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FROM NUCLEAR WEAPONS TO WMD: THE DEVELOPMENT AND ADDED VALUE OF THE WMD-FREE ZONE CONCEPT

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I. INTRODUCTION

When nuclear weapons (NW) entered the international scene at the end of World War II, chemical and biological weapons (CBW) were already labelled as inhumane, and their use had been prohibited through the 1925 Geneva Protocol.[1] Opponents of NW attempted to apply the same label to them from the beginning. This motivated the creation of the term 'weapons of mass destruction' (WMD) in the United Nations, to cover nuclear, biological and chemical (NBC) weapons: the new weapons were to be bound together with those that bore the stigma of being inhumane. Today, critics of NW argue frequently, and with some reason, that these weapons are in a category of their own because of the immense damage they can cause to humankind and the virtual impossibility of defending against them. However, in the political discourse, the term 'weapons of mass destruction', lumping together nuclear, biological, chemical and increasingly also radiological weapons, has prevailed.[2]

From the perspective of this political discourse, it does not appear illogical to think of WMD-free zones

[1] Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (1925 Geneva Protocol), signed 17 June 1925, entered into force 8 Feb. 1928, <http://www.diplomatie.gouv.fr/traites/affichetraite.do?accord=TRA19250001>.

[2] The original definition of WMD, as presented by the UN Commission for Conventional Armaments in 1948, includes 'atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable in destructive effect to those of the atomic bomb or other weapons mentioned above'. For the purpose of this paper, WMD means nuclear, biological and chemical weapons (radiological weapons are commonly not included). Nuclear, biological and chemical are joined under this term despite recent attempts to 'demystify' and reevaluate the value attached to NW in the discourse. See Wilson, W., 'The myth of nuclear deterrence', *Nonproliferation Review*, vol. 15, no. 3 (2008), pp. 421–39; and Harrington de Santana, A., 'Nuclear weapons as the currency of power: deconstructing the fetishism of force', *Nonproliferation Review*, vol. 16, no. 3 (2009), pp. 325–45.

SUMMARY

The concept of weapons of mass destruction-free zones (WMDFZs) has the potential to contribute to global non-proliferation efforts. The comprehensive weapon of mass destruction (WMD) approach adds value compared to the 'limited' nuclear weapon-free zone (NWFZ) approach.

The five existing NWFZs have varying, yet similar, objectives, modalities and achievements. There have also been regional efforts to establish norms concerning chemical and biological weapons.

As a synergy of all these regional initiatives, the overall concept of a WMDFZ emerged as a political construct to deal with the specific circumstances of the Middle East. A more comprehensive approach is required in the Middle East and incentives exist to create a WMDFZ there.

From these real and counterfactual examples, it is possible to distil the value which enhancement of the zone concept beyond nuclear weapons might add. Notably, this includes synergies in confidence building, verification, compliance procedures and civilian technology cooperation. Conversely, WMDFZs might have an impact on the separate global regimes.

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(WMDFZs) as a reasonable and promising concept. However, no such zone exists, while several nuclear weapon-free zones (NWFZs) have been established through the mutual agreement of all states in the respective regions. The only region where a WMDFZ has been seriously proposed and is being discussed as a political option is the Middle East, where no NWFZ exists yet.

Interesting conceptual discussions on the WMDFZ in the Middle East, however, encourage investigating the idea of such zones in a more generic manner. This inquiry aims to identify the possible value offered by a more comprehensive zone that bans all WMD from a certain region beyond the security gains that a zone free of just NW contributes. Hence, the merits of WMDFZ are not discussed here region by region, but in a conceptual way. Eventually, a menu of options emerges from which states interested in the concept could pick the elements that would serve their intentions and objectives best.

Section II summarizes the aims and experiences of existing NWFZs. Next, section III takes stock of past initiatives at the regional level on banning biological weapons (BW) or chemical weapons (CW). Section IV then recalls the discussion on a WMDFZ in the Middle East. On this basis, section V then endeavours to identify the 'added value' of a comprehensive zonal approach, distinguishing between advantages that it might afford to regional security and cooperation and the positive spin-offs it might engender for the existing global regimes. Section VI contains conclusions.

II. NUCLEAR WEAPON-FREE ZONES: A REGIONAL APPROACH TO ARMS CONTROL AND NON-PROLIFERATION

In the development of the nuclear non-proliferation regime, two parallel tracks were pursued: one global and one regional. The global regime, with the 1968 Non-Proliferation Treaty (NPT) as its backbone, is supplemented by several regional non-proliferation arrangements, which complement and strengthen it.[3]

As early as the 1950s, NWFZs were conceptualized as a regional approach to non-proliferation. While the goal of NWFZs was to prevent more states obtaining nuclear weapons, these arrangements developed as means of fencing-off entire regions in the world from NW.[4]

In 1975, after the establishment of the first NWFZ, in Latin America, a UN General Assembly resolution recognized a NWFZ to be any zone for which a convention establishes a 'statute of total absence of nuclear weapons' and where 'an international system of verification and control' is established to guarantee parties' compliance.[5] According to the study on which this resolution was based, NWFZs enhance national, regional and global security and make an important contribution to strengthening the international nuclear non-proliferation regime.[6] Although the study declared NWFZs to constitute an important disarmament measure, the existing treaties have thus far been non-proliferation instruments, as they were designed without including (or needing) a route for regional nuclear disarmament.[7] These documents—which were followed up in 1999—outline the basic undertakings of NWFZs and are considered accepted, yet non-binding, guidelines for their establishment.[8]

NWFZs go beyond the NPT in that they liberate whole regions from the presence of NW. The central contribution of NWFZs, in this regard, is their explicit prohibition on stationing or deploying NW by a nuclear weapon state (NWS) on the territory of a non-nuclear weapon state (NNWS), which is not explicitly prohibited by the global regime.[9] The invitation for the five NWS to adhere to each NWFZ via a designated protocol symbolizes the importance awarded to their respect and observance of the zone.

[3] Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), opened for signature 1 July 1968, entered into force 5 Mar. 1970, <http://www.iaea.org/Publications/Documents/Treaties/npt.html>.

[4] Goldblat, J., 'Nuclear weapon free zones: a history and assessment', *Nonproliferation Review*, vol. 4, no. 3 (1997), p. 18.

[5] UN General Assembly Resolution 3472 (XXX), 11 Dec. 1975.

[6] United Nations, General Assembly, 'Comprehensive study of the question of nuclear-weapon-free zones in all its aspects', Special report of the Conference of the Committee of Disarmament, 8 Oct. 1975, A/10027/Add.1.

[7] The African NWFZ is the only zone in which a state in the region—South Africa—had developed NW. However, the negotiations and implementation of the zone were undertaken following changes in South Africa's status. The treaty itself requires that parties dismantle and destroy nuclear explosive devices prior to its entry into force, but this is a unique clause in a NWFZ treaty.

[8] United Nations, Disarmament Commission, 'Establishment of nuclear-weapon-free zones on the basis of arrangements freely arrived at among the states of the region concerned', annex to A/54/42(SUPP), 6 May 1999.

[9] According to the NPT, only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are legally recognized as NWS. By this definition, China, France, Russia, the UK and the USA are the NWS parties to the NPT. All other states are defined to be NNWS.

As a regional arrangement, NWFZs can be tailored to fit the particular needs and realities of a region. Because each was negotiated among a limited number of parties (the states in the region), complexity could be substantially reduced—compared with negotiations of universal aspirations—if only due to the smaller number of engaged actors. The attainment of agreement on a meaningful arrangement is therefore more likely. Indeed, being a region-particular arrangement on a specific topic, NWFZ treaties offer regions the possibility to address directly particular realities and concerns in a thorough manner. Thus, these region-specific arrangements complement the global non-proliferation regime and support its normative structure.[10] In fact, Article 7 of the NPT supports the establishment of NWFZs. It was proposed for inclusion by Mexico, the leading actor in the concurrent negotiations on the Latin American NWFZ (which were concluded before the NPT).

The possibility of moulding and structuring a regional non-proliferation arrangement to the particular requirements of a region would theoretically make it more appealing for states in the region to join, since their concerns can be thoroughly and meaningfully addressed. With a subject matter as fundamental to national security as NW, this capability of meeting the particular confidence-building needs of states in the region translates into an attractive deal. This regional focus is most appealing because it is combined with security assurances against the use of NW from outside the region, namely by the NWS (although in practice, not all NWS have ratified all relevant protocols of NWFZ agreements).

NWFZ treaties: the general framework

The established NWFZs share several central prescriptions and a general framework, to which each region has added in accordance with local realities and needs.

Basic obligations

The basic undertaking by parties to a NWFZ is to refrain from development, possession and testing of NW (or nuclear explosive devices). Furthermore, deployment of NW in the region by states from outside is prohibited, in order to guarantee the absence of such weapons in the territory of the NWFZ.

The adherence of members to a NWFZ is ascertained through control systems created by the treaties. These are based on International Atomic Energy Agency (IAEA) safeguards, and are complemented by further means such as reports and clarifications and exchange of information, and in some cases also the establishment of a dedicated regional body.

A regional non-proliferation mechanism could theoretically enable the development of a region-particular control system based on more intrusive and comprehensive verification. Such a control system would guarantee regional compliance with the fundamental undertaking to refrain from acquiring NW. Yet none of the established NWFZ treaties have erected sophisticated and region-specific verification mechanisms, because the central concern which motivated the emergence of the NWFZ concept and its implementation was the prevention of nuclear interference from outside the region.

Annexed protocols

The 1962 Cuban missile crisis prompted the establishment of the first NWFZ, in Latin America. In each of the other regions in which a NWFZ was established, there was also concern regarding the introduction (i.e. deployment) of NW into the region by the NWS. The ultimate goal of a NWFZ (i.e. eliminating NW from a specific region) is twofold: preventing both proliferation of NW within the region and their propagation into the region from outside. Since the NPT includes the basic non-proliferation undertakings of NNWS, the prohibition on stationing and deployment in NWFZ treaties is arguably their most meaningful contribution.

The commitment of the NWS to a NWFZ through their ratification of the treaties' protocols is essential to a region's successful achievement of nuclear weapon-free status. Through these protocols, NWS undertake not to contribute to any acts which might constitute violation of the treaty. This commitment is crucial because of the limited distribution of NW in the world; the pledge of NWS to respect the zone is therefore necessary. Furthermore, NWS offer negative security assurance to the members of the zone, in their undertaking not to use or threaten to use NW against parties to the treaty. Since states in the region are unlikely to enter into such an agreement if their commitments might jeopardize their security, these

[10] Parrish, S. and Du Preez, J., 'Nuclear weapon free zones: still a useful disarmament and non-proliferation tool?', Weapons of Mass Destruction Commission, 2006, pp. 2–3.

Table 1. Denuclearization arrangements

Figures for ratifications and signatories are as of 1 Jan. 2013.

				Parties and signatories			Nuclear weapon states	
Region	Treaty	Opened for signature	Entry into force	Parties	Signa-tories	Non-signa-tories in zone	Parties	Signa-tories
Nuclear weapon-free zones								
Latin American and the Caribbean	Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Treaty of Tlatelolco)	14 Feb. 1967	22 Apr. 1968	33	–	–	5	–
South Pacific	South Pacific Nuclear Free Zone Treaty (Treaty of Rarotonga)	6 Aug. 1985	11 Dec. 1986	13	–	3	4	1
South East Asia	Treaty on the Southeast Asia Nuclear Weapon-Free Zone (Treaty of Bangkok)	15 Dec. 1995	27 Mar. 1997	10	–	–	–	–
Africa	African Nuclear-Weapon-Free Zone Treaty (Treaty of Pelindaba)	11 Apr. 1996	15 July 2009	36	18	1	4	1
Central Asia	Treaty on a Nuclear-Weapon-Free Zone in Central Asia (Treaty of Semipalatinsk)	8 Sep. 2006	21 Mar. 2009	5	–	–	–	–
Denuclearized unpopulated regions								
Antarctica	Antarctic Treaty	1 Dec. 1959	23 June 1961	50	–			
Outer space	Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies	27 Jan. 1967	10 Oct. 1967	110	27			
Seabed	Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil thereof (Seabed Treaty)	11 Feb. 1971	18 May 1972	97	20			
Unilateral nuclear weapon-free status								
Philippines	..	1987	1987					
New Zealand	..	1987	1987					
Mongolia	..	1992	2010					
Austria	..	1999	1999					

Source: Bodell, N., 'Arms control and disarmament agreements', *SIPRI Yearbook 2013: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2013).

assurances from NWS are a meaningful incentive and an essential component.

In several of the regions that have established themselves as nuclear weapon-free, colonial legacies have bequeathed parts of the region to the control, de facto or de jure, of extra-regional states. These states are likewise invited, through an annexed protocol, to commit to respect the zone. The protocols attached to NWFZ treaties—for NWS and for extra-regional states with territories in the zone—are necessary for the denuclearized status of the zone.

While the basic undertaking of zone parties, combined with the commitment of NWS to respect the zone, are intended to ensure the absolute absence of NW from the designated region, none of the existing NWFZ treaties prohibit the transit of NW through the denuclearized zones. The decision on visits by foreign nuclear vessels to ports and travel through the territorial air and water of states in the region is left to parties' discretion. That transit rights are not explicitly prohibited by the NWFZ treaties seems contradictory. Had transit rights been completely prohibited by NWFZs (rather than left to the discretion of parties, meaning that the transit of NW or nuclear-powered vessels in the territory of the zone is not prohibited), the NWS would be unlikely to cooperate with NWFZs, as that would substantially limit their navigation. Yet this raises the unavoidable question: when does a long transit constitute stationing?

As NWFZ spread to more regions, the treaties establishing their denuclearization became more elaborate, and focused on additional issues which were of importance in different regions. Prevention of nuclear dumping, upholding high standards of physical protection of nuclear materials and facilities, and environmental rehabilitation efforts are just some examples of mechanisms introduced in NWFZ which extended their scope in an attempt to serve as meaningful regional non-proliferation and cooperation instruments.

Existing NWFZs: achievements and lingering challenges

NWFZs are in force in five densely-populated regions in the world; three unpopulated territories have also been denuclearized and several states in other regions have unilaterally declared themselves to be nuclear weapon-free (see table 1).

The 1967 Treaty of Tlatelolco for the denuclearization of Latin America was concluded even before the establishment of the NPT. When it opened for signature in 1967, it introduced the essential obligations and mechanism which would become the basic template for the NWFZs that followed. These following treaties expanded on this template, while taking into consideration the specific circumstances of each region.

Almost two decades later, the South Pacific Nuclear Free Zone was agreed. The 1985 Treaty of Rarotonga translated concern over nuclear testing and dumping of nuclear waste in the region by NWS, stemming from the region's specific experiences, into explicit and specific points of emphasis. An additional protocol for NWS commits them not to test nuclear explosive devices in the South Pacific.

In the next region to denuclearize, South East Asia, the matter of nuclear waste dumping was likewise a central matter of concern due to regional experiences. The 1995 Treaty of Bangkok therefore included commitment to disposing of radioactive waste and material in accordance with IAEA standards and procedures and to upholding rigorous nuclear safety standards. The inclusion of continental shelves and exclusive economic zones in the treaty's zone of application extends it substantially. This is considered the central obstacle to ratification of the protocols by NWS.[11]

Negotiations on the denuclearization of Africa only began in the 1990s, after South Africa began its rollback process.[12] Due to the presence of indigenous NW in the region, the 1996 Treaty of Pelindaba is the only NWFZ that necessitated going beyond the scope of strict non-proliferation. The treaty introduced an innovative clause to deal with existing NW programmes of member states: a 'come clean' clause according to which member states are to declare their NW manufacturing capabilities and destroy or convert them to peaceful uses. As in the case of the South Pacific, similar experience with nuclear testing in Africa led to the inclusion of an additional protocol for the NWS to avoid testing nuclear explosive devices in Africa.

[11] See Acharya, A. and Boutin, K., 'The Southeast Asia Nuclear Weapon-Free Zone Treaty', *Security Dialogue*, vol. 29, no. 2 (1998), pp. 225–26; and Subedi, S. P., 'Problems and prospects for the Treaty on the Creation of a Nuclear-Weapon-Free Zone in Southeast Asia', *International Journal of Peace Studies*, vol. 4, no. 1 (1999).

[12] Adeniji, O., *The Treaty of Pelindaba on the African Nuclear-Weapon-Free Zone* (UNIDIR: Geneva, 2002), pp. ix, 51.

The most recent region to be denuclearized, and the only one that is completely in the northern hemisphere, is Central Asia. The 2006 Treaty of Semipalatinsk continued the basic framework that has persisted since the first NWFZ treaty in Latin America, and developed it further according to its time and regional necessities. It is the only NWFZ which requires, as part of its control system, that parties conclude the Additional Protocol with the IAEA, a more comprehensive safeguards measure. Since attempts to establish the Additional Protocol as the verification standard for NPT NNWS have not yet been successful, this undertaking is an important new obligation. Controversy regarding some Central Asian parties' membership in the 1992 Collective Security Treaty (Tashkent Treaty) and its influence on the NWFZ commitments have led to concerns by NWS, none of which have signed the treaty's protocol.[13]

NWFZ have thus far only been established in regions without NWS or where no NW capabilities existed (except for the South African case), and it is also important to mention the limited ratification record of some of the protocols by NWS. However, NWFZs are a central mechanism for limiting the spread of NW, and the success of their establishment and implementation is unique among WMD. Attempts in the past decades to address the spread of other WMD through regional mechanisms have not materialized, despite limited success.

III. REGIONAL EFFORTS TO CONTROL CHEMICAL AND BIOLOGICAL WEAPONS[14]

The regional approach to nuclear non-proliferation has led to the exclusion of NW from several regions of the world, alongside a global non-proliferation regime. CBW are also regulated by global disarmament agreements, and for CW specifically a regional dimension was also meaningfully pursued before the global regime was established.

Globally, attempts to restrict and disarm CW and BW stockpiles were initially pursued conjointly. As the 1925 Geneva Protocol left several loopholes regarding the use of CBW, it was imperative to strengthen the whole system by a new agreement.[15] The proposal for a complete ban on CBW development, production and stockpiling was officially put on the international agenda in 1968.

The scope of negotiations, however, was altered relatively soon, and the categories were separated. This new approach significantly facilitated the conclusion of the 1972 Biological and Toxin Weapons Convention (BTWC), which entered into force in 1975, leaving on the table the question of a separate agreement on CW.[16]

In parallel to the global negotiations, regional efforts to ban CW were pursued (see table 2 for a full list of efforts). The history of these regional initiatives goes back to the 1930s when Latin American states first suggested freeing their region from CW after the 1932–35 Chaco War between Bolivia and Paraguay. The proposal was implicitly mentioned in the final document of the 1936 Inter-American Conference for the Maintenance of Peace.[17] Several regional initiatives subsequently emerged throughout Europe, the Mediterranean coasts, Africa, Latin America and South Asia.[18] The most prominent proposals, however, came

[13] Roscini, M., 'Something old, something new: the 2006 Semipalatinsk Treaty on a Nuclear Weapon Free Zone in Central Asia', *China Journal of International Law*, vol. 7, no. 3 (2008), p. 599; and Goldblat, J., 'Denuclearization of Central Asia', *Disarmament Forum*, vol. 4 (2007), pp. 30–31.

[14] The authors wish to thank Jean Pascal Zanders for his constructive comments on this section.

[15] One of the major weaknesses of the Geneva Protocol is its limited scope: it restricts the prohibition on CBW to (interstate) war (i.e. technically it does not apply to intrastate conflicts). Furthermore, the protocol does not ban the threat of use and does not contain mechanisms to verify compliance and to investigate allegations of CBW use. Moreover, many states parties attached reservations to the treaty, maintaining the right to use these weapons against non-party states and in response to the use by other states.

Overtime, some of these weaknesses have been addressed and new practices have emerged. The 1980–88 Iran–Iraq war was a turning point in this regard. Following the use of CW by the regime of Saddam Hussein against his own Kurdish population, the general understanding of the applicability of the Geneva Protocol evolved to all 'armed conflicts', not just 'war'. During the war, the UN Secretary-General also developed an investigative mechanism to look into allegations of CBW use, although this practice is limited as it requires the permission of the government of the state concerned. (This tool has been invoked recently in the case of Syria.)

Goldblat, J., *Arms Control: A New Guide to Negotiations and Agreements* (Sage: London, 2002), p. 136.

[16] Goldblat (note 15), p. 137; and Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (Biological and Toxin Weapons Convention, BTWC), opened for signature 10 Apr. 1972, entered into force 26 Mar. 1975, *United Nations Treaty Series*, vol. 1015 (1976).

[17] SIPRI, *The Problem of Chemical and Biological Warfare*, vol. 2, *CB Weapons Today* (Almqvist & Wiksell: Stockholm, 1973), p. 236.

[18] Robinson, J. P., 'An historical context for European chemical-weapon-free zone concepts, with an account of current European chemical-warfare forces', ed. R. Trapp, *Chemical Weapon Free Zones?*, SIPRI Chemical & Biological Warfare Studies no. 7 (Oxford University Press: Oxford, 1987), pp. 1–2.

from Europe and had significant influence on the global CW negotiations.

Unlike in the case of CW, the multi-level negotiating process was absent in the pursuit of banning biological and toxin weapons, where global negotiation mechanisms dominated. Practically, the only regional cooperative mechanism in the biological field was a joint accession to the BTWC by some groups of states. Latin America is a good example for this practice, where several countries signed the treaty together.

Limiting chemical weapons: between regional and global

The chemical issue was negotiated on three levels during the 1980s: globally, negotiations on a chemical weapons convention were underway; regionally, initiatives on the establishment of chemical weapon-free zones (CWFZs) were considered; and bilaterally, by the United States and the Soviet Union. Throughout the 1980s, the regional and bilateral proposals tried to secede from the global negotiations and move ahead by limiting the geographical scope of the chemical weapon-ban treaty and by excluding certain problematic questions. Achievements on both levels and mutual exchange of ideas between them had a significant effect on the global process. Eventually, the bilateral level was the first to conclude a formal agreement: the 1990 Soviet–US Chemical Weapons Agreement.[19] This ultimately provided a green light for the conclusion of a global agreement.

As the success of the biological negotiations in the 1970s was not followed by rapid developments in the chemical field, the regional approach seemed to be a good alternative to the global level. Similarly to the benefits of NWFZs, the regional approach held the advantage of reduced complexity due to the involvement of substantially fewer states and a smaller geographical scope. The regional approach also had the potential to set a limit to further developments in the field of CW, enhance trust among members of different military alliances and lower the probability of chemical warfare.

[19] Agreement on Destruction and Non-production of Chemical Weapons and on Measures to Facilitate the Multilateral Convention on Banning Chemical Weapons (Soviet–US Chemical Weapons Agreement), signed 1 June 1990, <http://www.acq.osd.mil/tc/treaties/bda/text.htm>

The proposed zone free of chemical weapons in Europe

After World War II, several European states possessed militarily significant stockpiles of CW. The 1947 Paris Peace Treaties contained serious restrictions on CW capabilities, which led to the disarmament of existing stockpiles and the complete renunciation of all WMD by Italy, Romania, Hungary, Bulgaria, and Finland. Austria and the Federal Republic of Germany (West Germany) also agreed to eliminate and renounce all WMD capabilities.[20]

Meaningful initiatives on the creation of a European CWFZ were advanced in the 1980s. The European efforts to ban CW included both regional and subregional initiatives, mostly focusing on Central Europe, the Balkans, Scandinavia and the Mediterranean. Subregionally, some of the most problematic technical issues could have been bypassed and verification made easier since CW were merely stationed in these subregions and no indigenous production capabilities existed. Thus, instead of the destruction of CW, their withdrawal would have sufficed to establish a CWFZ.[21]

In 1982 the Palme Commission (named after its first chairman, Olof Palme) examined the question of CW in Europe and outlined a proposal for a European CWFZ in its final report.[22] Having garnered initial support from the German Democratic Republic (East Germany), the Warsaw Treaty Organization member states also introduced their proposal in 1983 on a Central European CWFZ. Further details were worked out by a group of experts, jointly established in 1984 by the East German Socialist Unity Party and West German Social Democratic Party. Despite political disagreements, a document laying out the principles and guidelines for future negotiations on a Central European CWFZ was concluded in 1986.[23]

This subregional initiative had a significant influence on the ongoing global chemical weapon-ban negotiations and several elements from this proposal were later incorporated into the 1993 Chemical

[20] Robinson (note 18), pp. 10–11.

[21] Trapp, R., 'A European zone free of chemical weapons: a regional precursor for the world-wide ban on chemical weapons', ed. Trapp (note 18), p. 37.

[22] Independent Commission on Disarmament and Security Issues, *Common Security: A Blueprint for Survival* (Simon and Schuster: New York, 1982).

[23] Mårtensson, K., 'A chronology of events', ed. Trapp (note 18), pp. 59–62.

Table 2. Regional proposals for controlling chemical weapons

Year	Region	Comments
1936	Latin America	The Inter-American Conference for the Maintenance of Peace implicitly mentions the desire to free Latin America of chemical weapons
1982	Europe	The Palme Commission issues its final document, endorsing the establishment of a European CWFZ
1983	Central Europe	The member states of the Warsaw Treaty Organization express their support for a Central European CWFZ
1984	Latin America	The prime minister of Peru proposes a Latin American CWFZ
1985	Balkans	Romania and Bulgaria suggest the establishment of a Balkan CWFZ
	Northern Europe	Denmark advocates for a Northern CWFZ
	Central Europe	A group of experts established by the East German Socialist Unity Party and the West German Social Democratic Party agree practical details for the establishment of a Central European CWFZ
1991	Latin America	Argentina, Brazil and Chile sign the Mendoza Agreement on the non-possession of chemical and biological weapons
	Latin America	Bolivia, Colombia, Ecuador, Peru and Venezuela agree in the Cartagena Declaration to ban nuclear, biological, toxin and chemical weapons in their respective territories
1992	South Asia	India and Pakistan agreed not to develop, produce or acquire CW and to refrain from using them

CWFZ = Chemical weapon-free zone.

Source: Trapp, R., *Chemical Weapon Free Zones?*, SIPRI Chemical & Biological Warfare Studies no. 7 (Oxford University Press: Oxford, 1987).

Weapons Convention (CWC).[24] It also triggered numerous other initiatives at the regional level: in 1984 the prime minister of Peru proposed a Latin American CWFZ, in 1985 Romania and Bulgaria suggested the establishment of a Balkan CWFZ, while Denmark advocated a Northern CWFZ in the same year.[25]

The cornerstone of the Central European CWFZ proposal was a complete ban on manufacturing and possessing CW as well as a ban on having 'such weapons stationed, manufactured or carried in transit on their territories by other states'.[26] Those states that had CW stockpiles and stationed armed forces in the geographical scope of the zone were requested to free the area from these weapons, cease stationing and manufacturing these weapons in the zone, and ban exporting to and transiting the countries within the proposed zone.

The proposal defined CW narrowly: in line with Western arguments, it excluded irritants from the scope, focusing exclusively on those 'military means which utilize toxic chemical substances, in the form of warfare agents, in order to kill or temporarily or permanently incapacitate human beings'.[27] The core of the verification system was based on national means of verification and domestic measures to implement the treaty obligations. The states parties were to exchange information and experience but there was no obligation to declare exact CW stockpiles at the initial stages of implementation. Beyond the national level, international verification mechanisms by a permanent international commission were also envisioned. In addition, on-site inspections and challenge mechanisms were proposed, especially at those locations where CW were suspected to be stockpiled.[28]

Regional versus global initiatives

Despite the fact that none of the CWFZ initiatives were implemented, the European proposal proved that regional initiatives can contribute to global efforts: it provided a solid basis and background materials for the global negotiations and enhanced regional cooperation in several parts of the world. However, all regional CW-ban initiatives were abandoned simultaneously: after the conclusion of the CWC in 1993, all of these plans and proposals evaporated. The main reason for regional initiatives losing their appeal was that they could no longer offer stricter regulations than the new international legal mechanisms. The obligations of

[24] Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention, CWC), opened for signature 13 Jan. 1993, entered into force 29 Apr. 1997, <http://treaties.un.org/Pages/CTCTreaties.aspx?id=26>.

[25] Mårtensson (note 23), p. 62.

[26] Voigt, K. D., 'A chemical-weapon-free zone in Europe: pilot project for a second phase of détente', ed. Trapp (note 18), p. 82.

[27] Voigt (note 26), p. 85.

[28] Voigt (note 26), p. 83.

the CWC excluded the possibility of using CW and prohibited their development, production, acquisition (by any other means), stockpiling and transfer, and states parties to the CWC were obliged to completely dismantle existing CW stockpiles and CW production facilities according to specified deadlines.

In the nuclear area, development of the non-proliferation concept was based on an unequal state of affairs in which some states were recognized under the NPT as legally holding NW and other states committed to refrain from acquiring them. Establishing NWFZs is an attempt to correct the discriminatory and unsatisfactory global regime, by creating a space in which non-proliferation commitments, obligation to remain non-nuclear, and negative security assurances from outside are stronger and explicitly guaranteed. The global CW and BW regimes, while not infallible (and also not yet universal), do not carry this inherent discrimination between classes of states. Because these weapons are—at least formally—prohibited globally, the establishment of regional regimes in which their presence could be locally and completely banned is not as necessary, as in the case of NW.[29] The BTWC was established relatively early, and despite its lack of a verification mechanism, no substantial attempts were made on the regional front; and the CWFZ idea was abandoned when the global regime was established, which was also furnished with a strict verification system.

During the early 1990s, most of the regional cooperative CW initiatives merged into the global level and switched to facilitating joint accession to the CWC. Latin America was a leading region in this regard. First, Argentina, Brazil and Chile signed the 1991 Mendoza Agreement on the non-possession of CBW. Later in the same year, Bolivia, Colombia, Ecuador, Peru and Venezuela concluded the Cartagena Declaration, which reinforced and complemented the existing regional NWFZ with a ban on nuclear, biological, toxin and chemical weapons. This initiative was the first attempt to free a whole region from all WMD. The Latin American initiatives were followed by a joint declaration from India and Pakistan in 1992, in which they agreed not to develop, produce or acquire CW and to refrain from using them.[30] Both states signed the CWC in 1993.

[29] The authors are indebted to Rebecca Johnson for this point.
[30] Goldblat (note 15), p. 149.

IV. EXPANDING FROM A NWFZ TO A WMDFZ IN THE MIDDLE EAST

NWFZs developed from the political realities of international relations and the identified need in certain regions for such an arrangement. The concept of a WMDFZ is similarly a construct of political circumstances, rather than theoretical abstraction. It developed as a more comprehensive approach beyond regionally limiting nuclear weapons, for a region in need of a broader solution: the Middle East. The roots of the idea of establishing a whole region as a WMD-free territory go back to the early 1990s. At that time, both Latin America and the Middle East began to consider addressing the elimination and prohibition of all categories of WMD regionally.

In Latin America, the above-mentioned Cartagena Declaration intended to transform the region into a de facto WMD-free area. At the time, NW were banned by the Tlatelolco Treaty and the NPT, while BW were covered by the 1975 BTWC. But in the field of CW, the declaration practically heralded the global CWC, which was still being negotiated. Therefore, this declaration, although it did not develop into a formal legal mechanism, served as a significant contribution to the global regimes by applying a holistic regional approach to WMD.

But the WMDFZ as a distinct concept was firstly and primarily promoted in the Middle East, and so far it has been solely associated with this region. This novel concept is an opportunity for the Middle East to address the challenge of WMD in a comprehensive way.

Regional arms control efforts in the Middle East were initially focused on NW, and a resolution on the establishment of a regional NWFZ has been presented annually at the UN General Assembly since 1974, and adopted by consensus since 1980.[31] However, the Middle East hosts WMD of all categories: several states in the region are suspected of possessing or developing nuclear, biological or chemical weapons, and CW have been used on several occasions in the region. It is therefore fitting that the search for a comprehensive mechanism for banning all WMD categories should develop in this particular region.

[31] For an historical account see Hautecouverture, B. and Mathiot, R., 'A zone free of WMD and means of delivery in the Middle East: an assessment of the multilateral diplomatic process, 1974–2010', Background paper, EU Non-Proliferation Consortium, EU seminar on the Middle East, Brussels, 6–7 July 2011, <http://www.nonproliferation.eu/documents/backgroundpapers/hautecouverture.pdf>.

Because of the unique circumstances in the Middle East, the WMDFZ concept was introduced to overcome not only the presence of different categories of WMD, but also linkages—strategic as well as political—between them. Strategically, NW are perceived as a guarantee against BW or CW, and vice versa.[32] Politically, Egypt for instance has made its adherence to the CWC and BTWC conditional on Israel's accession to the NPT. The NWFZ concept is therefore too narrow for the Middle East, and the introduction of a new, comprehensive 'free zone' structure—a WMDFZ—was needed, under which the WMD categories will be handled conjointly within the same framework in order to dislodge the strategic and political linkages.

A WMDFZ was first proposed in 1990 by Egypt, and became known as the Mubarak Plan. It was not intended to replace the NWFZ, rather to be pursued in parallel.[33] This parallel approach, which does not appear completely logical at first glance, permitted the Arab side to accommodate regional concerns regarding CBW while still recognizing their higher priority to the nuclear issue.

The WMDFZ proposal intended to free the region of all WMD, equally across the board: 'All weapons of mass destruction without exception, should be prohibited in the Middle East, i.e. nuclear, chemical and biological. . . . All States of the region, without exception, should make equal and reciprocal commitments in this regard'.[34] The Middle East WMDFZ is supported by all states in the region (notwithstanding differences in understanding on when and under what circumstances it might become applicable), as well as by the international community.[35]

The fundamental contradiction between Israel and its Arab neighbours regarding arms control, and therefore the possible establishment of a NWFZ or WMDFZ, was epitomized in the Multilateral Working Group on Arms Control and Regional Security (ACRS) during the mid-1990s. Israel expected the nuclear issue to be handled only following a substantial change in regional security dynamics, while its Arab counterparts, most notably Egypt, anticipated that it would be addressed early.[36] The 'peace first or disarmament first' deadlock which plagued ACRS is still the fundamental challenge en route to a zone.

The Middle East WMDFZ initiative regained central attention at the 2010 NPT Review Conference, which reiterated the call for the establishment of a WMDFZ in the Middle East, and furthermore requested a conference on the zone, to be held in 2012.[37] Despite efforts by the Finnish facilitator, the expected conference was postponed, without a timeline for a rescheduled meeting, due to disagreements between states in the Middle East on how to proceed. Despite the on-going stalemate, it is clear that a zone in the Middle East would offer a comprehensive approach, addressing all WMD categories and their delivery vehicles.[38]

Informally, different approaches to handling the protracted nature and complexity of the process have been explored.[39] Whether the zone will be based on membership in existing global WMD mechanisms or be entirely independent of them is not agreed. Yet in terms of verification procedures it is generally accepted

[32] Hamel-Green, M., *Regional Initiatives on Nuclear- and WMD-Free Zones: Cooperative Approaches to Arms Control and Non-proliferation* (UNIDIR: Geneva, 2005), p. 16.

[33] Said, M.K., 'Middle East weapons of mass destruction free zone: regional security and non-proliferation issues', eds Cserveny, V. et al., *Building a Weapons of Mass Destruction Free Zone in the Middle East: Global Non-proliferation Regimes and Regional Experiences* (UNIDIR: Geneva, 2004), p. 129.

[34] Conference on Disarmament, Document CD/989, 20 Apr. 1990.

[35] On relevant UN resolutions and studies regarding the zone see Hautecouverture and Mathiot (note 31).

[36] Jones, P., 'The Arms Control and Regional Security Working Group: still relevant to the Middle East?', Background paper, EU Non-Proliferation Consortium, EU seminar on the Middle East, Brussels, 6–7 July 2011, <http://www.nonproliferation.eu/documents/backgroundpapers/jones.pdf>, p. 2. See also *Towards a Regional Security Regime for the Middle East: Issues and Options*, Report of the SIPRI Middle East Expert Group with a new afterword (SIPRI: Stockholm, Oct. 2011).

[37] 2010 NPT Review Conference, Final Document, NPT/CONF.2010/50 (Vol. I), 28 May 2010, <http://www.un.org/en/conf/npt/2010/>. Harsh criticism subsequently questioned the legal authority of the NPT to call for a meeting dealing with all WMD categories, since the NPT deals exclusively with nuclear issues.

[38] According to its title, the issue of delivery vehicles should not inherently be included in the WMDFZ concept but in the case of the Middle East it has become an integral part of the proposal.

[39] These include, e.g., a proposed framework tackling the nuclear aspect or a sub-regional approach limited to the Gulf area. A task force on the BW dimension of implementing a WMDFZ in the Middle East has also developed recommendations for abolishing BW from the region, while a technical committee of experts, tasked by the Arab League, has produced a draft treaty for a WMDFZ. Fahmy, N. and Lewis, P., 'Possible elements of an NWFZ treaty in the Middle East', *Disarmament Forum*, vol. 2 (2011); Jaffe, M., 'The Gulf and a new Middle East security system', *Middle East Policy*, vol. 11, no. 3 (2004), pp. 121–22; Mustafa, A., 'The case for a Gulf weapons of mass destruction free zone', *Security & Terrorism*, no. 1 (Oct. 2005), pp. 7–9; and James Martin Center for Nonproliferation Studies and Vienna Center for Disarmament and Non-proliferation, 'Task force develops recommendations on the biological weapons dimensions of implementing a weapon of mass destruction free zone in the Middle East', <http://cns.miis.edu/activities/pdfs/121214_bw_mideast_wmdfz.pdf>.

that more far-reaching mechanisms would have to be devised.[40] The establishment of a region-specific verification mechanism, tailored to the specific needs of the region, is one of the greatest potential contributions of a regional 'free zone' approach to arms control. For lack of necessity, this has not been fulfilled in the existing NWFZs, but the Middle East is certainly in need of the transparency, verifiability and trust which an advanced verification mechanism could provide. In the Middle East, the establishment of verification procedures beyond the existing ones will demonstrate the inherent advantages of the regional approach.

The difficulties and challenges that are facing the establishment of a WMDFZ in the Middle East are daunting. The concept of a WMDFZ has been established due to regional realities in the Middle East, yet it has potential benefits that have not yet been explored and which would have monumental beneficial value for other regions as well.

V. THE ADDED BENEFITS OF A COMPREHENSIVE WMD-APPROACH

Without any precedent or concrete progress in the Middle East towards a WMDFZ, a lack of practical experience renders it difficult to assess the path for the establishment of such a zone or the basic obligations it would include. However, the constraining realities of the Middle East should not limit exploration of the potential added benefits of a WMDFZ as compared with a NWFZ. A comprehensive mechanism such as the WMDFZ could offer an array of measures that might be meaningful in constructing a regional security community and extending cooperation between regional states also to other areas.

This section explores the added value of a comprehensive approach to the establishment of a WMDFZ in terms of improving regional security and cooperation. The following list is intended to present the many opportunities that could be pursued via the comprehensive approach; they might not be timely for all regions, but should be considered as potential steps, to be implemented according to regional realities and needs. Subsequently, the scope is broadened to assess the positive effect that a WMDFZ would have on the global regimes. Together, these added benefits exhibit the fruitfulness of a comprehensive WMD-approach.

[40] Said (note 33), p. 128.

There may be two objections to analysing the comprehensive WMD approach generally, without looking at specific regions. First, as the vast majority of regions are covered already by the three multilateral regimes on nuclear, biological and chemical weapons, there is really no use for such zones outside East Asia, the Middle East and maybe South East Asia, where Myanmar, which has been the subject of occasional rumours about possible CW activities, has signed but not ratified the CWC. This objection does not hold since in the same way that regional NWFZs put a barrier against reversal of the renunciation of nuclear weapons in case the NPT should collapse and provide for the continuation of nuclear safeguards in such a case, so would WMDFZs help in the unlikely, but still possible, contingency that the CWC or the BTWC go by the wayside (recalling the acute fear of the demise of the BTWC in the wake of US withdrawal from the negotiations on a compliance protocol).[41] International institutions are not carved in stone; as they can be built, they can decay as well, and hedging against such decay might be seen by some as a reasonable part of precautionary security policy. In addition, regions that strive for ever closer cooperation might use the creation of a WMDFZ as a tool to strengthen their partnership en route to a perfect security community, a region in which the possibility of war and armament against each other defies imagination. WMDFZ can be seen as a stepping stone towards such near-absolute trust among neighbours.

The second objection maintains that, since there are widespread concerns against features of a WMDFZ that go beyond what is in the regimes—verification of the absence of biological weapons (and related activities) for example—regional zones are unlikely to add anything anywhere else. This point underrates the variation between regions and the difference between the regional and the global levels. There may well be regions that take an interest in going beyond the undertakings in the global regimes, and it might be easier to do so at the regional, rather than the global, level, for example because of the absence of great power 'bullies' or because the mutual trust level is higher regionally than globally. Neither of these objections,

[41] On the BTWC compliance protocol see e.g. Zanders, J. P., Hart, J. and Kuhlau, F., 'Chemical and biological weapon developments and arms control', *SIPRI Yearbook 2002: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2002), pp. 666–77.

thus, is good enough to discourage exploration of the potential which the concept of a WMDFZ entails.

It has to be recalled, however, that the benefits discussed below will only emerge if the countries concerned can muster the political will to go beyond the more limited undertakings in the global regimes. Whether this will be the case in one or the other region is beyond the scope of this conceptual paper.

Improving regional security and cooperation

Helping the negotiation process in asymmetric constellation

A comprehensive approach to WMD could be a meaningful way to improve regional security, mostly in regions with military asymmetries in almost all weapons categories. A narrow focus on one category (in the form of a NWFZ) is likely to demand disproportionate disarmament commitments from certain actors, and afford others relative advantages. Under such conditions, it is hard to expect that the former would give up their advantage in one category while others are not forced to reciprocate, at least in other categories as applicable.

A holistic approach to WMD could introduce the opportunity for a multidimensional grand bargain—trade-offs between distinct categories would bridge the different military capabilities. A concession in one category where a certain player has a monopoly can be compensated for in other fields that are dominated by its adversaries.

This consideration applies presently to the Middle East only, but depending on regional dynamics elsewhere, such as a breakout from one of the existing regimes, it might persuade actors in other places to try to contain such dynamics by pursuing a regional path towards a reversal of the breakout. It is also possible to consider the inclusion of conventional asymmetries in that sort of bargain.

Strengthening global arms control treaties

Certain states' lack of trust in global regimes has led to lags in ratification of global arms control treaties in different regions. Incomplete regional membership in global regimes is in itself a source of tension and distrust among states in a region regarding their neighbours' WMD capabilities. It is not a necessity for regional free zones to be based on existing global mechanisms, and in regions where particular concerns are attached to global regimes, a regional approach could be a stepping stone to regional application of their norms and proscriptions. Indigenous regional mechanisms could be developed which would alleviate concerns and eventually, perhaps combined with joint-accession agreements, induce all states in a region to adhere to global treaties.

By confirming and pronouncing the basic norms embedded in the global treaties, regional approaches strengthen the former's normative power. In addition, should the global regimes run into troubles by intra-regime conflicts or serious instances of non-compliance, regional systems could isolate a major part of the globe from the repercussions of such a crisis and thus provide both a fallback position and basis from which states can work to restabilize the shattered norms at the global level.

Enhancing confidence by eliminating the thought of using WMD

Most serious interstate conflicts, including wars, take place at the regional level. Conflict-heavy regions are subjected to an intense security dilemma: states in such regions suffer from the uncertainty about the intentions and plans of their often hostile neighbours, and provide for their defence in the light of this uncertainty. Distrust reigns, and enemy images grow. Overcoming the security dilemma by confidence-building and security cooperation is the essential condition to put the brakes on arms races and to prevent distrust from escalating into ever more dangerous confrontations. Once states in a region decide to take the path of security cooperation, they open the opportunity to develop the region into a security community, where the thought of war against each other has disappeared from the consideration of governments, and where national defence establishments have ceased to prepare for this contingency.[42]

The security dilemma is most acute when states in a region think it necessary to possess WMD as instruments of deterrence (and, in ultimate despair, weapons of last defence resort). Dismantling all WMD in a region is thus both part of a process to wear down the security dilemma and a significant mutual signal of confidence building. By renouncing the possession of WMD as well as the means for their production, states in a region document that they see no threats

[42] For a thorough discussion of the concept of security community see Adler, E. And Barnett, M. (eds.), *Security Communities* (Cambridge University Press, Cambridge 1998), chapters 1-2.

from their neighbours that would necessitate holding such weapons or 'hedging' by retaining the means for producing them rapidly in a contingency, nor that they intend to use them under any circumstances. Conventional capabilities may be included in joint regulations.

Such steps would provide some barrier against reversals in case of serious domestic changes in a state in the region. A tightly knit system of regional legal renunciation and verification is harder to overcome by a government less committed to a WMD-ban.

Verification synergies

The verification systems of the global regimes are uncoordinated and incomparable. The BTWC lacks any verification system; instead it has a small Implementation Support Unit with very limited competences. The NPT uses an organization that had existed before this treaty was negotiated and entered into force, the IAEA. Verification procedures in the NPT are unequal between NNWS with and without an Additional Protocol (not to mention the general lack of equality between NWS and NNWS in the framework of NPT-verification). In addition, the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) covers the special area of nuclear testing but exists only on a provisional basis as long as the 1996 Comprehensive Nuclear-Test-Ban Treaty has not entered into force.[43] The CWC has a tailor-made verification organization, the Organization for the Prohibition of Chemical Weapons (OPCW). While the heads of the IAEA, the CTBTO and the OPCW meet occasionally, their charters and related treaties do not permit free exchange of information and findings.

Nuclear, biological and chemical technologies are of course different and thus necessitate different verification approaches. Yet there is a certain overlap. First, the field of chemistry overlaps with the two other fields: nuclear spent fuel reprocessing is a chemical, not a physical process, while the chemical and biological sciences merge in biochemistry. It is thus possible that evidence found by one inspectorate will be of interest to the others. Second, inspectors (notably through unannounced inspections in non-declared sites) may see something that does not relate to their own field but which has an impact on the assessment of their colleagues from a different regime. Even the 'visits' (not 'inspections') envisaged in the draft BTWC compliance protocol could incidentally produce related insights. Synergies are thus possible and useful.

A zone where member states agree to the pooling of findings from verification of the different WMD obligations could establish such synergies, possibly even saving costs. The information and findings from various treaty organizations could be provided to a central zonal verification agency for synthesis. Inspectors from the zonal agency could accompany the global organizations' inspectors in the way the European Atomic Energy Community (Euratom) and IAEA inspectors conduct occasional joint inspections.

In order to rely on verification measures from existing global regimes, the agreement of all members of the zone must be secured and their verification agreements with the established global verification organizations amended. The zonal agency would have to build its own inspectorate for BW as the BTWC does not include a verification mechanism or a global agency. It should be possible to obtain the assent of the decision-making bodies of the global organizations once it is clear that the countries in the zone agree with the measures, which will provide for further, rather than less, verification confidence and since these measures would not apply globally.

A free NBC labour and trade and investment zone

Confidence-building would be enhanced by opening the commercial NBC sectors between regional parties. In the nuclear field, this would include the entire fuel cycle industry and the commercial production of radioisotopes. In the chemical field, members of a WMDFZ would have to decide how broad a scope they wish to establish. It is imaginable that they would constrain the measures discussed in this section to Schedule 1 sites only, or to include Schedule 2 and 3 facilities or even 'Other Chemical Production Facilities' as defined in Part IX of the CWC's Verification Annex.[44] As for the biological field, countries might decide to use the designation principles contained in the draft BTWC compliance protocol, or expand or constrain the scope defined there.[45]

[43] Comprehensive Nuclear-Test-Ban Treaty (CTBT), opened for signature 24 Sep. 1996, not in force, <http://treaties.un.org/Pages/CTCTreaties.aspx?id=26>.

[44] The CWC's Annex on Chemicals comprises 3 'schedules'. Schedule 1 chemicals consist of chemicals and their precursors judged to have few, if any, peaceful applications. Chemicals listed in schedules 2 and 3 have wider peaceful, including commercial, applications.

[45] Littlewood, J., *The Biological Weapons Convention: A Failed Revolution* (Ashgate: Aldershot, 2005), pp. 70–79.

Establishing a free NBC labour zone would mean that all qualified citizens from all members of the zone would be entitled to apply for jobs in the facilities jointly designated as relevant in the partner states. The goal would be a mixed-nationality staff which would make 'cheating' difficult and detectable. The British–Dutch–German enrichment company Urenco serves as a model for this.

A free NBC trade and investment zone would significantly enhance the mutual knowledge about related infrastructure in partner countries, and enable participation in corporate decision-making and management. Again, the notion of cheating would fade with the multiple influences on the decision-making of formerly national companies, and the transparency that the new insights gained by citizens from partner countries would produce. Eventually, a transnational community in the commercial NBC sector would emerge that, by itself, would present a formidable barrier to reversal.

A common export control system

A free NBC trade and investment zone plus a zonal organization with authority in all fields concerned would also help with erecting a common export control system as a further confidence-building measure. The European Union (EU) established an export control system in 1993 that regulates internal and external trade with items controlled under the guidelines of the Zangger Committee, the Nuclear Suppliers Group and the Australia Group. The EU's objective was to liberate intra-EU trade. A regional WMDFZ might set other priorities, for example, enhance security by raising the standard of control and increased information sharing among members. With this priority objective, a system would oblige national export control authorities to inform their peers in partner states of any transfer by a national company to an actor in the zone partner-state relevant in one of the three technological fields. The informed authorities would then be in a position to follow the route of the transferred item inside their territory with a view to prevent undesirable exports out of the zone. It could also consider informing the zonal verification agency or even investing this agency with the authority to make random inspections in the installation in the importing partner state where the item was reported to be used in order to ensure that it was not clandestinely and illegally exported out of the zone.

Common commitment to post-transfer controls

Another related measure would be the establishment of collective post-transfer controls for all related imports from outside the zone. Some exporters require such controls as a condition of supply, which has repeatedly met resentment on part of importers because, in their view, this request was compromising their national sovereignty. From the perspective of confidence-building in the zone and strengthening the zonal regime, however, such post-shipment, end-use controls would ensure that countries in the zone would not attempt to conduct illegal activities through clandestine imports. The controls would be an element of the zonal verification regime, and thus it could be organized as an inspection by the zonal agency, accompanied by an official of the extra-zonal exporting country. This arrangement would alleviate the sovereignty issue, as the controls would be part of the regional verification system voluntarily agreed to by the member states, and the inspection would be under the authority of the jointly installed agency, which would just play host to a visitor from the exporting country.

A joint system for NBC civilian and defence research

Outside of the commercial sector, civilian research related to NBC issues is undertaken in universities and independent institutes. In a comprehensive WMD-free zone, it should be possible to provide for a broad exchange of academic personnel among the institutions involved in this research, and to observe a rule of open access for all ongoing research projects as well as resulting publications. This would create and maintain transparency in a sector essential for establishing mutual confidence and would nurture a transnational regional research community.

The same degree of openness cannot be expected in the realm of legitimate and legal defence research (which is usually undertaken in state institutions). However, a more limited exchange of researchers might be envisaged as the zone becomes a security community. Countries might also develop an interest in sharing the fruits of research the more they regard each other as security partners with a common interest in preventing or, in the worst case, dealing with the impact of WMD-use (see below).

A common approach to physical security

Preventing NBC technologies and materials from falling into the hands of non-state actors is a pivotal

element of both global and national security policy. It is obvious that regional neighbours share a distinct interest in their whole region working seriously for this purpose, as a failure to realise this objective may well reverberate across national borders. There are thus good reasons to optimize collaboration, share information, identify and spread best practices, and develop and maintain joint standards in all these aspects. A dialogue on, for example, risk assessment methodologies for facility security should be feasible.

Generally, states have been reluctant to compromise on strict national control over physical security and related information. Part of this has been due to genuine security concerns, lest information shared with others could be abused or could even spread to non-state actors. When states in a region develop sufficient confidence in their partners' absolute reliability, stronger collaboration measures could be envisaged. For example, peer review of physical security measures at NBC facilities or concerning radioactive sources may be a more broadly applied tool, and some of this mission might be invested in the zonal organization. Cross-border cooperation among police and intelligence services as well as national regulation authorities might be a feature agreed to in the WMDFZ treaty.

Pooling emergency response resources

A logical corollary would be to also pool resources for emergency response. A well-planned chemical attack against unprotected civilians amassed together, for example, in a sports event or an open air concert, might overtax the resources of small developing countries. A well-prepared regional mission should respond to a WMD-related emergency in any state in the zone. Beyond conventional disaster-relief resources, which are also useful in the case of natural disasters, such a system would include special modules for NBC medical treatment and decontamination. National elements of such modules would be trained according to common guidelines and would exercise together in order to be able to cooperate smoothly and effectively in the case of an emergency. Apart from the obvious practical utility, the readiness of parties in the zone to come to each other's assistance in time of emergency conveys a strong sense of partnership if not friendship and is thus an active contribution to constructing a regional security community.

A united effort at WMD non-proliferation and disarmament education

In 2001 the UN General Assembly adopted a resolution on non-proliferation and disarmament education. This concept made its way also into the action plan agreed by the 2010 NPT Review Conference. A WMDFZ would open the possibility for an agreed broad range of educational activities throughout the region and in different institutions. Examples include the following.

1. A high-school education unit on WMD could encourage students to pledge their objection to WMD through explanations of the threat that they pose to humankind.
2. In military academies, renunciation of WMD as an element of national and regional security should be emphasized, as well as the catastrophic consequences of their use.
3. Education of young scientists and engineers in NBC fields should include training on the effects of WMD as well as scientists' responsibility to refrain from supporting their development. An equivalent of medical doctors' Hippocratic oath could be instituted for scientists to commit themselves never to participate in research, development and production of WMD. This might enhance the probability that there will be whistle-blowers around if a government were to breach its obligation.

In all these aspects, members of the zone would be expected to report their activities to the zonal organization which would then review the reports, identify best practices and spread them among member states.

The regional and comprehensive dimensions

A regional and comprehensive WMDFZ would be the most appropriate and feasible mechanism in which to implement the far-reaching regional measures outlined above to enhance security and cooperation. The global regimes are too fraught with deep-seated controversies, and a regional setting, where countries share more interests and have better mutual understanding, offers more possibilities to achieve such measures.

It should be emphasized that, alas, the participation of the world's great powers make sensible global agreements frequently prohibitively difficult if not

impossible to achieve. In regional settings where those powers are absent, their mutual geostrategic games as well as their status consciousness could be mitigated and minimized, as the great powers would have no seat at the table of the respective regional institutions.

Separate regional tracks for each WMD category would prevent synergies from emerging and would not allow for package deals and trade-offs. The umbrella function of a comprehensive zone would eliminate inhibitions resulting from legal and political settings which differ from field to field. A comprehensive regional approach therefore holds the potential for more extensive cooperative measures.

Spin-offs for the global regimes

While the above measures prove the utility of a comprehensive WMDFZ for the region itself, they and a few others may also have a favourable impact on the global non-proliferation and disarmament regimes. Four such effects can be identified.

Strengthening export controls

A common export control regime in a WMDFZ with some form of peer review will have a positive effect on the global risks of NBC-specific and dual-use export: it can be expected that both the legal and institutional situation as well as the quality of practices of the related institutions will improve. Attempts by industrialized states to induce the Global South to observe strict export controls while being at the same time subject to such controls have seen only limited success. If, however, the installation of such controls is viewed as a generic practice to enhance the stability of the zone which the regional countries themselves have created, and the control system is thus an integral part of a cherished effort, the interest in good practice might rise considerably.

The same optimistic hope applies with even more emphasis to the proposed post-shipment control system. Here is one of the main remaining weaknesses of the international export control regimes, due to the different practices of their members. If states in the zone request and administer such control in order to enhance mutual confidence and make their zone more efficient, they will at the same time improve the quality of the global system significantly.

Providing a test-bed for BW verification and compliance measures

The BTWC compliance protocol was scrapped in 2001 without any serious test (apart from mock tests while it was being worked out). It has been lying as a dead letter ever since, while the BTWC member states have devoted their energies to other useful issues. It is unlikely that the protocol can be revived at the global level. A regional agency, however, could examine whether elements from the technical experts' findings from the early 1990s regarding the global mechanism and from the protocol negotiations might still be of relevance. Where it failed globally, the regional level may be the place in which a BW verification mechanism could be successfully developed. However, the regional level, so far, is not strong in the BW realm. A WMDFZ could change this.

The protocol's application in a WMDFZ would supply useful knowledge on how it works in practice. It would test whether the practice confirms the concerns of its adversaries (first and foremost the United States) or the high expectations of its proponents. The application could also give hints where and how it could be improved to eliminate existing weaknesses and to build on proven strengths. If the zone or zones applying BW verification were to share and promote their experience, this might provide new momentum for discussing the protocol in the wider BTWC framework.

Setting best practices for non-proliferation, disarmament, compliance and enforcement activities

As the above deliberation indicates, a functioning WMDFZ is likely to trigger and maintain a large number of useful practices among member states which foster regional security and which could be applied elsewhere. They are thus a fertile field of 'best practices' which the members of the zone and their organization should propagate both at the level of the global regimes but also in other regional institutions such as NWFZs. Such information sharing could also give worthwhile impulses for improving practices in the separate regimes.

Delivering a clear statement on inhumane weapons

As indicated in the introduction, the term WMD was once created to reveal the inhumane character of NW. Every WMDFZ would make the clear and unambiguous statement that NW are no different from CBW in this regard and that therefore it is the

right thing to do to ban all three weapon categories. As a large group of states is presently putting the humanitarian aspect of the NW debate more in focus, the concept of WMDFZ may give new impetus to this initiative and contribute to the related debates in the NPT Review Process as well as in the Geneva Open-Ended Working Group on nuclear disarmament.

VI. CONCLUSIONS

Historically, the free zone concept developed as a nuclear-focused arrangement. Over time, the NWFZ concept has proven its agility in being tailored to the needs and circumstances of particular regions. This agility was meaningful in the successful establishment of five NWFZ in densely-populated areas, covering more than 50 per cent of the earth's landmass.

The WMDFZ concept is a further sophistication of the NWFZ concept, certainly not distinct from it, which offers many far-reaching potential benefits. Whether existing denuclearization zones choose to expand the scope through complementing arrangements on other WMD or amending existing nuclear agreements, the important thing to remember is the flexibility of the free zone concept. When other regions strive to establish their own indigenous free zones, they will adapt the original concept to their particular circumstances. It will still be a free zone, based on the original template but re-modelled to answer the relevant needs of the soon-to-be WMD-free regions.

The many benefits to regional security and cooperation seem overwhelming, and should provide enough incentive for any region in which members aim to transform their environment and establish long-lasting and guaranteed supportive relations among states in the region. The positive influence on the global level should encourage states outside the region to support and promote the establishment of comprehensive regional WMDFZs, where possible.

The EU can play a crucial role in the promotion of the WMDFZ concept. The experience of existing NWFZs has proven the importance of political as well as technical support from the international community. In line with the final document of the 2010 NPT Review Conference, the EU should expressly support the establishment of new free zone arrangements, nuclear or WMD. It is clear that the present situation prevents the EU from playing a role model—as in other aspects of regional integration—because of the NW in the possession or on the territories of several member states. But the EU has a significant potential to support regional WMDFZ projects through capacity building.

On the practical side, there are several areas where EU practices provide valuable guidelines and where there is room for the EU to promote and assist capacity building in aspiring regions (e.g. verification synergies or building a common export control system; for the latter area, the EU has proven its competence through outreach activities like the Long-term Programme, the annual Export Control Conference and the initiation of regional Centres of Excellence). Besides these areas, the support from the EU would be made most meaningful considering the particular experience of the region in establishing regional safeguards arrangements in the framework of Euratom. This experience is relatively unique, as none of the established NWFZs has developed an indigenous safeguards system.[46] The European multilateral experience, while growing out of specific historical and political circumstances, could still be a crucial supporting element. Likewise, the European joint export control systems for NBC-specific and dual-use items contains some features that might be a template for other regions considering their own regional systems.

[46] Although similar in purpose, the experience of the Brazilian–Argentine Agency for Accounting and Control of Nuclear Materials is nonetheless limited to a bilateral arrangement.

LIST OF ABBREVIATIONS

ACRS	Middle East Multilateral Working Group on Arms Control and Regional Security
BTWC	Biological and Toxin Weapons Convention
BW	Biological weapons
CBW	Chemical and biological weapons
CTBT	Comprehensive Nuclear-Test-Ban Treaty
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organization
CW	Chemical weapons
CWC	Chemical Weapons Convention
CWFZ	Chemical weapon-free zone
IAEA	International Atomic Energy Agency
NBC	Nuclear, biological and chemical
NNWS	Non-nuclear weapon state
NPT	Non-Proliferation Treaty
NW	Nuclear weapons
NWFZ	Nuclear weapon-free zone
NWS	Nuclear weapon state
OPCW	Organization for the Prohibition of Chemical Weapons
WMD	Weapons of mass destruction
WMDFZ	Weapons of mass destruction-free zone

EU Non-Proliferation Consortium

The European network of independent non-proliferation think tanks

A EUROPEAN NETWORK

In July 2010 the Council of the European Union decided to create a network bringing together foreign policy institutions and research centres from across the EU to encourage political and security-related dialogue and the long-term discussion of measures to combat the proliferation of weapons of mass destruction (WMD) and their delivery systems.

STRUCTURE

The EU Non-Proliferation Consortium is managed jointly by four institutes entrusted with the project, in close cooperation with the representative of the High Representative of the Union for Foreign Affairs and Security Policy. The four institutes are the Fondation pour la recherche stratégique (FRS) in Paris, the Peace Research Institute in Frankfurt (PRIF), the International Institute for Strategic Studies (IISS) in London, and Stockholm International Peace Research Institute (SIPRI). The Consortium began its work in January 2011 and forms the core of a wider network of European non-proliferation think tanks and research centres which will be closely associated with the activities of the Consortium.

MISSION

The main aim of the network of independent non-proliferation think tanks is to encourage discussion of measures to combat the proliferation of weapons of mass destruction and their delivery systems within civil society, particularly among experts, researchers and academics. The scope of activities shall also cover issues related to conventional weapons. The fruits of the network discussions can be submitted in the form of reports and recommendations to the responsible officials within the European Union.

It is expected that this network will support EU action to counter proliferation. To that end, the network can also establish cooperation with specialized institutions and research centres in third countries, in particular in those with which the EU is conducting specific non-proliferation dialogues.

http://www.nonproliferation.eu

FONDATION pour la RECHERCHE STRATÉGIQUE

FOUNDATION FOR STRATEGIC RESEARCH

FRS is an independent research centre and the leading French think tank on defence and security issues. Its team of experts in a variety of fields contributes to the strategic debate in France and abroad, and provides unique expertise across the board of defence and security studies.
http://www.frstrategie.org

PRIF Peace Research Institute Frankfurt — HSFK Hessische Stiftung Friedens- und Konfliktforschung

PEACE RESEARCH INSTITUTE IN FRANKFURT

PRIF is the largest as well as the oldest peace research institute in Germany. PRIF's work is directed towards carrying out research on peace and conflict, with a special emphasis on issues of arms control, non-proliferation and disarmament.
http://www.hsfk.de

IISS

INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES

IISS is an independent centre for research, information and debate on the problems of conflict, however caused, that have, or potentially have, an important military content. It aims to provide the best possible analysis on strategic trends and to facilitate contacts.
http://www.iiss.org/

sipri

STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament. Established in 1966, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.
http://www.sipri.org/