

# 2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons

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## Irreversibility in the context of the Treaty on the Non-Proliferation of Nuclear Weapons: recommendations for the tenth Review Conference of the Parties to the Treaty

**Working paper submitted by Norway and the United Kingdom of Great Britain and Northern Ireland**

### I. Introduction

The principle of irreversibility, along with the principles of verifiability and transparency, is essential when implementing nuclear disarmament measures. The principle enjoys broad support among the States parties to the Treaty on the Non-Proliferation of Nuclear Weapons. Virtually all States parties, both nuclear-weapon States and non-nuclear-weapon States, use the term, whether in their national statements, national reports or working papers to the Review Conferences of the Parties to the Non-Proliferation Treaty or their Preparatory Committee sessions.

At four of the nine previous Review Conferences (1975, 1985, 2000 and 2010), the States parties to the Treaty produced consensus final documents. The principle of irreversibility was highlighted, for the first time in an official Non-Proliferation Treaty consensus final document, in the 13 practical steps agreed at the 2000 Review Conference and reaffirmed in the 64-point action plan agreed at the 2010 Review Conference.<sup>1</sup>

There is no common definition or unified understanding of the principle of irreversibility. In fact, in looking at official Non-Proliferation Treaty documents, it becomes clear that States parties to the Treaty interpret and use the irreversibility principle in different ways.

The present working paper is written with the aim of providing a basis for shared understanding of the principle of irreversibility – by addressing its rise, meaning and essence in the context of the Non-Proliferation Treaty. It seeks to start a dialogue among States parties to the Treaty on this important issue. With a better understanding of the meaning of “irreversibility”, it will subsequently be easier for States parties to

<sup>1</sup> Consensus was also reached at the 1995 Review and Extension Conference of the Parties to the Treaty, but that text was not implemented in the final document. At the Review Conferences in 1980, 1990, 2005 and 2015, no consensus final document was adopted.



apply the principle of irreversibility in relation to the implementation of their Treaty obligations.

## II. Irreversibility entering the Treaty context

### A. Irreversibility in the 2000 consensus final document

The principle of irreversibility appears nowhere in the Non-Proliferation Treaty, neither in the preamble nor in the 11 articles of the Treaty. Irreversibility was highlighted, for the first time in an official Non-Proliferation Treaty consensus final document, in the 13 practical steps agreed at the 2000 Review Conference. Specifically, step 5 contained an explicit reference to irreversibility:

5. The principle of irreversibility to apply to nuclear disarmament, nuclear and other related arms control and reduction measures.<sup>2</sup>

Irreversibility was mentioned in a general context, without any specific reference to how it could be achieved in practice, but it did represent a step forward in acknowledging the importance of the principle for the States parties to the Treaty.

The 2000 Review Conference also linked the 13 practical steps, including step 5 on irreversibility, directly and explicitly to the disarmament obligations under article VI:

15. The Conference agrees on the following practical steps for the systematic and progressive efforts to implement article VI of the Treaty on the Non-Proliferation of Nuclear Weapons.

This linkage between article VI of the Non-Proliferation Treaty and step 5 on irreversibility in the 2000 consensus final document was later highlighted by several States parties, including by the nuclear-weapon States in a joint statement to the 2010 Review Conference:

5. As nuclear-weapon States, we reaffirm our enduring commitment to the fulfilment of our obligations under article VI of the Non-Proliferation Treaty and our continuing responsibility to take concrete and credible steps towards irreversible disarmament, including provisions for verification.<sup>3</sup>

The Group of Non-Aligned States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons also underscored the linkage between article VI and the principle of irreversibility in a working paper to the 2018 session of the Preparatory Committee:

The 13 practical steps for systematic and progressive efforts to implement article VI of the Treaty should be fully implemented in accordance with the principles of transparency, verifiability and irreversibility.<sup>4</sup>

### B. Irreversibility in the 2010 consensus final document

The principle of irreversibility was reaffirmed in the 64-point action plan adopted at the 2010 Review Conference, more specifically actions 2 and 17, which not only repeated the importance of irreversibility, but also added more specific content to the term:

<sup>2</sup> [NPT/CONF.2000/28 \(Parts I and II\)](#), part I.

<sup>3</sup> Statement by China, France, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland and the United States of America to the 2010 Review Conference.

<sup>4</sup> [NPT/CONF.2020/PC.II/WP.15](#).

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 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 the International Atomic Energy Agency (IAEA), to ensure the irreversible removal of fissile material designated by each nuclear-weapon State as no longer required for military purposes.<sup>5</sup>

For the first time in a consensus final document, irreversibility was linked to the principles of verifiability and transparency (action 2), as well as to the removal of fissile material – i.e. plutonium or highly enriched uranium (HEU) – designated as no longer required for military purposes (action 17). It also became clear that not only the nuclear-weapon States, but also the non-nuclear-weapon States, were committed to applying the principle of irreversibility (action 2).

Action 17 on irreversibility is closely related to action 16, which encourages the nuclear-weapon States to declare to IAEA all surplus fissile material and to place such materials under IAEA or other verification arrangements to ensure that it remains outside military programmes:

Action 16: The nuclear-weapon States are encouraged to commit to declare, as appropriate, to the 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.<sup>6</sup>

Indeed, when the States parties to the Treaty agreed to include the principle of irreversibility in the 2000 consensus final document, it had already been used in the context of nuclear disarmament for some time. In the 1990s, the principle of irreversibility was discussed in relation to the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction and the Strategic Arms Reduction Treaties.

From the 1990s onwards, the use of the term has increased tremendously in the context of the Non-Proliferation Treaty, especially after the Review Conferences in 2000 and 2010. Although interpretations vary on whether the 13 practical steps and the 64-point action plan should be binding or not, and despite the fact that the States parties to the Treaty never achieved consensus on a final document at the 2015 Review Conference, all parties have repeatedly underscored the importance of applying the principle of irreversibility to nuclear disarmament. The term is now a mainstream notion in the nuclear disarmament discourse.

### III. National reports submitted under actions 5, 20 and 21 of the 2010 final document

Many Non-Proliferation Treaty States parties, including all the nuclear-weapon States, have submitted national reports to Preparatory Committee sessions or Review Conferences, describing how they implement the 64-point action plan and the 13 practical steps, as called for in actions 5, 20 and 21 of the 2010 action plan:<sup>7</sup>

<sup>5</sup> NPT/CONF.2010/50 (Vol. I), part I.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

Action 5: The nuclear-weapon States are called upon to report the above undertakings to the Preparatory Committee at 2014. The 2015 Review Conference will take stock and consider the next steps for the full implementation of article VI.

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.

It turns out that very few nuclear-weapon States and non-nuclear-weapon States have included any details in their national reports on how to apply the principle of irreversibility in practice. Reasons for this lack of reporting could be several: the principle of irreversibility is unclear, difficult to report on or not necessary to report on, or simply that the States parties have not carried out any irreversibility steps worth mentioning.

The United States of America makes two explicit references to irreversibility in its report to the 2015 Review Conference. The first appears in relation to a United States-Russian Federation briefing to the other Permanent Five (P5) States, and the second in relation to the irreversible denuclearization of North Korea’s weapons programme:<sup>8</sup>

The United States and Russian Federation have briefed the other P5 States on their nuclear arms control verification and notification experience to foster greater familiarity with practical arrangements that promote the irreversibility, transparency and verifiability of the disarmament process.

We have made it clear, however, that any resumption of talks must be premised on North Korea’s demonstrated commitment to take concrete steps towards complete, verifiable and irreversible denuclearization.

The Russian Federation mentions irreversibility once in its report to the 2015 Review Conference, in relation to its obligations under article VI of the Non-Proliferation Treaty:<sup>9</sup>

23. The Russian Federation is ready to continue down the path of verified and irreversible reduction of nuclear weapons in accordance with the obligations under article VI of the Non-Proliferation Treaty, considering the strategic situation and taking into account the evolution of factors that influence strategic stability.

China makes no reference to irreversibility in its report to the 2015 Review Conference, but it does so in a report to the 2019 session of the Preparatory

<sup>8</sup> NPT/CONF.2015/38.

<sup>9</sup> NPT/CONF.2015/48.

Committee, encouraging the States with the largest nuclear arsenals to reduce their nuclear weapons:<sup>10</sup>

States with the largest nuclear arsenals bear special and overarching responsibilities with regard to nuclear disarmament. They should continue to drastically reduce their nuclear weapons in a verifiable, irreversible and legally binding manner so as to create conditions for the ultimate realization of complete and comprehensive nuclear disarmament. When conditions are ripe, all nuclear-weapon States should join the multilateral nuclear disarmament negotiation process.

The United Kingdom of Great Britain and Northern Ireland does not mention irreversibility in its report to the 2015 Review Conference, but it does so twice in its report to the 2019 session of the Preparatory Committee. The first appears in relation to the importance of providing confidence in the irreversibility of disarmament through verification, and then secondly in relation to the irreversible denuclearization of the Democratic People's Republic of Korea:<sup>11</sup>

Beyond the dismantlement of individual warheads, we also need to understand what monitoring and verification procedures may be required across a State's nuclear and defence sites to provide sufficient confidence that nuclear disarmament has taken place irreversibly. Throughout the development of these verification measures, the United Kingdom places great importance on involving non-nuclear-weapon States and maximizing transparency, while upholding our non-proliferation, safety and security commitments.

The United Kingdom fully supports efforts to achieve the complete, verifiable and irreversible denuclearization of the Democratic People's Republic of Korea and we believe that negotiations are the best way to make progress this goal. Until the Democratic People's Republic of Korea takes concrete steps towards this goal, sanctions must continue to be strictly enforced. We urge the Democratic People's Republic of Korea to negotiate in good faith and stick to its commitments. Only by doing so can it secure a more stable and prosperous future for the people of the Democratic People's Republic of Korea.

France mentions irreversibility four times in its report to the 2015 Review Conference: twice in relation to the irreversible dismantling of the former Pacific Testing Centre; once in relation to the dismantling of the former fissile material production facilities for weapons in Pierrelatte and Marcoule; and once in relation to the irreversible dismantling of facilities in the Democratic People's Republic of Korea:<sup>12</sup>

16. In 1996, France undertook the dismantling of its production units in Marcoule and Pierrelatte. France intended the decommissioning to be complete and irreversible. The decommissioning operations represent a considerable financial investment: a total of €6 billion, €2 billion of which has already been spent.

## 2. Complete and irreversible dismantling of the former Pacific Testing Centre

25. In 1996, at the same time as it ended nuclear testing, France decided to completely and irreversibly dismantle the sites of the Pacific Testing Centre on the atolls of Mururoa and Fangataufa.

<sup>10</sup> [NPT/CONF.2020/PC.I/WP.36](#).

<sup>11</sup> [NPT/CONF.2020/PC.III/7](#).

<sup>12</sup> [NPT/CONF.2015/10](#).

87. France is deeply concerned at the continuation by the Democratic People's Republic of Korea of its nuclear and ballistic missile programmes, which have been condemned many times by the Security Council. The objective remains the complete, verifiable and irreversible dismantling of the facilities involved in those programmes and the return of IAEA inspectors without preconditions.

Although all nuclear-weapon States do indeed refer to irreversibility in their national reports, it is not necessarily done in relation to the "irreversible removal of fissile material designated by each nuclear-weapon State as no longer required for military purposes" as specified in action 17, or how they "apply the principles of irreversibility, verifiability and transparency in relation to the implementation of their treaty obligations" as specified in action 2.

However, both the United States of America and the Russian Federation, in their reports to the 2015 Review Conference, provide valuable and detailed information about their efforts to dispose of fissile material extracted from nuclear weapons, but without referring to irreversibility explicitly. The United States of America provides valuable information on both the 2000 United States-Russian Federation Plutonium Management and Disposition Agreement and the 1993 United States-Russian Federation HEU Purchase Agreement,<sup>13</sup> while the Russian Federation refers to the HEU-LEU Agreement (commonly known as the "Megatons to Megawatts" programme), in addition to the United States-Russian Federation Plutonium Production Reactor Agreement of 1997 and its work to shut down several reactors that had produced weapon-grade fissile material.<sup>14</sup> However, never in relation to irreversibility.

Several non-nuclear-weapon States also make references to irreversibility in their national reports. They often refer to action 2 and using the opportunity to reaffirm their commitment to the principle of irreversibility, verifiability and transparency, but without providing any details on how they apply the principle in practice.

The Non-Proliferation and Disarmament Initiative has developed several draft standard reporting templates, in an effort to increase the quality, quantity and consistency of transparency by all States parties. In one of its templates, for reporting on action 20, it is suggested, as an example, that both non-nuclear-weapon States and nuclear-weapon States report on action 2 on irreversibility by providing information on "national policy on irreversibility, verifiability and transparency, including any relevant initiatives and actions that serve to illustrate the policy" and any "support for relevant General Assembly resolutions that support irreversibility, verifiability and transparency".<sup>15</sup> As a result, several non-nuclear-weapon States have included such details in their reports.

By way of example, Canada provides information about General Assembly resolutions they have co-sponsored that promote the principle of irreversibility,<sup>16</sup> while Australia highlights its support for the Comprehensive Nuclear-Test-Ban Treaty, the negotiations for a fissile material cut-off treaty, IAEA safeguards, nuclear-weapon-free zones and transparency through reporting under action 2.<sup>17</sup> Several non-nuclear-weapon States also refer to specific working papers on transparency and verification submitted to previous Review Conferences or Preparatory Committee sessions.

<sup>13</sup> NPT/CONF.2015/38.

<sup>14</sup> NPT/CONF.2015/48.

<sup>15</sup> NPT/CONF.2020/PC.I/WP.17.

<sup>16</sup> NPT/CONF.2015/34.

<sup>17</sup> NPT/CONF.2015/12.

In the very same template, the Non-Proliferation and Disarmament Initiative suggests – as an example – that the nuclear-weapon States report on their activities under action 17 by providing information on “the status of the development of appropriate legally binding verification arrangements to ensure the irreversible removal of excess fissile material” and the “proposals and/or statements made in support of the development of appropriate legally binding verification arrangements to ensure the irreversible removal of excess fissile material from military stockpiles by nuclear-weapon States”.<sup>18</sup>

## IV. How to apply the principle of irreversibility

From the above observations, it is clear that the principle of irreversibility enjoys broad support among all States parties to the Treaty. But what aspects of reaching and maintaining a world irreversibly free of nuclear weapons matter most, and how would States go about implementing this in practice?

In developing an improved understanding of the principle, it can be useful to make a distinction between two equally important but different facets of the overarching principle of irreversibility in the disarmament context. These include “irreversible steps towards disarmament” and “irreversibility in a nuclear-weapons-free world”. Both are clearly important, but they are not the same thing, and one does not necessarily lead to the other. Furthermore, it is unlikely that few, if any, steps can be 100 per cent irreversible in a physical or even legal sense, and, similarly, it will always be physically possible in a nuclear-weapons-free world for a State to start or restart a weapons programme. However, like the principles of verification and transparency, it is the requirement to apply them in a sufficiently robust and practical manner at stages where they add value, rather than trying to apply full or comprehensive irreversibility, verification or transparency at every step and stage. In terms of irreversibility, this means determining the steps and stages towards disarmament where irreversibility is both practicable and desirable and the measures that would make a nuclear-weapons-free world as stable and undesirable to return from as possible. This is the real crux of why it might be important to start a multilateral conversion on this: to get at not only the aspects of when we really do need to strive for irreversibility in disarmament steps and when other standards or concepts are more appropriate, but also what measures States can put in place now and in the future so that eventual disarmament is as hard to reverse as practicable.

There is little, if any, dedicated work in a Non-Proliferation Treaty context that has looked in detail at how a nuclear-weapons-free world could be made as irreversible as possible, in contrast to significant work related to verification and transparency. However, there are examples from the Non-Proliferation Treaty review process where specific activities have been linked to irreversibility by certain States. These can be split into two categories: one is the “irreversible removal” of existing weapons or materials from military use (as a disarmament measure), the other consists of “irreversible restrictions” on the capacity to produce new weapons or materials (as a non-proliferation measure on the part of the nuclear-weapon States). Materials and capabilities are both aspects that need to be considered as part of reaching and maintaining a world without nuclear weapons.

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<sup>18</sup> NPT/CONF.2020/PC.I/WP.17.

## A. Irreversible removal of existing weapons or materials

The separation of nuclear warheads from their delivery vehicles is not necessarily an irreversibility step, according to many States parties. The Group of Non-Aligned States Parties to the Treaty explicitly highlights, in a working paper to the 2015 Review Conference, that “reductions in deployments and in operational status cannot substitute for irreversible cuts in, and the total elimination of, nuclear weapons”.<sup>19</sup>

The dismantlement of nuclear warheads, including the physical separation of fissile material from high explosives and other non-nuclear components, is seldom mentioned by States parties in relation to irreversibility.

The transfer of excess fissile material from a military to a civilian nuclear fuel cycle – and the placing of such material under verification by IAEA – is highlighted as an important irreversibility step by several Non-Proliferation Treaty States parties. This interpretation is also in line with the specific language in actions 16 and 17. The term “irreversible removal” is frequently used by States parties with regards to the importance of ensuring that such excess material remains permanently outside military programmes in a verifiable manner. Although we should note that this indicates a desire from several States to ensure that these activities are irreversible, as we have seen earlier, the nuclear-weapon States have not indicated their thoughts on irreversibility in the context of their actions to date.

The various storage and disposition alternatives for all the excess weapons-usable material (HEU or plutonium) from dismantled warheads, including the conversion of weapons-usable material to non-weapons-usable forms, are seldom mentioned specifically by the States parties to the Treaty in relation to irreversibility. Several States parties do, however, refer to the 1993 United States-Russian Federation HEU Purchase Agreement and the 2000 Plutonium Management and Disposition Agreement as specific examples of disposition alternatives, but without mentioning irreversibility.<sup>20</sup>

The various disposition options for excess plutonium and HEU all have their benefits and risks associated with them. In many cases it would not be impossible to recover the plutonium or HEU for reuse in weapons, but disposition could result in a form that would make it more difficult, costly, lengthy and thus unattractive for weapons use. In this way, it could prevent a rapid reversal. In the end, the eventual choice of disposition option is to be decided by each nuclear-weapon State. In any case, there are few linkages between the various disposition options and explicit mentioning of irreversibility by States parties in the Non-Proliferation Treaty review process.

## B. Irreversible restrictions on the capacity to produce new weapons or materials

Several States parties to the Treaty link the principle of irreversibility to the capacity of developing, producing, stockpiling and testing new nuclear weapons. This

<sup>19</sup> NPT/CONF.2015/WP.24.

<sup>20</sup> The HEU Uranium Purchase Agreement contributed to the conversion of 500 metric tons of highly enriched uranium (HEU) to low enriched uranium (LEU), while the Plutonium Management and Disposition Agreement committed the parties to disposing of more than 34 metric tons of excess weapons-grade plutonium. In both cases, concrete measures were implemented to get rid of HEU and plutonium stocks designated by the two States as no longer needed for military purposes, which would remove that material from further use as fissile material in nuclear warheads.

linkage is widespread, but not obvious as neither step 5 on irreversibility in the 13 practical steps nor actions 2 and 17 on irreversibility in the 64-point action plan explicitly link the principle of irreversibility to the supporting infrastructure.

Several action points in the 2010 action plan do, however, address production capacity, but without referring explicitly to irreversibility. In action 15, all States agreed on the need to begin negotiations on a treaty banning the production of fissile material for use in nuclear weapons, and, in action 18, all States are encouraged to dismantle or convert production facilities for military purposes to peaceful uses:<sup>21</sup>

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.

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 warheads or other nuclear explosive devices.

Several States parties to the Treaty explicitly refer to irreversibility in relation to the importance of ceasing or prohibiting future production of fissile material for nuclear weapons, including a close-down or dismantlement of such production facilities or the conversion of all such facilities to civilian uses.

The French dismantlement of its production units in Marcoule and Pierrelatte is mentioned by several States parties to the Treaty as concrete steps of irreversible dismantlement, including by the European Union in a working paper to the 2018 session of the Preparatory Committee and by France in a report to the 2015 Review Conference.<sup>22</sup> Also, in a working paper to the 2015 Review Conference, the Group of Non-Aligned States Parties to the Treaty highlighted the importance of conversion of all facilities for the production of nuclear weapons to peaceful purposes “in an irreversible and verifiable manner”.<sup>23</sup> The Group also, in a working paper to the 2017 session of the Preparatory Committee, supports banning the production of fissile materials for nuclear weapons and eliminating all past production and existing stockpiles of such materials “in an irreversible and verifiable manner”, without prejudice to the inalienable right under article IV of the Treaty.<sup>24</sup>

Several States parties to the Treaty also link irreversibility to the dismantlement of nuclear test sites. By way of example, the Group of Non-Aligned States Parties encourages all States parties to close and dismantle “in a transparent, irreversible and verifiable manner, any remaining sites for nuclear test explosions and their associated infrastructure”, in a working paper to the 2019 session of the Preparatory Committee.<sup>25</sup> Also, in a report submitted to the 2015 Review Conference, France informs about its 1996 decision to end nuclear testing and “completely and irreversibly dismantle the sites of the Pacific Testing Centre” on the atolls of Mururoa and Fangataufa.<sup>26</sup> Furthermore, in a working paper on nuclear testing to the 2015 Review Conference, the Group recommends that States support the objectives of the

<sup>21</sup> NPT/CONF.2010/50 (Vol. I), part I. None of these action points refer explicitly to the principle of irreversibility.

<sup>22</sup> NPT/CONF.2015/10; and NPT/CONF.2020/PC.II/WP.6.

<sup>23</sup> NPT/CONF.2015/WP.14.

<sup>24</sup> NPT/CONF.2020/PC.I/WP.24.

<sup>25</sup> NPT/CONF.2020/PC.III/WP.16.

<sup>26</sup> NPT/CONF.2015/10.

Comprehensive Nuclear-Test-Ban Treaty, “which is intended to enforce a comprehensive, irreversible and verifiable ban on all nuclear test explosions”.<sup>27</sup>

Irreversibility is highlighted frequently by States parties to the Treaty in relation to the nuclear and ballistic programmes of the Democratic People’s Republic of Korea. Several official documents from the Non-Proliferation Treaty review cycle underline the need for the irreversible denuclearization of the Democratic People’s Republic of Korea, including the following statement, endorsed by 70 countries at the 2019 session of the Preparatory Committee:<sup>28</sup>

We urge the Democratic People’s Republic of Korea to translate its words into actions and to take practical steps towards the complete, verifiable and irreversible abandonment of all its nuclear weapons and ballistic missiles, as well as all associated programmes, and to immediately cease all related activities in accordance with all relevant Security Council resolutions.

Several groups of non-nuclear-weapon States call for a wider application of safeguards to peaceful nuclear facilities in the nuclear-weapon States – as a non-proliferation measure. The New Agenda Coalition expresses concerns, in a working paper to the 2012 session of the Preparatory Committee, that the current voluntary offer agreements applied in the nuclear-weapon States do not sufficiently give effect to the principles of irreversibility, verifiability and transparency. According to the Coalition, fissile material declared as excess and placed under safeguards can “still be withdrawn from safeguards and used in the development of nuclear weapons” and, as a result, the measures “provide no assurances regarding the irreversible removal of fissile material from military programmes”.<sup>29</sup> Undoubtedly, it is for the nuclear-weapon States to decide what material to declare and submit to IAEA for verification, but, according to the Coalition, once submitted, it would have to be irrevocable.

The Non-Proliferation and Disarmament Initiative also highlights, in a working paper to the 2013 session of the Preparatory Committee, that some voluntary offer agreements “allow nuclear-weapon States to withdraw nuclear material from activities in the declared facilities under IAEA safeguards and reverse it to military uses, and to remove facilities from the facility list if the nuclear-weapon States deem it necessary”.<sup>30</sup> This is, according to the Initiative, inconsistent with the principle of irreversibility as agreed to in action 2. The Initiative calls for a wider application of safeguards to peaceful nuclear facilities in the nuclear-weapon States, as a nuclear non-proliferation measure on the part of the nuclear-weapon States. This call for the wider application of safeguards in the nuclear-weapon States is also rooted in action 30 of the 2010 action plan:

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.

## V. Achieving irreversibility

Moving ahead, the difference between irreversibility as an “overarching principle” and irreversibility measures that can be applied in reaching or maintaining

<sup>27</sup> NPT/CONF.2015/WP.7.

<sup>28</sup> NPT/CONF.2020/PC.III/13.

<sup>29</sup> NPT/CONF.2015/PC.I/WP.30.

<sup>30</sup> NPT/CONF.2015/PC.II/WP.23.

a nuclear-weapons-free world should be acknowledged. Concrete irreversibility measures come in different shapes or forms – big and small, narrow and comprehensive, significant and less significant, covering removal and restrictions – that, in total, can contribute to supporting the overarching principle of irreversibility.

The path towards irreversible disarmament is not necessarily a stepwise process, but rather several standalone measures available to States parties to be combined and applied in different situations to ensure a sufficient level of irreversibility, in the same way as verification and transparency.

Full and total irreversibility is undoubtedly difficult, if not impossible, to achieve. Even in a disarmed world, many States will possess scientific expertise and nuclear know-how. There is also a potential for conflict between extensive irreversibility measures and the right to peaceful uses of nuclear energy and technology, as enshrined in article IV of the Non-Proliferation Treaty.

While there are limitations on the ways in which it is possible to physically ensure irreversibility, it is also evident that political priorities may change, sometimes quite rapidly, and future disarmament agreements might run into unexpected financial or legal problems. A State can also intentionally decide to revert, but, with a combination of legal, physical and political irreversibility steps in place, the hope is to make it as unattractive as possible to do so. The ultimate goal is to make disarmament as irreversible as practical.

Future Review Conferences should attempt to add more specific substance to the principle of irreversibility. At a minimum, it should be clear to all States parties to the Treaty what is expected from each State party with regard to how to apply the principle of irreversibility in practice.

## VI. Conclusions and proposed way ahead

- All States parties to the Treaty have committed themselves to applying the principles of irreversibility, verifiability and transparency in relation to the implementation of their Treaty obligations.
- Norway and the United Kingdom call for multilateral dialogue among States parties to the Treaty on how to apply the principle of irreversibility in practice.
- All States parties to the Treaty are encouraged to report on how they apply the principles of irreversibility in relation to the implementation of their Treaty obligations, to help to build an understanding of when and where irreversibility measures can be put into practice in reaching and maintaining a world free of nuclear weapons, and to report on such initiatives and activities to future conferences on the Non-Proliferation Treaty.
- The 13 practical steps agreed to in the final document of the 2000 Review Conference and the 64-point action plan agreed to in the final document of the 2010 Review Conference remain valid. The States parties to the Treaty need to continue implementing the relevant steps leading up to nuclear disarmament agreed to in the final documents.
- All States parties to the Treaty are encouraged to continue to submit national reports to future preparatory committee sessions or review conferences, in which they describe how they implement the 13 practical steps and the 64-point action plan, as called for in actions 5, 20 and 21 of the 2010 action plan.
- All States parties to the Treaty – both nuclear-weapon States and non-nuclear-weapon States – are also encouraged to report on action 2 by providing

information in future reports on their national policy on irreversibility, including any relevant initiatives and actions that serve to illustrate the policy.

- All States parties to the Treaty are encouraged to consider what legally binding verification arrangements, within the context of IAEA, may be required to fulfil action 17, to ensure the irreversible removal of fissile material designated by nuclear-weapon States as no longer required for military purposes.
  - All States parties to the Treaty are encouraged to provide information on how they are working towards fulfilling the requirements set out in action 15 (a treaty banning the production of fissile material for weapons purposes) and the nuclear-weapon States on action 18 (the dismantling or conversion of facilities for the production of fissile material for weapons purposes).
  - Future Review Conference final documents should attempt to add more specific substance to the principle of irreversibility, which will help to clarify what is expected of States parties.
-