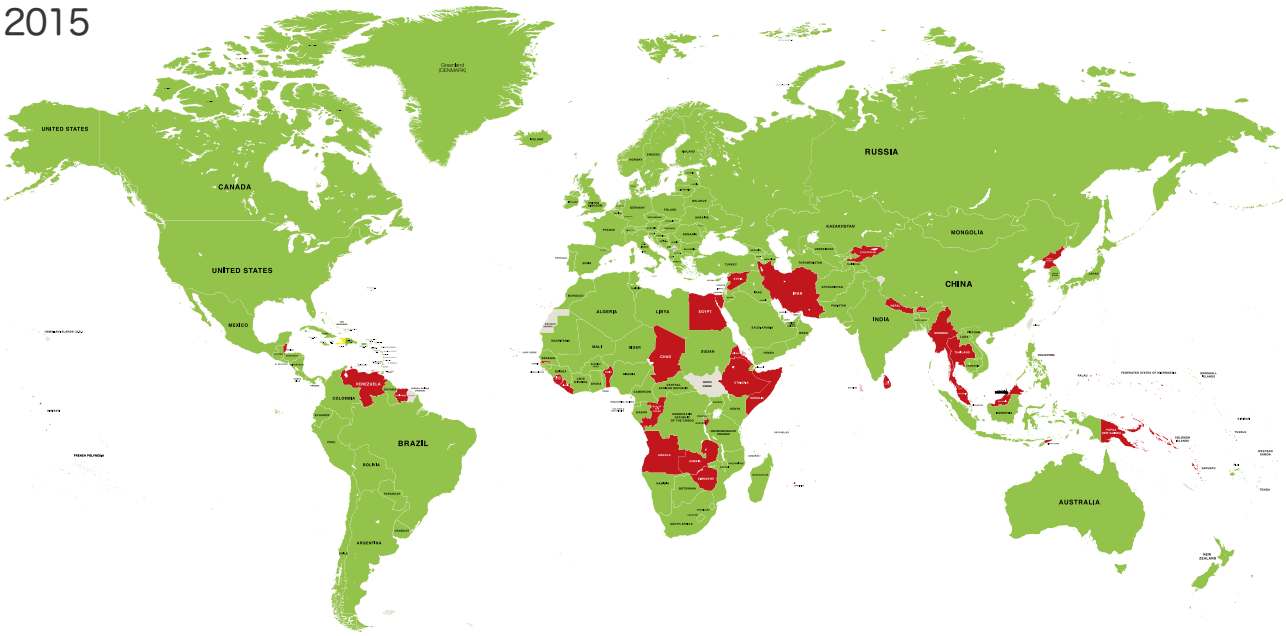
- Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment (2005);
- International Convention for the Suppression of Acts of Nuclear Terrorism (Nuclear Terrorism Convention);
- UN Security Council resolutions 1373 (2001) and 1540 (2004);
- Code of Conduct on Safety and Security of Radioactive Sources;
- Physical Protection Objectives and Fundamental Principles;
- INFCIRC/225/Rev.4 (Corrected);
- Nuclear Security – Measures to Protect Against Nuclear Terrorism, 2006 GC(50)/13; and
- UN Security Council resolution 1887 (2009), nuclear security and terrorism.

Convention on the Physical Protection of Nuclear Material (CPPNM)[45]

2010



2015



Amendment to Convention on the Physical Protection of Nuclear Material

From 4–8 July 2005, the IAEA held a "CPPNM Amendment Conference" where an amendment to the treaty was adopted. It makes it legally-binding for states parties to protect nuclear facilities and material in peaceful and domestic use, and in storage as well as transport.[46] For the amendment to enter into force, two-thirds of the states parties to the Convention have to ratify, accept, or approve the amendment. At the time of the conclusion of the NPT RevCon in May 2010, 36 contracting parties to the CPPNM had ratified the amendment. Since then, 48[47] additional countries have ratified or accepted it. However, 68 states[48] are parties to the Convention but have not yet ratified the amendment.[49]

- Parties: 83
- States parties to the Convention that have not yet ratified the amendment: 68

United Nations instruments to combat nuclear terrorism

Both the International Convention for the Suppression of Acts of Nuclear Terrorism[50] and the 2006 Measures to Protect Against Nuclear Terrorism[51] focus on the danger of proliferation of nuclear material into the possession of so-called non-state actors.

The UN General Assembly adopted the International Convention for the Suppression of Acts of Nuclear Terrorism on 13 April 2005.[52]It entered into force on 7 July 2007 and currently has 115 signatories and 90 parties.[53]States parties to the Convention have the obligation to establish the offences within the scope of the Convention as criminal offences under their national laws. They are also required to establish jurisdiction, both territorial and extra-territorial, over the offences set forth in the Convention and to cooperate with each other in the exchange of information.[54]

International Convention for the Suppression of Acts of Nuclear Terrorism

Since May 2010, the Convention has 32 new parties.[55] 44 states have signed the Convention but not yet ratified it.[56]

- Parties: 99
- Signatories: 115
- Changes since May 2010: Afghanistan (25 March 2013 ratification), Armenia (22 September 2010 ratification), Australia (16 March 2012 ratification), Bahrain (4 May 2010 accession), Canada (21 November ratification), Chile (27 September 2010 ratification), China (8 November 2011 ratification), Costa Rica (21 February 2013 ratification), Cote d'Ivoire (12 March 2012 accession), Democratic Republic of the Congo (23 September 2010 accession), Djibouti (25 April 2014 ratification), France (11 September 2013 ratification), Indonesia (30 September 2014 ratification), Iraq (13 May 2013 accession), Jamaica (27 December 2013 ratification), Kuwait (5 September 2013 accession), Lesotho (22 September 2010 ratification), Malta (26 September 2012 ratification), Nauru (24 August 2010 accession), Netherlands (30 June 2010 acceptance), Nigeria (25 September 2012 accession), Norway (20 February 2014 ratification), Portugal (25 September 2014 ratifications), Qatar (15 January 2014 ratification), Republic of Korea (29 May 2014 ratification), San Marino (16 December 2014 ratification), St. Lucia (12 November 2012 accession), St. Vincent and the Grenadines (8 July 2010 accession), Sweden (18 August 2014 ratification), Tunisia (28 September 2010 accession), Turkey (24 September 2012 ratification), Yemen (13 October 2014 ratification)

On 28 September 2012, the UN Secretary-General held a high-level meeting on countering nuclear terrorism on the margins of the UN General Assembly. The outcome of the meeting resulted in a Chair's summary.[57]

United Nations Security Council instruments

UN Security Council (UNSC) resolution 1373[58] on "Threats to international peace and security caused by terrorist acts" was adopted under Chapter VII of the UN Charter on 28 September 2001[59] and UNSC resolution 1540[60] on the non-proliferation of weapons of mass destruction was adopted unanimously under Chapter VII of the UN Charter on 28 April 2004.[61]

The UNSC extended the mandate of resolution 1373 (2001) three times until 25 April 2021.[62] In 2010, the 1540 Committee adopted revised procedures to rationalize, improve, and accelerate response to assistance requests and facilitate matchmaking.[63] The UNSC also adopted the 10th programme of work, for 1 June 2011 to 31 May 2012, for the 1540 Committee, in S/2011/380. The Committee will focus its attention on five main areas of work: (i) monitoring and national implementation; (ii) assistance; (iii) cooperation with international organizations, including the Security Council Committees established pursuant to resolutions 1267 (1999) and 1373 (2001); (iv) transparency and media outreach; and (v) administration and resources.

The UNSC adopted resolution 1977 on 20 April 2011. The resolution is a follow-up to UNSC resolution 1540. The resolution extends the mandate of the 1540 Committee to monitor efforts to prevent WMD from being acquired by terrorists or other non-state actors for another 10 years.[64]

Through resolution 1540, the UNSC called upon all states to present to the 1540 Committee a first report, not later than six month from the adoption of the resolution, i.e. 28 October 2004, on steps they have taken or intend to take to implement this resolution. Since the conclusion of the 2010 NPT RevCon, several countries have submitted reports[65] and some have made requests for assistance. There has also been a significant amount of workshops and outreach activities done by the 1540 Committee. A full list of these activities can be found at the 1540 Committee website.[66]

In February 2012 a review of the implementation of resolution 1540 in 2011 was transmitted to the UNSC stating an "upward

trend in progress made by States in implementing resolution 1540."[67] A report reviewing the implementation of the resolution 1540 in 2012 has noted further progress, however, more efforts are needed to improve e.g. implementation, capacity-building, and cooperation with other organisations.[68]

Handling of radioactive sources

The IAEA Code of Conduct on the Safety and Security of Radioactive Sources[69] was approved by the IAEA Board of Governors (BoG) in September 2003.[70] While not covering nuclear material addressed in the CPPNM,[71] the Code applies to all other radioactive sources "that may pose a significant risk to individuals, society and the environment."[72]

The supplementary Guidance on the Import and Export of Radioactive Sources[73] was approved by the IAEA BoG in September 2004.[74] It recommends the designation of a point of contact in every state, responding to a self-assessment questionnaire developed by the IAEA, and that states should become parties of the Convention on Nuclear Safety in accordance with operative paragraph 8 of GC(48)/RES/10/D.

119 states have expressed their support for the Code in a letter to the Director General of the IAEA.[75] 58 countries explicitly support all aspects of the supplementary Guidance on the Import and Export of Radioactive Sources.[76] Most states have designated a national point of contact for radioactive sources; however, 14 states have not yet done so.[77] Numerous states have not responded at all to the IAEA self-assessment questionnaire.[78]

Physical Protection Objectives and Fundamental Principles

The "Physical Protection Objectives and Fundamental Principles" are the result of the work of a Working Group appointed by the Informal Open-ended Expert Meeting convened by the Director General of the IAEA from 2001. The group agreed on four objectives[79] and twelve principles[80] to complement the CPPNM and the recommendations contained in INFCIRC/225/Rev.4 (Corrected).[81]Measuring implementation of these objectives and principles is beyond the scope of this report; however, they seem to be included in the work of member states and the IAEA.

INFCIRC/225/Rev.4 (Corrected)

The IAEA recommendations on the physical protection of nuclear material and nuclear facilities (INFCIRC/225/Rev.4) were published in 2005.[82] In 2011 the IAEA published a fifth revised version.[83] The fifth version is intended to assist member states in further implementing a comprehensive physical protection regime. As the document does not entail a legal commitment and does not require signature and ratification of member states, it is difficult to assess compliance levels.

IAEA GC(50)/13 (2006) Nuclear Security – Measures to Protect Against Nuclear Terrorism

IAEA document GC(50)/13 contains the Annual Report by the Director General on "Nuclear Security – Measures to Protect Against Nuclear Terrorism" and the Agency's activities to that end. In an annex to that report the Director General lists fifteen guidelines and documents, which were being prepared for the IAEA "Nuclear Security Series."[84] Since then further publications for that series were prepared by the IAEA. After the adoption of the NPT Action Plan in 2010, the Agency has published six recommendations and guides on nuclear security.[85]

UN Security Council Resolution 1887 (2009)

In September 2009 the UN Security Council adopted resolution 1887 after a meeting on nuclear non-proliferation and disarmament. The resolution focuses on strengthening existing non-proliferation measures, the reduction of existing weapons stockpiles, and the control of fissile material.[86] At the time it was described as an historic agreement, but has since been integrated in the greater nuclear security agenda and not received specific attention.

Other initiatives in the field of nuclear security

Nuclear Security Summit process

Just before the 2010 NPT RevCon, US President Obama hosted the first Nuclear Security Summit (NSS), which resulted in a joint communiqué and a work plan.[87] the implementation of this plan is on-going; some recommendations also deal with illicit trafficking of nuclear materials.

The follow-up meeting held in Seoul, Republic of Korea in March 2012 focused on discussing how to strengthen the international nuclear security regime to prevent nuclear terrorism. The final communiqué of the 2012 Summit translates the outcome from the Washington meeting in 2010 into concrete actions and provides measures to prevent nuclear and radiological terrorism.[88] Some of these actions include: "minimization of highly enriched uranium (HEU); ratification of relevant international agreements on nuclear security such as the amended Convention on Physical Protection of Nuclear Material and International Convention for the Suppression of Acts of Nuclear Terrorism; and the establishment of Centre's of Excellence to provide relevant training and education."[89]

The most recent meeting on 25–25 March 2014 in the Hague, Netherlands built on the work of the previous two summits and addressed ways to prevent nuclear terrorism by "maintaining effective security of all nuclear and other radioactive materials; reducing the amount of nuclear material in the world; improving the security of nuclear material and radioactive sources; [and] improving international cooperation."[90] The meeting resulted in new agreements including the commitment to try to limit the quantity of fissile material, the recognition that the use of nuclear

forensics is an important tool to tackle criminal misuse of nuclear materials, on the importance of increased cooperation with the IAEA and governments and businesses need to work closely together regarding industrial uses of nuclear materials.[91] The next and probably final meeting will be in Washington in 2016.

G7/G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction

The partnership was first initiated at the G8 summit in 2002 and again renewed in 2011.[92] It aims to prevent terrorists and "rogue nations" from acquiring weapons of mass destruction by securing nuclear and radiological materials, biosecurity measures, engagement of weapons scientists in the field of nonproliferation, and implementation of the UNSCR 1540.[93] In addition to the G7/G8 members, non-members including Australia, Belgium, the Czech Republic, Denmark, Finland, Ireland, Netherlands, New Zealand, Norway, Poland, South Korea, Sweden, and Switzerland are participating in the work.[94]

Proliferation Security Initiative (PSI)

This initiative aims to stop shipments of biological, chemical, and nuclear weapons, as well as means of delivery and goods that could be used to produce or deliver such weapons, to terrorists and countries suspected of trying to acquire weapons of mass destruction. PSI is an informal arrangement among countries. Since May 2010, PSI has carried out a set of workshops on both regional and bilateral levels and for new members.[95] By 2013, the PSI has grown to include the endorsement of 102 nations.[96] A political high-level meeting celebrating the 10-year-anniversary of the PSI was held 27–28 May 2013 in Warsaw. During this meeting states agreed to steps to further the initiative.[97]

Global Initiative to Combat Nuclear Terrorism

The Global Initiative to Combat Nuclear Terrorism (GICNT) is an international partnership of 85 nations and four official observers who are committed to working individually and collectively to implement a set of shared nuclear security principles "encompassing the full spectrum of deterrence, prevention, detection, and response objectives"[98]. The initiative's Implementation and Assessment Group currently has working groups on nuclear detection, nuclear forensics, and response and mitigation for crises or emergencies. Since May 2010, the GICNT has welcomed nine new partner countries[99] and has carried out different activities on a regular basis.[100]

Global Threat Reduction Initiative (GTRI)

The GTRI is an initiative that is working towards reducing and protecting nuclear and radiological material of civilian sites worldwide. Its activities include converting research reactors and isotope production facilities from the use of HEU to LEU, removing and/or disposing of excess nuclear and radiological materials, and protecting high-priority nuclear and radiological materials from theft.[101]

According to an updated list from the 5 January 2015 the list of shipments of research reactor fuel under the GTRI agreement to the United States does not include any new shipment since December 2012.[102]

World Customs Organization (WCO)

The Working Group on Border Management established under the United Nations Counter-Terrorism Implementation Task Force held its inaugural session at WCO headquarters from 11 to 12 January 2011. The Working Group will compile a compendium of international instruments, standards, recommended practices, and guidance material, which will be made available to all UN member states in support of their efforts to address terrorist threats at borders.[103]

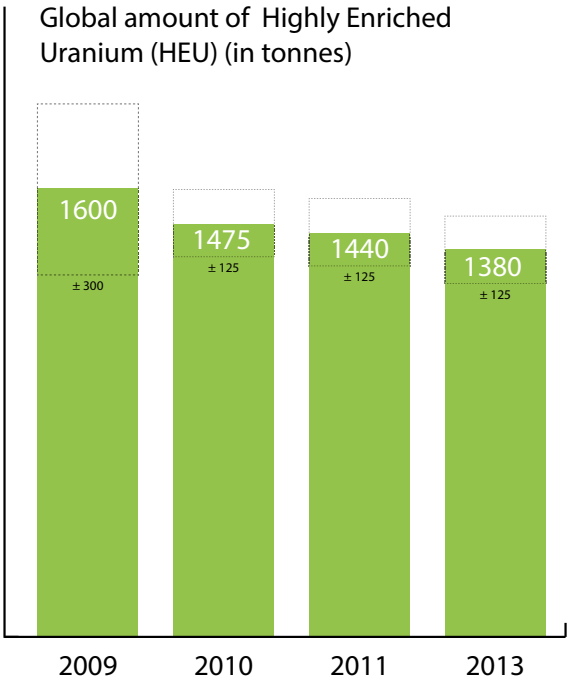
Meetings on nuclear security

The first International Regulators Conference on Nuclear Security was held on 4–6 December 2012 in Washington, DC. The conference was hosted by the United States Nuclear Regulatory Commission and was direct result of the 2012 Nuclear Security Summit. Regulators discussed how to enhance regulatory approaches at civilian facilities and the establishment of the adequate regulatory framework.[104]

UN Secretary-General Ban Ki-moon convened a high-level meeting on counter terrorism in New York on 28 September 2012 with a specific focus on strengthening the legal framework. The session was organised by the Counter-Terrorism Implementation Task Force Office and was attended by 130 states discussing possible ways beyond the UNSC resolution 1540 (2004) and the already existing conventions. Apart from strengthening t he legal framework to prevent nuclear terrorism, the meeting's objective was to enhance capacity-building efforts to assist states in ensuring the effective implementation of their international obligations.[105]

On 1–5 July 2013, the IAEA hosted an International Conference on Nuclear Security. The conference was attended by 125 member states and 21 organisations and discussed "past, present and future of nuclear security world".[106] It addresses in detail various aspects of nuclear security such as the enhancement of nuclear security regimes, the security of radioactive sources and detection and response architecture.[107] The results of the meeting will also serve as input for the preparation of the IAEA's next Nuclear Security Plan for 2014–2017.[108] In the Ministerial Declaration released in the context of the conference, member states reaffirmed the primary responsibility of the state with regard to maintaining effective security of all nuclear material under their control, which includes nuclear material used for military purposes. Russia was the only country to express a "reservation" on this specific point.[109] Furthermore, they encouraged states to make use of the existing assistance mechanism of the IAEA and to join the relevant conventions.[110] The IAEA held many meetings and conferences to address aspects of nuclear security during 2014.[111] The IAEA will organize another ministerial meeting on nuclear security on December 2016.[112]

Highly Enriched Uranium[113]



Source:
Global Fissile Material Report 2010, 2011, and 2013
International Panel on Fissile Materials.

There have been efforts both on national and international levels to reduce the use of HEU. The global amount of HEU decreased from about 1600±300 metric tonnes in 2009[114] to 1475±125 metric tonnes in 2010, to 1440±125 tonnes in 2011, and further down to 1380±125 tonnes in 2013.[115] However, separating civil and military use of HEU is difficult. According to the International Panel on Fissile Materials (IPFM), 30 countries have at least 1 kilogram of HEU in their civilian stock.[116]

Reductions of HEU stockpiles

Some countries have recently taken measures to reduce their HEU stockpiles.

- Poland: In September 2010, 354.8 kg of uranium and 11.2 kg of plutonium was transferred from Poland to Russia. All HEU will be eliminated from Polish territory and the remaining shipments are planned for 2012, and 2015 or 2016.[117]
- Serbia: In December 2010, the US announced the removal of 13 kg of Russian-origin HEU spent fuel from the Vinca Institute of Nuclear Sciences in Serbia. The shipment is the culmination of an eight-year effort to remove all HEU from Serbia and makes that nation the sixth country to eliminate all of its HEU since April 2009.[118]
- China confirmed its MNSR-Shandong reactor, a HEU research reactor, was shutdown in December 2010.[119]
- Ukraine: At the Seoul 2012 Nuclear Security Summit, Ukraine announced that it has completed the removal of enriched uranium from the country's territory.[120]
- Czech Republic, Mexico, and Viet Nam have converted research reactors using HEU fuel to LEU fuel.[121]
- Between April 2010 and March 2012 the US has down-blended about 10.5 metric tonnes of HEU.[122]
- Kazakhstan in 2013 eliminated 33 kilograms of HEU at the Institute of Nuclear Physics in Almaty by down-blending the material into low-enriched uranium at the Ulba Metallurgical Plant.[123] In 2014 it removed an additional 36 kg of spent HEU fuel and committed to eliminate its entire HEU stock.[124]
- Belgium, France, the Netherlands, and the United States have a joint project to convert the production of medical isotope molybdenum-99 from the use of HEU targets to LEU targets.[125]
- In December 2012 US-origin HEU was successfully returned from Austria. After the removal of this fuel no HEU remains in Austria.[126]
- 72.8 kilograms of HEU spent fuel were successfully removed from the Institute of Nuclear Physics in Tashkent, Uzbekistan, in August 2012. No HEU remained at the Institute.[127] In April 2013 the NNSA announced that it had removed all HEU from the Czech Republic.[128]
- During the International Conference on Nuclear Security in July Vietnam announced that it had with the support of Russia and the US removed all HEU from Vietnam.[129]
- In November 2013 the US Department of Energy announced that all HEU had successfully been removed from Hungary in a joint effort with Russia and the IAEA.[130]
- Italy: In March 2014, the US and Italy announced a removal of "all eligible fresh HEU and plutonium" from Italy.[131]
- Japan: The US and Japan announced they would remove all plutonium and HEU from the Fast Critical Assembly in JAERI Tokai Research Establishment.[132]

Several other national initiatives to promote reductions of HEU are reported in the national progress reports from the 2012 Nuclear Security Summit.[133]

An IAEA international working group[134] of commercial experts was launched in August 2010, as a result of the "Consultancy on Conversion Planning for Mo-99 Production Facilities from HEU to LEU".[135] Their efforts aim to identify areas of potential multilateral collaboration in support of HEU to LEU conversion at/by the current major producers: NTP, Covidien, AECL/Nordion, and IRE, keeping in mind that processing technology is considered business confidential by all major producers. The group will support the consideration of LEU-based production by future producers such as the facility in Dimitrovgrad, Russia. A technical representative from NIIAR (Russia) participated in the IWG kick-off meeting. Three areas of work were identified during the first meeting.[136] The Coordinated Research Project (CRP)[137] on Developing Techniques for Small Scale Indigenous Mo-99 Production Using Low Enriched Uranium (LEU) was initiated in 2005. Currently, eight agreement holders and six contract holders are either developing local production capabilities or supporting the development work of others.[138]

Norway and Austria together with the Nuclear Threat Initiative hosted the second International Symposium on the Minimisation of HEU on 23–25 January 2012. The meeting was a follow-up to the first symposium in June 2006. It focused on the minimisation of HEU in civilian uses around the world and facilitated a dialogue about different efforts to minimise and eventually eliminate the use of HEU in the civilian sector. Participants reviewed the progress made so far and addressed challenges the possessors of the biggest HEU stocks, the US and Russia are facing in their reduction efforts.[139]

Low Enrichment Uranium reserves

IAEA LEU bank

In 2006, the Nuclear Threat Initiative, a private US organization, pledged $50 million for an IAEA low-enriched uranium bank to secure LEU supplies, on the condition that IAEA member states donate another $100 million and that the IAEA BoG approve the plan. Pledges from the US, the EU, Kuwait, the UAE, Norway have been contributing to meet the $100 million goal.[140] So far, Kazakhstan is the only country that has declared an interest in hosting the bank. The IAEA and the government of Kazakhstan are discussing the necessary technical matters.[141]

On 3 December 2010, the IAEA BoG agreed to establish a nuclear fuel bank, endorsing a long discussed proposal without a dissenting vote from any of the 35 members.[142] This new plan will set up a reserve of LEU under IAEA control.

LEU Guaranteed Reserve

On 27 November 2009, the IAEA BoG approved the initiative of the Russian Federation to establish a reserve of LEU for the supply of LEU to the IAEA for its member states.[143] The fuel bank's operator, Rosatom, announced on 1 December 2010 that the fuel bank stores 120 tonnes of low-enriched uranium.[144]

As of 3 February 2011 the LEU reserve in Angarsk is available to all IAEA member states.[145] The Ukraine and Armenia have purchased 10% in shares each of the International Uranium Enrichment Centre that hosts the LEU reserve.[146]

Nuclear Fuel Assurance

The United Kingdom put forward a proposal during the IAEA BoG meeting in March 2011 aiming to assure the availability of nuclear fuel. It includes provisions that a supplier state promise "not to interrupt the supply of enrichment services (to a recipient state) for non-commercial reasons."[147] Unlike the IAEA LEU reserve in Angarsk or the planned LEU bank in Kazakhstan, this proposal does not include the stockpiling of fuel. Instead supplier and recipient come to a contractual agreement guaranteeing an uninterrupted supply. The IAEA BoG adopted the proposal on 10 March 2011.[148]

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148 Board of Governors Closes March Deliberations, IAEA, 10 March 2011.

Nuclear safety

Action 57:

Ensure that, when developing nuclear energy, including nuclear power, the use of nuclear energy must be accompanied by commitments to and ongoing implementation of safeguards as well as appropriate and effective levels of safety and security, consistent with States' national legislation and respective international obligations.

Action 59:

Consider becoming party, if they have not yet done so, to the Convention on Nuclear Safety, the Convention on Early Notification of a Nuclear Accident, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, the International Convention for the Suppression of Acts of Nuclear Terrorism, the Convention on the Physical Protection of Nuclear Material, and to ratify its amendment so that it may enter into force at an early date.

Action 62:

Transport radioactive materials consistent with relevant international standards of safety, security and environmental protection, and to continue communication between shipping and coastal States for the purpose of confidence-building and addressing concerns regarding transport safety, security and emergency preparedness.

Action 63:

Put in force a civil nuclear liability regime by becoming party to relevant international instruments or adopting suitable national legislation, based upon the principles established by the main pertinent international instruments.

Action 64:

The Conference calls upon all States to abide by the decision adopted by consensus at the IAEA General Conference on 18 September 2009 on prohibition of armed attack or threat of attack against nuclear installations, during operation or under construction.

Safety problems

Japan's Fukushima Dai-ichi Nuclear Power Station accident in 2011 raised concerns over the safety of nuclear energy facilities worldwide. Though Japan has an advanced nuclear energy industry, this accident highlighted many dysfunctions in the management of such facilities, the design of construction or the cooling systems, and the lack of independence of the Japanese Nuclear Safety Commission.

As a consequence the Japanese government[1] suggested actions to be taken to address the safety problems, varying from reassessing the danger posed by earthquakes and tsunamis, redesigning safety structures, and securing the power supply and alternative cooling systems in case of an accident, to the enhancement of training responding to severe accidents. It also suggested that the Japanese Nuclear Safety Commission should separate from Ministry of Economy, Trade and Industry. In June 2012, the Nuclear Regulation Authority was established.[2]

The IAEA has had two international missions to Japan to support the remediation of the large contaminated areas, first in 2011 and a follow up in 2013. The last outcome report from the 2013 mission states that while Japan has "achieved good progress in the remediation activities," there are also several areas needing further improvement, "taking into account both international standards and the experience of remediation programmes in other countries."[3] Currently the IAEA is working on a Fukushima Report - to be discussed at the forthcoming June 2015 IAEA Board of Governors - that is intended to ensure that this kind of accident never happens again.[4]

Incident reporting IAEA - Nuclear Events Web-based System (NEWS)

The NEWS-database provides a short summary of the event together with the corresponding International Nuclear and Radiological Event Scale (INES) rating, which rates nuclear and radiological events according to their safety significance and has designated National Officers for reporting and contact purpose.[5] However reporting differs from state to state and consistency of INES ratings of incidents at the lower level is not given.[6]

In 2014, Peru, United States, France, Switzerland, Sri Lanka, Norway, Ukraine, Pakistan, Belgium, India, and Italy reported 16 accidents to the IAEA system.[7]

EU stress test

As a reaction to the accident at Fukushima, the European Union (EU) decided to review the safety of all EU nuclear plants on the basis of "comprehensive and transparent risk and safety assessments."[8] The Western European Nuclear Regulators' Association (WENRA) of the European Nuclear Safety Regulators Group (ENREG) put forward a proposal on 23 March 2011 for stress tests on European nuclear power plants.[9] On 1 June 2011 operators started reviewing their facilities.[10]

On 4 October 2012 the European Commission released the results of the stress test report.[11] The tests reviewed the safety of 132 reactors on 58 sites currently active in Europe. The report showed a significant list of deficiencies.[12]

As a response to the European stress tests, Greenpeace commissioned a "Critical Review of the EU Stress Test performed on Nuclear Power Plants". The review discusses important shortcomings of the EU stress tests based on national reports and peer reviews, making an important contribution to a more complete understanding of nuclear power plant safety.[13]

On 13 June 2013 the European Commission announced that legally-binding reviews will take place every six years. Member states will agree on specific topics and a common methodology for the reviews, which will be conducted by multinational teams.[14]

In July 2014 the European Council revised its directive on nuclear safety that aims to limit the consequences of a potential nuclear accident as well as to address the safety of the entire lifecycle of nuclear installations, such as siting, design, construction, commissioning, operation and decommissioning, as well as including on-site emergency preparedness and response.[15]

Statements, resolutions, and conferences

On 26–27 May 2011, the G8 met in Deauville, France, and agreed on a declaration on "Renewed commitment for freedom and democracy". In this declaration, the G8 and the EU adopted a whole chapter on nuclear safety, emphasizing that nuclear safety should be addressed as a top priority on the G8 agenda.[16]

On 7 June 2011, the G20 adopted different measures on strengthening nuclear safety. Those measures were discussed at the IAEA Ministerial Conference on Nuclear Safety that took place on 20–24 June 2011 in Vienna. The elements of the final declaration of the Conference were turned into an Action Plan on Nuclear Safety negotiated by the IAEA member states during the summer 2011. The Action Plan was finally adopted by the IAEA Board of Governors and endorsed by the IAEA General Conference in September 2011.[17]

However, the Chair's conclusions on the item related to this issue notes that some members expressed the need to address the current global nuclear safety regime through a more ambitious, stringent, and binding action plan. It was also noted by some member states that the action plan should be further developed, reviewed, and updated in the light of the progress made and the concrete results achieved by its implementation.

On 22 September 2011, UN Secretary General Ban Ki-moon organized a high-level meeting on nuclear safety and security in New York. However, the meeting did not result in a fruitful debate.[18]

In August 2012 states parties to the Convention on Nuclear Safety (CNS) decided to set up a working group to make proposals to strengthen the CNS.[19] The sixth CNS review meeting took place 24 March–4 April 2014 and contracting parties approved the modifications of the CNS Guideline documents in order to enhance internal cooperation and greater consistency in reporting. The also decided to organize a diplomatic conference to discuss a Swiss proposal to amend the CNS to address the design and construction of both existing and new nuclear power plants.[20]

On February 9, 2015, the diplomatic conference took place in Vienna. Following the opposition of key nuclear countries[21] to amend the CNS the contracting parties decided to adopt the Vienna Declaration on Nuclear Safety.[22] The Declaration contains the elements of the Swiss proposal as well as a process requesting the contracting parties to report on their implementation of the measures contained in the Vienna Declaration.[23]

From 15–17 December 2012 an International Ministerial Conference on Nuclear Safety was held in Fukushima to discuss lessons learned from the Fukushima Dai-ichi accident.[24] Participants took part in three working sessions dealing with the progress of international efforts aimed at strengthening nuclear safety, including through the implementation of the IAEA action plan of June 2011, as well as of measures to protect people and the environment from ionizing radiation.[25] States were encouraged to utilise the existing IAEA safety standards, since the implementation of these instruments and thus prevention of further accidents are the most effective way to strengthen nuclear safety. The meeting also highlighted the need for communication to the public and coordination amongst involved organisations after a nuclear or radiological emergency.[26]

On 17 September 2013 the European Commission and the IAEA signed a memorandum of understanding on nuclear safety establishing a framework of understanding for cooperation to help improve nuclear safety in Europe. Different forms of cooperation, such as expert peer reviews, are summarised under this framework to allow both organisations to benefit of the work of the other and help avoid duplication of effort.[27]

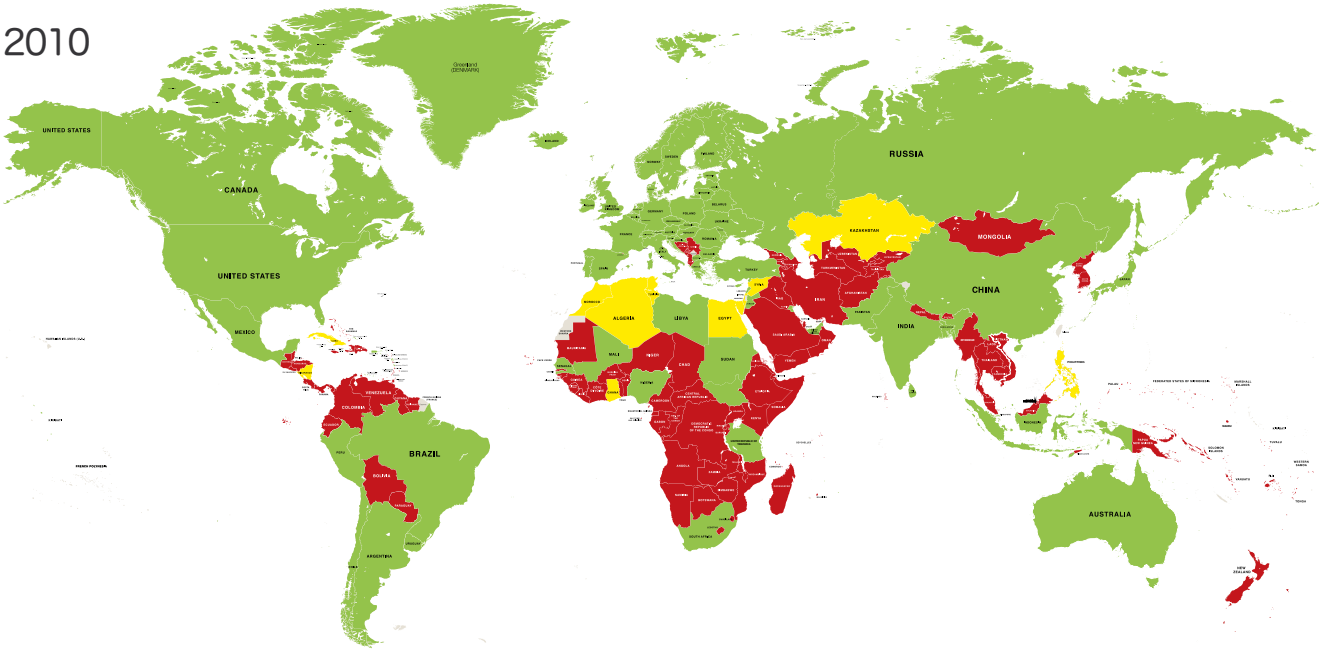
As in previous years the IAEA held various workshops and trainings addressing different aspects of nuclear safety in 2014.[28]

Adherence to nuclear safety conventions

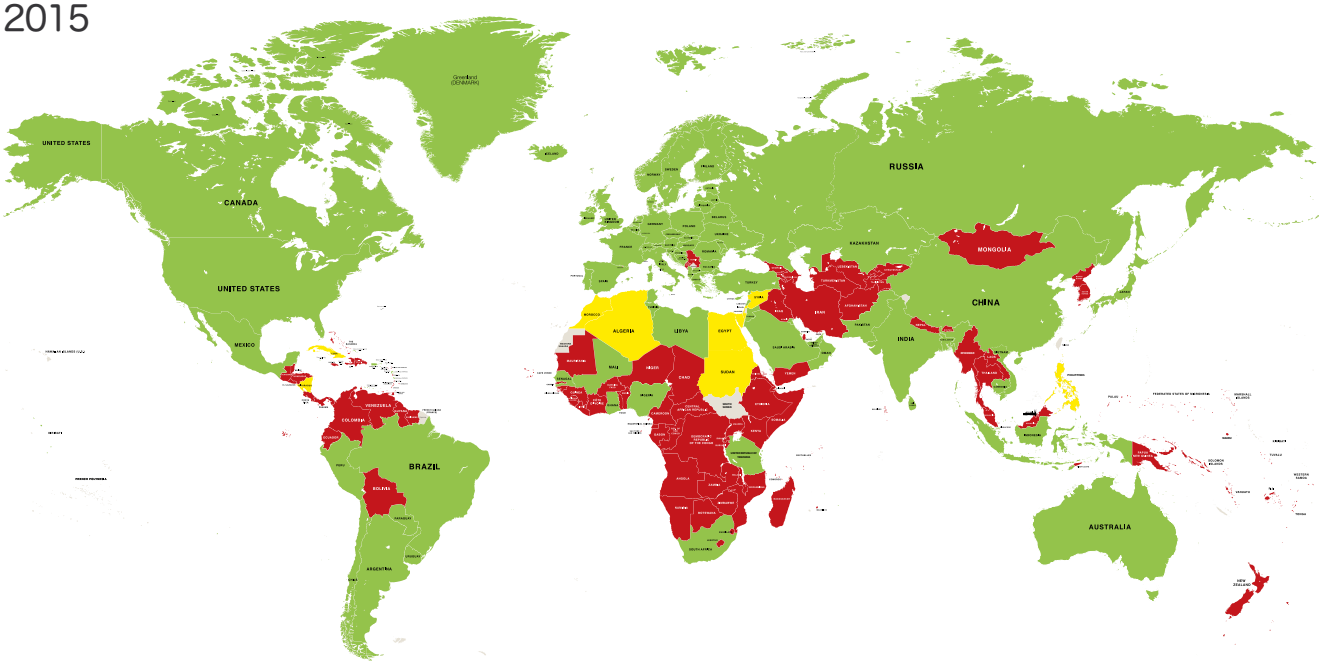
The commitment in action 59 is relatively weak and only obliges states to "consider" becoming a party to relevant treaties. Since the Fukushima disaster, this action is considered in a new light. Despite its voluntary nature, nuclear safety and security is becoming increasingly important and more attention to these conventions and instruments is essential.

Convention on Nuclear Safety:[29]

2010



2015



Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency:

- Parties: 112
- Signatories: 68
- Changes since May 2010: Botswana (11 December 2011 entry into force), Lao P.D.R. (9 June 2013 entry into force), Lesotho (17 October 2013), Mauritania (19 October 2011 entry into force), Paraguay (8 March 2013 entry into force), Tajikistan (23 October 2011 entry into force), Burkina Faso (6 September 2014 entry in to force)

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management:

- Parties: 69
- Signatories: 42
- Changes since May 2010: Albania (27 September 2011 entry into force), Armenia (20 August 2013 entry into force), Bosnia and Herzegovina (31 October 2012 entry into force), Chile (25 December 2011 entry into force), Gabon (2 July 2010 entry into force), Ghana (30 August 2011 entry into force), Indonesia (30 June 2011 entry into force), Kazakhstan (08 July 2010 entry into force), Malta (15 December 2013 entry into force), Mauritania (18 December 2011 entry into force), Mauritius (14 July 2014 entry into force), Montenegro (07 November 2010 entry into force), Republic of Moldova (24 May 2010 entry into force), Oman (26 August 2013 entry into force), Saudi Arabia (18 December 2011 entry into force), Vietnam (7 January 2014 entry into force)

Convention on Early Notification of a Nuclear Accident:

- Parties: 119
- Signatories: 69
- Changes since May 2010: Bahrain (4 June 2011 entry into force), Botswana (11 December 2011 entry into force), Burkina Faso (6 September 2014 entry into force), Cambodia (5 May 2012 entry into force), Dominican Republic (29 May 2011 entry into force), Georgia (05 November 2010 entry into force), Lao P.D.R. (9 June 2013 entry into force), Lesotho (17 October 2013 entry into force), Mauritania (19 October 2011 entry into force), Paraguay (8 March 2013 entry into force), Tajikistan (1 October 2011 entry into force), Venezuela (22 October 2014 entry into force)

Transportation of radioactive materials

Most transports of radioactive materials occur between the different stages of the nuclear fuel cycle. Usually materials will be transported in solid form and under the existing regulations. The objective of these regulations is the protection of "people and environment from the effects of radiation during the transport of radioactive material."[30]

The IAEA General Conference adopts annually a resolution on "Measures to Strengthen International Cooperation in Nuclear, Radiation, Transport and Waste Safety". The part of the resolution that focuses on transport of nuclear material, as in previous years, urges states that do not have national regulatory documents governing the transport of radioactive material to adopt and implement such documents expeditiously, and urges all member states to ensure that such regulatory documents are in conformity with the current edition of the IAEA's transport regulations.[31]

A Transport Safety Conference was held on 17–21 October 2011 in Vienna to encourage application of appropriate levels of safety and security during transport. The IAEA Transport Safety Standards Committee continues to meet twice a year and has held various trainings meetings regarding transport safety every year since 2010.[32]

During the UN General Assembly General Debate in October 2010, the Caribbean Community (CARICOM) expressed concerns about the continuing "transhipment of nuclear and toxic waste through the Caribbean Sea." It reiterated "strenuous and forceful rejection of the continued use of the Caribbean Sea for the shipment or transhipment of nuclear waste" and called for "a full cessation of this activity in the Caribbean."[33] CARICOM continues to call for states engaged in the transportation of these hazardous materials should enact the necessary domestic legislation to give effect to the provisions of the IAEA Transport Regulations. CARICOM also reiterated its calls for on-going dialogue between shipping states and states in the Caribbean region prior to the transhipment of radioactive materials.[34] In 2011, 2012, 2013, and 2014 CARICOM repeated their concerns during First Committee sessions.[35]

Nuclear liability

Since 2010, only a few states have reported amendments of their nuclear liability legislation.[36]

During the IAEA General Conference in September 2010, Austria expressed interest in the creation of a global nuclear liability regime, noting that the conventions under discussion offered less protection for possible victims than the Austrian regulations that are already in place. Austria also highlighted that "the maximum liability amounts laid down in the Paris and Vienna Conventions were inadequate and that the principle of channelling liability claims was unsatisfactory."[37] France called upon all states to recognize the importance of universalizing a civil nuclear liability regime.[38] The EU said it was examining the various legal regimes in the area of nuclear liability within the EU and possible improvements at the European level.[39] In that connection the European Commission for Energy has held consultations with the public regarding "Insurance and compensation of damages caused by accidents of nuclear power plants (nuclear liability)". The results of these consultations, however, are not yet publicly available.[40]

Since national legislation for civil nuclear liability regimes for 189 states parties to the NPT is difficult to access and examine within the scope of this report, we have chosen to look at the main international instruments for civil nuclear liability. With regards to such international civil liability regimes, moderate progress has been achieved.

Adherence to the nuclear liability regimes (changes since May 2010):

- 1960 Paris Convention, 1964 Additional Protocol, 1982 Protocol and 2004 Protocol: Norway (signed 2004 protocol: 26 November 2010).
- Vienna Convention on Civil Liability for Nuclear Damage: Jordan (entry into force: 27 April 2014), Kazakhstan (entry into force: 29 June 2011), Mauritius (entry into force: 15 July 2013), Saudi Arabia (entry into force: 17 June 2011).
- Protocol to amend the Vienna Convention on Civil Liability for Nuclear Damage: Bosnia and Herzegovina (entry into force: 1 June 2013), Jordan (entry into force: 27 April 2014), Kazakhstan (entry into force: 29 June 2011), Montenegro (entry into force: 4 June 2011), Poland (entry into force: 21 December 2010), Saudi Arabia (entry into force: 17 June 2011), United Arab Emirates (entry into force: 29 August 2012)
- Convention on Supplementary Compensation for Nuclear Damage: Canada (signature: 3 December 2013), India (signature: 27 October 2010), Japan (signature: 15 January 2015), Mauritius (signature: 24 June 2013), Senegal (signature: 20 September 2011), Argentina (entry into force: 15 April 2015), Japan (entry into force: 15 April 2015), Morocco (entry into force: 15 April 2015), Romania (entry into force: 15 April 2015), United Arab Emirates (entry into force: 15 April 2015), United States (entry into force: 15 April 2015)
- 1963 Brussels Supplementary Convention, 1964 Additional Protocol, 1982 Protocol: no progress since May 2010. The 2004 Protocol: (entered into force 24 November 2010)
- Joint Protocol Relation to the Application of the Vienna Convention and the Paris Convention: France (entry into force: 30 July 2014) and United Arab Emirates (entry into force: 29 November 2012)

The Vienna Convention, the Paris Convention and the Brussels Convention are currently in a process of harmonizing their practices concerning the exclusion of small quantities of nuclear releases.

Attack against nuclear installations

The 2011 IAEA General Conference considered agenda item 24 tabled by Iran and entitled "Prohibition of armed attack or threat of attack against nuclear installations, during operation or under construction". The General Conference adopted GC(XXIX)/RES/444 and GC(XXXIV)/RES/533, which noted that "any armed attack on and threat against nuclear facilities devoted to peaceful purposes constitutes a violation of the principles of the United Nations Charter, international law and the Statute of the Agency." A thorough discussion was held on all aspects of the issue. Member states recognized the importance attached to safety, security, and physical protection of nuclear material and nuclear facilities and, in that regard, expressed their views on the importance they attached to the protection of nuclear installations. They also noted the need to have the Agency involved in early notification and assistance in cases of radioactive release from nuclear installations.

Israel and the US have repeatedly suggested that with regard to preventing Iran from acquiring a nuclear weapon, every option available, including the military option, remained possible. Any such military action would be in violation of international law generally. In particular it would violate UNGA resolution A/RES/36/27 adopted on 13 November 1981, following the Israeli aggression against Iraqi nuclear installations.

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2 See '20 June 2012' in *Background of the Reform of an Organization in charge of Nuclear Safety Regulation,* Nuclear Regulation Authority, http://www.nsr.go.jp/english/e_nra/outline/03.html (retrieved 2014-02-17).

3 IAEA, *The Follow-up IAEA International Mission on Remediation of Large Contaminated Areas Off-Site the Fukushima Daiichi Nuclear Power Plant, October 2013:* www.iaea.org/sites/default/files/final_report230114.pdf (retrieved 2015-02-05).

4 The report was to be finalized by year-end 2014, but has not yet been published before this publication went to print.

5 The list of reported events since May 2010 can be accessed on the IAEA's Information Channel on Nuclear and Radiological Events, http://www-news.iaea.org/EventList.aspx?pno=0&sc=EventDate&ps=100 (retrieved 2015-02-05).

6 IAEA - News Communication Channel, *Issue Brief: Reporting Nuclear and Radiological Events,* August 2008; http://www-ns.iaea.org/downloads/iec/issuebriefs-ines-news.pdf (retrieved 2014-02-17).

7 For more details about individual incidents and earlier incidents please refer to 2014 version of this report and the INES database: www-news.iaea.org

8 Western European Nuclear Regulators Association (WENRA), *WENRA Proposal – 'Stress tests' specifications,* 21 April 2011; http://www.wenra.org/media/filer_public/2012/08/30/stresstestsspecifications2011-04-21.pdf (retrieved 2014-02-17).

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11 European Commission, COM(2012) 571 final, *Communication from the Commission to the Council and the European Parliamenton the comprehensive risk and safety assessments ("stress tests") of nuclear power plants in the European Union and related activities,* 4 October 2012; http://ec.europa.eu/energy/nuclear/safety/doc/com_2012_0571_en.pdf (retrieved 2014-02-17).

12 47 European Commission, IP/12/1051, *Nuclear stress tests: confirmation of high safety standards but need for further improvement,* 4 October 2012; http://europa.eu/rapid/press-release_IP-12-1051_en.htm (retrieved 2014-02-17).

13 A. Wenisch & O. Becker, *Critical Review of the EU Stress Test performed on Nuclear Power Plants,* Greenpeace, May 2012; http://www.greenpeace.org/eu-unit/Global/eu-unit/reports-briefings/2012%20pubs/Pubs%202%20Apr-Jun/Critical%20Review%20of%20the%20EU%20Stress%20Test%20.pdf (retrieved 2015-02-07).

14 European Commission, IP/13/532, *EU Nuclear Stress Tests: Legally binding reviews every six years,* 13 June 2013; http://europa.eu/rapid/press-release_IP-13-532_en.htm (retrieved 2014-02-17).

15 COUNCIL DIRECTIVE 2014/87/EURATOM of 8 July 2014 amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations; http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2014.219.01.0042.01.ENG (retrieved 2015-02-18). Also see here for more information: Nuclear safety, European Commission on Energy website, http://ec.europa.eu/energy/en/topics/nuclear-energy/nuclear-safety.

16 D*eauville G8 Declaration: Renewed commitment for freedom and democracy,* G8 Summit, 26-27 May 2011.

17 The Action Plan consists of 12 actions that aim to strengthen the global nuclear safety framework:

- Undertake safety assessments;
- *Strengthen IAEA peer reviews;*
- Strengthen emergency preparedness and response;
- Strengthen national regulatory bodies;
- Strengthen operating organizations;
- Review and improve IAEA safety standards;
- Improve the international legal framework;
- Facilitate infrastructure for new nuclear programmes in member states;
- Strengthen and maintain capacity building;
- Ensure protection from ionizing radiation;
- Enhance transparency and effectiveness of communication; and
- Effectively utilize research and development.

18 Statements, documents and a report on the HLM are available at http://www.reachingcriticalwill.org/disarmament-fora/others/high-level-meeting-on-nuclear-safety-and-security; also see 2012 NPT Action Plan Monitoring Report.

19 2nd Extraordinary Meeting of the Contracting Parties to the Convention on Nuclear Safety, CNS/ExM/2012/04/Rev.2, *Final Summary Report*, 31 August 2012; http://www.iaea.org/Publications/Documents/Conventions/cns-summaryreport310812.pdf (retrieved 2014-02-17).

20 Sixth Review Meeting of the CNS, Press Release, 4 April 2014; www.ns.iaea.org/downloads/ni/safety_convention/cns6-press-release.pdf (retrieved 2015-02-06).

21 United States, Russia, as well as to some extend Brazil, Canada, China, India, South Korea, Pakistan, and South Africa.

22 IAEA CNS/DC/2015/2/Rev.1, Vienna Declaration on Nuclear Safety, 9 February 2015;

23 Ibid.

24 IAEA, *The Fukushima Ministerial Conference on Nuclear Safety,* 15-17 December 2012; http://www-pub.iaea.org/iaeameetings/20120216/The-Fukushima-Ministerial-Conference-on-Nuclear-Safety (retrieved 2014-02-17).

25 IAEA, 'Chairperson Summaries' in *The Fukushima Ministerial Conference on Nuclear Safety,* December 2012; http://www-pub.iaea.org/MTCD/Meetings/PDFplus/2012/20120216/20120216_CSummaries.pdf (retrieved 2014-02-17).

26 Ibid.

27 *Memorandum of understanding for a partnership between European and the International Atomic Energy Agency on nuclear safety cooperation,* signed on 17 September 2013, http://ec.europa.eu/energy/nuclear/safety/doc/20130917_ec_iaea_mou_nuclear.pdf (retrieved 2014-02-17).

28 For further information: IAEA Nuclear Safety & Security - *Meetings, conferences and symposia,* http://www-ns.iaea.org/meetings/default.asp?s=10&l=79; and IAEA Nuclear Safety & Security - Training events calendar, http://www-ns.iaea.org/training/calendar.asp?s=9&l=73 (retrieved 2015-02-05).

29 Changes since May 2010: Albania (27 September 2011 entry into force), Bahrain (09 February 2011 entry into force), Bosnia and Herzegovina (16 September 2010 entry into force), Cambodia (4 July 2012 entry into force), Ghana (30 August 2011 entry into force), Kazakhstan (08 June 2010 entry into force), Oman (26 August 2013 entry into force), Paraguay (9 January 2014 accession), Saudi Arabia (16 June 2010 entry into force), Tunisia (20 July 2010 entry into force), Vietnam (15 July 2010 entry into force)

30 Existing international standards for the transport of radioactive materials:

- International Maritime Dangerous Goods Code (IMDG Code).
- IAEA Nuclear Security Recommendations on Physical Protection of Nuclear Materials and Nuclear Facilities INFCIRC 225.
- Chapter on "Requirements for Measures Against Unauthorized Removal and Sabotage of Nuclear Material during Transport".
- The Safety of Life at Sea (SOLAS) Convention.
- International Ship and Port Facility Security Code (ISPS Code).
- IAEA Safety Standards: Regulations for the Safe Transport of Radioactive Material.

31 IAEA GC(54)/RES/7, *Measures to strengthen international cooperation in nuclear, radiation, transport and waste safety,* September 2011, http://www.iaea.org/About/Policy/GC/GC54/GC54Resolutions/English/gc54res-7_en.pdf.

32 IAEA Nuclear Safety & Security - Meetings, conferences and symposia, http://www-ns.iaea.org/meetings/default.asp?s=10&l=79

33 Statement by CARICOM, October 2010, http://www.reachingcriticalwill.org/political/1com/1com10/

34 Statement by CARICOM, May 2010, http://www.un.int/jamaica/NPTReviewConf2010.htm.

35 Jamaica in a separate statement too highlighted its concerns with the issue. See R. Acheson, 'Nuclear energy and the fuel cycle' in *Fist Committee Monitor,* Reaching Critical Will, 2 November 2011, http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/1com/FCM11/FCM-2011-5.pdf (retrieved 2014-02-21).

36 *Canada Nuclear Liability* Act: R.S.C., 1985, c. N-28, An Act respecting civil liability for nuclear damage, 19 September 2012; Finland: *Nuclear Liability Act* (484/1972), entered into force on 1 January 2012 and gives unrestricted liability for nuclear damage occurring in Finland; Germany: Atomic Energy Act: Act on the peaceful utilisation of nuclear energy and the protection against its hazards (Atomic Energy Act) of 23 December 1959, as amended and promulgated on 15 July 1985, last amendment of 24 February 2012 (nuclear phase out); *Slovenia: Act on Liability for nuclear Damage,* Treaty No. 77/2010; Sweden: *The act on liability and compensation* passed by the Swedish parliament in June 2011 gives full liability to the operator of a nuclear facility. It entered into force in January 2011.

37 IAEA GC(54)/OR.3, December, 2010, page 2, http://www.iaea.org/About/Policy/GC/GC54/GC54Records/English/gc54or-3_en.pdf.

38 Ibid.

39 IAEA GC(54)/OR.5, December, 2010, http://www.iaea.org/About/Policy/GC/GC54/GC54Records/English/gc54or-5_en.pdf.

40 European Commission for Energy, Nuclear Energy: Public consultations, 2013, http://ec.europa.eu/energy/nucle

Export control and nuclear cooperation

Action 35:

The Conference urges all States parties to ensure that their nuclear related exports do not directly or indirectly assist the development of nuclear weapons or other nuclear explosive devices and that such exports are in full conformity with the objectives and purposes of the Treaty as stipulated, particularly, in articles I, II and III of the Treaty, as well as the decision on principles and objectives of nuclear non-proliferation and disarmament adopted in 1995 by the Review and Extension Conference.

Action 36:

The Conference encourages States parties to make use of multilaterally negotiated and agreed guidelines and understandings in developing their own national export controls.

Action 37:

The Conference encourages States parties to consider whether a recipient State has brought into force IAEA safeguards obligations in making nuclear export decisions.

Action 38:

The Conference calls upon all States parties, in acting in pursuance of the objectives of the Treaty, to observe the legitimate right of all States parties, in particular developing States, to full access to nuclear material, equipment and technological information for peaceful purposes.

Action 39:

States parties are encouraged to facilitate transfers of nuclear technology and materials and international cooperation among States parties, in conformity with articles I, II, III and IV of the Treaty, and to eliminate in this regard any undue constraints inconsistent with the Treaty.

Action 44:

The Conference calls upon all States parties to improve their national capabilities to detect, deter and disrupt illicit trafficking in nuclear materials throughout their territories, in accordance with their relevant international legal obligations, and calls upon those States parties in a position to do so to work to enhance international partnerships and capacity-building in this regard. The Conference also calls upon States parties to establish and enforce effective domestic controls to prevent the proliferation of nuclear weapons in accordance with their relevant international legal obligations.

Among States Parties

Action 47:

Respect each country's choices and decisions in the field of peaceful uses of nuclear energy without jeopardizing its policies or international cooperation agreements and arrangements for peaceful uses of nuclear energy and its fuel cycle policies.

Action 48:

Undertake to facilitate, and reaffirm the right of States parties to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy.

Action 49:

Cooperate with other States parties or international organizations in the further development of nuclear energy for peaceful purposes, with due consideration for the needs of the developing areas of the world.

Action 50:

Give preferential treatment to the non-nuclear-weapon States parties to the Treaty, taking the needs of developing countries, in particular, into account.

Action 51:

acilitate transfers of nuclear technology and international cooperation among States parties in conformity with articles I, II, III, and IV of the Treaty, and eliminate in this regard any undue constraints inconsistent with the Treaty.

Action 60:

Promote the sharing of best practices in the area of nuclear safety and security, including through dialogue with the nuclear industry and the private sector, as appropriate.

Within the IAEA

Action 52:

Continue efforts, within IAEA, to enhance the effectiveness and efficiency of its technical cooperation programme.

Action 53:

Strengthen the IAEA technical cooperation programme in assisting developing States parties in the peaceful uses of nuclear energy.

Action 54:

Make every effort and to take practical steps to ensure that IAEA resources for technical cooperation activities are sufficient, assured and predictable.

Action 55:

Encourage all States in a position to do so to make additional contributions to the initiative designed to raise 100 million dollars over the next five years as extra budgetary contributions to IAEA activities, while welcoming the contributions already pledged by countries and groups of countries in support of IAEA activities.

Action 56:

Encourage national, bilateral and international efforts to train the necessary skilled workforce needed to develop peaceful uses of nuclear energy.

Direct or indirect assistance

Action 35 does not add any additional obligations aside from what is already in the NPT and previous decisions, but it does serve as a reminder that states are obliged to ensure that their nuclear-related exports do not directly or indirectly assist the development of nuclear weapons and that the 1995 decision on objectives and purposes of the Treaty requires states parties to promote transparency in nuclear-related export controls. The NPT states parties that have concluded nuclear energy cooperation agreements with non-parties to the NPT (see the Universalization section on nuclear cooperation with India, Pakistan, and Israel) do not usually provide transparent information on how such nuclear exports do not directly or indirectly assist the development of nuclear weapons.

Export controls

Action 36 refers to the existing agreed guidelines and understandings. This usually refers to the guidelines of the Nuclear Suppliers Group (NSG) and the Zangger Committee. All member states of these groups are implementing such guidelines in their national legislation concerning nuclear exports.[1] In June 2013 the NSG finalized a review of its trigger and dual-use lists with 28 amendment to keep "pace with advances in technology, market trends and security challenges."[2]

Nuclear cooperation under safeguard agreements [3]

Apart from 12 states,[4] all non-nuclear-armed states parties to the NPT have signed a Comprehensive Safeguards Agreement (CSA). The five nuclear-armed states of the NPT have Voluntary Offer Agreements (VOAs) related to some of their nuclear material and facilities dedicated to peaceful uses of nuclear energy (see chapter on Non-Proliferation Obligations and other Instruments).[5]

Many nuclear cooperation deals have been concluded in the past year between NPT states parties, none involving the 13 states without a CSA in force.[6] For the majority of those deals, the implementation of IAEA safeguard obligations is an explicit part of the agreement. This shows a wide acceptance of IAEA safeguards as a valid verification tool for the peaceful uses of nuclear energy and proliferation prevention.

States non-parties to the NPT

For states non-parties to the NPT, the IAEA concludes so-called item-specific safeguard agreements according to INFCIRC/66/Rev.2 with the concerned state. Instead of covering all the nuclear activities of a state they only apply to the nuclear material, facilities, equipment, and/or materials specified in the agreement. "Under such agreements, the Agency is required to ensure that the nuclear material and other specified items are not used for nuclear weapons or other nuclear explosive devices or in such a way as to further any military purpose."[7] Currently the IAEA is implementing these agreements with India,[8] Israel,[9] and Pakistan. [10] By avoiding defining safeguards obligations, the phrase "brought into force IAEA safeguard obligations" has been interpreted to allow deals with states non-parties to the NPT, since they are implementing the item-specific safeguard agreements on their declared peaceful facilities. Since the adoption of the 2010 NPT Action Plan, several trade agreements between an NPT state and a non-NPT state have been made.[11]

Illicit trade and trafficking of nuclear material[12]

IAEA Instruments

The IAEA has developed several instruments dealing with illicit trade and trafficking of nuclear material:

The IAEA incident and trafficking database (ITDB) records and analyses incidents of illicit trafficking in nuclear and other radioactive material.[13] As of December 2013 the ITDB has 125 states participating in the programme.[14]

EU initiatives

The European Union (EU) carries out a significant amount of activities related to combating illicit trafficking of nuclear material, including:

- In June 2011, the EU's Joint Research Centre (JRC) and its Institute for Transuranium Elements was reported to have carried out research on new methods of analysing radioactive materials to fight illicit trafficking;[15]
- The JRC has also carried out support programmes to the IAEA, where it has developed metrological tools to organisations and laboratories in the nuclear and environmental field.[16]
- In April 2013 the European Commission launched a new European nuclear security-training centre (EUSECTRA) to combat illicit trafficking of nuclear and radioactive materials.[17]

EUROPOL and INTERPOL

Since May 2010, Europol has started or completed different projects and initiatives related to illicit trafficking on nuclear and radiological materials to a greater or lesser extent.[18] Interpol has also implemented some projects in this field.[19]

Newly Independent States (NIS) Nuclear Trafficking Database
The NIS Nuclear Trafficking Database[20] is a project of the Nuclear Threat Initiative (NTI), where researchers are compiling information from hundreds of foreign and domestic news sources as well as from field reports. Since the adoption of the 2010 NPT Action Plan, the NIS Nuclear Trafficking Database has reported several incidents.[21]

Nuclear cooperation

In the context of the NPT, states have debated whether or not language such as that in actions 38 and 39 imply obligations of states with nuclear power to transfer technology to non-nuclear states that are party to the NPT. It is difficult to ascertain systematically how the facilitation of such access has been

achieved in the past or what the reaction to such facilitation has been. These questions are beyond the scope of this report.

However, by examining statements at the IAEA General Conference, IAEA press releases, IAEA reports and documents and statements in UN General Assembly (UNGA) General Debate and its First Committee, we have sought to find any potential critiques or concerns about current procedures of cooperation in the peaceful uses of nuclear energy. Apart from the specific case of Iran under UNSC sanctions, some states have raised the issue in international fora and called for equal treatment of NPT states parties trying to pursue nuclear energy, but no detailed examples have been given.

Existing restrictions on the development and trade of nuclear technology

NSG is a consortium of nuclear supplier countries that seeks to contribute to non-proliferation efforts by drawing up guidelines for the export of nuclear items (List 1) and nuclear-related dual-use items (List 2).[22] It is an informal group and its decisions taken by consensus are not legally-binding.

The Zangger Committee is another group of nuclear supplier states,[23] whose objective is to reach a common understanding on (i) the definition of "equipment or material especially designed or prepared for the processing, use or production of special fissionable material;" and (ii) the conditions and procedures that would govern exports of such equipment or material in order to meet the obligations of article III of the NPT on the basis of fair commercial competition. The Committee is an informal group and its decisions taken by consensus are not legally-binding.

These two export control regimes have been criticized for putting additional restrictions on nuclear technology exports, and thereby effectively preventing countries from participating in the fullest possible exchange of activities for developing peaceful uses of nuclear energy. This criticism has continued after the adoption of the NPT Action Plan.[24]

However, members of these two export control regimes argue that all members of the NPT are able to enjoy the benefits of peaceful uses of nuclear energy "in accordance with their international obligations".[25] What these "international obligations" should consist of is difficult to objectively define without a decision by, for example, an NPT Review Conference. Some members of these export control regimes want to include the IAEA Additional Protocol, together with other decisions from other fora, such as UN Security Council resolutions and resolutions from the IAEA Board of Governors. Others believe that it should only include the original CSA as was agreed upon at the time of the conclusion of the NPT in 1968.

The two groups are facing a direct challenge, as their composition no longer reflects the overall number of states that have the capability to manufacture and export nuclear as well as nuclear-related items. Additionally, the forthcoming question of the inclusion of India in the NSG will cause a debate on the continued relevance of these export control regimes.

Comments in international fora

As in previous years before the 2010 NPT Action Plan was adopted, developing states have used international fora such as the UNGA and the NPT Preparatory Committees to highlight the right of all states to use nuclear technology peacefully. However, most references after May 2010 are generic calls for the "inalienable right" to develop nuclear energy and few countries have specified any incidents of lack of respect for their choices. Such statements have been made at the UNGA general debate, the UNGA First Committee, the IAEA General Conference, as well as the 2012, 2013, and 2014 NPT Preparatory Committees.

On 26–27 May 2011, the G8 met in Deauville, France and agreed on a declaration on "Renewed commitment for freedom and democracy". In this declaration, the G8 declared its support for "the exchange, in conformity with the obligations of the NPT, of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy."

The right to nuclear energy

Actions 47 and 48 are subject to interpretation of both the wording of the specific actions as well as relevant provisions of the NPT itself. However, by examining statements at the IAEA General Conference, IAEA press releases, and IAEA reports and documents, this report has sought to find any potential critiques or concerns about current procedures of cooperation in the "peaceful uses" of nuclear energy. Additionally we reviewed statements delivered during the UNGA and its First Committee as well as the plenary discussions during the 2012, 2013, and 2014 NPT Preparatory Committees. Review Conference. Some states have called for equal treatment of NPT states parties trying to pursue nuclear energy. Others have questioned if the "right" to nuclear energy includes the "right" to the full nuclear fuel cycle, arguing that agreement to forgo enrichment and reprocessing is the nonproliferation "gold standard" for nuclear cooperation agreements.

By examining nuclear energy cooperation between states parties, the scope of the technical cooperation programme of the IAEA and other relevant cooperation arrangements for nuclear energy, we have found no concrete signs that indicate that these actions are not implemented.

Since May 2010, a number of new bilateral agreements have been signed between states parties to the NPT,[26] showing a continued emphasis on nuclear energy cooperation.

Preferential treatment

Under action 50, we looked at the different nuclear deals with non-nuclear-armed states parties to the NPT and nuclear deals with states non-parties to the NPT. The US-India nuclear deal

and the resulting exemption from the NSG for nuclear trade with India were concluded well before the 2010 NPT Action Plan was adopted. However, as this was the first time such a deal was concluded with a state non-party to the NPT, it has set a standard for similar deals.

The agreement has been criticized for the fact that the 45 countries in the NSG have made a decision "on behalf" of the 189 states parties of the NPT.[27] Objections have been raised that the NSG was never given the authority to reinterpret the NPT, overturn NPT decisions, or violate existing international standards. When the NSG waiver was approved in 2008, ten[28] additional states joined the US in approving nuclear trade agreements with India. Since the adoption of the 2010 NPT Action Plan, several new deals and cooperation agreements have been and continue to be concluded between India and other NPT member states.[29]

In addition to these developments, in June 2010, China planned to provide Pakistan with two new nuclear reactors. In March 2011, China announced it was planning to sell further nuclear reactors to Pakistan.[30] In December 2013 the Chinese government committed to loan $6.5 billion to finance the Pakistani nuclear power project.[31] In January 2015, reports emerged that both states are currently discussing a potential deal about building three further nuclear power plants for approximately $13 billion.[32]

For more information on this, please refer to the chapter on universalization.

Facilitating transfer

Action 51 is subject to interpretation of both the wording of the specific actions as well as relevant provisions of the NPT itself. Examining this action would require a more comprehensive examination of the right to "peaceful uses" of nuclear energy, the right of states to apply export restrictions on technologies to prevent proliferation, and how these actions and commitments are interpreted in light of the context and purpose of the NPT itself. Such an examination is beyond the scope of this report. However, nuclear energy cooperation agreements have increased in numbers and more countries are developing nuclear energy infrastructure.[33] During the plenary debate of the 2012 NPT Preparatory Committee the Non-Aligned Movement (NAM) expressed "its deep concern on the continued imposition and/or maintaining of limitations and restrictions on exports to developing countries of nuclear material" and transfer of nuclear technology and international cooperation should be supported and pursued "in good faith and without discrimination".[34] During the 2013[35] and 2014[36] NPT Preparatory Committees, the NAM reiterated its concerns and called for removal of any restrictions on the peaceful uses of nuclear energy or in violation of the NPT.

Sharing of best practices

There has been some effort to promote the sharing of best practices such as:

- **IAEA Technical Cooperation Programmes INT/0/085:** Sharing best practices for the design and management of technical cooperation projects.[37]
- **IAEA Communication Tool InTouch:** Interactive communication platform to enhance communication between actors. It allows registered users to complete and maintain their professional profile online, and to apply for a fellowship, scientific visit, training course or meeting, or for expert/lecturer assignments.[38]
- **G8 Summit:** The Nuclear Safety and Security Group (NSSG) of the G8 submitted its report in May 2011. The NSSG shared best practices and lessons learned in implementing the International Initiative on 3S-Based Nuclear Energy Infrastructure and identified several key findings on safety, security, and safeguards.[39]
- **Nuclear Security Summit:** In the communiqué of the 2012 Nuclear Security Summit in Seoul participating states committed themselves to work closely with the IAEA to encourage cooperation and to share best practices on the management of radioactive sources as well as provide technical assistance to states upon request.[40]

Cooperation within the IAEA

IAEA Technical Cooperation programme

In order to evaluate implementation of "enhancing the effectiveness" and "strengthening" the technical cooperation programme, we have looked at newly established programmes within the IAEA. In this respect, a significant number of new cooperation programmes and training courses have been initiated and implemented since May 2010.[41] The IAEA has published a medium-term strategy from 2012–2017, which addresses some of the issues dealt with in the action plan such as facilitating access to nuclear power and providing effective technical cooperation.[42]

InTouch, the interactive online communication platform for the IAEA technical cooperation community mentioned above, has been operational since 17 February 2011.[43]

IAEA funding

In order to examine the resources of the technical cooperation programme, this report compares the target figure set by the IAEA Board of Governors (BoG) with the pledged amounts by governments and the rate of attainment of those pledged amounts. However, the IAEA does not release pledged amounts or rate of attainment of individual states – only total numbers – with regard to their contributions to the Agency's Technical Cooperation Fund (TCF). It is therefore impossible to make an accurate examination of how individual states parties have acted to ensure that IAEA resources for technical cooperation activities are sufficient, assured, and predictable. It is only possible to make an estimated guess based on the target figure set by the IAEA BoG and the likelihood of states meeting this target.[44]

The TCF is currently being financed through voluntary contributions of member states. During the plenary discussion of the IAEA General Conferences, member states such as Switzerland,[45] Liechtenstein,[46] and the Netherlands[47] suggested the IAEA should apply established UN standards, since technical cooperation is its primary and fundamental task and therefore should be funded under the regular budget.[48] Several developing countries underlined the importance of the technical cooperation programme for developing countries and stressed that it should not be politicized in any way.[49]

In its annual resolution on "Strengthening of the Agency's technical cooperation activities,"[50] the 2010, 2011, 2012, 2013, and 2014 IAEA General Conferences stressed the need to work on achieving the goal of sufficient, assured, and predictable resources for the TCF.[51] In order to do so, the resolution suggested, a working group should comprehensively review the nature of the technical cooperation resources and discuss ways of making the TCF sufficient, assured, and predictable. It should also address the relationship between the levels of the overall budget and the TCF.[52]

In 2011 the BoG decided that a working group on the regular budget and the TCF target should be established in 2013.[53] Accordingly, during a special session on 31 July 2013 the BoG announced it would establish a "Working Group on Financing the Agency's Activities" (WGFAA) after the September General Conference to work on, among other issues, rendering the resources for the TCF "sufficient, assured and predictable".[54] The report[55] from the WGFAA was approved in September 2014 and contains nine recommendations including stressing the importance of maintaining an appropriate balance between the promotional and other statutory activities of the Agency and that Major Programme 6 should be funded appropriately through the Regular Budget.[56]

The Peaceful Uses Initiative

At the 2010 NPT Review Conference, the United States announced that it would supplement support for "peaceful uses" of nuclear energy with $50 million in additional funding over the next five years as part of President Obama's Peaceful Uses Initiative (PUI). Through the PUI, the US has already supported numerous IAEA projects related to human health, food security, water resource management, and nuclear power infrastructure development.[57] In a statement during the IAEA Technical Assistance and Cooperation Committee Meeting on 25–27 November 2013, Ambassador Macmanus announced that the US has contributed $31 million to the PUI. Several other IAEA member states have also announced that they would contribute with funds and joined the initiative.[58] It has become an important tool for extra-budgetary contributions and projects with various departments of the IAEA are on-going.[59]

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40 2012 Seoul Nuclear Security Summit, Seoul Communiqué, 26-27, March 2012, , http://www.thenuclearsecuritysummit.org/userfiles/Seoul%20Communique_FINAL.pdf.

41 For more details info on these programmes and training courses please go to; http://www.iaea.org/technicalcooperation/programme/

42 IAEA, *Medium-Term Strategy* 2012-2017, http://www.iaea.org/About/mts2012_2017.pdf.

43 http://intouch.iaea.org.

44 In June 2010, the BoG recommended the target figure of $86 million for contributions to the Agency's TCF for 2011. This is an increase of $1 million from the previous year. According to the Technical Cooperation Report for 2011 the pledged amount of the TCF reached 89.3% of the target and the rate of attainment was at 86% by 31 December 2011. In June 2011, the BoG recommended the target figure of $88.75 million for contributions to the Agency's TCF for 2012. This is an increase of $2.75 million from the previous year. In the Agency's Annual Report for the TCF noted a 89.3% rate of attainment not including national participation costs, assessed programme costs or miscellaneous income. For 2013 the target figure was fixed at the same amount as 2012, namely $88.75 million. The TCF increase in the rate of attainment to 92.8 percent in 2013. The 2014. For 2014 and 2015 the target figure is fixed at $90.25 million and $91.00 million respectively and that the Indicative Planning Figure for 2016 should not be less than US$ 92 million and that for 2017 not be less than US$ 92.5 million.

45 IAEA GC(54)/OR.3, IAEA, December 2010,

46 Ibid.

47 IAEA GC(54)/OR.5, IAEA, December 2010.

48 IAEA GC(54)/OR.3, IAEA, December 2010.

49 IAEA GC(54)/OR.2, IAEA, January 2011.

50 IAEA GC(58)/RES/12 IAEA, September 2014.

51 Again during the IAEA General Conference in September 2011, September 2012, and September 2013 a resolution *Strengthening of the Agency's technical cooperation activities* was adopted more or less repeating the calls of the previous resolution. Compare IAEA GC(55)/RES/11, IAEA GC(56)/RES/11 and IAEA GC(57)/RES/11.

52 IAEA GC(54)/2, IAEA, August 2011, p. 19

53 IAEA GOV/2011/37.

54 IAEA Division of Public Information, *Board of Governors Recommends 2014-2015 Budget,* 31 July 2013; http://www.iaea.org/newscenter/news/2013/bog310713.html (retrieved 2014-02-12) also: IAEA GOV/2013/30/Rev.1, http://www.iaea.org/About/Policy/GC/GC57/GC57Documents/English/gc57-2_en.pdf (retrieved 2014-02-12).

55 IAEA GOV/2014/49

56 IAEA GC(58)/RES/12

57 U.S. Department of State - *Bureau of Public Affairs, The IAEA Peaceful Uses Initiative and the NPT,* 2012, http://www.state.gov/t/isn/rls/fs/187506.htm (retrieved 2014-02-17).

58 Australia, Brazil, the Czech Republic, France, Hungary, Indonesia, Ireland, Italy, Japan, Kazakhstan, New Zealand, the Republic of Korea, Sweden, the United Kingdom, and the European Commission.

59 Peaceful Uses Initiative, IAEA website: https://www.iaea.org/newscenter/focus/peaceful-uses-initiative.

Non-proliferation obligations and other instruments

Action 24:

safeguards to all source or special fissionable material in all peaceful nuclear activities in the States parties in accordance with the provisions of article III of the Treaty.

Action 25:

The Conference, noting that 18 States parties to the Treaty have yet to bring into force comprehensive safeguards agreements, urges them to do so as soon as possible and without further delay.

Action 26:

The Conference underscores the importance in complying with the non-proliferation obligations, addressing all compliance matters in order to uphold the Treaty's integrity and the authority of the safeguards system.

Action 27:

The Conference underscores the importance of resolving all cases of non-compliance with safeguards obligations in full conformity with the IAEA statute and the respective legal obligations of Member States. In this regard, the Conference calls upon Member States to extend their cooperation to the Agency.

Action 28:

The Conference encourages all States parties, which have not yet done so to conclude and to bring into force additional protocols as soon as possible and to implement them provisionally pending their entry into force.

Action 29:

The Conference encourages IAEA to further facilitate and assist the States parties in the conclusion and entry into force of comprehensive safeguards agreements and additional protocols. The Conference calls on States parties to consider specific measures that would promote the universalization of the comprehensive safeguards agreements.

Action 30:

The Conference calls for the wider application of safeguards to peaceful nuclear facilities in the nuclear-weapon States, under the relevant voluntary offer safeguards agreements, in the most economic and practical way possible, taking into account the availability of IAEA resources, and stresses that comprehensive safeguards and additional protocols should be universally applied once the complete elimination of nuclear weapons has been achieved.

Action 31:

The Conference encourages all States parties with small quantities protocols which have not yet done so to amend or rescind them, as appropriate, as soon as possible.

Action 32:

The Conference recommends that IAEA safeguards should be assessed and evaluated regularly. Decisions adopted by the IAEA policy bodies aimed at further strengthening the effectiveness and improving the efficiency of IAEA safeguards should be supported and implemented.

Action 33:

The Conference calls upon all States parties to ensure that IAEA continues to have all political, technical and financial support so that it is able to effectively meet its responsibility to apply safeguards as required by article III of the Treaty.

Action 34:

The Conference encourages States parties, within the framework of the IAEA statute, to further develop a robust, flexible, adaptive and cost effective international technology base for advanced safeguards through cooperation among Member States and with IAEA.

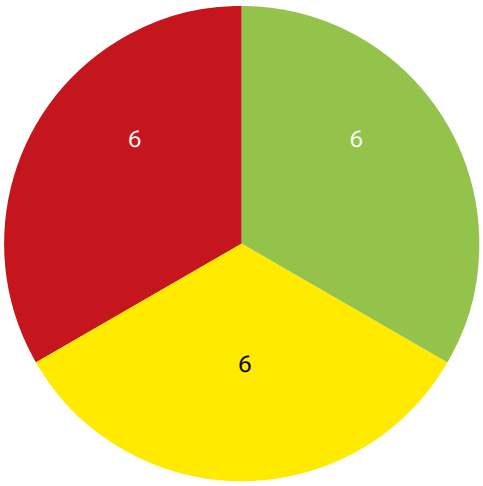
Action 46:

The Conference encourages IAEA to continue to assist the States parties in strengthening their national regulatory controls of nuclear material, including the establishment and maintenance of the State systems of accounting for and control of nuclear material, as well as systems on regional level. The Conference calls upon IAEA Member States to broaden their support for the relevant IAEA programmes.

Non-proliferation obligations

The actions in this section involve some interpretation difficulties. For example, action 24 calls for the application of the IAEA Comprehensive Safeguards Agreement (CSA) in accordance with the provisions of article III of the NPT. Article III states that safeguards are to be "applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere."[1] In this context, states are debating whether safeguards should be interpreted as they were set out in 1968 or in a more comprehensive manner to incorporate the Additional Protocol (AP), for which some states call. As no agreement has been reached by NPT states parties on the interpretation of safeguards in today's context, this report's analysis is based on the view that the safeguards obligations represent the CSA unless the AP is specifically referenced.

Comprehensive Safeguard Agreements



6 out of 18 remaining states have put a comprehensive safeguards agreement into force since 2010

Action 25 specifically calls upon those 18 non-nuclear-armed states that have not yet entered into force CSAs to proceed in doing so. Since May 2010, new CSAs have entered into force in six of those 18 states, leaving only 12 countries without these agreements in place.[2]

Out of those twelve, only five countries – Eritrea, Liberia, Micronesia, Sao Tome and Principe, and Somalia – have not yet submitted CSAs for the consideration of the IAEA Board of Governors (BoG).

The role of the IAEA

The Director General of the IAEA repeatedly calls on states that have not already done so to sign and ratify CSAs and APs. In every introductory statement to the IAEA BoG he reports on the progress made, the signatory of new agreements, developments in the cases of non-compliance, and the IAEA's role.[3]

In its mid-term strategic plan 2012–2017, the IAEA states that it will continue to "encourage Member States to conclude comprehensive safeguards agreements which are in accordance with relevant obligations, and additional protocols, and will provide associated assistance where requested."[4] Further, it will provide states with the necessary guidance and training.[5]

Non-proliferation cases of concern

According to the IAEA, safeguards are successfully implemented in the majority of member states. There are mainly three countries – the DPRK, Iran, and Syria – in which the IAEA says safeguard obligations are not fully complied with.

Democratic People's Republic of Korea

The DPRK no longer considers itself a party to the NPT and therefore argues that it has no obligations under any safeguards agreement. Since April 2009 the IAEA has not had inspectors in the DPRK and since December 2002 it has not been permitted to implement safeguards.[6]

The IAEA's resolutions GC(55)/RES/13, GC(56)/RES/14, GC(57)/RES/14, GC(58)/RES/15 adopted at the 2011, 2012, 2013, and 2014 IAEA General Conferences, urge the DPRK not to conduct further nuclear tests and to comply with its obligations under the UN Security Council (UNSC) resolutions. They also call on the DPRK to come into full compliance with the NPT and to cooperate promptly with the IAEA.

The Director General has urged the DPRK in his introductory statements to BoG meetings to implement all relevant non-proliferation obligations. He also presented a comprehensive report on the IAEA's previous verification activities in the DPRK in September 2011.[7] In his statement to the BoG on 10 September 2012 the Director General declared that apparently progress has been made in the construction of a light water reactor, yet without access to the site the IAEA could not fully assess the situation. He called on the DPRK to fully comply with its obligations.[8]

In February 2012, the new leader Kim Jong-Un announced a moratorium on nuclear and missile tests as well as on uranium enrichment. In exchange, the US government pledged to provide food aid. This agreement became obsolete following the launch of a rocket in April 2012.[9] In May 2012, the new constitution adopted by the DPRK proclaimed its status as "nuclear-armed nation".[10]

On 12 December 2012, the DPRK carried out a new rocket launch. As a response, the UNSC adopted a new resolution (UNSCR 2087). Following that development, the DPRK carried out a third nuclear test on 12 February 2013.[11] The Comprehensive Test-ban Treaty Organisation (CTBTO) detected the test and measured it to be 5.0 in magnitude, around twice as large as the 2009 test (4.52) and considerably larger than the 2006 test (4.1). The location was indicated to be the same as the two previous tests by the DPRK.

In response to the nuclear test of DPRK, the UNSC unanimously adopted resolution 2094 (2013) on 7 March 2013 strongly condemning the test and maintaining sanctions previously imposed along with additional restrictions.[12] Governments further condemned the nuclear test at the 2013 and 2014 NPT Preparatory Committees and the 2013 and 2014 UN General Assembly's First Committee meetings.

In his statement to the IAEA BoG in November 2014 the Director General reiterated his concern with the nuclear programme of the DPRK. The IAEA to this point does not have access to the Yongbyon site and can therefore not determine whether the reactor has been re-started. The Director General repeated his previous calls upon the DPRK to comply with its obligations

under relevant UNSC resolutions and to cooperate promptly with the IAEA by implementing the safeguard agreement as well as resolving all outstanding issues.[13]

Throughout 2014, the DPRK has continued and, according to experts, increased its testing of ballistic missiles and rocket artillery.[14]

Iran

Joint Plan of Action

Agreement between: Iran and E3+3 (China, France, Germany, Russian Federation, United Kingdom, United States)

Date: 24 November 2013 for a period of six months, after two extensions the new deadline is 20 June 2015.

Key commitments:
Iran - not enrich uranium over 5%, dilute half of its stock of 20% enriched uranium stock, not build new locations for the enrichment of uranium, and allow for enhanced monitoring by the IAEA.

E3+3 - suspend US and EU sanctions, refrain from imposing new nuclear-related sanctions by the UN Security Council, EU and the US, and a financial channel to facilitate humanitarian trade for Iran's domestic needs will be established.

In the case of Iran, the IAEA has not found Iran to be in non-compliance with its NPT obligations and continues to verify the non-diversion of declared nuclear materials and activities at Iran's nuclear facilities, in accordance with Iran's CSA. However, the IAEA asserts that Iran has "not fully implemented its binding obligations"[15] and that the "full implementation of these obligations is needed to establish international confidence in the exclusively peaceful nature of Iran's nuclear programme."[16]

Since the 2010 NPT RevCon, three resolutions regarding Iran's nuclear programme have been adopted: IAEA BoG resolution GOV/2011/69, IAEA BoG resolution GOV/2012/50, and UNSC resolution SC/1929.

Since the 2010 NPT Action Plan, more than 20 reports have been produced by the IAEA on Iran, in which concerns about the exclusively peaceful nature of Iran's nuclear programme have been raised. The most prominent IAEA report was the one produced in November 2011, which included a 14-page annex summarizing all of the outstanding issues between the IAEA and Iran. Since May 2010, the IAEA has held fifteen rounds of talks with Iranian officials with the overall objective of resolving all outstanding issues. While these talks did not reach the goal of getting an agreement on a "structured approach to resolving all outstanding issues," the IAEA and Iran came to an agreement during a meeting in November 2013 to "strengthen their cooperation and dialogue" to that end. In this context the parties adopted a "Framework for Cooperation" containing a set of six initial practical measures to be taken within three months.[17] On 21 January 2014, discussions started on the second phase of the "Framework for Cooperation".[18] In February 2014, seven further practical measures were agreed.[19] All of the initial thirteen steps have been implemented.[20] From the agreement on five further measures established as part of the third step under the "Framework for Cooperation" in May 2014, two measures remain outstanding.[21]

On the diplomatic front, the P5+1 or E3/EU+3 – China, France, Russia, the UK, the US, and Germany – met with Iran on multiple occasions since May 2010.[22] Following a period of intensive diplomacy, the E3/EU+3 and Iran reached an agreement during negotiations in Geneva on 20–24 November 2013.[23] In the "Joint Plan of Action" (JPA), Iran among other things committed itself to not enrich uranium over 5%, to dilute half of its stock of 20% enriched uranium stock to less then 5%, to not build any new locations for the enrichment of uranium, to suspend activities at its heavy water reactor in Arak, and to allow for enhanced monitoring by the IAEA. In return, the E3/EU+3 agreed to among other things suspend some US and EU sanctions against Iran and to refrain from imposing new nuclear-related sanctions by the UNSC, EU, and the US. Furthermore, a financial channel for humanitarian trade for Iran's domestic needs will be established, using Iranian oil revenues held abroad (US$ 4.2 billion).[24] The IAEA has been requested to verify implementation of the agreement.

On 20 January 2014, the IAEA reported that Iran was implementing its commitments according to the JPA.[25] As a consequence, the EU and US started to lift some of their unilateral sanctions.[26] Later that year, in July when the participating states could not reach an agreement, the timeframe for the implementation of the JPA was extended until 24 November 2014.[27] Due to an elusive agreement at that time, the deadline was again postponed until 30 June 2015.[28]

In November 2014, the IAEA confirmed that Iran was on track for implementing the JPA, while some concerns regarding outstanding practical measures remained concerning mainly the possible military dimensions.[29] Reportedly, since the latest extension, "limited progress" has been made in discussions among the participating states.[30]

Syria

Since the 2010 NPT RevCon, four reports have been produced on the alleged nuclear complex in Syria by the IAEA. The most significant was presented to the BoG on 24 May 2011, where the Director General came to the conclusion that the destroyed building in Dair Alzour "was very likely a nuclear reactor". Following this report, the IAEA BoG adopted a resolution[31] on 9 June 2011 in which it determined that Syria's "undeclared construction of a nuclear reactor" and failure to provide design information on the Dair Alzour site "constitutes non-compliance

with its obligations under its Safeguards Agreement with the Agency in the context of Article XII.C of the Agency's Statute." It calls on Syria to "remedy urgently its non-compliance" with its obligations under the safeguard agreements, to respond to the Director General's request for updated reporting, and to resolve all outstanding questions.

In November 2011 the Director General wrote a letter inviting Syria to address the remaining outstanding issues regarding the full implementation of its safeguard agreement. Syria answered on 20 February 2012 asking for understanding of "the difficult circumstances and the difficult situation that Syria is passing through" and pledging continued cooperation with the IAEA.[32] Later that year the IAEA carried out a physical inventory verification at the Miniature Neutron Source Reactor on 14 June 2012 and continue to monitor different "locations of safeguards relevance."[33] However, the ongoing civil war and chemical weapons use and subsequent destruction programme in Syria has resulted in a temporary shift of priorities towards resolving the conflict first.

Since then, no further information has been made available.[34]

Assessing and evaluating IAEA safeguards

IAEA initiatives

The IAEA mid-term plan 2012–2017 includes a section on "Strengthening the effectiveness and improving the efficiency of the Agency's safeguards and other verification activities."[35] It outlines the IAEA's plan to further develop a state-level approach to the planning, implementation, and evaluation of the safeguards activities.[36]

The department of safeguards itself has developed a long-term strategic plan from 2012–2023.[37] It addresses the conceptual framework of the IAEA safeguards system, its legal authority, the technical capabilities, and the available resources.[38] The three main long-term strategic objectives are to:

1. Deter the proliferation of nuclear weapons by detecting early the misuse of nuclear material or technology and by providing credible assurances that states are honouring their safeguards obligations;
2. Contribute to nuclear arms control and disarmament by responding to requests for verification and other technical assistance associated with related agreements and arrangements; and
3. Continually improve and optimize departmental operations and capabilities to effectively carry out the IAEA's verification mission.[39]

The IAEA Enhancing Capabilities of the Safeguards Analytical Services (ECAS) project was initiated in 2010. In his introductory statement to the BoG on 6 June 2011, the IAEA Director General announced the new Clean Laboratory at Seibersdorf "is now fully operational and has already analysed its first samples."[40] The work on a Nuclear Material Laboratory is in progress and scheduled to be completed in 2014.[41] The scope of the ECAS project has been extended to include additional activities. Additional costs will be met through extra-budgetary funding.[42] In September 2013 the new Nuclear Material Laboratory was inaugurated[43] and infrastructure and security upgrades will continue into 2015.[44]

From 20–24 October 2014, the IAEA hosted the 12th International Safeguards Symposium: Linking Strategy, Implementation and People to enable dialogue and information exchange as well as promote cooperation with IAEA stakeholders to make progress towards achieving the IAEA's strategic objectives laid out in the long term strategic plan.[45]

Relevant decisions of the General Conference

In September 2010, the IAEA General Conference adopted as usual a resolution on "Strengthening the effectiveness and improving the efficiency of the safeguards system and the application of the Model Additional Protocol".[46] Due to procedural questions, the 2011 IAEA General Conference was not able to adopt the resolution on strengthening the IAEA safeguards.

However in 2012 the IAEA General Conference again adopted the resolution during its plenary meeting in September.[47] Nonetheless, during the 2012 IAEA General Conference, the debate was very controversial on the "state-level approach" and operational paragraph 21 of the resolution "requests the Secretariat to report to the Board of Governors on the conceptualization and development of the State-level concept for safeguards." This report by the Director General was presented in August 2013, but was met with some criticism and did not meet the expectations of all member states. During the 2013 September BOG and GC meetings, the Secretariat was tasked with submitting a Supplementary Document about the state-level concept in advance of the 2014 GC.[48] In addition, the Secretariat listed eight questions raised by member states and decided to hold technical meetings in early 2014 as a further part of the consultation process. In 2013 the resolution was again adopted, including this time three paragraphs on nuclear disarmament.[49]

After consultations on the state-level concept with member states, the Director General introduced a supplementary document[50] to the 2013 report on the Conceptualization and Development of Safeguards Implementation at the State Level to the Board of Governors in August 2014.[51] In his address to the board, Mr. Amano stressed that the state-level concept "does not, and will not, entail the introduction of any additional rights or obligations"[52] for either states or the IAEA, nor will it result in any modification in the interpretation of existing rights and obligations. So far, state-level safeguards have been implemented in 53 states.[53] During the following GC, states adopted the safeguards resolution, which welcomes the assurances laid out in the supplementary document and outlines the continued cooperative approach to any further development and implementation of state-level approaches.[54]

Financial support

While the annual budget for the IAEA safeguards and nuclear verification programme does increase each year,[55] these increases do not represent a significant change in financial support. The financial contribution for safeguards will remain the same and the increased budget will most likely be offset by inflation, changes in exchange rates, and other similar factors.

Technical improvements

Since 2010, the IAEA has continued to work on the IAEA Safeguards Information System and Reengineering Project to increase the effectiveness and efficiency of information processing by replacing the current information system with a modern one. The Secretariat has also continued to utilize high-resolution commercial satellite-based sensors to improve its ability to monitor nuclear sites and facilities worldwide.[56] Germany has reported on taking steps to facilitate IAEA access to commercially available German satellite imagery.[57] In April 2013, as part of the IAEA Nuclear Energy Series, the Agency has published a technical report on the role of "safe-guards by design" of nuclear facilities, which relates to the consideration of safeguards throughout the lifetime of a nuclear facility.[58]

Additionally, the IAEA plans to upgrade its IT system to allow for an improved implementation of safeguards and reduce the vulnerability to cyber attacks.[59]

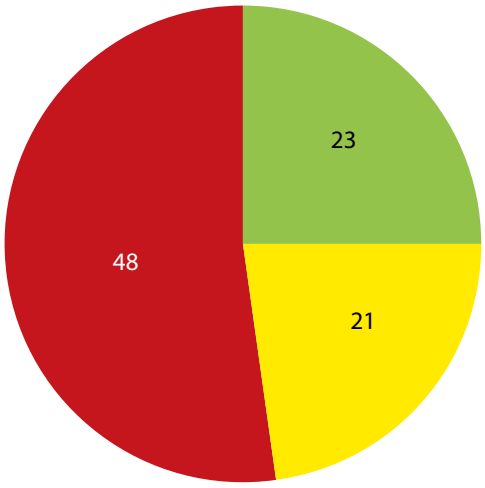
Other initiatives and organisations

The European Safeguards R&D Association (ESARDA) held its annual meetings on 16–20 May 2011 in Budapest,[60] on 22–24 May 2012 in Luxembourg,[61] 28–30 May 2013 in Bruge,[62] and 12–15 May 2014 in Luxembourg.[63] Meetings organised by ESARDA together with the Institute of Nuclear Materials Management (INMM) have taken place on 16–20 October 2011 in Aix-en-Provence[64] and on 23–28 September 2012 in Savannah, Georgia (US).[65] The Asia Pacific Safeguards Network held its plenary meetings in Bangkok from 29–31 October 2012,[66] Yogyakarta, Indonesia, on 7–8 November 2013, and Yangon and Naypyidaw, Myanmar, from 1–5 September 2014.[67]

On 12 November 2013 three ESRADA working groups held a joint meeting on the IAEA state-level concept with representatives of the IAEA, EURATOM, the European Commission's Joint Research Centre, and other interested actors. [68]

After its first report on "Optimizing the IAEA Safeguard System" published in 2011, the Centre for International Security and Arms Control Studies in Paris (CESIM) has, in cooperation with Switzerland, published a second report on December 2012 on "Strengthening cooperation between the IAEA and State or Regional systems of accounting for and control of nuclear material."

Additional Protocol (AP)

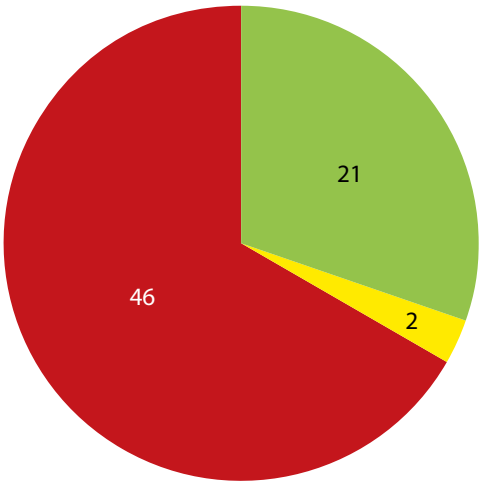


Since May 2010, the AP has entered into force for 23 states parties. In Febrary 2015, 21 States have signed but not ratified the agreement and an addtional 48 states still have not signed an AP

The Model AP[69] to the IAEA CSA requires states to provide the IAEA with information covering all aspects of a states' nuclear fuel cycle. It also ensures IAEA short-notice inspector access to all buildings on a nuclear site and other nuclear-related locations, information on the manufacture and export of sensitive nuclear-related technologies, and inspection mechanisms for manufacturing and import locations. It also enables the IAEA to use the most advanced verification technologies.[70]

As of 1 March 2015, 124 states have additional protocols in force.[71] 21 states [72] have signed an AP but have still not put it into force. Two states have been approved by the BOG, but have not signed the AP.[73] Since May 2010, the AP has entered into force for 23 additional states parties.[74]

Small Quantities Protocol (SQP)



Since May 2010, fifteen states have amended their SQPs, two states have rescinded their SQ and four more SQPs have entered into force. Two countries have signed a new SQP and for 46 states no change can be reported.

States with little or no nuclear material may conclude, in addition to the CSA, a protocol "which holds in abeyance the implementation of most of the detailed safeguard procedures of comprehensive safeguards agreements." [75] In 2005, the IAEA BoG decided to modify the standard text of the SQP[76] and change the criteria for eligibility. States with existing or planned facilities are no longer eligible for an SQP. States with a revised SQP in force need to report on their material and inform the IAEA about changes to enable it to conduct verification activities in the field.[77] Since May 2010, fifteen states have amended their SQPs,[78] while 46 [79] states still have not yet amended or rescinded their SQP. In addition, two countries have signed a new SQP, [80] two states [81] have rescinded their SQP, and four more SQPs[82] have entered into force. [83]

Voluntary Offer Agreements

For the five nuclear-armed states under the NPT, special safeguards agreements have been established, since they are not required by the NPT to accept safeguards. The so-called Voluntary Offer Safeguard Agreements (VOAs) between the IAEA and a nuclear-armed state usually follow the format of INFCIRC/153 (Corr.) but vary in the scope of materials and facilities covered. They also include the possibility of withdrawing materials and facilities for safeguards.[84] No changes or amendments to the VOAs have been reported since the 2010 NPT Action Plan was adopted.

References:

1 Treaty on the Non-Proliferation of Nuclear Weapons, Art. III.

2 Andorra, Republic of the Congo, Montenegro, Mozambique, Pakistan, and only on limited number of installations, Togo, and Vanuatu. A few states have signed but not yet put into force the CSA: Benin, Cape Verde, Djibouti, Guinea, Guinea Bissau and Timor-Leste. For Equatorial Guinea CSAs have been approved by the Board of Governors but have not yet been signed. Others – Eritrea, Liberia, Micronesia, São Tomé & Principe and Somalia – have not yet submitted CSAs to the IAEA Board of Governors for its consideration.
IAEA, *Status List, Conclusion of Safeguards agreements, additional protocols and small quantities protocols,* 31 December 2014; http://www.iaea.org/safeguards/documents/sir_table.pdf ; and IAEA, *NPT Comprehensive Safeguards Agreements – Overview of status,* 31 December 2014; https://www.iaea.org/publications/factsheets/npt-comprehensive-safeguards-agreements (retrieved 2015-02-05).

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5 Ibid

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12. UNSC/10934, 7 March 2013.

13. Statement by IAEA Director General Y. Amano, *Introductory Statement to Board of Governors,* 20 November 2014.

14. J. Lewis, *DPRK Missile, Rocket Launches,* Arms Control Wonk, 10 February 2015; http://lewis.armscontrolwonk.com/archive/7549/dprk-missile-rocket-launches (retrieved 2015-02-19).

15. According to the IAEA, these obligations include the implementation of the provision of the additional protocol; the implementation of the modified Code 3.1 of the subsidiary arrangement general part to the safeguard agreement; the suspension of enrichment related activities; suspension of heavy water related activities; and clarification of the remaining outstanding issue on the possible military dimensions of Iran's nuclear programme.

16. Report by IAEA Director General Y. Amano, *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran (*GOC/2011/54), 2 September 2011; http://www.iaea.org/Publications/Documents/Board/2011/gov2011-65.pdf (retrieved 2014-02-20).

17. IAEA, *Iran Sign Joint Statement on Framework for Cooperation,* 11 November 2013; http://www.iaea.org/newscenter/pressreleases/2013/prn201321.html (retrieved 2014-02-20).

18. Statement by IAEA Director General Y. Amano, *Statement to Media at Close of a Special Session of Board of Governors,* 24 January 2014.

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Universalization

Action 23:

The Conference calls upon all States parties to exert all efforts to promote universal adherence to the Treaty, and not to undertake any actions that can negatively affect prospects for the universality of the Treaty.

Exert all efforts

Four countries are currently not party to the NPT: the Democratic People's Republic of Korea (DPRK), India, Israel, and Pakistan.

Democratic People's Republic of Korea (DPRK)

The DPRK withdrew unilaterally from the nuclear Non-Proliferation Treaty (NPT) in January 2003, arguing that from that point on it was totally free from the International Atomic Energy Agency (IAEA) safeguards. There is still disagreement regarding the legality of the DPRK's withdrawal from the Treaty.

The six-party talks between the DPRK, the United States, China, Russia, Japan, and the Republic of Korea were last held in December 2008.[1] The DPRK pulled out of the talks shortly before conducting a second nuclear test in April 2009.[2] It has in total conducted three alleged nuclear weapon tests.

Calls for the DPRK to rejoin the NPT as a non-nuclear weapon state have been repeatedly made by a large number of states at the UN Security Council, the UN General Assembly's First Committee, and other multilateral gatherings.[3]

India

India has never joined the NPT. It first tested nuclear weapons 1974 using plutonium obtained from CANDU reactors. It conducted a second round of tests in 1998, which resulted in UN Security Council resolution 1172. This resolution condemned the tests and demanded that both India and Pakistan, which had conducted tests in response, refrain from further nuclear tests. It also prohibited the export to either country of equipment, materials, or technology that could in away assist their nuclear weapons programmes. See the section below on "Actions that can negatively affect universality" for more details.

Pakistan

Pakistan has never joined the NPT. It conducted nuclear weapons tests in 1998 in response to India's test. This resulted in UN Security Council resolution 1172, which is described above. Please also see the section below on "Actions that can negatively affect universality" for more details.

Israel

The international community has been aware of Israel's nuclear weapons programme since the 1970s. Estimates vary on how many nuclear weapons and how much fissile material Israel possesses.[4]

Efforts regarding Israel's accession to the NPT are generally considered as part of the creation of a Middle East zone free of weapons of mass destruction. Such a zone would have significant positive impacts for the universalization of the NPT. Unfortunately, no conference on the establishment of this zone, as agreed in 2010, has been held as of the printing of this publication. For more information on this issue, see the chapter on the Middle East.

UNGA First Committee resolutions on universalization of the NPT

2009	2010	2011	2012	2013	2014 [5]
The risk of nuclear proliferation in the Middle East					
Yes: 164 No: 5 Abstain: 6	Yes: 155 No: 5 Abstain: 8	Yes: 157 No: 5 Abstain: 6	Yes: 158 No: 5 Abstain: 5	Yes: 158 No: 5 Abstain: 9	Yes: 151 [6] No: 4 [7] Abstain: 20 [8]
United action towards the total elimination of neclear weapons					
Yes: 161 No: 2 Abstain: 8	Yes: 154 No: 1 Abstain: 13	Yes: 156 No: 1 Abstain: 15	Yes: 159 No: 1 Abstain: 12	Yes: 164 No: 1 Abstain: 14	Yes: 163 [9] No: 1 Abstain: 14 [10]
Towards a nuclear-weapon-free world: accelerating the implementaion of nuclear disarmeament commitments.					
Yes: 165 No: 5 Abstain: 4	Yes: 158 No: 5 Abstain: 4	Yes: 160 No: 6 Abstain: 4	Yes: 156 No: 7 Abstain: 4	Yes: 165 No: 7 Abstain: 5	Yes: 166 [11] No: 7 [12] Abstain: 5 [13]

Following the latest nuclear test by the DPRK, several resolutions at the 2013 and 2014 session of the UN General Assembly's First Committee included more specific language on universalization of the NPT and concerns about the nuclear test. As in previous years, states not party to the NPT chose to vote against or abstain on any resolutions containing calls for universalization and/or the particular paragraphs referring to the NPT.[14]

Actions that can negatively affect universality

One of the main reasons cited for joining the NPT as a non-nuclear weapon state is the promise of the "inalienable right" to develop nuclear energy for peaceful purposes. Nuclear export groups, such as the Nuclear Suppliers Group (NSG) and the Zangger Committee, have reinforced this. These export groups have adopted guidelines that prevent members from exporting nuclear technology to non-states parties to the NPT. Therefore, granting the same "rights" to non-NPT states could negatively affect prospects of the universality of the Treaty.

Trade with non-NPT states parties

India

The US-India nuclear deal and the resulting NSG exemption waiver for nuclear trade with India were concluded well before the 2010 NPT Action Plan was adopted. However, as this was the first time such a deal was concluded with a non-NPT state party, it has set a standard for similar deals. In 2014 India ratified an additional protocol (AP)[15] and announced that they will put its 14 civil nuclear facilities under IAEA safeguards by the end of 2014 as a part of the India-U.S. nuclear deal.[16] The Economic Times reported on 28 December 2014 that 20 Indian facilities have gone under IAEA safeguards, and that the two last reactors of the Narora Atomic Power Station will be placed under IAEA observation within the next two days.[17]

The US-India agreement has been criticized for the fact that the 45 countries in the NSG have made a decision "on behalf" of the 189 states parties of the NPT.[18] Objections have been raised that the NSG has never been given the authority to reinterpret the NPT, overturn NPT decisions, or violate existing international standards, and that the waiver is contrary to UN Security Council resolution 1172.

After the NSG waiver was approved in 2008 and since the adoption of the NPT Action Plan, several deals and cooperation agreements have been concluded between India and other NPT states parties.[19] Several, including Argentina, Australia, Canada, France, Kazakhstan, Republic of Korea, Russia, Tanzania, and the United Kingdom, have entered into a civilian nuclear cooperation with India.[20]

Ahead of the NSG annual plenary meeting in the Netherlands on 23 and 24 June 2011, the United States circulated a "food for thought" paper[21] as a follow-up to President Obama's announcement on 1 November 2010 in New Delhi of his support for Indian membership in the NSG. [22] During this meeting, the NSG recommended that its members should "not authorize the transfer of enrichment and reprocessing facilities and equipment and technology" to any country that has not ratified the NPT, that does not have a comprehensive safeguard agreement with the International Atomic Energy Agency (IAEA), and that has not implemented the IAEA Additional Protocol, which permits closer scrutiny of atomic sites in signatory nations.[23]

However, shortly after the NSG meeting, US Secretary of State Clinton stated that "the new ENR transfer restrictions agreed to by the NSG members should be construed as detracting from the unique impact and importance of the US-India civil nuclear agreement or our commitment to full civil nuclear cooperation."[24]

At its plenary in Seattle, 18–22 June 2012, the NSG discussed once more the issue of the 2008 waiver in favour of India as well as – in general terms – the question of possible NSG membership for India on the basis of a revised US "food for thought" paper and a French paper. NSG states essentially agreed that India has become a major player in the nuclear field and a majority of NSG states indicated that India now has to formalize its desire for membership. With regard to the next steps, the NSG Troika (Germany, Hungary, and South Africa) will work with India on a "terms of reference" document.

During the plenary meeting held on 13-14 June 2013 in Prague, the NSG revised its "Trigger and Dual-Use" list of controlled exports the group had initiated in 2010. The members of the NSG also continued to "consider all aspects of the implementation of the 2008 Statement on Civil Nuclear Cooperation with India and discussed the NSG relationship with India."[25] The public statement after the plenary meeting in Buenos Aires, Argentina, held on 26-27 June 2014, included a similar reference to the discussions about Indian membership.[26]

As of March 2015 India has not submitted any papers to apply for membership to the NSG. It is said that it will only take that step when a positive response is certain.[27] However, there does not yet seem to be consensus in the group on this issue and discussions are on-going still.[28]

Pakistan

Since June 2010, China and Pakistan have increased their civil nuclear cooperation. China planned to provide Pakistan with two new nuclear reactors. Spokespeople emphasised that the reactors were for peaceful uses in line with China's international obligations and under IAEA supervision.[29] In March 2011 China announced it was to sell further nuclear reactors to Pakistan.[30] In December 2013, the Chinese government committed to loan $6.5 billion to finance the Pakistani nuclear power project.[31] In January 2015, reports emerged that both states are currently discussing a potential deal about building three further nuclear power plants for approximately $13 billion.[32] The US government reportedly expressed concern with the deal citing NSG rules against nuclear cooperation with non-NPT states parties.

Permanent seat in the UN Security Council (UNSC)

The current five permanent seats on the UNSC coincide with the nuclear-armed states of the NPT. Promoting an additional seat for India, also a state with nuclear weapons, can be considered harmful to the prospects for universality of the NPT as well as for nuclear disarmament and non-proliferation.

Previously, the US has opposed India's bid to become a permanent member on the grounds of nuclear proliferation concerns and because India has not signed the NPT. However, as of 8 November 2010, US President Obama indicated his support for India's bid.[33]

India was elected a non-permanent member of the UNSC in 2011, with an overwhelming majority – where only three UN member states did not vote for India. In addition to this, several other countries and organizations openly support India's aim of a permanent seat.[34] For example, Japan, Germany, and Brazil, which have also expressed a desire to become permanent members of the UNSC, all support a joint bid for permanent seats together with India and one or two African states.[35]

Nuclear Security Summits

At the Nuclear Security Summit (NSS) in Washington in April 2010, in Seoul in March 2012, and in The Hague in March 2014 representatives of India, Pakistan, and Israel were invited to participate. None of the final communiqués included any call upon these countries to join the NPT, nor any reference to the NPT at all.[36]

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5 Changes in voting behaviour compared to 2009.

6 Central African Republic (first vote after May 2010 (fv)), Eritrea (fv), Guinea-Bissau (fv), Seychelles (first and only vote after May 2010 (fov)), Sierra Leone (fv), Tonga (fov) and Uganda (fv) voted yes in 2010; Cabo Verde (fv), Chad (fv), Comoros (fv), Congo and Saint Vincent and the Grenadines (fv) voted yes in 2011; Cote d'Ivoire voted yes in 2012; El Salvador and Gambia (fv) voted yes in 2013; Gabon (fv) and Uganda voted yes in 2014.

7 Nauru (fov) voted no in 2010; Canada voted no in 2011.

8 Congo and Panama (fv) abstained in 2010; El Salvador abstained in 2011; Cote d'Ivoire, Rwanda, South Sudan (fv) and Uganda abstained in 2013; Belgium, Czech Republic, France, Georgia, Germany, Hungary, Italy, Lithuania, Netherlands, Poland and United Kingdom abstained in 2014.

9 Belize (fv), Bhutan, France, Nicaragua (fv), Nigeria (fv), Paraguay (fv), San Marino (fv), Senegal (fv), Seychelles (fv), Sierra Leone (fv) and Uganda (fv) voted yes in 2010; Cabo Verde (fv), Chad (fv), Comoros (fv), Liberia (fv), Mexico and Solomon Islands (fv) voted yes in 2011; Namibia (fv), South Africa, Tuvalu (fv), Venezuela and Zimbabwe voted yes in 2012; Bolivia, Gambia (first vote), Guinea-Bissau, Nicaragua and South Sudan (fov) voted yes in 2013; Ecuador and Nauru (fov) voted yes in 2014.

10 Brazil, Guinea-Bissau (fv), India, Mauritius, Mexico, South Africa and Syria abstained in 2010; Bolivia, Ecuador, Venezuela and Zimbabwe abstained in 2011; Nicaragua abstained in 2012; Egypt, Russian Federation, Uganda and Zimbabwe abstained in 2013.

11 Central African Republic (fv), Gabon (fv), Guinea-Bissau (fv), Marshall Islands (fv), Seychelles (fov), Sierra Leone (fv) and Turkmenistan (fv) voted yes in 2010; Cabo Verde (fv), Comoros (fv) and Saint Vincent and the Grenadines (fv) voted yes in 2011; Gambia (fv) and South Sudan (fov) voted yes in 2013; Chad (fov) voted yes in 2014.

12 United Kingdom voted no in 2011; Russian Federation voted no in 2012.

13 China and Russian Federation abstained in 2011; Palau (fov) abstained in 2013; Haiti abstained in 2014.

14 Voting results from the UNGA First Committee:

http://www.reachingcriticalwill.org/disarmament-fora/unga/2011/resolutions

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http://www.reachingcriticalwill.org/disarmament-fora/unga/2013/resolutions

http://www.reachingcriticalwill.org/disarmament-fora/unga/2014/resolutions

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17 PTI, *India to complete process of placing nuclear power reactors under IAEA safeguards,* The Economic Time, 28 December 2014; http://articles.economictimes.indiatimes.com/2014-12-28/news/57462642_1_iaea-safeguards-reactors-rajasthan-atomic-power-station (retrieved 2015-02-07).

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19 Argentina, Australia, Canada, France, Kazakhstan, Mongolia, Namibia, Republic of Korea, Russia, Tanzania, United Kingdom. India may also be seeking uranium from various countries in Africa, including Angola, Gabon, Namibia, Niger, Nigeria, Tanzania and Uganda. These kinds of uranium deals could also be considered to be actions that significantly harm the prospects of the universality of the NPT. It would also be a violation of the African Nuclear Weapon Free Zone, the Pelindaba Treaty, as states parties to this treaty are not permitted to exchange in nuclear trade with non-NPT states parties.

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– a programme of the Women's International League for Peace and Freedom
1, Rue de Varembé,
1202 Geneva
Switzerland

www.reachingcriticalwill.org