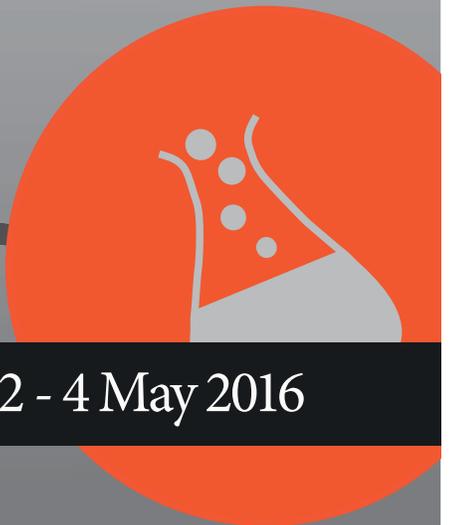
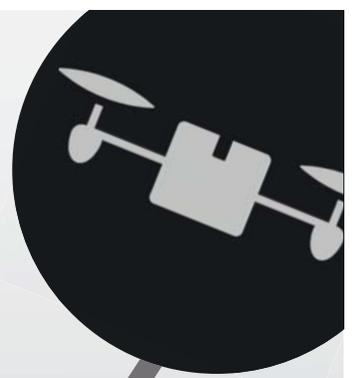


International Day for the Foundation of the Organisation for the Prohibition of Chemical Weapons

Chemical Safety and Security in
a Technologically Evolving World



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#opcwday

2 - 4 May 2016



**International Day for the Foundation of the
Organisation for the Prohibition of Chemical Weapons**
Chemical Safety and Security in a Technologically Evolving World

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Working Together for a World Free of Chemical Weapons



Background and Concept

At its twentieth session held in 2015, the Conference of the States Parties adopted a decision to designate 29 April – the date of the entry into force of the Chemical Weapons Convention – as the “International Day for the Foundation of the Organisation for the Prohibition of Chemical Weapons (OPCW)” or “OPCW Day”.

In order to mark this important occasion, the Technical Secretariat organised an event to celebrate the inaugural OPCW Day from 2 to 4 May 2016 at OPCW Headquarters in The Hague, the Netherlands. The theme for the event was “OPCW Day 2016 - Chemical Safety and Security in a Technologically Evolving World”.

The OPCW Day 2016 was the first event in a series of Conferences and Exhibitions, which the Technical Secretariat will be organising in the coming years, to commemorate the foundation of the Organisation.



Nobel Laureate in Chemistry,
Martin Karplus

OPCW Day Opening Ceremony Speakers

Keynote Address, Vernon Gibson

Opening Ceremony and Keynote Addresses

The Opening Ceremony of the Conference was attended by high-level representatives from States Parties, the United Nations, other international and regional organisations, civil society and a range of other stakeholders. The OPCW Director-General, H.E. Mr Ahmet Üzümcü, delivered opening remarks, followed by a statement made by the Chairperson of the Conference of the States Parties, H.E. Mr Eduardo Ibarrola-Nicolín. Other statements included a message to the Conference read out on behalf of the United Nations Secretary-General, H.E. Mr Ban Ki-moon; additional speeches were made by the Secretary-General of the Ministry of Foreign Affairs of the Netherlands, H.E. Ms Renée Jones-Bos; the Mayor of The Hague, H.E. Mr Jozias Johannes van Aartsen; the Vice-Minister of the Ministry of Foreign Relations and Worship of Argentina, H.E. Dr Carlos Foradori; and a lecture entitled “Global Security in a Time of Political and Technological Change: A View from the CTBTO” held by the Executive Secretary of the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Dr Lassina Zerbo.

During the Keynote Addresses, the Chief Scientific Advisor at the Ministry of Defence of the United Kingdom of Great Britain and Northern Ireland, Professor Vernon Gibson, delivered an address entitled “Looking Forward: The Role of Science and Technology in the OPCW”. The Nobel Prize in Chemistry 2013 Laureate Professor Martin Karplus, Emeritus, Harvard University, held a lecture on the subject of “Science in War and Peace”.

Conference Discussions: Thematic Tracks and Panel Sessions

Throughout the Conference, speakers and participants represented a range of expertise including practitioners from the fields of weapons of mass destruction (WMD) disarmament, science and technology, academia, industry, other international and regional organisations, and civil society. The high number of conference participants – more than 340 participants including representatives from more than 70 States Parties and over 60 speakers from various backgrounds – underscored the importance attached to the work of the OPCW and the Chemical Weapons Convention (CWC).

The exceptionally broad representation from various communities made a valuable contribution to the Organisation’s ongoing efforts to enhance its outreach and advocacy activities and to strengthen its partnerships. Over the course of the three-day conference, participants discussed three main themes relevant to the OPCW’s work and future, namely, “Chemical Safety and Security”, “Future Scenarios”, and “Technology Foresight”. These three thematic tracks each comprised four panel sessions which were dedicated to specific themes and reflected diverse stakeholder perspectives.

Track One: Chemical Safety and Security

“Current Practices and Challenges”

“Opportunities and Threats”

“Industry Outlook”

”International Organisations Outlook”

During Track One “Chemical Safety and Security”, the first session focussed on current practices and challenges in chemical safety and security. Ms Xiaohui Wu, Head, International Cooperation Branch at the OPCW and Chairperson of the panel, introduced current practices regarding the sound management of chemicals. The topic was further elaborated by Mr Fernando Borredá Juste, Chief, Chemical and Biological Disarmament Section at the Ministry of Foreign Affairs and Cooperation of Spain; Dr Edith Valles, Technical Adviser at the Institute of Scientific and Technological Research for Defense, Argentina, and member of the OPCW Advisory Board on Education and Outreach (ABEO); and Mr Robin de Haas, Programme Manager at the The Hague Security Delta (HSD).

The second panel session was co-chaired by H.E. Ms María Teresa Infante Caffi, Ambassador of Chile to the Kingdom of the Netherlands and Permanent Representative to the OPCW, and H.E. Dr Robert Mikulak, former Permanent Representative of the United States of America to the OPCW. The discussion examined opportunities and threats in chemical safety and security including those posed by non-state actors. Mr Irakli Beridze, Senior Strategy and Policy Advisor at the United Nations Interregional Crime and Justice Research Institute (UNICRI), and Dr Catherine Smallwood, Technical Officer at the World Health Organization (WHO), contributed to the discussion as regards chemical security-related matters as well as public health and emergency preparedness.



leper Room
Session

The third and fourth panel sessions explored views by representatives from chemical industry as well as international organisations. Panel three “Industry Outlook” - chaired by Mr Neil Harvey, Head of International Trade at the Chemical Industries Association (CIA), United Kingdom - comprised panellists Dr Prashant Yajnik of the Indian Chemical Council (ICC); Dr Nicia Maria Fusaro Mourão, member of

the OPCW Scientific Advisory Board (SAB); and Dr Milan Seman, Senior Industry Officer at the OPCW. The panel considered the role of the chemical industry in responding to challenges in chemical safety and security.

The fourth panel – chaired by Mr Philippe Denier, Director, Verification Division at the OPCW - comprised Mr Olivier Kervella, Chief, Dangerous Goods and Special Cargoes Section at the United Nations Economic Commission for Europe (UNECE); Ms Jacqueline Alvarez, Senior Programme Officer, Chemicals and Waste Branch at the United Nations Environment Programme (UNEP); and Dr Alvaro Fernández-Acebes, Senior Technical Officer, Tariff and Trade Affairs at the World Customs Organization (WCO). The panel discussed policies and programme activities of the UNECE, the UNEP and the WCO in chemical safety and security; outlined opportunities and challenges; and explored options for collaboration and partnerships in the future.

Track Two “Future Scenarios” commenced with a panel on a “Globalized World”. Chaired by Dr Peter Sawczak, Head of Political Affairs and Protocol, OPCW, the panel explored the impact of economic, social and technological developments on the implementation of the Convention. Panellists comprised Professor Natalia Tarasova, President of the International Union of Pure and Applied Chemistry (IUPAC); Dr Thomas Geelhaar, former President of the German Chemical Society and former Senior Vice President at Merck; and Dr Rob Visser, Consultant at the Organisation for Economic Co-operation and Development (OECD).

Track Two: Future Scenarios

“Globalised World”

“The World in 2050”

“The Future and the CWC”

“Regulation and the Pace of Change”

The second panel session “The World in 2050” was chaired by Dr Alexander Kelle, Acting Director of the Office of Strategy and Policy, OPCW. Panel members Dr Sean Simpson, Chief Scientific Officer at LanzaTech; Professor Alastair Hay, Environmental Toxicology, University of Leeds; and Dr Ivo Šlaus, Honorary President, World Academy of Art and Science (WAAS), shared their views on developments over the course of the next decades and implications for the Organisation.

The third panel “The Future and the CWC” - chaired by H.E. Dr Rolf Ekéus, former Ambassador of Sweden to the United States – explored future tasks of the OPCW. Panellists Dr Jean Pascal Zanders, The Trench; H.E. Dr Saad Abdulmajeed Ibrahim Al Ali, former Ambassador of Iraq to the Kingdom of the Netherlands and Permanent Representative to the OPCW; and Mr Dominique Anelli, former Head, Chemical Demilitarisation Branch, OPCW, contributed insights and their outlook on challenges and opportunities for the OPCW in the future.

The fourth panel on “Regulation and the Pace of Change” - chaired by Dr Olufemi Elias, OPCW Legal Advisor - explored future implications on the legal framework of the CWC. Panel members Dr Yasmin Naqvi, Legal Officer, OPCW; Professor Tatsuya Abe, International Law, Aoyama Gakuin University, Tokyo; and H.E. Professor Santiago Oñate Laborde, Permanent Observer of Mexico to the Council of Europe and former OPCW Legal Adviser, contributed to the panel discussions.

Track Three: Technology Foresight

“Current Capabilities and Future Needs”

“Emerging Technology: Designated Laboratories”

“Emerging Technology: A World of Possibility”

“Technology into the Future”

Track Three commenced with the theme “Current Capabilities and Future Needs”. The panel - chaired by Dr Stefan Mogl, Spiez Laboratory - considered the role of technological innovation in the work of the OPCW. Panellists Mr Nihad Alihodzic, Head, Declarations Assessment Team, OPCW; Dr Stéphanie Daré Doyen, Senior Policy Officer, Office of Strategy and Policy, OPCW; and Dr Christopher Timperley, Chairperson, OPCW SAB, contributed to the discussion.

The second panel “Emerging Technology: Designated Laboratories” explored sampling and analysis technologies in the activities of the OPCW designated laboratories. Chaired by Dr Hugh Gregg, Head, OPCW Laboratory, the speakers Dr Marcel van der Schans, The Netherlands Organization for Applied Scientific Research (TNO); Dr Yvonne Nygren, Swedish Defence Research Agency; and Dr Jijun Tang, Academy of Medical Military Sciences, China, contributed to the discussion.

During the panel “Emerging Technology: A World of Possibility”, chaired by Mr Cheng Tang, Vice-Chairperson, OPCW SAB, the panel members outlined the potential of new technologies to facilitate the work of inspectors at the OPCW as well as other organisations. Panellists comprised Mr Dimitri Finker, International Atomic Energy Agency (IAEA); Mr Hermann Lampalzer, Biological Weapons Convention Implementation Support Unit; and Professor Gideon Shimshon, Centre for Innovation, Leiden University.



Panel Speaker,
Nihad Alihodzic

The panel “Technology into the Future” considered new innovations. The panel was chaired by Dr Christopher Timperley, SAB Chairperson, and comprised speakers Mr Simon Bootsma, Comon Invent; Dr Jean Armengaud, French Alternative Energies and Atomic Energy Commission (CEA); and Mr Norbert Hübner, European Space Agency (ESA).

Interactive Workshops and Conclusions

On 3 May, two interactive workshops - entitled "Future Scenarios, Science & Technology" and "Future Scenarios, Chemical Safety and Security" - highlighted the main points of discussion during each of the three tracks and produced key findings and conclusions. The first of these sessions - facilitated by Professor Robert J. Mathews, University of Melbourne Law School - focused on the requisite technology to fulfil the OPCW's mandate. The second session - facilitated by Professor Peter Mahaffy, King's University, Edmonton, Canada and Professor Alastair Hay, University of Leeds - made the thematic linkage between the topics of "Future Scenarios" and "Chemical Safety and Security".

Discussions were rich, productive and fruitful throughout the event and reflected a multi-disciplinary approach. The closing of the Conference featured the following plenary presentations and keynote addresses: Mr Norbert Hübner, ESA, discussed the subject of "Space Technologies and Chemical Security – a Universe of Possibilities"; Professor Alastair Hay, University of Leeds, covered the topic "Why Principles?"; Dr Ivo Šlaus, WAAS, held an address on "The UN Agenda 2030 - Overcoming the Threat of Weapons of Mass Destruction"; and Dr Martin Kayser, Senior Vice President, Product Safety, BASF discussed "Product Safety, Product Stewardship and Trade Control at BASF". In his closing remarks, the OPCW Director-General welcomed the innovative and forward-looking ideas generated during the OPCW Day 2016 which made a valuable contribution to the work of the Organisation in the future.



OPCW Day 2016: An Interactive Conference

A key feature of the Conference was its interactive character. In addition to theme-specific panel discussions, workshops and briefings, the event included a dedicated exhibition area. Eleven companies and institutes, as well as the OPCW equipment store, presented their products and services in CBRNE-related (Chemical, Biological, Radiological, Nuclear, Explosives) technology and development, research, waste disposal, and dangerous substance protection and detection. In addition, a poster session and competition showcased a total of 39 creative and innovative posters reflecting themes related to the CWC and the OPCW. The three best posters – selected as a result of a vote by conference participants – were awarded prizes in a ceremony on 4 May. The event, furthermore, featured: A screening to debut the new FIRES Film, Combustion Man, followed by an interactive panel and audience discussion; a visit to the OPCW laboratory facilities and equipment store in Rijswijk for conference participants; and a briefing by the Chairperson of the recently established ABEO, Dr Jean Pascal Zanders, on the process leading to the establishment of the ABEO and on the outcome of its recently held first meeting. In connection with the Opening Reception of the Conference, a group of approximately 40 students from Dresden, Germany, provided a live performance of the song "One Mistake" which the students had created during a recently held peace competition in Dresden regarding the CWC and the OPCW. Additional information and interactive features are available on the Conference website <http://www.opcwday.org>.



Thematic Tracks

Track One: Chemical Safety and Security

- During the panel sessions regarding the thematic track on “Chemical Safety and Security”, speakers and participants put forward a number of observations. These included the following:
- Non-state actors can pose an increasing global threat;
- Technological innovation and the generation of scientific knowledge, expedited by the effects of globalisation, provide interesting opportunities for enhancing security and effectively responding to new threats and challenges;
- This is especially relevant in the field of information and communication technology (ICT) and cybersecurity: While the consistent increase in the day-to-day use of ICT generates significant economic benefits and enhances business opportunities, it also creates more dependency on these technologies;
- It is essential to safeguard the security of critical infrastructures including in the digital realm; this requires concerted and coordinated efforts by governments, industry and knowledge institutes with a view to strengthening digital resilience;
- New technologies, including drones, are increasingly accessible; this can lower the threshold for illicit proliferation as well as potential misuse of such technologies, including by non-state actors;
- Technological developments go hand in hand with a need to increase awareness of chemical safety and security as well as sustainability in the fields of academia, industry and civil society; promoting these concepts, principles and practices among civil society through education and outreach activities presents a good starting point;
- Overcoming chemical safety and security challenges requires multilateral cooperation in the context of applicable frameworks, such as the Chemical Weapons Convention (CWC) and the United Nations Security Council resolution 1540 (2004); the different regimes would benefit from coordinating their implementation in a mutually reinforcing way, thus avoiding duplication and fragmentation of efforts;
- Governments must be able to respond effectively to threats and incidents related to chemical safety and security;
- During the panel session regarding chemical industry perspectives, the following observations were put forward: regulation is becoming more important, including through voluntary measures, e.g. the Responsible Care Programme; engineering tools; and adopting measures that reduce the use of hazardous materials; another useful tool to prevent the misuse of chemicals is awareness-raising.

- Chemical safety and security is an issue situated at the intersection of regulatory efforts and industry practices, and provides valuable opportunities as a tool for cooperation; cooperation between regulators, addressing issues from a hazard perspective, and industry, aiming at risk control, is necessary to address challenges in this field;
- The fourth panel explored the perspective of United Nations agencies and other international organisations; representatives of the WCO, the UNECE and the UNEP highlighted current activities and future programmes to address chemical safety and security issues, including a) activities to develop and promote best practices to strengthen chemical safety and security through international cooperation frameworks (e.g. the Convention on the Transboundary Effects of Industrial Accidents); b) the development and application of norms regarding dangerous goods and hazardous substances in the areas of classification (e.g. Globally Harmonized System of Classification and Labelling of Chemicals (GHS)), transportation and trade with the aim to strengthen chemical safety and security measures in these areas and to prevent illicit diversion of such substances; c) activities aimed at minimizing chemical waste and strengthening the sound management of such waste. Panellists emphasised the need to further strengthen cooperation between international organisations in chemical safety and security and underscored the potential for future partnerships in this field.

Track Two: Future Scenarios

- The four sessions of Track Two on “Future Scenarios” considered the changes that have taken place worldwide since the Convention entered into force in 1997; the panels examined economic, social and technological developments which intersect with the work and mission of the OPCW. Panellists put forward the following observations:
- Some speakers put forward the perspective that technological innovations and advances can impact the mission and work of the OPCW, for instance as regards the prevention of the re-emergence of chemical weapons as well as in the area of threats associated with non-state actors;
- Developments in other scientific fields - seemingly unrelated to the CWC – can affect the implementation of the Convention; for example, regulations intended to curb carbon emissions can influence and drive change across the infrastructure of chemical industry and affect processes in this field;
- Assessing developments and trends in globalisation, which have occurred since the Convention entered into force nearly 20 years ago, speakers noted that regional organisations can play an important role in overcoming such challenges, for instance through regional cooperation to facilitate the implementation of new safety regulations and to promote the adoption of sustainable practices suitable to regional needs; Green Chemistry was highlighted as an example and area of opportunity to enhance chemical safety and security;
- It was noted that scientists can play a critical role to promote and teach ethical norms and standards in science and a responsible approach to endorsing scientific advances; science professionals are in a unique position to use scientific and technological advances to move the world away from survival mode (fighting for resources) and toward a planet fit for future generations;
- During the panel session “World in 2050”, panellists recognised the increasing convergence between chemical and biological sciences as a potential resource to effectively respond to the major challenges of increasing resource constraints, in particular in the areas of energy, nutrition and climate change. Some speakers expressed the view that carbon-neutral energy production will become necessary; such a shift, relying less on petroleum-based raw materials to meet global

energy needs, would also induce significant changes across the chemical industry, as per the perspective put forward;

The importance of educating future generations was emphasised;

Considering the future of the Chemical Weapons Convention, the third panel put forward the observation that legal, political and scientific solutions are required to effectively address the threat posed by non-state actors;

Furthermore, a view was expressed that the role of the OPCW in strengthening chemical safety and security requires further clarity;

Participants noted that future key tasks will involve the following: a) maintaining knowledgeable and trained in-house experts; b) ensuring the Organisation has adequate investigative and response capabilities as well as the flexibility to adapt to unexpected and new situations; c) and cooperating with other international organisations to prevent the misuse of chemical agents;

The fourth panel of Track Two addressed the challenges, arising from the fast pace of global economic, social and technological change, to existing regulatory and legal frameworks, and any adaptation of existing frameworks that may be required as a result of these changes and challenges;

Track Three: Technology Foresight

Track Three "Technology Foresight" brought together experts in technology development and users of technology in a CBRN context to discuss how to identify and adopt fit-for-purpose technological tools in treaty implementation;

Beginning with a review of "Current Capabilities and Future Needs" in the first session, panellists discussed the use of technologies in investigative missions and identified gaps between situational needs and available equipment;

It was noted that inspectors require for-purpose tools and methods to ensure that they can collect and confirm relevant factual information; this encompasses both chemical and information analysis. The view was expressed that, for example, in investigations of alleged use - especially as concerns situations of compromised security - conditions on the ground may require improvisation and flexibility; other speakers expressed the view that policies on approving equipment need to be adaptable to situational needs;

Considering the perspectives from OPCW designated laboratories, some speakers in the second panel session described their efforts in the development of new methods for chemical identification (including toxins, riot control agents and central-nervous system acting chemicals);

The OPCW laboratories are working at the forefront of advances in the areas of trace level, biomedical sample and chemical forensics analysis; yet there is a recognized need for continued research and method development for biomarkers of chemical weapons exposure;

The discussion highlighted an increase in complexity of the work of the laboratories, including the need for higher sensitivity analysis (trace analysis in environmental and biomedical samples); ensuring that suitable methods for sample collection and maintaining chain of custody can be implemented in non-permissive environments; and the use of forensic analysis tools that can provide information on geographical origin and methods used in the preparation of chemicals identified in an investigation; furthermore, the need for access to advanced data-handling

techniques was also recognized given the increasing amount of metadata that is associated with samples and other evidence collected in investigations;

Considering how enabling technologies are recognised and adopted for purpose in other sectors, the third panel highlighted experiences drawn from other inspection regimes and practices, including in the nuclear field at the IAEA which uses technology foresight activities to identify tools to more effectively facilitate the work of inspectors in the field;

It was noted that instruments that integrate sets of complimentary capabilities with user-friendly control are of particular interest, for example, monitoring devices that can directly record and transfer data (e.g. geolocations, time stamps, chemical and/or physical measurements, digitalised notes); it was noted that methodologies emerging from the use of “Big Data” need to be adopted and better understood, as the tools available to inspectors allow for the collection of ever more data points from multiple and diverse data sources; examples from advances in artificial intelligence for data analytics and the use of “crowdsourcing” to build up data sets and collect information were also discussed;

The panellists emphasised the need for developing effective technology foresight capabilities in order to remain abreast of developments that may generate innovative tools for treaty implementation;

Reviewing new technological capabilities and applications that arise from outside of the traditional chemical sciences, the fourth panel noted the integration of measurement tools, communication technologies and data streams as a core theme; examples included real-time monitoring of chemicals using eNOSE technologies combined with wireless networks (effectively arrays of simple sensor systems that can identify irregular chemical compositions in the environment and integrate non-chemical data streams into tracking and identifying a chemical event); detection and identification of toxins and their source using integrated OMICS technologies and data bases; and the applications of telecommunications for security applications;

Space technologies were also discussed as their capabilities for remote monitoring, tracking positions and transmitting information in real time can be adopted for applications, such as ensuring the integrity of the chain of custody, safety monitoring of chemical shipments, and enabling secure communications between inspectors on the ground and headquarters;

Panellists pointed out that many useful capabilities already exist in technologies originally developed for purposes other than treaty implementation; such technologies could be adapted and integrated for purpose tailored to the needs of international organisations.



Interactive Workshops

Interactive Session One:

- The first workshop considered the potential of advances in science and technology to improve the effectiveness and efficiency of activities relevant to the CWC and the OPCW, in particular verification activities;
- This included consideration of requirements of operations conducted by the OPCW in non-permissive environments; participants considered the effectiveness of current technologies employed by the Secretariat to meet challenges faced by OPCW inspectors during the course of their work; discussions focused on whether these technologies are “fit for purpose” and, as discussed in the thematic track “Technology Foresight”, the question arose as to whether or not the processes, that give access to enabling capabilities for inspectors, were agile enough to be situationally adaptive;
- The workshop discussed the need for technologies that improve protection against toxic chemicals and assist in the conduct of inspections. Protective benefits have been noted in developments related to miniaturised and portable detection systems; improved and less constraining personal protection equipment; decontamination equipment, and more effective medical countermeasures;
- Technologies, which could bring benefits to inspections, include tools for monitoring and surveillance (especially automated systems and satellite imagery); expanded use of databases of information (including analytical data related to toxic chemicals); forensics; as well as information processing and communications equipment;
- While new equipment and technologies have been integrated into OPCW operations, concerns were expressed that the requirement to formally approve equipment can be cumbersome and not flexible enough given the rapid pace of technology development;
- In conclusion, workshop participants considered that it is imperative to ensure that the OPCW has access to the best available inspection equipment and health and safety equipment without unnecessary delays;

Interactive Session Two:

- The second workshop discussed worldwide changes across three thematic areas: the biophysical environment, the nature of warfare, and in education and outreach (communication). Participants worked in breakout groups and discussed how these thematic areas intersect with chemical safety and security and the overall work of the OPCW;

The discussion on a changing biophysical environment focused around climate change and the ripple effect this might have on security-related matters. Echoing issues raised in the “Future Scenarios” track, the security implications of limited resources for nutrition and energy as well as the health impact of environmental changes were considered. Issues that linked environmental change with chemicals included: the use of chemicals and genetic modifications of crops to mitigate climate-induced effects; the impact of environmental regulations on the technologies employed in and developed for chemical industry; and the enhanced accessibility of new scientific advances. Likewise, as weather patterns are altered as a result of climate change, extreme weather events may pose a heightened risk to infrastructure of chemical facilities;

In regard to the changing nature of warfare, the discussion focused on the challenges of non-state actors, including terrorism and violent extremism, that may lead to a potential misuse of chemicals. Participants emphasised a need to be part of a community that can address issues through a variety of perspectives and initiatives (a collaborative network of organisations with similar goals and areas of concern). A view was put forward that it is especially important to avoid becoming “too skewed” (or isolated from others) in categorising and addressing these issues. Participants also underscored that forensic tools and methods include technologies that might benefit the future work of the OPCW;

In the final breakout group on education and outreach, participants discussed the changing nature of education, and noted that, as a result, more integrated and multi-disciplinary strategies will be required. Participants reviewed problem-solving vs. discipline-focused educational approaches and considered ways of better integrating ethics, social responsibility, chemical safety and security, responsible research and dual-use awareness-raising into educational programmes. The group recommended approaches to actively engage students in discussion, rather than to “talk at them” as well as approaches that develop critical thinking skills. Furthermore, the view was put forward that opportunities to use popular culture as an engagement tool and champions to engage audiences are needed;

As an additional conclusion, all three breakout groups noted that an effective approach by the OPCW will require collaborative efforts across chemical safety and security stakeholders as a crucial contribution to preventing the re-emergence of chemical weapons.



Keynote Address,
Dr Martin Kayser



Closing Remarks, Director-General of the OPCW



Plenary Presentation, Norbert Hübner



Way Forward

As a result of the rich, fruitful and productive exchanges during the Conference, participants put forward the following findings and recommendations:

- Events and developments in the broader environment, seemingly unconnected to the mission of the OPCW, can have a significant impact on the Organisation's work; examples for such cross-cutting issues include climate change as well as efforts to mitigate its effects; food/nutrition and energy security; matters related to global health; political developments associated with the afore-mentioned issues, including political instability and violence, violent extremism and terrorism, as well as the growing impact of non-state actors; rapid technological advances, e.g. in the cyber sphere, and their potential impact on the work of the Organisation;
- It is important to recognise such events and driving forces that can influence the work of the OPCW and affect its stakeholders;
- Broad partnerships and effective collaboration, including with other international and regional organisations with similar goals and objectives, e.g. in chemicals management and chemical safety and security, is an important element of an effective response to these challenges;
- Education and outreach activities contribute to connecting communities and build networks and they are an important tool to facilitate collaborative relationships;
- Technological development can bring both challenges and benefits; as the pace of advancements and development of new capabilities is rapid, it is important for the OPCW to embrace and understand such technological advances and to make proactive efforts to use technology with the view to bringing benefits to the work of the OPCW;
- The use of technology can make a useful contribution to an effective response to changes, specific situations and challenges (e.g. complex operational environments);
- It is widely recognised that the threat posed by non-state actors, and the potential for misuse of toxic chemicals and/or the use of chemical weapons, is a matter of growing concern;
- The panels and interactive discussions were useful in initiating, facilitating and deepening relationships and partnerships with, as well as among, stakeholder communities; many participants have provided positive feedback to the effect that they continue to maintain contacts for potential future collaboration.

2nd May

● **IEPER ROOM**
Track 1: Chemical Safety
and Security

● **OOMS ROOM**
Track 2: Future
Scenarios

○ **ROOM 4.31**
Track 3: Technology
Foresight

10:00 - 11:15

OPENING CEREMONY, IEPER ROOM

Welcome by H.E. Ahmet Üzümcü, Director-General of the OPCW

Statement by H.E. Eduardo Ibarrola-Nicolín, Chairperson of the Conference of the States Parties

H.E. Ban Ki-moon, Message from the UN Secretary-General

H.E. Renée Jones-Bos, Secretary-General, Ministry of Foreign Affairs, The Netherlands

H.E. Jozias Johannes van Aartsen, Mayor of The Hague

H.E. Carlos Foradori, Vice-Minister, Ministry of Foreign Relations and Worship, Argentina

Dr Lassina Zerbo, Exec. Secretary, Comprehensive Nuclear-Test-Ban Treaty Organization

“Global Security in a Time of Political and Technological Change: A View from the CTBTO”

MC: Deepti Choubey, Head, Public Affairs and OPCW Spokesperson.

Musical Interlude “Duo Piacère”

12:00 - 13:00

COFFEE BREAK 45 MINUTES - Delegate’s Lounge and Exhibition Area

KEYNOTE ADDRESSES

Prof Vernon Gibson, Chief Science Advisor to the UK Ministry of Defence:

“Looking Forward: The Role of Science and Technology in the OPCW”

Prof Martin Karplus, Harvard University: “Science in War and Peace”

MC: Dr Peter Sawczak, Head, Political Affairs and Protocol, OPCW

LUNCH BREAK 2 HOURS

15:00 - 16:15

T1 Current Practices and Challenges

Chair: Xiaohui Wu, Head,
International Cooperation, OPCW

Fernando Borredá
Ministry of Foreign Affairs, Spain

Robin de Haas
Hague Security Delta

Dr Edith Valles,
ABEO member

T2 Globalised World

Chair: Dr Peter Sawczak, Head,
Political Affairs and Protocol, OPCW

Prof Natalia Tarasova, Int’l
Union of Pure and Applied Chemistry

Dr Thomas Geelhaar
German Chemical Society

Rob Visser
Consultant for OECD

T3 Current Capabilities and Future Needs

Chair: Dr Stefan Mogl
Spiez Laboratory

Nihad Alihodzic, Head,
Declarations Assessment Team, OPCW

Dr Stéphanie Daré Doyen,
Office of Strategy and Policy, OPCW

Dr Christopher Timperley
United Kingdom, SAB Chair

16:30 - 17:45

COFFEE BREAK 15 MINUTES

T1 Opportunities and Threats

Co-Chairs: Dr Robert Mikulak
Former Ambassador of USA to OPCW
H.E. María Teresa Infante
Ambassador of Chile to OPCW

Dr Catherine Smallwood
World Health Organisation

Irakli Beridze
United Nations Interregional Crime
and Justice Research Institute

T2 The World in 2050

Chair: Dr Alexander Kelle
Acting Director, Office of Strategy
and Policy, OPCW

Dr Sean Simpson
LanzaTech

Prof Alastair Hay
University of Leeds

Dr Ivo Šlaus,
World Academy of Arts and Science

T3 Emerging Technology: Designated Laboratories

Chair: Dr Hugh Gregg
Head, OPCW Laboratory

Dr Marcel van der Schans
TNO, Defense Safety and Security

Dr Yvonne Nygren,
Swedish Defense Research Agency

Dr Jijun Tang, Toxicant Analysis in
Academy of Medical Military Sciences

Opening Reception Delegate’s Lounge

18:00 - 19:00 Including poster session and performance by students from Dresden

Exhibition area open all day until 19:00

3rd May

● **IEPER ROOM**
Track 1: Chemical Safety and Security

● **OOMS ROOM**
Track 2: Future Scenarios

○ **ROOM 4.31**
Track 3: Technology Foresight

9:30 - 11:00

T1 Industry Outlook

Chair: Neil Harvey
Chemical Industries Association

Dr Nicia Mourão

Brazil, SAB member

Dr Prashant Yajnik

Indian Chemical Council

Dr Milan Seman

Senior Industry Officer, OPCW

T2 The Future and the CWC

Chair: Dr Rolf Ekéus
Former Ambassador of Sweden

Dr Jean Pascal Zanders

The Trench

Dr Saad Al-Ali

Former Ambassador of Iraq to OPCW

Dominique Anelli

Chemical Demilitarisation Expert

T3 Emerging Technology: A World of Possibility

Chair: Cheng Tang
China, SAB Vice-Chair

Dimitry Finker, International Atomic Energy Agency

Dr Hermann Lampalzer

BWC Implementation Support Unit

Prof Gideon Shimshon

Leiden University

COFFEE BREAK 15 MINUTES - Delegate's Lounge and Exhibition Area

11:15 - 12:45

T1 International Organisations Outlook

Chair: Philippe Denier, Director, Verification Division, OPCW

Olivier Kervella, United Nations Economic Commission for Europe

Jacqueline Alvarez, United Nations Environment Programme

Alvaro Fernández
World Customs Organisation

T2 Regulation and the Pace of Change

Chair: Dr Olufemi Elias, Director, Office of the Legal Advisor, OPCW

Dr Yasmin Naqvi
Legal Officer, OPCW

Prof Tatsuya Abe
Aoyama Gakuin University

Prof Santiago Onáte, Former Ambassador of Mexico to OPCW

T3 Technology into the Future

Chair: Dr Christopher Timperley
United Kingdom, SAB Chair

Simon Bootsma
CEO, Comon Invent

Dr Jean Armengaud
CEA, France

Norbert Hübner
European Space Agency

LUNCH BREAK 1 HOUR

14:00 - 15:30

Advisory Board on Education and Outreach

● **IEPER ROOM**

Briefing by: Dr Jean Pascal Zanders
The Trench

Dr Edith Valles
ABEO Member

14:00 - 15:15

Interactive Workshops

● **OOMS ROOM**

Future Scenarios, Science & Technology

Facilitator: Prof Robert Mathews
University of Melbourne Law School

14:00 - 15:00

Visit to the OPCW Lab and Equipment Store

Sign up required at Documentation Counter
- Space is limited

COFFEE BREAK 30 MINUTES

BREAK 15 MINUTES

COFFEE BREAK 30 MINUTES

16:00 - 17:00

New FIRES Film Screening: COMBUSTION MAN

Facilitator: Deepti Choubey
Head, Public Affairs and OPCW Spokesperson

www.thefiresproject.com

15:30 - 16:45

Interactive Workshops
Future Scenarios, Chemical Safety and Security

Facilitators: Prof Alastair Hay
University of Leeds
Prof Peter Mahaffy
King's Centre for Visualization in Science

15:30 - 16:30

Visit to the OPCW Lab and Equipment Store

Sign up required at Documentation Counter
- Space is limited

Poster Session and Exhibition area open all day until 18:00

4 May

10:00 - 10:30

PLENARY PRESENTATION, IEPER ROOM

Norbert Hübner, European Space Agency

“Space Technologies and Chemical Security- a Universe of Possibilities”

10:30 - 11:45

Keynote Addresses

Prof Alastair Hay, Environmental Toxicology at the University of Leeds

“Why Principles?”

Dr Ivo Šlaus, President of the World Academy of Arts and Science

“The UN Agenda 2030 Overcoming the Threat of Weapons of Mass Destruction”

Dr Martin Kayser, Senior VP. of Product Safety at BASF

“Product Safety, Product Stewardship and Trade Control at BASF”

11:45 - 12:00

POSTER PRIZE AWARD

CLOSING REMARKS

Chaired by H.E. Ahmet Üzümcü, Director General of the OPCW

MC: Dr Jonathan Forman, Science Policy Advisor, OPCW

Refreshments in Delegates Lounge until 14:00



Exhibition Space,
OPCW Equipment Stall



FIRES Film, Combustion-Man



Poster Prize Winner



Overview on Additional Activities

Briefing on the Advisory Board on Education and Outreach

The Chairperson of the recently established Advisory Board on Education and Outreach or “ABEO”, Dr Jean Pascal Zanders, provided a briefing about the Board’s mandate and the nature of its work. A particular focus of the ABEO’s work will be to deepen the involvement of the OPCW’s stakeholders in the context of preventing the re-emergence of chemical weapons. The ABEO is composed of fifteen experts originating from countries across regional groups.

On the ABEO’s long-term approaches, Dr Zanders commented that there would need to be a constant evaluation of tasks and activities in light of evolving circumstances. The ABEO would also need to consider appropriate recommendations to be made to the Fourth Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention (“Fourth Review Conference”).

The Vice-Chairperson of the ABEO, Dr Edith Valles, gave a presentation on the Argentine National Project on Education on the Responsible and Safe Use of Chemical Science and Technologies. The project was launched in 2010 by the Argentine National Authority and intended to provide useful information to companies and industry, and aimed at improving declaration forms. The project demonstrated that there was a low level of knowledge about the Convention and national-level implementation measures. It also demonstrated the need to promote a culture of responsible use of chemical materials and equipment.

As a result of the project, the National Authority, in collaboration with the Ministry of Education, created a working group which incorporated Convention-related concepts in relevant university curricula. The working group also facilitated several initiatives, such as creating horizontal professional networks, training programmes for university professors, workshops on related themes, and “virtual” and “travelling” classrooms.

Participants raised a number of questions concerning the Organisation’s education and outreach efforts and the ABEO’s role. Among the points raised were the need for the ABEO to promote and support the involvement of National Authorities, the need to support chemistry educators through the establishment of peer-to-peer networks, and the important opportunity presented by the 20th anniversary of the foundation of the OPCW, to be held in 2017, to advance education and outreach efforts.

Exhibition Space

A technology and research exhibition was allocated on the OPCW grounds in a temporary exposition structure. The exhibition was informative as well as educational for OPCW delegations, conference participants and OPCW staff. Nine suppliers and two research institutes from eight different countries exhibited their products and services in CBRNE-related technology and development, research, waste disposal as well as dangerous substance protection and detection.

The exhibiting entities were: 908 Devices; AIRSENSE Analytics GmbH; Ekokem; Cristanini CBRN Decontamination Systems; Hotzone Solutions; Proengin Chemical and Biological Detection Systems; TNO; Veolia; JSB; Paul Boyé; and the FFI Norwegian Defence Research Establishment. In addition to an informative photo presentation, the OPCW Equipment Store provided a presentation of the equipment used for OPCW inspection missions.

Poster Sessions, Competition and Poster Awards

The OPCW Day 2016 featured a poster competition with the aim to showcase the participants' work in areas of relevance to the OPCW and the CWC. The posters were displayed at the conference space as well as on the OPCW Day website accessible at <http://www.opcwday.org>. The online gallery and individual posters were advertised on OPCW twitter accounts which drew the public's attention to the OPCW Day conference.

A total of 39 posters were exhibited, covering newest advances in CBRNE protection, chemical analysis and scientific research, as well as projects in education and outreach. The participants, originating from fifteen different countries, ranged from school teachers and university research groups to industry, as well as national authorities and OPCW departments.

Votes could be cast for the three best posters; each winning entry was awarded a GoPro camera as a prize. More than 1000 votes were collected in total and the results were announced during the Closing Ceremony on 4 May 2016. The honorary winners were Dr Austin O. Aluoch from the Kenya Chemical Society, Dr Kabrena E. Rodda and Ms Jessica Gray from the Pacific Northwest National Laboratory and Dr Marc-Michael Blum from the OPCW Laboratory. In his poster, Dr Aluoch explained the achievements and challenges encountered by the Kenyan Chemical Society in the implementation of the Chemical Safety and Security Programme. Dr Rodda's and Ms Gray's poster presented the Chemical Safety and Security Programme in Iraq which introduced responsible science to the newest generation of Iraqi chemists. Dr Blum's poster summarised the scientific investigation of degradation products left by sulphur mustard produced through the regulation-avoiding Levinstein Process.

The poster display led to a lively exchange between conference participants; it generated discussion and highlighted some of the newest developments in research, education and technology.

Laboratory Visit

A visit to the OPCW Laboratory and Equipment Store, located in Rijswijk, was arranged for the OPCW Day participants on 3 May 2016. More than 30 conference participants visited the facility. During the visit, participants had the opportunity to see the laboratory's state-of-the-art facilities for the analysis of CWC-related chemicals in environmental and biomedical samples. The training facility of the laboratory, which has been established for the training of inspectors as well as participants from the Member States, was also presented. The equipment store staff, as the focal point for logistical mission support, presented the work and equipment used for inspections.

Screening and Panel Discussion of FIRES Documentary Film - Combustion Man

OPCW Day was a suitable occasion for debuting Combustion Man, the fourth edition to the OPCW's FIRES documentary film project and the first to be produced with financial support by the European Union (EU). Combustion Man brings to life the theme of science for peace through its portrayal of an Indian academic and researcher, Dr Subith Vasu, at the University of Central Florida in the United States. Dr Vasu's research may one day render much safer methods of eliminating chemical weapons, especially, when bombs are used to destroy chemical weapons yet toxic chemicals remain. The film also follows a few of his students who share their interests and what inspires them. Their aspirations tangibly demonstrate the connection between the research benefitting the prevention of chemical weapons as well as other fields of science, such as aeronautics.

After the film screening, an interactive discussion panel took place facilitated by the Head of Public Affairs and OPCW Spokesperson, Ms Deepti Choubey. The panel featured OPCW Education and Outreach Advisory Board Member and Polish archaeologist, Dr Anna Zalewska, who is the protagonist of the FIRES film Buried Memories as well as Mr Chrétien Schouteten, a retired chemistry teacher from the Netherlands, who is the protagonist of the FIRES film A Teacher's Mission. The panel had high praise for Combustion Man and remarked on how it was a fitting evolution in the series of films.

The panel then engaged the audience, consisting of nearly 40 participants from the OPCW Day Conference, on their reactions. The audience praised the film as an excellent example of an education and outreach tool, especially suitable for engaging the next generation as well as practitioners involved with National Authorities. Mr Pieter van Donkersgoed, Acting Permanent Representative of the Netherlands to the OPCW, and representing at the time the European Union Presidency, expressed support by the EU for the project by sharing, "This series of FIRES films is a great example of education and outreach and concrete activity to reach out to this wider community, especially to the younger people. In Dutch, there is an expression that translates as: He, who has the youth, has the future. And I think that is why the EU is proud to support this film. I'm looking forward to the next episode." H.E. Ambassador Christopher Israng, the Permanent Representative of Germany to the OPCW, complimented the film by expressing, "It gives a human face to what we do at the OPCW and within the OCPW family in general." He said that the whole series is a "helpful instrument to reach out and to attract the attention of a part of the public audience."

Combustion Man (English only version) is available online informally at the link below. Its official release on the FIRES website is anticipated to be available in September 2016.

LINKS:

<https://vimeo.com/165033699>

<https://www.thefiresproject.com/>

<https://www.thefiresproject.com/buried-memories.html>

<https://www.thefiresproject.com/a-teachers-mission.html>