

EXAMINING MODALITIES FOR NUCLEAR DISARMAMENT IN THE MIDDLE EAST WMD-FREE ZONE TREATY

By Tomisha Bino and Karim Haggag



MIDDLE EAST WEAPONS OF MASS DESTRUCTION FREE ZONE SERIES



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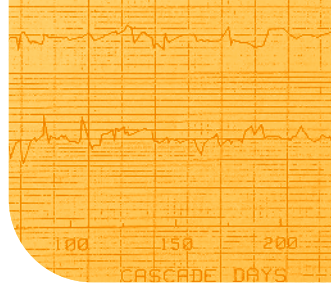
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A graph from South Africa's Y Plant Operational records, showing the daily enrichment levels 1991, Devaid Albright and Andrea Sticker, "Revisiting South Africa's nuclear weapons program".



High Explosive Manufacturing site in South Africa's Advena facility, 1991, Devaid Albright and Andrea Sticker, "Revisiting South Africa's nuclear weapons program".

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Containers for radioactive material discovered in a warehouse in Iraq, Action Team/ IAEA/Action Team, Iraq, 1991.

The remains of a Russian-made IRTM reactor are being examined at Tuwaitha, IAEA/Action Team, Iraq, 1991.

LIST OF ACRONYMS

AFCONE	African Commission on Nuclear Energy
BWC	Biological Weapons Convention
CWC	Chemical Weapons Convention
FMCT	Fissile Material Cut-off Treaty
GGE	Group of Governmental Experts
IAEA	International Atomic Energy Agency
IPNDV	International Partnership for Nuclear Disarmament Verification
NNWS	Non-Nuclear Weapon States
NPT	Treaty of the Non-Proliferation of Nuclear Weapons
JCPOA	Joint Comprehensive Plan of Action
NWFZ	Nuclear Weapon-Free Zone
NWS	Nuclear Weapon States
TPNW	Treaty on the Prohibition of Nuclear Weapons
UN	United Nations
UNGA	United Nations General Assembly
WMD	Weapons of Mass Destruction
WMDFZ	Weapons of Mass Destruction-Free Zone



INTRODUCTION

A UN nuclear inspection team negotiating access to the Fallujah Military Transport Command in Iraq, UN Photos/Pernaca Sudhakaran, Iraq, 1991.

Nearly three decades have passed since the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was extended indefinitely in 1995. The Resolution on the Middle East, which called for the establishment of a Middle East weapons of mass destruction-free zone (ME WMDFZ), was an essential part of the agreement on an extension. Now, for the first time, the states of the region have begun negotiations on a treaty establishing such a zone.¹

The deliberations convened under the auspices of the United Nations Secretary-General are at an early stage. Since the Conference started in 2019, decisions on key matters, including the scope of obligations pertaining to nuclear weapons, are still under discussion.

The ME WMDFZ, once established, will join the five existing regional Nuclear Weapon-Free Zones (NWFZs) and become part of the wider international multilateral regime of non-proliferation, disarmament and arms control instruments. The negotiators charged with formulating the draft treaty have a wealth of experiences and precedents from which to draw. However, the unique characteristics of the Middle East necessitate a broad consideration of the scope of obligations within a ME WMDFZ treaty that could go further than the existing NWFZs.

One of these key considerations will be how to address nuclear disarmament given the lack of clarity surrounding Israel's nuclear capabilities. Additionally, there are lingering questions regarding the trajectory of the Islamic Republic of Iran's nuclear programme given the uncertainty surrounding the future of the Joint Comprehensive Plan of Action (JCPOA). The history of proliferation in

¹ United Nations General Assembly, "Convening a conference on the establishment of a Middle East zone free of nuclear weapons and other weapons of mass destruction", 73/546 (Decision), 22 December 2018, https://www.un.org/disarmament/wp-content/uploads/2019/10/Decision-A_73_546.pdf

Despite numerous regional and global frameworks in the form of the various NWFZ treaties and the NPT, there are few available international mechanisms addressing nuclear disarmament. Those that do exist are relatively nascent and, in many ways, still evolving.

the Middle East has featured a significant number of past and ongoing cases of non-compliance with NPT safeguards obligations in the region, such as those in Iran, Iraq, Libya and the Syrian Arab Republic,² and Saudi Arabia has hinted publicly at the possibility of pursuing nuclear weapons.³ These all point to the need to construct a viable nuclear disarmament framework as a key pillar of the zone framework to address not only existing cases of nuclear weapon possession, but also the continuous verification of non-diversion of nuclear material. Negotiating a framework that both addresses disarmament and aims to prevent future proliferation cases in the Middle East zone will undoubtedly be

a difficult task, not least because of the technical challenges associated with nuclear weapon verification and disarmament and the aforementioned issues of the region. So far, most discussions have been related to the prohibition of nuclear weapon-related activities, such as their development, manufacture, production or testing, while the issue of nuclear disarmament has received little attention. Despite numerous regional and global frameworks in the form of the various NWFZ treaties and the NPT, there are few available international mechanisms addressing nuclear disarmament. Those that do exist are relatively nascent and, in many ways, still evolving.

This paper addresses the complexities associated with nuclear disarmament in the absence of an internationally accepted multilateral framework.⁴ Its objective is to provide officials and experts with an overview of existing frameworks and tools for nuclear disarmament and how these might be addressed in the regional context and in the ME WMDFZ treaty.⁵ The paper sketches out and examines the implications of two primary pathways to achieve nuclear disarmament in a future ME WMDFZ treaty: disarmament as a precondition for joining the treaty, and the inclusion of specific disarmament provisions in the zone treaty. The paper also discusses the implications for each pathway. As states of the region have not yet set out the modalities of disarmament for a ME WMDFZ treaty, it is important to highlight that each pathway raises a different set of questions. These centre on the level of assurance and the conditions that states would find satisfactory or the level of certification or information to establish confidence in the outcome of the disarmament process. The questions also concern whether the International Atomic Energy Agency (IAEA), and/or a regional organization, or another entity could provide the verification of nuclear disarmament.

2 Without finding the relevant actions taken by Egypt as non-compliance, in 2005, the IAEA found that Egypt had failed to report nuclear material and facilities as required by its Safeguards Agreement. The Agency expressed concern about these repeated failures but noted that the material and facilities inspected were consistent with Egypt's declared activities. The IAEA welcomed Egypt's cooperation in clarifying the issues and granting access for assessment. See IAEA, "Implementation of the NPT Safeguards Agreement in the Arab Republic of Egypt", Report by the Director General, GOV/2005/9, 14 February 2005, p. 5, https://www.globalsecurity.org/wmd/library/report/2005egypt_iaea_gov-2005-9_14feb2005.pdf.

3 "Saudi crown prince says will develop nuclear bomb if Iran does: CBS TV", Reuters, 15 March 2018, <https://www.reuters.com/article/us-saudi-iran-nuclear-idUSKCN1GR1MN>.

4 John Carlson, "Nuclear verification in a Middle East WMD free zone", UNIDIR, 2021, [https://unidir.org/sites/default/files/2021-02/Nuclear Verification in a Middle East WMD Free Zone - UNIDIR - 2021_0.pdf](https://unidir.org/sites/default/files/2021-02/Nuclear%20Verification%20in%20a%20Middle%20East%20WMD%20Free%20Zone%20-%20UNIDIR%20-%202021_0.pdf)

5 The scope of the paper is nuclear disarmament within the ME WMDFZ treaty. Notably, the treaty negotiators would also have to address disarmament of chemical and biological weapons as well as non-proliferation provisions (i.e. how to ensure that states do not develop weapons of mass destruction once party to the treaty).

DISCUSSIONS ON NUCLEAR DISARMAMENT IN THE MIDDLE EAST CONTEXT

Containers for radioactive material discovered in a warehouse in Iraq, Action Team/IAEA, Iraq, 1991-1998.

An examination of relevant resolutions and statements by states of the region shows that the pathway that they have traditionally considered to address nuclear disarmament has been to require the only state that is currently suspected to possess these capabilities – Israel – to join the NPT as a non-nuclear weapon state (NNWS) and place all its nuclear material and facilities under IAEA safeguards. For example, the annual resolutions on the matter at the United Nations General Assembly⁶ and the IAEA General Conference⁷ call upon states in the region that have not done so to join the NPT and apply full-scope safeguards to all their nuclear activities.⁸

So far, the participants in the ME WMDFZ Conference have discussed two routes to disarmament. The first route would be to require disarmament by acceding to the NPT as a NNWS as a *prerequisite* to joining the zone treaty,⁹ for example by opening the zone treaty for signature only to NNWS members of the NPT. Under the second, the ME WMDFZ would incorporate a nuclear disarmament mechanism *within* the treaty allowing a state that possesses nuclear weapons to first join the treaty and then disarm through a treaty-specified framework. Those proposing the latter suggested the inclusion of a requirement for states that possess nuclear weapons to join the zone treaty, and then to accede to the NPT as a NNWS within a specific time frame or prior to entry into force of the zone treaty.¹⁰

Nuclear disarmament as a prerequisite for joining the treaty

Under this pathway, a state in the region that possesses nuclear weapon capabilities would need to disarm prior to joining the treaty. Such an approach would partly draw on the precedent of South Africa's experience, the only case in

⁶ See United Nations General Assembly resolutions on the "Establishment of a nuclear-weapon-free zone in the region of the Middle East" (e.g., <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/737/95/PDF/N2273795.pdf?OpenElement>) and "The risk of nuclear proliferation in the Middle East" (e.g., <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/740/67/PDF/N2274067.pdf?OpenElement>)

⁷ See IAEA General Conference resolutions on the "Application of IAEA safeguards in the Middle East" (e.g., <https://www.iaea.org/sites/default/files/gc/gc66-res12.pdf>), and "Israeli nuclear capabilities" (e.g., https://www.iaea.org/sites/default/files/gc/gc53res-17_en.pdf).

⁸ Also see Conference on the Establishment of a Middle East Zone Free of Nuclear Weapons and Other Weapons of Mass Destruction, Third Session, "Statement by Heidar Ali Balouji, First Counselor of the Permanent Mission of the Islamic Republic of Iran to the UN on Core Obligations", New York, 14 November 2022, <https://undir.org/node/6952>, and Conference on the Establishment of a Middle East Zone Free of Nuclear Weapons and Other Weapons of Mass Destruction, Second session, "Working paper submitted by the Syrian Arab Republic", New York, 29 November–3 December 2021, A/CONF.236/2021/WP2, 14 November 2022, <https://undir.org/node/6583>.

⁹ See statements by Kuwait, Iraq, Iran and Tunisia available (in Arabic) at <https://meetings.unoda.org/meeting/64593/statements>.

¹⁰ See statements by Egypt and Lebanon to the third session (2022) of the Conference on the Establishment of a Middle East Zone Free of Nuclear Weapons and Other Weapons of Mass Destruction, <https://meetings.unoda.org/meeting/64593/statements>; as well as Egypt's working paper to the second session (2021), A/CONF.236/2021/WP2, <https://undir.org/node/6582>.

which state that had manufactured nuclear weapons later voluntarily decided to dismantle its weapons programme prior to its accession to the NPT as a NNWS.

Following South Africa's accession to the NPT as a NNWS in 1991 and its bringing into force a comprehensive safeguards agreement with the IAEA, the IAEA General Conference requested the Director General to verify the completeness of South Africa's declarations of its nuclear installations and material.¹¹ As such, the IAEA was tasked to conduct the safeguards function of verifying the correctness and completeness of South Africa's declaration of its nuclear material. In 1993, following South Africa's public declaration that it had possessed (and dismantled) nuclear weapons, South Africa extended an invitation to the IAEA to examine the scope, nature and facilities associated with the weapon programme. As a result, the IAEA's investigation was expanded to include assessing the status and history of South Africa's nuclear weapon programme, a task that required augmenting the inspection team with nuclear weapon experts.¹² With South Africa's active cooperation, many of the IAEA's activities went beyond what was legally required of South Africa by its safeguards agreement.¹³ South Africa granted the IAEA inspectors access "anywhere, anytime, anyplace – within reason" to establish that its nuclear weapons programme had been completely terminated and dismantled.¹⁴ The verification process was challenging due to the unilateral destruction of records prior to the arrival of the IAEA, and the nature of the South African programme – the extensiveness of its programme and the complexity of its nuclear fuel cycle, the unique design of some of the facilities that had not been subject to safeguards, South Africa's accountancy system which lacked formal measurement controls for depleted uranium, and the fact that some of the facilities were used for both civilian and military programmes.

In September 1993, the Agency concluded that there was no indication to suggest that South Africa's "substantial amounts of depleted or natural uranium used in the nuclear weapons programme are unaccounted for" and that there was "no indication to suggest that there remain any sensitive components of the nuclear weapons programme which have not been either rendered useless or converted to commercial non-nuclear applications or peaceful nuclear usage".¹⁵ In 1995, the IAEA determined that "it was reasonable to conclude" that the uranium material balances were "consistent with the uranium feed". The IAEA also noted that, as in other instances where a sizable nuclear programme first comes under safeguards, its assessments of the status of the previous nuclear weapon programme and the completeness of South Africa's inventory of nuclear facilities and materials were not free from uncertainty.¹⁶ Of note, South Africa decided not to share with the IAEA certain information, including data on the import of nuclear material, especially the identity of the suppliers of direct-use and dual-use equipment for its enrichment and nuclear weapon programmes; it released little information about the nuclear weapon-delivery systems, and did not share information about its nuclear military strategy.¹⁷ It is also important to note that IAEA now requires "a thorough understanding

11 IAEA, "South Africa's nuclear capabilities", GC(XXXV)/RES/567, September 1991, https://www.iaea.org/sites/default/files/gc/gc35res-567_en.pdf.

12 Adolf von Baeckmann, Garry Dillon and Demetrius Perricos, "Nuclear verification in south Africa", IAEA Bulletin, no. 1/1995, <https://www.iaea.org/sites/default/files/publications/magazines/bulletin/bull37-1/37105394248.pdf>.

13 Robert E. Kelley, A Technical Retrospective of the Former South African Nuclear Weapon Programme, SIPRI, 2020, https://www.sipri.org/sites/default/files/2020-10/sa_nuclear_technical_retrospective_kelley_2.pdf.

14 John Carlson, "Nuclear verification in a Middle East WMD-Free Zone: Lessons from Past Verification Cases and Other Precedents", <https://undir.org/publication/nuclear-verification-middle-east-wmd-free-zone-lessons-past-verification-cases-and>.

15 IAEA, "The denuclearization of Africa", GC(XXXVI)/RES/577, 9 September 1993, https://www.iaea.org/sites/default/files/gc/gc37-1075_en.pdf.

16 David H. Albright and Andrea Stricker, "Revisiting South Africa's nuclear weapons program: Its history, dismantlement, and lessons for today", 24 September 2016, <https://isis-online.org/uploads/isis-reports/documents/>.

17 Ibid.

of a state's past nuclear activities to draw a conclusion on whether the state may have continuing undeclared nuclear activities".¹⁸

The IAEA, in line with its obligation to protect confidentiality with respect to safeguards information, only released to IAEA member states summary conclusions on its findings in South Africa, with little detail. This was particularly true in the case of verification of activities related to weaponization, in order to protect sensitive information related to weapon design. Although South Africa was not completely transparent about all aspects of its past nuclear weapon programme, it eventually revealed a remarkable level of information about certain aspects of the programme. Through extensive cooperation with the IAEA, it increased confidence in the correctness and completeness of its declarations and in the dismantlement of its programme.

The South African case is the only precedent of a state undertaking to voluntarily dismantle and destroy its nuclear weapon programme.¹⁹ The important point to note here is that this was done unilaterally prior to South Africa joining the NPT. Requiring NPT membership as a condition for joining the zone treaty would, de facto, require a state to disarm first. The NPT itself does not include an explicit provision mandating nuclear disarmament prior to accession. However, the treaty explicitly defines those countries that are considered nuclear weapon states (NWSs).²⁰ This leaves no room for any state that does not fulfil that criterion but is in possession of nuclear weapons to join the treaty, thus implicitly establishing a requirement to join as a NNWS and disarm as a prior condition for NPT accession.

The IAEA would then be expected to make a determination, through the application of its safeguards process, regarding the correctness and completeness of a state's declaration regarding its inventory of nuclear material, including the absence of undeclared nuclear material facilities, and activities.

Nuclear disarmament obligations within the proposed ME WMDFZ treaty

Of the five NWFZ treaties, only the Treaty of Pelindaba on the African zone provides the option for a state to join the treaty while still possessing nuclear weapons at the time of signature. The four other NWFZ treaties – Tlatelolco on Latin America and the Caribbean, Rarotonga on the South Pacific, Bangkok on South East Asia and Semipalatinsk on Central Asia – only include prohibitions on nuclear weapons and related activities. There are several reasons why such obligations were not seen as relevant in those regions.

First, no state in those four regions possessed nuclear weapons at the time of negotiation. Second, the main drivers behind creating those zones were perceived external threats; that is, the creation of the NWFZ was viewed as

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¹⁸ Carlson, "Nuclear verification in a Middle East WMD free zone".

¹⁹ This is in contrast to the cases of Belarus, Ukraine and Kazakhstan, which repatriated nuclear weapons deployed on their territories to the Russian Federation in the 1990s following the collapse of the Soviet Union. Of note, all these three states became parties to the NPT prior to returning the weapons.

²⁰ Under the NPT, an NWS is defined as a state that had manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.

a mean of shielding a region from different types of nuclear intervention by NWSs – primarily stationing, testing and dumping. And finally, the vast majority of those states (with the exception of Latin American states, whose treaty preceded the NPT, and some island countries in the South Pacific) were already NNWS members of the NPT at the time that negotiations were underway for the establishment of their respective zones.

The only treaty establishing a NWFZ that includes an obligation to declare, dismantle and destroy nuclear weapons and their production facilities is this the Treaty of Pelindaba, which was negotiated between 1991 and 1995. Like the other NWFZs, all countries in the region at the time were NPT member states. But unlike the other four NWFZs, which were primarily a response to perceived external nuclear interventions,²¹ the African NWFZ was seen as a “security instrument meant to assure the security of the continent from external as well as internal nuclear threats”.²² Thus, the incorporation of this obligation within the treaty was done with the case of South Africa’s nuclear weapons programme clearly in mind.²³

The Middle East finds itself in a situation similar to that of Africa prior to the dismantlement of South Africa’s nuclear weapon programme – with one state in the region known to possess nuclear weapons – albeit with an important difference. South Africa’s nuclear disarmament took place *prior to the start of negotiations* of the Treaty of Pelindaba.²⁴ This raises the question of why the treaty’s drafters included an article on the “Declaration, dismantling, destruction or conversion of nuclear explosive devices and the facilities for their manufacture”, when South Africa had already dismantled its nuclear weapons programme. Indeed, when the African zone was initially proposed, it was aimed primarily at preventing further testing on the continent by NWSs. However, the case of South Africa gave it further impetus. According to Sola Ogunbanwo, a Nigerian diplomat who participated in the negotiation of the treaty, “South Africa’s accession to the NPT, its quick acceptance of IAEA safeguards, and the disclosure by former President de Klerk of the existence and destruction of six nuclear explosive devices meant that a vital precondition for the military denuclearization of Africa had been fulfilled” and allowed for the negotiating of the treaty.²⁵

Although South Africa’s nuclear disarmament process was undertaken prior to the negotiation of the Treaty of Pelindaba, the treaty does allow for the disarmament process to be undertaken by a state party in possession of nuclear weapons after accession to the treaty; in other words, as a state party to the treaty. This formulation was a result of two key considerations. First, the 1993 disclosures by South Africa meant that the Pelindaba Treaty had to ensure that no new nuclear explosive devices could be introduced into Africa and that those already developed by South Africa were fully destroyed along with their production facilities.²⁶ Second, African negotiators felt that they need a regional nuclear disarmament mechanism to complement the IAEA. They were concerned about political biases that they attributed to the IAEA when it “failed to confirm Africa’s earlier loud, bitter and accurate allegations of a South African nuclear weapon capability that posed a grave threat to the continent’s

21 For a discussion of external nuclear interventions in the context of NWFZs, see Sizwe Mpofu-Walsh, “Obedient Rebellion: Nuclear-Weapon-Free Zones and Global Nuclear Order, 1967–2017”, Doctoral thesis, University of Oxford, 2020, <https://ora.ox.ac.uk/objects/uuid:1989894d-1e20-419e-8b39-84a02b53cf05/files/dw9505048f>.

22 Oluyemi Adeniji, “The Treaty of Pelindaba on the African-Nuclear-Weapon-Free Zone”, UNIDIR, 2002, <https://www.unidir.org/sites/default/files/publication/pdfs/the-treaty-of-pelindaba-on-the-african-nuclear-weapon-free-zone-297.pdf>.

23 According to Oluyemi Adeniji, a Nigerian diplomat who was involved in the negotiations of the Pelindaba Treaty (and was subsequently Foreign Minister), once “all doubt as to the nuclear capability of South Africa having for the first time been lifted, it was stressed that a proposed article on declaration, dismantling, destruction, or conversion of nuclear explosive devices and the facilities used for their production prior to the creation of the nuclear-weapon-free zone, which had not featured in any of the existing treaties, would indeed have to be an indispensable part of the African treaty”. See Adeniji, *Ibid.*

24 For the full timeline of the negotiation of the Treaty of Pelindaba, see Sola Ogunbanwo, “The Treaty of Pelindaba: Africa is nuclear-weapon-free”, *Security Dialogue*, vol. 27, no. 2 (1996): 185–200, <http://www.jstor.org/stable/44471946>.

25 *Ibid.*, p. 187.

26 *Ibid.*, p. 191.



3rd session of the Conference on Establishment of a Middle East Free Of Nuclear Weapons and Other Weapons of Mass Destruction chaired by Lebanon, UN Photos/Manuel Elías, New York, 2022.

security”.²⁷ African states perceived “that failure originating not in technical weakness but in lack of will that had its origin in political considerations”.²⁸ Third, the negotiators felt they could also not rely solely on a new African body due to the steep cost of setting up such an institution, and lack of regional capacity but at the same time did not want to rule out the future development of indigenous expertise in this field. The final language was thus a middle way: a joint role for both the IAEA and the African Commission on Nuclear Energy (AFCON) to implement disarmament under the treaty.

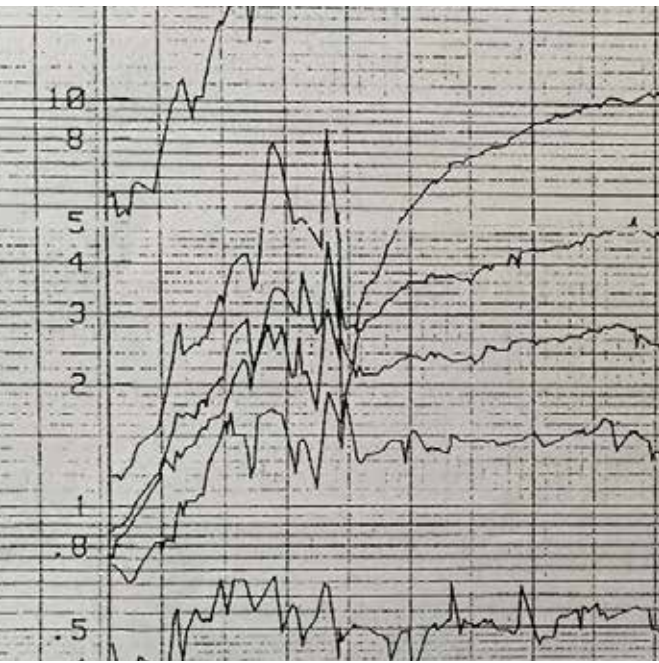
If the states of the Middle East decide to tackle nuclear disarmament within the ME WMDFZ treaty, there are three approaches that could be drawn upon from relevant non-proliferation and disarmament instruments:

1. Disarmament obligations without a verification mechanism, such as in the NPT and Biological Weapons Convention (BWC)
2. Disarmament obligations with general verification requirements, such as in the Treaty of Pelindaba and the Treaty on the Prohibition of Nuclear Weapons (TPNW)
3. Disarmament with a specific verification mechanism, such as in the Chemical Weapons Convention (CWC).

Each approach will have its own implications, both for the negotiation of the zone treaty and its implementation. Ideally, negotiators of the ME WMDFZ will weigh these benefits and risks when deciding how to address nuclear disarmament.

²⁷ Adeniji, op cit.

²⁸ Ibid., p. 84.



DISARMAMENT OBLIGATIONS WITHOUT A VERIFICATION MECHANISM

A graph from South Africa's Y Plant operational records, showing the daily enrichment levels, 1991, David Albright and Andrea Stricker, "Revisiting South Africa's nuclear weapons program."

The Treaty on the Non-Proliferation of Nuclear Weapons

The NPT is – as its formal title suggests – first and foremost a non-proliferation instrument. The treaty's disarmament provisions do not include a clear pathway for disarmament, but a requirement for the NWSs "to *pursue negotiations* in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control".²⁹ The provision is not time-bound or subject to any enforcement or verification mechanism to ensure compliance.³⁰

Given that the NPT includes only general and weak disarmament provisions, it is the belief of the authors it is unsuited as a pathway for devising a sufficiently robust nuclear disarmament mechanism to be implemented within the ME WMDfZ.

The Biological Weapons Convention

The BWC contains clearer language regarding its members' obligation to destroy or divert to peaceful uses all "microbial or other biological agents, or toxins, that have no justification for peaceful prophylactic or protective purposes as well as any weapons or equipment designed for their delivery". This obligation is time-bound ("as soon as possible but not later than nine months after" entry into force), but the Convention does not include any provision for the verification of this obligation or any

²⁹ Emphasis added.

³⁰ It could be argued that some measure of enforcement is exercised through the review process of the NPT. However, the Review Conference outcomes have either been weak on enforcement of the disarmament pillar or have not been implemented.



High Explosive Manufacturing Site in South Africa's Advena facility, 1991, David Albright and Andrea Stricker, "Revisiting South Africa's nuclear weapons program".



An IAEA Action Team inspector uncovers a Computer-Numerically-Controlled (CNC) machine tool, capable of producing high precision parts, such as for enrichment centrifuges or even nuclear weapons parts, Iraq, IAEA, Action Team, 1991-1998



other obligation. That being said, Article VI of the BWC gives its member states the right to lodge a complaint with the United Nations Security Council if it finds that another member is acting in breach of the treaty. It also obliges member states to cooperate with any resulting investigation.

If applied to the zone treaty, such a model would have the advantage of incorporating an explicit time frame for nuclear disarmament, notwithstanding the fact that the nuclear disarmament process requires significantly extended timelines. However, similar to the NPT, the absence of a verification mechanism – and specifically in this case the lack of even a dedicated organization that could conduct verification – would be a considerable disadvantage. It would inevitably raise concerns over the completeness of the disarmament process and, as a result, potentially compromise the integrity of the zone treaty as a whole.



DISARMAMENT OBLIGATIONS WITH GENERAL VERIFICATION REQUIREMENTS

The remains of a Russian-made IRTM reactor are being examined at Tuwaitha, IAEA/Action Team, Iraq 1991.

Two relevant instruments that include measures, albeit general, for nuclear disarmament that could be relevant for the Middle East zone are the Treaty of Pelindaba and the TPNW.

The Treaty of Pelindaba

As mentioned above, the Pelindaba Treaty establishing the African nuclear weapon-free zone is the only NWFZ treaty containing a clear disarmament provision. Specifically, Article 6 of the treaty obligates states parties to declare any capability for the manufacture of nuclear explosive devices and to dismantle and destroy such devices and related manufacturing facilities or convert them to peaceful uses. The treaty, therefore, does not obligate the state in question to disarm as a prior condition to its accession. The incorporation of this provision, as noted by one of the negotiators of the Treaty, “derived from the uniqueness of the African situation with respect to the timing of the creation of a NWFZ. Not having featured in any other similar treaty, it was seen from the beginning of the consideration of the elements of the treaty as one that would emphasize the peculiar nature of the African situation.”³¹

³¹ Adeniji, op. cit.

The Pelindaba Treaty establishing the African nuclear weapon-free zone is the only NWFZ treaty containing a clear disarmament provision.

The treaty, however, does not include any elimination measures, or any concrete disarmament-verification mechanisms or timeline. It only mandates verification of the dismantlement and destruction of nuclear weapons by the IAEA and AFCONE.

Article 6 of the Pelindaba Treaty has not yet been implemented and the joint inspection mechanism

has not been established. It thus remains a general measure that does not provide a detailed blueprint for the Middle East zone treaty if the states of the region were to decide to include disarmament procedures that would require robust verification. It does, however, provide a precedent of a NWFZ treaty including specific disarmament provisions.

The Treaty on the Prohibition of Nuclear Weapons

The TPNW provides a more detailed framework for nuclear disarmament than the treaties discussed above; as such, it constitutes a significant development of the global multilateral regime addressing nuclear disarmament. The treaty requires each state party to submit to the United Nations Secretary-General a comprehensive declaration regarding ownership, control or possession of nuclear weapons or nuclear explosive devices, and whether it has undertaken to convert all nuclear weapon-related facilities to peaceful uses prior to the entry into force of the treaty (Article 2). The treaty thus establishes an obligation for the provision of a baseline declaration by all states regarding their nuclear weapon status.

The disarmament process, which is outlined in Article 4(2) of the treaty, is based on a number of steps. They begin with the immediate removal of nuclear weapons from operational status, and their destruction as soon as possible in accordance with a legally binding, time-bound plan for their verified and irreversible elimination. This plan is to be negotiated with a yet to be created “competent international authority” designated by the states parties to the TPNW.

The TPNW provides for two scenarios for nuclear disarmament: prior to and after joining the treaty. In the first scenario, a state that owned or possessed nuclear weapons on or after 7 July 2017 (the date of the adoption of the treaty) and subsequently dismantled them prior to joining the TPNW “shall cooperate with the competent international authority . . . for the purpose of verifying the irreversible elimination of its nuclear-weapon programme”. It must also “conclude a safeguards agreement with the International Atomic Energy Agency sufficient to provide credible assurance of the non-diversion of declared nuclear material from peaceful nuclear activities and the absence of undeclared nuclear material or activities in that State Party as a whole”.³² This provision thus designates a role for the “competent international authority” for the retroactive verification of nuclear disarmament undertaken by the state prior to its accession to the treaty, while assigning to the IAEA the traditional task of verification of non-diversion of declared nuclear material and the absence of undeclared nuclear material.

In the second scenario, by which states accede to the TPNW while still in possession of nuclear weapons, the treaty requires the state to

immediately remove [the nuclear weapons] from operational status, and destroy them as soon as possible but not later than a deadline to be determined by the first meeting of States Parties,³³ in

32 Treaty on the Prohibition of Nuclear Weapons, Article 4(1), <https://treaties.unoda.org/tpnw>.

33 The first Meeting of States Parties of the TPNW adopted an upper limit of 10 years as a deadline for the destruction of a state's nuclear weapons, with a maximum additional extension period of 5 years. First Meeting of States Parties to the Treaty on the Prohibition of Nuclear Weapons, Report, TPNW/MSP/2022/6, 21 July 2022, Annex III, <https://undocs.org/en/TPNW/MSP/2022/6>.

accordance with a legally binding, time-bound plan for the verified and irreversible elimination of that State Party's nuclear-weapon programme, including the elimination or irreversible conversion of all nuclear-weapons-related facilities.

The state would also be required to submit that plan no later than 60 days after the treaty's entry into force for that state. This plan is further subject to negotiation with the "competent international authority and is to be submitted to the other member states for approval".³⁴ The implementation of the disarmament process is to be subject to review by the states parties to the treaty, and its completion is to be signified by a declaration submitted to the United Nations Secretary-General by the state party involved.³⁵

Together, these provisions constitute a framework for a phased, time-bound process for nuclear weapon disarmament. At the same time, the disarmament framework of the treaty leaves all the details of the disarmament and verification processes to be defined. This affords considerable latitude in negotiating those details, in order to accommodate the specific circumstances that might have a significant bearing on the particular challenges relating to the case at hand. However, it also leaves significant uncertainty on the part of a disarming state on what actions it might be required to undertake. It is important to note that no "competent international authority" has yet been designated by the states parties to the TPNW. Without the designation of such an authority, the disarmament-verification process remains a conceptual framework rather than a detailed system for disarmament and verification provisions.

This combination of parameters for the nuclear disarmament process and flexibility in tailoring this process to the specific disarmament context offers another model that can inform the design of the nuclear disarmament framework for the Middle East WMDfZ treaty.

³⁴ Treaty on the Prohibition of Nuclear Weapons, Article 4(2), <https://treaties.unoda.org/tpnw>.

³⁵ Ibid.

It is important to note that no "competent international authority" has yet been designated by the states parties to the TPNW. Without the designation of such an authority, the disarmament-verification process remains a notional road map rather than a detailed system for disarmament and verification provisions.

DISARMAMENT OBLIGATIONS WITH A VERIFICATION MECHANISM

An IAEA Action Team inspector uncovers a Computer-Numerically-Controlled (CNC) machine tool, capable of producing high precision parts, such as for enrichment centrifuges or even nuclear weapons parts, Iraq, IAEA, Action Team, 1991-1998.



The Chemical Weapons Convention

The CWC is, thus far, the only example of a multilateral disarmament treaty that includes a comprehensive disarmament verification regime. It is considered to be the first – and thus far only – treaty to verifiably ban an entire class of weapons of mass destruction. The convention includes provisions addressing declarations, destruction and prohibition, most of which are subject to detailed protocols embodied within the treaty and its various annexes.

Article I of the CWC establishes the obligation to destroy any chemical weapons and their production facilities. Article III details the obligation for each member state to submit declarations on chemical weapons it possesses or has transferred, old and abandoned chemical weapons, chemical weapon-production facilities, other relevant developments facilities, and declarations on riot control agents.

Articles IV and V (in addition to the Verification Annex) lay out the procedures for the destruction and verification of the destruction of weapons and facilities declared under Article III. For example, Article IV specifies that all stored or destroyed chemical weapons would be subject to systematic verification, including on-site inspection and monitoring using on-site instruments until complete destruction. The treaty also includes time-bound provisions on the submission of a detailed destruction plan by the state (no later than 30 days after the Convention enters into force for that state) and annual reports on the progress in implementing the plan as well as verification of completion. It also regulates the access by inspectors to storage and destruction facilities. The treaty's extensive Verification Annex further elaborates the implementation of this article through, for example, detailing precisely what the declarations shall include and detailing inspectors' rights during their inspections.

The CWC is, thus far, the only example of a multilateral disarmament treaty that includes a comprehensive disarmament verification regime.



IMPLICATIONS OF DIFFERENT MODALITIES FOR ME WMDFZ NEGOTIATION AND IMPLEMENTATION

KVR-1000 satellite image of South Africa's Y plant which served as an experimental uranium enrichment plant, South Africa, 1991, David Albright and Corey Hinderstein, Pelindaba and Valindaba Facilities.

Based on the various models highlighted above, two broad pathways present themselves for addressing nuclear disarmament in a ME WMDFZ – within the treaty or outside it. Each has implications for the scope and modalities of the treaty, including how the disarmament process would be conducted, by whom and under what terms.

Opting to establish nuclear disarmament as a precondition for joining the zone treaty, for example, by requiring all states to be NNWS parties to the NPT prior to signature – thereby excluding a nuclear disarmament obligation from the zone treaty – entails certain advantages. In particular, it would obviate the need to incorporate detailed nuclear disarmament provisions in the zone treaty itself. This would alleviate what would be a considerable technical burden on the negotiating process of the treaty currently underway, as well as reduce the time required for it to be negotiated. Moreover, such an option would significantly simplify the implementation of the treaty itself after its entry into force by excluding the verification requirements associated with nuclear disarmament – requirements that are technically and procedurally complex, logistically demanding, and financially costly. Such an option could rely on the IAEA to assess and gain assurance³⁶ that a state is a NNWS, alleviate concerns related to the capacity (or lack thereof) of states of the region to implement such an undertaking, and avoid potential risks of exposure to sensitive proliferation information. Finally, excluding the disarmament framework from the zone treaty would avoid prior negotiations with or agreement by the NWSs to support the modalities and terms of the disarmament process, especially with respect to the expertise related to nuclear weapons dismantlement and destruction that is still very much the preserve of the NWSs. Such a requirement would no doubt entail a high level of sensitivity and could be subject to considerable politicization.

36 In its working paper submitted to the second session of the Conference, Egypt also proposed that “The treaty should also include provisions to ensure that any State party that has previously possessed or controlled nuclear weapons shall conclude a safeguards agreement with IAEA sufficient to provide credible assurance of the non-diversion of declared nuclear material from peaceful nuclear activities and of the absence of undeclared nuclear material or activities under the control of or within the territory of that State party.” See Conference on the Establishment of a Middle East Zone Free of Nuclear Weapons and Other Weapons of Mass Destruction, Second session, “Working paper submitted by Egypt”, New York, 29 November–3 December 2021, A/CONF.236/2021/WP1, 14 July 2021, <https://undir.org/node/6582>.



*Vacuum induction furnace
in circle workshop, Armscor,
South Africa, 1990.*



Yet, by excluding the disarmament process from the zone treaty, its members would effectively forfeit any ability to influence the terms of the disarmament process for any state within the zone that possesses nuclear weapons. They would also be unable to attain the requisite confidence in the integrity and completeness of the process by being privy to any information on the progress of its implementation.³⁷ Notably, statements at the ME WMD/FZ Conference on the issue of nuclear disarmament have so far only included references to a role for the IAEA in verifying the dismantlement of a weapons programme, implying a certain level of trust in the agency's role in this regard. However, this does not preclude the likelihood of significant concerns being raised by member states of the zone regarding the disarmament process given that the terms of such an endeavour will be decided either unilaterally by the state in question, or in the context of a broader arrangement with one or several NWSs. In both cases, this would leave significant room for controversy and lingering doubts regarding the overall disarmament effort that could potentially effect the integrity of the zone framework as a whole.

In contrast, including a disarmament framework within the treaty presents a variety of options which would each entail a different set of advantages and disadvantages. The inclusion of a disarmament obligation in the treaty without a clear verification mechanism would enable states to conclude negotiations on the establishment of a zone within a shorter time frame. A clear advantage of this approach would be the option for states parties to the zone to set the broad parameters of the disarmament process, in negotiation with the NWSs prior to concluding the zone treaty. Without a verification framework, however, such an approach would have to reckon with the same questions around transparency,

37 For ideas about strengthening the IAEA's ability to verify nuclear disarmament and possible criteria for an effective verification in the region, including a proposal for "multi-bilateral" inspections, see remarks by Gideon Frank, "IAEA safeguards and international security", IAEA Symposium on Nuclear Safeguards, Verification, and Security, 2 November 2001, [https://www-pub.iaea.org/MTCD/publications/PDF/ss-2001/PDF/files/Session 18/Paper 18-04.pdf](https://www-pub.iaea.org/MTCD/publications/PDF/ss-2001/PDF/files/Session%2018/Paper%2018-04.pdf).

The inclusion of a disarmament obligation in the treaty without a clear verification mechanism would have to reckon with questions around transparency, assurances and level of information provided to the states of region as in the case of disarmament outside the treaty.

assurances and level of information provided to the states of region as in the case of disarmament outside the treaty. The readiness of states to join a treaty whose core disarmament and verification mechanisms remained to be defined could also be questioned.

However, including a disarmament obligation with elimination and verification procedures in the zone treaty would bring with it the challenge of designating the responsible entity entrusted with verifying fulfilment of the nuclear disarmament obligations undertaken by states parties to the treaty. This would also be a

considerable undertaking and would likely require significant collaboration with the NWSs to lend their expertise and probably to implement a significant portion of the disarmament process, given limited capacity in the region to negotiate and implement an effective and tailored disarmament and verification framework. Furthermore, the involvement of NWSs would most likely be required to assist in setting up a body to be the main party to implement the disarmament verification, in order to make sure that sensitive nuclear weapon information is protected. Here again, the key advantage of this option is that it would afford states parties to the zone treaty considerable authority in setting the terms for the disarmament process, as well as reducing risks that such a process, if conducted outside of the treaty framework, would be subject to significant doubt and potential controversy.

If states in the Middle East opt for a treaty that includes a verifiable disarmament obligation, it is clear, given the absence of an international multilateral mechanism for nuclear disarmament verification, that the treaty would have to take on the formidable task of devising such a mechanism. This, if possible, would constitute a significant contribution not only to regional but also international security and disarmament efforts. However, existing capacity limitations and the desire of some states to keep the negotiating time frames short make such an approach particularly challenging.

Through analysing the two pathways, three key considerations related to what is desirable, applicable and feasible are highlighted for the states of the Middle East to consider:

1. What is desirable – The states of the region will have to fully articulate the levels of information, transparency, and resulting assurance of the completeness and irreversibility of a state's nuclear weapon programme that they would deem sufficient to allay their concerns
2. What is applicable – The states of the region will have to assess the impact of each pathway on the complexity and time frame of the negotiation of the treaty and on its entry into force
3. What is feasible – The states of the region will have to identify a pathway that is compatible with the desired level of assurance as well as being politically and technically feasible

The tension between what is desirable, what is applicable and what is feasible could be illustrated by the specifics of the example of South Africa, where it dismantled its weapons, including the destruction of weapon-related documentation without the presence of the IAEA. Although the IAEA concluded that there was “no indication to suggest that there remain any sensitive components of the nuclear weapons programme which have not been either rendered useless or converted to commercial non-nuclear applications or peaceful nuclear usage”,³⁸ it did register that it was not free from uncertainty.³⁹ It took the Agency eight years after South Africa concluded an Additional Protocol in 2002 to draw the conclusion that “all nuclear material remained in peaceful activities”.⁴⁰

Similarly, given that the IAEA now requires “a thorough understanding of a state’s past nuclear activities to draw a conclusion on whether the state may have continuing undeclared nuclear activities”,⁴¹ any disarmament plan will need to be conducted with the full cooperation and of the disarming state. It is less likely that Israel, or any future possessor, will disarm under terms that it did not agree to. This could also further delay the entry into force of the zone treaty if the requirement for that is signature and ratification of all states of the Middle East. This is especially likely in the light of the guidance and principles on the establishment of NWFZs, codified in a 1999 report by the United Nations Disarmament Commission, that such zone must be “on the basis of arrangements freely arrived at among the States of the region concerned”.⁴² This does not imply that the terms of disarmament should be decided solely by the nuclear possessor state. To prevent challenges of credibility and legitimacy related to the disarmament process, the most optimum framework would allow for the negotiation of the specifics of the disarmament process in a manner acceptable to all parties involved.

In order to inform the decision on any of the options, the states of the Middle East will need to consult with the IAEA about the role it can play within the disarmament process (whether it is within the zone treaty or outside). Such discussions would be crucial for the states of the region to understand what the IAEA can and cannot do under its current mandate; what would be the nature of and requirements for adoption of an expanded mandate; what the IAEA would and would not be able to conclude based on such a mandate; and what information will be shared to the states after the Agency has completed its work. It will also help Middle Eastern states in determining what is needed to establish such a mandate from a political, technical and financial standpoint. Of note, historically, the IAEA has been tasked with verifying nuclear non-diversion and has developed a monitoring system to make sure that nuclear materials are only used for peaceful purposes. The cornerstone of this monitoring system, the IAEA’s safeguards system, is essentially a system for nuclear material accounting, intended to identify any diversion of such material for military purposes. This

Including a disarmament obligation with elimination and verification procedures in the zone treaty would bring with it the challenge of designating the responsible and competent entity entrusted with verifying fulfilment of the nuclear disarmament obligations undertaken by states parties to the treaty.

The states of the region will have to assess the impact of each pathway on the complexity of treaty implementation, and the time it would take to negotiate the treaty and enter into force.

38 IAEA, “Director General’s statement on the occasion of the presentation by the Minister of Foreign Affairs of South Africa”, 7 April 1994, <https://www.iaea.org/newscenter/statements/director-generals-statement-occasion-presentation-minister-foreign-affairs-south-africa>.

39 Carlson, op. cit.

40 Ibid.

41 Ibid.

42 United Nations General Assembly, Report of the Disarmament Commission, A/54/42, 6 May 1999, Annex I, <https://undir.org/node/5645>.

In order to inform the decision on any of the options, the states of the Middle East will need to consult with the IAEA about the role it can play within the disarmament process (whether it is within the zone treaty or outside).

43 For an extensive discussion on the question of the IAEA's suitability to undertake nuclear disarmament under the provisions of the TPNW, see Thomas Shea, *Verifying Nuclear Disarmament*, Routledge, 2019 pp. 10–15.

44 The GGE on Nuclear Disarmament Verification established pursuant to UN General Assembly resolution 71/67 (December 2016) noted in its report submitted to the United Nations Secretary-General that, "When discussing institutional matters, the Group agreed that it was premature to answer the question of which institution or even which type of institution should verify the relevant agreements. It was generally reaffirmed that the specifics of a verification regime would have to be determined by individual treaties and the mechanisms they specify." See United Nations General Assembly, Group of Governmental Experts to consider the role of verification in advancing nuclear disarmament, Final report, A/74/90, 15 May 2019, p.12, paragraph 20, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N19/141/70/PDF/N1914170.pdf?OpenElement>.

45 The IPNDV was launched by the United States in 2015 in partnership with the Nuclear Threat Initiative (NTI) with the participation of 25 countries to consider innovative approaches to nuclear disarmament verification. While the work of the IPNDV does not focus directly on institutional models for nuclear disarmament verification, its detailed analysis of the technical, procedural and conceptual dimensions of verification covers the different aspects of the process that must be addressed across the nuclear weapon life cycle. See <https://www.ipndv.org/>.

essentially serves as the main purpose of verification – to make sure that the NPT obligations of states parties and the treaties establishing the various NWFZs are carried out. This limited, yet crucial, focus on nuclear material accountancy falls far short of the verification needs for nuclear disarmament.⁴³

Ongoing deliberations and initiatives on nuclear verification could constitute an additional important resource for the negotiation of the zone treaty and implementation. These include the Group of Governmental Experts (GGE) on Nuclear Disarmament

Verification (in which Algeria, Egypt and Jordan participate),⁴⁴ the high-level expert group on a fissile materials cut-off treaty (FMCT), the Quad Nuclear Verification Partnership, and the International Partnership for Nuclear Disarmament Verification (IPNDV)⁴⁵ among many other studies and exercises.

The takeaway from the issues discussed above is that nuclear disarmament verification is still very much an evolving field and does not yet provide ready templates of procedures on which states in the Middle East can draw. The states of the region engaged in drafting the zone treaty need to carefully weigh the advantages and drawbacks embodied in each of these models for the purposes of devising a serious and credible framework for nuclear disarmament when negotiating the treaty for the Middle East weapons of mass destruction-free zone that addresses their needs and concerns.



EXAMINING MODALITIES FOR NUCLEAR DISARMAMENT IN THE MIDDLE EAST WMD FREE- ZONE TREATY

Despite numerous regional and global frameworks in the form of the various NWFZ treaties and the NPT, there are few available international mechanisms addressing nuclear disarmament. Those that do exist are relatively nascent and, in many ways, still evolving. This paper addresses the complexities associated with nuclear disarmament in the absence of an internationally accepted multilateral framework. The paper sketches out and examines the implications of two primary pathways to achieve nuclear disarmament in a future ME WMDFZ treaty: disarmament as a precondition for joining the treaty, and the inclusion of specific disarmament provisions in the zone treaty. The paper also discusses the implications for each pathway. The paper's objective is to provide officials and experts with an overview of existing frameworks and tools for nuclear disarmament and how these might be addressed in the regional context and within the Middle East WMDFZ treaty.