



ORGANISATION FOR THE PROHIBITION OF CHEMICAL WEAPONS

Ensuring Chemistry is Used Exclusively for the Benefit of Humankind

Remarks by the Deputy Director-General

Universidad Nacional Autonoma de Mexico, Mexico

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REMARKS AS DELIVERED

Buenas Tardes!
Dr Felipe Cruz García,
Prof Benjamin Ruiz Loyola,
Distinguished Faculty members of UNAM,
Dear students,
Ladies and gentlemen,

It is a great privilege to be speaking here today at the Faculty of Chemistry of the Universidad Nacional Autonoma de Mexico (UNAM). Your campus is a UNESCO World Heritage Site and it is not difficult to see why. With murals by the Diego Rivera and Juan O’Gormon and buildings designed by architects such as Mario Pani and Enrique del Moral, the UNAM campus is a showcase for Mexican culture and creativity.

As much as your campus is beautiful, it is also one of the premier centres of education for Mexico, as well as for the whole Latin American region. The Faculty of Chemistry is a part of that tradition of excellence, which has produced such internationally acclaimed scientists as Dr Mario Molina, the 1995 Nobel Prize co-winner for Chemistry.

His ground-breaking research on the detrimental effects of chlorofluorocarbon gases on the ozone layer was initially dismissed, even ridiculed. But as the evidence in support of his findings accumulated, the international community acted to address the problem he had co-discovered, leading to the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer.

Dr Molina’s contribution to environmental science is a prime example of how chemistry benefits humanity in fundamental ways. It has the ability to educate and inform, as well as the power to move people and societies to collective action with its discoveries. In essence, the study of science can be seen as a revolutionary act, changing the way we think and behave.

The Organisation for the Prohibition of Chemical Weapons (OPCW), as the international body that oversees the implementation of the Chemical Weapons Convention (CWC), is the embodiment of this idea. We are a technical organisation that is underpinned by science and mandated to work together with the international community to rid the world of chemical weapons and to ensure that the application of chemistry is solely for peaceful purposes.

In April this year the Organisation marked the twentieth anniversary since the entry into force of the CWC and the founding of the OPCW. This has been a moment to reflect on the successes that we have achieved in our mission, as well as to look to the challenges ahead.

Ladies and gentlemen,

What has been accomplished over the past two decades under the Convention is truly remarkable. With 192 States Parties, the CWC is the most universally adhered to disarmament treaty in the world. Consequently, 98 percent of the globe's population is covered by the Convention's protection. Not only have the Convention's disarmament efforts been overwhelmingly successful, but they are almost complete.

The OPCW has verified the destruction of over 96 percent of the chemical weapon stockpiles declared by its States Parties. Tens of thousands of tons of the deadliest substances known to humankind – such as soman, sarin, and VX – have been eradicated forever.

Conclusion of the disarmament phase of the OPCW's work is scheduled to be reached in 2023, when the United States, the last State Party yet to fulfil its chemical demilitarisation obligation, will finish its destruction process.

I should emphasize that our work will not end, however, with the elimination of the last chemical munition or the last gram of chemical warfare agent. In the post-disarmament phase, the focus of the OPCW's activities will necessarily shift towards preventing the re-emergence of chemical weapons – a task that will require adaptability and cooperation. The challenges in Syria that the OPCW has confronted – and continue to confront – demonstrate the difficulty of this undertaking.

Ladies and gentlemen,

Our mission in Syria began at the end of 2013, when we were charged with verifying the removal, transportation out of the country, and destruction of the Syrian Arab Republic's declared chemical weapons programme.

In all the history of the OPCW, we had never been called upon to supervise a full destruction programme within such a compressed timeframe and in the midst of an active conflict. It was difficult and dangerous, but despite the ambitiousness of the task, we were able to complete our work within one year, confirming the neutralisation of all Syria's declared chemical agents in August 2014. In response to persistent and credible reports of toxic chemicals being used as weapons, however, in April 2014 a Fact-Finding Mission was created to assess these allegations.

The FFM, as we refer to it, has been able to confirm multiple instances of toxic chemicals being employed in attacks. Most recently, the FFM verified the use of sarin, a Category 1 chemical weapon, during a brutal attack on the town of Khan Sheikhoun in April this year. In the face of new allegations of chemicals being used as weapons, the work of the FFM goes on.

As the custodians of the Chemical Weapons Convention, the OPCW is concerned by any reports of the violation of the global norm against chemical weapons. Accordingly, we place high importance on the activities of the OPCW-UN Joint Investigative Mechanism, also known as 'the JIM', which aims to identify the perpetrators of these attacks in Syria. Such crimes will not be tolerated and the perpetrators of these atrocious acts must be brought to justice.

Ladies and gentlemen,

For the OPCW and the international community as a whole, the Syria operation provided a number of lessons learned in terms of preventing chemicals being used for hostile purposes. Key amongst these is the importance of fostering partnerships.

In Syria, the OPCW's cooperation with the UN, in addition to the technical and financial support of 30 States Parties, was crucial to our efforts in that country. There were no guidelines or standard operating procedures for what we were doing. Thus, it was important to collaborate with the UN and the States Parties to ensure that we achieved our mandated goals. Establishing new relationships as well as strengthening old ones will be important as the Organisation tackles both existing and emerging challenges.

The OPCW's ties with the chemical industry are an example of how the Organisation is building partnerships to ensure chemistry is used exclusively for the benefit of humanity.

Chemical industry has been a critical driver of economic growth, as well as human progress. Everything from the clothes on our back to the fuel in our cars was made possible by the commercial endeavours of chemical companies. Here in Mexico, just to give you an example, the chemical sector is the third largest manufacturing industry with revenue of over \$270 billion Mexican Pesos.

The value to society of the discoveries and innovative products of the chemical industry are clear. But so too are our responsibilities to make sure industrial compounds are not misused to the detriment of our health and security. This is the basis of our cooperation with industry.

It should be no surprise to you that industry's interest in the CWC has been long-standing. Throughout the process of negotiating the Convention, the chemical industry interacted with government negotiators to lay the foundations of a robust CWC while avoiding unnecessary burden on the operations of individual facilities and protecting confidential business information.

Over the course of the OPCW's activities, much of the relationship with chemical industry has been coordinated through National Authorities, which are government organisations established to implement domestically the CWC. However, since 2013 the OPCW has been intensifying its efforts to engage more closely with industry.

That engagement has concentrated on the International Council of Chemical Associations (ICCA), the trade organisation whose members account for 90 percent of global chemical sales. In 2014, a joint steering committee was established to coordinate our efforts related to the Convention and to avoid duplication. Already we are working together to address mutual issues of concern in the area of verification.

Chemical safety and security is another key focus of our cooperation with the chemical industry. Greater capacity building in this area will help prevent industrial accidents and discourage the diversion of toxic chemicals into the hands of non-state actors, such as terrorist groups and criminal gangs. Just this year, with the support of the ICCA and national chemical associations, participants from the OPCW's Associate Programme, which aims to enhance national industrial capacity in developing countries, were hosted at 18 chemical plants across the globe for a three-week training course.

Beyond our collaboration with industry, the OPCW has been assisting the States Parties directly to realise the scientific and commercial benefits of membership to the CWC. We have accomplished this through our broad range of international cooperation programmes and activities. We offer support to the States Parties from sponsoring research and improving laboratory skills among lab technicians, to organising internships for chemists from around the world, mainly developing

countries and emerging economies.

Cooperation, however, extends beyond assisting States Parties in developing the technical means to fully enjoy the peaceful uses of chemistry. Under Article X of the Convention, the States Parties have the right to receive assistance and protection in case of chemical attack.

As military stockpiles of chemical weapons have been diminishing and the peril of large-scale chemical warfare decreases, the threat of chemical terrorism has been on the rise. The emergence of non-state actors actively seeking toxic chemicals to use in attacks is now evident. The OPCW-UN Joint Investigative Mechanism has examined and confirmed the use of sulphur mustard by ISIL in Syria.

A chemical attack by a terrorist group is capable of sowing panic and overwhelming first responders. Readiness to react is a national imperative. I am pleased to point out that this is an area where Mexico has made a tangible and sustained contribution to efforts internationally and in the Latin American and Caribbean region.

This morning, I delivered opening remarks at the Regional Table Top Exercise on Chemical Emergency Response for GRULAC States Parties, which Mexico is hosting to improve the skills of regional emergency service authorities to respond to incidents of chemical attacks. Training like this has been vital for increasing regional coordination to deal with an issue that has become a growing trans-national concern.

To fulfil its own role in providing emergency measures of assistance to States Parties, in 2016 the OPCW created a Rapid Response and Assistance Mission, which we call RRAM for short. The purpose of this initiative is to swiftly aid any requesting States Party affected by a chemical weapons attack carried out by a non-state actor, such as a terrorist group, as well as to enhance the Organisation's readiness to investigate and assess such attacks.

Ladies and gentlemen,

While the OPCW and the States Parties can neither ignore the emerging threats, nor neglect the need to prepare for any likely contingency, the real guardians against chemical weapons are you – the current and future chemists, chemical engineers, and researchers.

Ethics must keep pace with the rapid advancements in science and technology. The government or the OPCW cannot monitor every chemical plant, every laboratory, every fume hood, and every individual scientist as he or she carries out his or her work.

A culture of responsible science and the values of the CWC need to be instilled in the scientific community and the individual chemists. In line with this thinking, in 2015 the OPCW sponsored two workshops, where a group of eminent international scientists, like Professor Jorge Guillermo Ibañez Cornejo of Mexico, came together to develop a framework of ethical codes for chemistry professionals such as you.

Out of this endeavour the OPCW produced The Hague Ethical Guidelines, which we have translated into five different languages, including Spanish. As students who are either about to embark on a career in chemistry or are part way through their studies, I encourage you to read, discuss, and debate the different elements of the Guidelines as you consider the implications of your academic and professional activities.

On the side of ethics and education, the Technical Secretariat has established an Advisory Board on Education and Outreach. The Board seeks to guide 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. In this regard, I would like to express sincere gratitude to Prof Benjamin Ruiz Loyola, a renowned faculty member of UNAM and a member of ABEO for his continued contributions and commitments.

Ladies and gentlemen,

Science is an iterative process, where even failure plays a role in progress. As students, you are expected to not only learn the scientific method of step-by-step investigation and review, but also to remain informed of the latest developments across your field.

Keeping abreast of scientific advances relevant to the implementation of the CWC – both positive and harmful – is also an essential duty of the OPCW. Nevertheless, the speed with which breakthroughs are being made in science and their sheer number makes following new developments difficult. To give you a sense of the enormity of this challenge, let me point out that the Chemical Abstract Service Registry adds 16,000 new organic and inorganic substances daily.

Consequently, the OPCW must rely upon the guidance of its Scientific Advisory Board, which is a subsidiary body of the Organisation that renders advice on science and technology. The Advisory Board, which is made up of 25 prominent scientists, acts as an early warning system for the Organisation. It meets twice a year to flag new discoveries and technologies that can assist the CWC – such as better chemical analysis techniques – as well as potentially damage it – such as new methods to produce toxic agents.

Central to the Organisation's commitment to science and technology is the OPCW Chemical Laboratory, which is located just outside The Hague. The OPCW Laboratory is an indispensable component to the CWC verification regime.

When an incident occurs, it can be difficult to determine whether it happened by accident or a hostile act. As such, samples are taken from the scene of an incident and transported to the OPCW laboratory, where they are analysed. This helps rapidly identify the chemicals involved, supporting the swift and appropriate response to any chemical release, deliberate or not.

Although, the OPCW Laboratory maintains highly sophisticated equipment, we are aware that it must be continually upgraded to keep pace with the threats of today and tomorrow. Accordingly, the Organisation has launched a project to transform the Laboratory into a Centre for Chemistry and Technology to augment and add to the OPCW's sampling and analytical capabilities.

Another goal of the upgrade to the OPCW Laboratory is to improve the Organisation's ability to lead its network of partner laboratories in research as well as capacity building. Indeed, enhancing capacity building is one of the primary reasons for initiating this project. Expanding the OPCW Laboratory's training infrastructure will enable us to host in-house capacity-building programmes for States Parties, contributing to more in-depth knowledge sharing.

In this context, we are also seeking to increase the number of OPCW Designated Laboratories. These are laboratories certified by the OPCW to analyse samples taken during investigations. To receive such a certification, each candidate laboratory must score well – and consistently score well thereafter – in our lab proficiency test.

Currently, there are certain regions – including Latin America – with no designated laboratories. The

OPCW hopes that its laboratory upgrade will boost training to scientists from these regions, raising their skill level and expanding this network of laboratories.

Ladies and gentlemen,

The revolution in the life sciences has generated substantial changes and innovations. Some of them have already made their way into products and technologies that are transforming the way we live. Stabilised lithium metal powder, for instance, is significantly extending battery life and nano-technology is helping deliver drugs more efficiently. But science is inherently dual-use in nature. That same nano-technology which can be used for fighting cancer can also be applied to the development of more lethal chemical weapons.

To ensure that chemistry is used exclusively for the benefit of humanity, we have to be ready, informed, vigilant, and courageous. These are values that the OPCW has tried to uphold in its work, and for this we were recognised by the international community in the 2013 with the Nobel Prize for Peace.

As scientists and future leaders in your field, you also have an opportunity to contribute to the betterment of international society through the direct application of your scientific research to the long list of daunting global problems. I encourage you to take inspiration from your alumnus Dr Molina and actively seek to improve the world through your academic and professional pursuits, rather than to engage in activities that may harm it.

I thank you for your attention.
