WMD COMPLIANCE & ENFORCEMENT SERIES
WORKSHOP REPORT

EXPLORING THE FUTURE OF WMD COMPLIANCE AND ENFORCEMENT:

WORKSHOP REPORT

JAMES REVILL, ALEXANDER GHIONIS
AND **LAETITIA ZARKAN**

UNIDIR UNITED NATIONS INSTITUTE FOR DISARMAMENT RESEARCH

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ABOUT UNIDIR

The United Nations Institute for Disarmament Research (UNIDIR) is a voluntarily funded, autonomous institute within the United Nations. One of the few policy institutes worldwide focusing on disarmament, UNIDIR generates knowledge and promotes dialogue and action on disarmament and security. Based in Geneva, UNIDIR assists the international community to develop the practical, innovative ideas needed to find solutions to critical security problems.

NOTE

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ABOUT THE AUTHORS

ALEXANDER GHIONIS is a Doctoral Researcher in the Harvard Sussex Program at the Science Policy Research Unit, University of Sussex. His research looks at change and continuity in the Organisation for the Prohibition of Chemical Weapons (OPCW), with a focus on the role and cultures of its Technical Secretariat. He holds a Masters Degree in Geopolitics and Grand Strategy from the University of Sussex.

JAMES REVILL is a Researcher with UNIDIR's Weapons of Mass Destruction and Other Strategic Weapons Programme and is primarily responsible for its compliance and enforcement work. James' prior research has focused on the evolution of the chemical and biological weapons regimes, on which he has published widely. His PhD from the University of Bradford focused on the evolution of the Biological Weapons Convention.

LAETITIA ZARKAN is on the UNIDIR Graduate and Professional Programme and affiliated with UNIDIR's Weapons of Mass Destruction and Other Strategic Weapons Programme. Her primary research areas are legal and political issues related to space safety, security and sustainability. Prior to joining UNIDIR, she worked in the space industry, specifically in telecommunications. Before that, she had the opportunity to support the work of national governments as part of her course in Space Law. She holds an LLM in Space, Communications and Media Law from the University of Luxembourg and a Master 2 in Air Law from the University of Toulouse 1 Capitole.

BACKGROUND

Over the course of 2019, UNIDIR's WMD Compliance and Enforcement (WMDCE) workstream focused on analysing successes, failures and lessons to be learned from recent experiences with established WMD-related treaty regimes. This body of work resulted in a series of publications covering compliance and enforcement in several WMD-related regimes. These papers are available on the UNIDIR website and include:

- Dunworth, Treasa. 2019. "Compliance and Enforcement in WMD-Related Treaties." UNIDIR WMDCE Series No. 1. https://doi.org/10.37559/WMD/19/WMDCE1.
- Heinonen, Olli. 2020. "The IAEA Mechanisms to Ensure Compliance with Nuclear Non-Proliferation." UNIDIR WMDCE Series No. 2. https://doi.org/10.37559/WMD/19/WMDCE2.
- Trapp, Ralf. 2019. "Compliance Management under the Chemical Weapons Convention." UNIDIR WMDCE Series No. 3. https://doi.org/10.37559/WMD/19/WMDCE3.
- Lentzos, Filippa. 2019. "Compliance and Enforcement in the Biological Weapons Regime." UNIDIR WMDCE Series No. 4. https://doi.org/10.37559/WMD/19/WMDCE4.
- Podvig, Pavel and Amy F Woolf. 2019. "Monitoring, Verification, and Compliance Resolution in US–Russian Arms Control." UNIDIR WMDCE Series No. 5. https://doi.org/10.37559/WMD/19/WMDCE5.
- Revill, James, John Borrie, Pavel Podvig, and Jennifer Hart. 2019. "Compliance and Enforcement: Lessons from across WMD-Related Regimes." UNIDIR WMDCE Series No. 6. https://doi.org/10.37559/WMD/19/WMDCE6.

Building on this work, on the 23 and 24 of January 2020, UNIDIR hosted a one-and-a-half-day workshop that brought together a diverse set of academic and policy experts to explore some of the future challenges and opportunities related to WMD compliance and enforcement. The workshop had three strands: first, it built a more nuanced understanding of some of the current and future challenges facing WMD-related agreements in a changing world order. Second, it identified further potential concrete tools and approaches to future-proof WMD-related agreements. Third, it broadened and deepened the collaborative network of experts working on compliance and enforcement issues across WMD-related regimes.

To encourage free and frank discussion, the meeting was held under the Chatham House Rule. As such, "participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed".[1]

[1] Chatham House. 2019. "Chatham House Rule" https://www.chathamhouse.org/chatham-house-rule

SESSION 1. WMD TREATIES IN A CHANGING GLOBAL CONTEXT

All States can benefit from WMD-related arms control and disarmament arrangements. However, the self-interest of powerful States has typically driven and shaped the development of WMD-related treaties, such as the 1968 Nuclear Non-Proliferation Treaty, the 1972 Biological and Toxin Weapons Convention, the 1987 Intermediate-Range Nuclear Forces Treaty and the 1993 Chemical Weapons Convention.

One potential challenge to the established system of WMD-related arms control and disarmament is a looming shift in the global power dynamics and the emergence of a more multipolar geostrategic context. This shift has been coupled with increased geostrategic tension between major powers along with both the rapid advance and diffusion of several technologies of relevance to the development of WMD.

Over the course of the first session, participants discussed some of these challenges. One participant argued that legitimacy is important for compliance: a legitimate regime attracts and retains members, is more stable, more easily replicable and more efficiently encourages compliance. However, legitimacy cannot be understood in isolation of wider beliefs, assumptions and ideas. Some of these ideas are deeply entrenched or 'sticky'. Moreover, they are reinforced through established verification and compliance measures.

It was suggested that the deep entrenchment of ideas related to arms control and disarmament could prove problematic. For example, one participant argued that the current WMD-related treaty regimes were designed for a bipolar or unipolar global context. These regimes lacked the flexibility required to adapt to the changing global context. In particular, the mechanisms of treaty enforcement are becoming outmoded and increasingly difficult to apply in a multipolar context. On the one hand, this may weaken States' confidence in WMD treaties. On the other hand, the situation may generate greater scope for more regional-based enforcement.

In the discussion, some participants argued that flexibility in arms control and disarmament is a virtue that facilitates the resolution of non-compliance issues. Moreover, flexibility was seen as a necessary ingredient for arms control and disarmament to adapt to a changing political and technical context. However, other participants cautioned that flexibility might allow powerful States to shape regimes in their own interests and at a cost to the interests of other States.

Although the changing global context clearly presents challenges, participants recognized that it also offers several opportunities. First, the current state of flux creates space for the articulation of new ideas and the development of new norms around acceptable forms of behaviour. Second, changing power dynamics create opportunities for certain States to step up and contribute to localized treaty enforcement. Third, it creates scope for further

exploration and application of transparency measures, as well as scholarly work on the 'sociology of trust'.

SESSION 2. COLLABORATIVE GOVERNANCE

States remain the key actors in WMD-related regimes. However, a range of non-governmental stakeholders and international bodies have contributed—in different ways and at different points—to the instigation, negotiation, implementation, 'tending' and enforcement of WMD-related regimes.

The second session looked at the role of different actors in WMD arms control and disarmament. It began with a discussion on the role of different actors in shaping the evolution of WMD-related norms. It was argued that normative standards of behaviour are important in cooperative security agreements. However, they are not fixed, but socially constructed and vulnerable to change, particularly following shocks (such as the events of 11 September 2001) or in conditions of deep political division. Such events and trends make norm maintenance more difficult and can result in norm 'renegotiation' or 'decay'.

Participants also discussed the critical role of female and youth participation in WMD-related arms control and disarmament, as well as some of the wider roles for different stakeholders in WMD-related treaty compliance and enforcement. To provide three examples:

- The growth in, and availability of, online, open-source data of relevance to compliance entails a growing potential role for NGOs using such information. However, this observation raised questions over how NGOs maintain impartiality, how NGOs can overcome States' veto power on contributing to discussion on compliance, and how NGOs can feed relevant open-source information into compliance discussions.
- The important role of industry partners in collaborative governance was emphasised. Participants identified the partnership between the chemical industry and the Organisation for the Prohibition of Chemical Weapons as a good example of an industrial partnership. This partnership has been advanced through the integration of industry representatives into the delegations negotiating and tending the Convention. The partnership has been further sustained by ongoing interactions between industry and the Scientific Advisory Board of the Organisation for the Prohibition of Chemical Weapons.
- It was also suggested that cities might play a greater role in WMD-related regimes in the future. It was noted that a number of cities have already made statements on their adherence to treaties.

The session proceeded to discuss the role of specialist international organizations (IOs). It was argued that IOs are essential for both treaty implementation and mitigating the trust deficit between States on critical security issues.

It was noted that IOs are often comprised of States and a secretariat. These different components are often conflated and confused. Although the mandates and legal identity of IOs can vary considerably, the secretariat component of WMD-related specialist IOs is typically designed to be impartial. However, in reality, there is a political dimension to their

operation. To implement their mandates, technical secretariats have varying degrees of independent agency. One participant suggested that such agency can be advanced in three different ways:

- following crises that present potential windows of opportunity for secretariats (as well as risks);
- through the emergence of leaders that are able to shield secretariat bodies from criticism; or
- through institutional expansion or 'mission creep' either when States are distracted or through the exploitation of secretariat expertise in the principle–agent relationship that emerges between States and treaty secretariats.

It was recognized that technical secretariats must operate professionally in a manner consistent with their respective mandates. Nonetheless, some participants argued that IO agency at points may need to be developed and used selectively and 'bravely' in response to difficulties with compliance and enforcement.

SESSION 3. ENFORCEMENT OF WMD-RELATED REGIMES

In the past, States and stakeholders have used a range of tools to address non-compliance with WMD-related regimes. These range from the provision of technical assistance, to naming-and-shaming, to Security Council sanctions. The third session discussed potential enforcement tools, drawing from a range of examples.

Participants discussed compliance and enforcement in the context of the 2005 International Health Regulations (IHR). These regulations are designed "to prevent, protect against, control and provide a public health response to the international spread of disease". It was noted that national implementation of the IHR has been limited. Furthermore, several States have diverged from IHR guidelines in reporting disease outbreaks. Indeed, in some cases, there was outright non-compliance with the disease-reporting requirements under the IHR. This was, in part, because of the potentially significant economic consequences incurred by reporting outbreaks of disease. The IHR lack any robust enforcement mechanism. Moreover, it was argued that measures to punish non-compliance are unsuited to the IHR context and complying with the IHR is in the interests of all States. Moving forward, further capacity-building was proposed as the principle mechanism to improve compliance with national implementation requirements under the IHR.

Another speaker raised the role of 'dispute settlement' or arbitration mechanisms as a possible tool to enforce WMD-related agreements. International arbitration, in which parties present evidence to an impartial authoritative body to reach a decision, has been effectively applied in both economic and territorial disputes. Accordingly, an arbitration process might be considered to address certain cases of non-compliance. Alternatively, a less adversarial process of mediation might be employed. Such a tool might encourage remedial action without findings of guilt.

Participants also discussed some of the evidentiary challenges of achieving accountability, drawing on experiences in the prosecution of serious crimes under international law. It was noted that the collection, preservation and analysis of evidence to prosecute serious crimes is challenging, particularly in a highly charged political environment. Investigators may not always have access to facilities or locations. In cases where evidence was collected remotely, actors had to piece together available information from a variety of different sources, including witnesses, video, and satellites. Such evidence might be collected directly or come from other third-parties. As such, determining the provenance of information and collecting metadata was deemed crucial, and attention should be paid to chain of custody issues. It was noted that if investigators are seeking to hold individuals or organizations to account,

to do so requires access to wider, and potentially sensitive, information, for example on chains of command or weapons production methods.

SESSION 4. ADVANCES IN SCIENCE AND TECHNOLOGY AND CHALLENGES FOR WMD-RELATED REGIMES

Session four sought to build an understanding of some of the scientific and technological challenges for WMD-related regimes.

One participant highlighted how advances in science and technology could enhance the potential of biological weapons as well as the scope for delivering pathogens more accurately to a growing range of targets. Three aspects of relevance to biological warfare agents were discussed. First, it was argued that the tool-box for modifying agents is expanding rapidly, and is increasingly cheaper and faster to operate. Second, synthetic methods potentially allow scientists to create new pathogens or resurrect old ones that no longer exist in nature. Third, there has been a shift from looking at whole genomes to looking at the functions of specific DNA fragments. These developments could enable a new generation of biological weapons. In addition, traditional biological weapons delivery methods, such as aerosol delivery, have been augmented by advances in drone technology, insect vectors and nano-delivery. As peaceful research continues, further opportunities for hostile use may emerge, including through new or more accurate means of targeting biological weapons.

In the nuclear realm, several developments add to today's growing strategic unpredictability, including anti-ballistic missile defences, hypersonic and other advanced long-range weapons, anti-satellite weapons, un-crewed weapon systems, cyber, artificial intelligence and machine learning, and lower-yield nuclear weapons. Such technological developments could undermine deterrence relationships and create new crisis instabilities in at least one of four ways.

- First, by offering defences against (or means of undermining) a rivals' missile and space capabilities.
- Second, through performing missions once reserved for nuclear weapons such as destroying an adversary's nuclear forces and attacking their early warning systems.
- Third, by allowing much more effective tracking of adversaries' nuclear forces.
- Fourth, new nuclear weapons with higher precision and lower explosive yields may make such weapons more usable.

Participants debated whether States had significantly revised the cost–benefit calculus of treaty compliance as a result of technological change. Some participants queried whether change is really quite so profound: technological promises are often hyped and military

innovation is typically a slow, incremental process focused on functional, rather than complex, technologies. It was further observed that advances in technology might induce more caution among States. At the same time, the interplay of new and old technologies, along with other factors, can create considerable uncertainty. Arms control approaches could help improve transparency between States in this respect, and thus confidence and predictability, but ultimately only if there is confidence in the means by which they are verified, and compliance enforced.

Participants did not see arms racing as an inevitable consequence of these new technologies. Nonetheless, some argued that decreasing barriers of entry into arms races might lead a wider range of States to pursue first mover advantage. This could increase the possibility of error and accident. It was noted, however, that the pursuit of technology will not necessarily be like-for-like. Some participants saw potential for an 'offsetting approach' in which States would try to block the relative advantage of a particular type of technological development, rather than compete in a like-for-like arms race.

Participants raised several possible approaches to address technology-related challenges. These included improved communication and greater engagement between States around emerging technologies. To achieve this, States could develop frameworks for information-sharing around new technologies along with ethical or regulatory approaches to govern such technologies.

SESSION 5. SCIENCE AND TECHNOLOGY FOR DETECTING, INVESTIGATING AND MANAGING NON-COMPLIANCE

Technological progress in areas such as remote sensing, distributed-ledger technology, chemical and biological forensics, and open-source data have the potential to improve existing methods of detecting, investigating and managing non-compliance. However, unlocking this potential requires a (social) process of adoption that would ensure the "methods and tools used … for verification purposes are scientifically sound, validated, and robust for use in the field".

The fifth session discussed some of the opportunities presented by advances in science and technology. Participants recognized that verification often implies a quantitative process. However, verification is rarely a purely technical activity and the interpretation of results is an inherently political process. This places limits on national technical means as a source of transparency or verification.

Several other possible tools were discussed. Public health information derived from remote applications or genome sequencing technology, for example, could inform understandings of disease outbreaks. Public technical means, including the use of open-source data, could also play a role in monitoring compliance. For example, in the biological weapons arena, open-source intelligence developed by civil society has helped locate production facilities. Similarly, the Organisation for the Prohibition of Chemical Weapons had made use of open-source technology. It was recognized that civil society use of open-source information could be useful, not least as it could raise issues and provide insights that States and IOs are unable to discuss publicly because of political sensitivities.

However, participants recognized that 'open-source' is seen unfavourably by some States. In the past, States have challenged both the authenticity and the basis of open-source data and participants recognized that verifying open-source data is challenging, particularly in a contested information environment. Moreover, realizing the potential of new investigative technologies across regimes would require overcoming a 'political ceiling' and putting in place frameworks through which technology could be validated and collectively accepted by States. In this regard, several participants highlighted the human dimension in monitoring and investigating non-compliance, including the development of proficiencies and guidelines for the use of new technologies.

The system of detecting and investigating compliance in the nuclear domain was largely viewed as a success. However, it was noted that the majority of cases of non-compliance are triggered by self-reporting or third-party information, rather than detection by the International Atomic Energy Agency, for example. It was also suggested that verification

systems often tend to focus on problems of the past. As such, the International Atomic Energy Agency system may need to adapt should nuclear weapons stockpiles decrease or the nuclear industrial landscape evolve.

Moving forward, it was suggested that IOs might usefully share information with each other on both the methods and results of open-source investigations. This was seen as a potentially important step forward in both developing better open-source data methodologies and building a more accurate picture of events. Participants also discussed how verifiable open-source data could be shared between IOs and States.

Four other steps to enhance compliance monitoring and investigation were discussed. First, participants recognised the value of national forensic libraries as tools for investigating compliance in different regimes. Although some forensic libraries lack complete data sets there could nonetheless be value to further developing and using these libraries. Second, participants discussed the importance of setting clear criteria for verification, perhaps through focusing on the detection of 'militarily significant' violations. Establishing such a criterion could help to manage the expectations of States and stakeholders. Third, in order to build a more comprehensive picture of events and trends, some participants emphasized the importance of sharing information among IOs. Fourth, peer review was discussed as one potential verification tool to be explored further.

PARTICIPANTS LIST

Anthony, Ian	Stockholm International Peace Research Institute
Bacco, Valentina	UNIDIR
Ballard, Joseph	Organisation for the Prohibition of Chemical Weapons
Bino, Tomisha	UNIDIR
Borrie, John	UNIDIR
Considine, Laura	University of Leeds
Edwards, Brett	University of Bath
Finaud, Marc	Geneva Centre for Security Policy
Findlay, Trevor	University of Melbourne
Ghionis, Alexander	Harvard Sussex Program
Hessmann Dalaqua, Renata	UNIDIR
Jeremias, Gunnar	University of Hamburg
Katz, Rebecca	Georgetown University
Lennane, Richard	Geneva Disarmament Platform
Lentzos, Filippa	Kings College London
Løvold, Magnus	International Committee of the Red Cross
Malygina, Anastasia	St Petersburg University
Maslen, Stuart	University of Pretoria
Meier, Oliver	Institute for Peace Research and Security Policy, University of Hamburg
Menon, Aditya	International, Impartial and Independent Mechanism
Merke, Federico	Universidad de San Andres
Millet, Kathryn	Biosecure
Persi Paoli, Giacomo	UNIDIR
Podvig, Pavel	UNIDIR
Porras, Daniel	UNIDIR
Revill, James	UNIDIR
Ruzicka, Jan	University of Aberystwyth

Trapp, Ralf	Independent Consultant
Unal, Beyza	Chatham House
Vestner, Tobias	Geneva Centre for Security Policy
Wan, Wilfred	UNIDIR
Wunderlich, Carmen	Universität Duisburg-Essen
Yuan, Jingdong	University of Sydney & UNIDIR
Zarkan, Laetitia	UNIDIR

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