



**ORGANISATION FOR THE PROHIBITION OF CHEMICAL WEAPONS**

**Webinar Lecture “Ethics in Science”**

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*REMARKS AS DELIVERED*

Distinguished webinar participants,

It is a pleasure to be here at the Indonesian Institute of Sciences, a renowned centre for science and research in Indonesia and in Asia. I wish to express my appreciation to the National Authority of Indonesia and the Institute for hosting this webinar and providing an opportunity to reach out to such a well-learned audience.

Indonesia has been a steadfast supporter of disarmament and multilateral diplomacy, including through its founding role of the Non-aligned movement and active engagement in international organisations and fora. Indonesia is also one of the original signatories of the Chemical Weapons Convention (CWC), and a member of the Organisation for the Prohibition of Chemical Weapons (OPCW), the organisation that works tirelessly to ensure effective implementation of the CWC across the globe.

The CWC entered into force in 1997. This year marks the twentieth anniversary of that historic occasion. For twenty years, the OPCW has been working assiduously to eradicate the scourge of chemical weapons from our planet through the implementation of the CWC among its 192 Member States.

Chemical weapons are a product of modern chemistry. Eliminating them and preventing their re-emergence is the subject matter of the Convention. The CWC is therefore a science-based treaty whose object and purpose is defined by ethical and moral imperatives. Science has brought countless benefits, improved the quality of life and lifted millions of people across the world out of poverty. As we continue to watch new scientific discoveries with fascination, they promise exciting possibilities and unprecedented prospects for human advancement. Yet, many of these same achievements, if misused, may result in great harm and even pose the threat of mass destruction.

One key lesson of recent history is that progress in ethics must keep pace with advancements in science. Only through respect for universally recognised principles and values can we ensure that human progress will remain beneficial for all. Modern day nation-states and societies face a multitude of threats including those posed by the changing nature of conflict and non-state actors. Pursuit of power or pure commercial interests can also push into the background considerations of ethics and moral values.

To preserve a system that promotes peace and offers opportunities of all nations to prosper, members of the international community have been striving to work together through multilateral institutions to safeguard and to promote further universally accepted norms and principles. And the OPCW has been at the forefront

to translate such commitments into concrete actions that serve the ends of international peace and security. The participants in this endeavour are not just nations but also civil society institutions and individuals across the globe, who are motivated by the shared norms and values of equality, justice and human dignity for all. To date, the CWC has been recognized as one of the most successful disarmament treaties to ban an entire category of weapons of mass destruction.

Seen from both an ethical and a legal point of view, a global ban on chemical weapons signifies very positive progression in our collective endeavours for a more humane global society. Despite the unpleasant reality of conflict and wars that defines a significant part of our history; peoples across time and across nations have continued to strive to eliminate the most dangerous weapons that threaten our very existence. They have recognised certain fundamental ethical and moral principles as unchangeable and universal. One such rule prohibits the use of excessive or indiscriminate force and stipulates the protection of civilians in times of armed conflict. In this framework, causing deliberate harm or death by using poisonous substances is considered cruel and degrading. Ingrained in our habits and customs, such norms provide the foundation for the international system and its structures of global governance which include a network of international treaties including the CWC.

Once these principles are codified in international treaties, their observance is elevated from moral and ethical necessity to legal liability. Violations are not only to be condemned but to be made accountable. The sanctity and dignity of human life has been universally considered as inviolable. Any action to the contrary is considered abhorrent. Based on such principles, the international community codified the customary rules against the use of poison as a method of warfare into a binding legal document which is the CWC.

For most of its twenty years of existence, the OPCW has worked out of public limelight quietly progressing towards an unprecedented goal of completely eliminating chemical weapons and strengthening the norm against their use. These achievements bear no precedent in the history of disarmament. In these decades, OPCW's work has involved a multiplicity of tasks. It has conducted extensive verification of destruction of chemical weapons in several countries who voluntarily and under the terms of the CWC gave up this option. We have also conducted thousands of inspections in the chemical industry to ensure that no relevant product of chemistry was diverted for purposes other than peaceful.

Importantly, the Organisation has established good practices in several areas relevant to preventing the re-emergence of chemical weapons. These include the monitoring of transfers, encouraging and facilitating the joining of the Convention by states, assistance and protection against chemical weapons, engaging the global public, undertaking tasks in international cooperation, capacity building, and promoting the peaceful uses of chemistry.

95% of all declared stockpiles of chemical weapons have been successfully destroyed. Over 3400 industry inspections have been conducted and thousands of beneficiaries of international cooperation programmes from across the world are contributing to the implementation of the Convention in their countries as well as for the betterment of their societies.

During the course of our work, we have encountered some difficult tasks. Our work in Syria, for example, represents one such challenge. The Organisation was mandated to eliminate Syria's chemical weapons programme. This involved the destruction of Syria's ability to produce chemical weapons and the removal of its chemical weapons from its territory and their destruction outside the country. This was a mission without parallel and relied on the commitment and dedication of the OPCW staff backed up by the concerted actions of States Parties who provided technical, financial and political support for the mission.

Our work in Syria however did not end with the elimination of Syria's chemical weapons programme. In 2014, I established a Fact-Finding Mission (FFM) to investigate allegations of use of Chlorine as a chemical

weapon in Syria. In a number of cases the results have confirmed with a high level of confidence the use of toxic chemicals and sulphur mustard as weapons. The investigation into the widely reported incident at Khan Shaykhun that occurred in early April in northern Syria has confirmed the use of sarin, a nerve agent. Attributing responsibility is not within the remit of the FFM. This function has been assigned by the UN Security Council to the Joint Investigative Mechanism (JIM). Yet, this most disturbing conclusion once again highlights the growing threat posed by those who do not abide by moral or legal principles. The international community has forcefully condemned any use of chemical weapons by anyone under any circumstances.

Another complexity that continues to attend our work in Syria relates to the question of clarifying certain elements of the Syria's declaration of its chemical weapons programme. A team established for this purpose and known as the Declaration Assessment Team has been engaged with Syria in an effort to clarify several outstanding issues. The purpose of this exercise is to arrive at a declaration that will be regarded by our States Parties as complete and accurate. Meanwhile, I have continued to underscore to my Syrian interlocutors the necessity of bringing this matter to a close through the provision of scientifically and technically plausible explanations on the unresolved questions.

The CWC constitutes a permanent prohibition against chemical weapons. To work for the preservation of its norms is a responsibility that we cannot ignore. This sense of duty leads our continuing endeavours to expose any use of chemical weapons or misuse of scientific knowledge to ensure that the Convention will remain a strong and effective instrument. This also calls for us to address the ethical dimension of the CWC. The Convention was founded first and foremost on ethical and moral values. Ethical application of scientific knowledge is crucial in ensuring socio-economic development in a peaceful and secure environment.

OPCW Member States have been benefitting from the legal and technical safeguards the Convention provides to its signatories both at national and regional levels. The strength of the CWC also lies in its effective domestic implementation. This means establishing domestically, the legal framework and administrative capacities by all our Member States to ensure that the provisions of the Convention are fully embedded in their domestic laws and regulations.

The existence of laws and the ability to enforce them is essential in preventing non-state actors from gaining access to materials and equipment that could be used for the production of chemical weapons. In other words, this is a crucial part of any counter-terrorism strategy. This also includes working with stakeholders and setting benchmarks with regards to ethical application of scientific knowledge. Over the years we have created and improved upon programmes that assist our States Parties in this regard. Programmes that, for example, offer reviews by the Secretariat of drafts of implementing legislation. Our Internship Programme for Legal Drafters and National Authority Representatives assists States Parties in drafting implementing legislation.

Together with our Member States, we have been focussing on working together with chemical practitioners and scientists to promote the peaceful application of chemistry and to disseminate knowledge and information and best practices. The growing importance of the CWC as a regulatory mechanism may not be underestimated especially in growing and developing industries with vast potential and manpower, such as Indonesia. Indonesia remains a premium partner in ensuring that scientific advances and developments go hand in hand with ethical provisions of the CWC. We will continue to work with our Member States to ensure that their rapid industrial development is accompanied by effective regulatory measures and ethical norms.

In practice, the CWC may serve as a platform for developing and bringing such norms to fruition and near-universal acceptance. Some of the challenges that exist have already been brought to our attention as we move to expand our partnerships with scientific communities and promote peaceful uses of chemical science.

Dual-use nature of research advances, integrity in reporting experimental results calls for additional responsibility in preventing harmful use of science. Preventing the dissemination of sensitive scientific knowledge can at times be given lower priority because so many people do not believe their work and their scientific contributions could be misused. While in most cases this assumption might hold true, the down-playing of these issues can also result in scientists not recognising a dual-use risk should this knowledge fall into wrong hands, as they only see the beneficial aspects of it. To this end there have been frequent calls within the international community to establish ethical codes for scientists. It is important for such initiatives to have an inclusive and non-discriminatory character, acknowledging not only the role of scientists but also that of policy and decision-makers.

Building trust between scientific communities and those who rely on scientists for both responsible behaviour and scientific expertise is important in allowing productive discussions on ethical norms between various stakeholders. Scientists may trust policymakers more if they have a sense that policymakers demonstrate the importance of scientific literacy and support it. And in return, policymakers may trust scientists more if they see scientific communities abiding by the practice of responsible science and ethical codes and standards. On its part, the OPCW will continue to ensure that this dialogue is maintained and enhanced on both sides – political and scientific.

One of such initiatives that helps in enhancing and nurturing this trust, has been the OPCW “science for diplomats” briefings aimed at encouraging scientific literacy among policy-makers. This undertaking has also initiated a “diplomacy for scientists” workshop series that covers ethical issues and responsible science, intended as a forum for awareness-raising of the need for effective communication outside the scientific community.

The objective of ensuring the application of science for peaceful ends cannot be confined to the contribution of a limited audience. It will benefit from an expansion in our reach in terms of awareness, and by deepening our relationships with key partners in science, academia and industry. To this end, the OPCW has established an Advisory Board on Education and Outreach. This body guides the development of new activities, and teaching tools to increase awareness of the dangers posed by the possible misuse of dual-use technology. They also help us to disseminate our message to universities and schools in order to nurture a culture of responsible science. The goal is to develop and promote professional ethics that support the aims of the CWC.

Following an initiative by Germany in November 2014 for the development of ethical guidelines for chemistry professionals in the context of the goals of the CWC, the OPCW facilitated two workshops. They involved a group of more than 30 scientists and chemistry professionals from over 20 countries, including all regional groups, to discuss and draft possible ethical guidelines for the practice of chemistry under the norms of the Convention. The Hague Ethical Guidelines were drafted as an outcome of these workshops. It is available on our website. In December 2015, the Conference of the States Parties acknowledged the establishment of The Hague Ethical Guidelines as an important step to advance understanding among chemistry practitioners of the importance of nurturing responsible and ethical norms for scientific research and development. To prepare for the workshops some 140 codes of conduct and codes of ethics for chemistry relevant organisations, including from chemical industry were collected. This represented over a thousand pages of text. The codes came from across all regions of the world.

Quite often, professionals are not aware of the existence of this relatively large collection of documents. While there were striking similarities, what distinguished the codes from one another was the type of community they belonged to. Codes drafted by chemical industry showed differences from those of chemical societies and National Academies of Science which in turn were distinguishable from the chemical societies. But within a group, the content of the codes was very similar. This underscores the need for more effective engagement and communication between stakeholders.

Aligning these codes to the object and purpose of the CWC offers an effective avenue for harmonising their content. On our part, we will continue to offer a forum for such an endeavour. An important lesson from this exercise was that making these codes work requires the professionals to feel that they have a sense of ownership. Thus many organisations and scientific societies draft codes with nearly identical concepts and content – but they attribute it to their unique group and needs.

The purpose of The Hague Ethical Guidelines is not to be a code in itself, but to be a set of elements that can be used to start a process to allow others to take ownership on the final version they would want to adopt. In fact, The Hague Ethical Guidelines have already served as the basis for codes produced by others, most notably the Global Chemists Code of Ethics, produced at a workshop in Malaysia by a group of international chemists in 2016. In the final analysis what is important is for all scientists to be aware of their responsibilities given the power that their special knowledge confers on them. This notion will become even more prominent as we move into the future.

For the OPCW, continued and effective engagement with scientific communities and professional networks will gain further impetus, especially when the last of the declared chemical weapons stockpiles will be destroyed. This will mark a new era for the Organisation and engage our stakeholders along new avenues of cooperation. In an age of continuing advances in science and technology as well as new security challenges, our efforts will continue to focus on preventing the re-emergence of chemical weapons.

Preventing re-emergence is not a single track undertaking and would require cooperation on multiple fronts. While advances in science and technology are the harbingers of a better future they will also inevitably impact the Convention's verification regime. Advances in chemistry, chemical technology and engineering are rapidly transforming the global chemical industry. This makes it necessary for us to have the ability to detect new chemicals and establish if they are relevant to the Convention. Similarly, we need to acquire a deeper understanding of the growing interaction between chemistry and biology which also gives rise to the ability to produce potentially dangerous chemicals through new techniques and methods.

The OPCW Scientific Advisory Board, comprising eminent experts from 25 different States Parties, helps to keep us abreast of these developments. The Board's work has been invaluable in offering advice on monitoring progress on science, evaluating its impact for the Convention and how the OPCW can prepare itself for future. Science and chemistry in particular, is organically linked to our treaty objectives of permanently eliminating the threat of chemical weapons. Progress in science offers opportunities for improving verification and protection measures but it also creates the imperative of promoting ethical practices through awareness raising and education.

Moving ahead we will need to learn from history. Power and knowledge may indeed be abused, but together we possess the tools and resources for dealing with global challenges in a collective and cooperative manner.

We live in a time where the need for scientific literacy and consideration of technical issues in policymaking has never been greater. Eroding public trust limits the ability of scientists to make an impact on the policy making process - it shuts out the consideration of important technical insight, and downplays the importance of scientific literacy. This, in turn, has negative societal consequences, including the reduction of funding and support for important scientific research that might address real-world problems such as health, sustainability energy, resources, safety and security.

For a disarmament treaty like the CWC, implementation requires technical knowledge and expertise; science and technology underpin the Convention. An erosion of scientific trust could hinder engagement of scientists in treaty implementation and reduce OPCW's ability to maintain necessary access to scientific information and expertise.

Yet, human and societal progression will continue. It is important to mediate progress by applying the norms and values that have taken a long time and a considerable effort to embed in the collective conscience. Our technological world is delicately balanced. On the one hand we have the means to bring about universal prosperity. On the other, we also possess the tools for self-destruction. We can never become complacent of this reality and must therefore continually strive for a better world.

The responsibility for this belongs to each one of us. Scientists and chemistry practitioners are ideally placed to play their part. By consciously inculcating habits of ethical conduct in our professional life, we will be strengthening our commitment to the ideal of a world free of chemical weapons. We would thus demonstrate that the defining feature of our global civilisation is not only its technological prowess but also its devotion to spreading the message of peace and humanity.

I thank you for your attention.

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